

PATRICIA PECK GARRIDO PINHEIRO

**INTERNATIONAL INTELLECTUAL PROPERTY LAW APPLIED TO
ARTIFICIAL INTELLIGENCE**

DOCTORAL THESIS

TUTOR: ASSOCIATE PROFESSOR DR. MARISTELA BASSO

**UNIVERSIDADE DE SÃO PAULO
FACULDADE DE DIREITO
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2018**

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**INTERNATIONAL INTELLECTUAL PROPERTY LAW APPLIED TO
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Doctoral Thesis, presented to the Examining Committee of the Postgraduate Program in Law, Faculty of Law of the University of São Paulo, as a partial requirement to obtain a PhD in Law, in the International and Comparative Law, with the orientation of Associate Professor Dr. Maristela Basso.

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MARISTELA BASSO

Instituição:

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Profa. Dra.

Almara J. Chivellato

Instituição:

FAOUSP

Julgamento:

Aprovada

Alta!

Prof. Dr.ª

LIGIA MAURA COSTA

Instituição:

FGV - FAESP

Julgamento:

APROVADA

Prof. Dr.

Mariana Lopes Canavaz

Instituição:

UNESP

Julgamento:

APROVADA

Prof. Dr.

Alexandre Fábio Dias Pereira

Instituição:

Universidade de Coimbra - PT

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DEDICATION

One of the most important things in a writer's journey is to have a true companion who understands the necessary solitude required for the deepest awakening of the creative moment. Because time is one of the most important factors in realizing the dream of a doctorate, the bitter routine that requires a discipline that is more than Spartan and a permanent unrest for ideas to sprout forth from the bottom of the tormented soul of the creator. Therefore, innovation is never the result of a single mind, but of a whole family context, of a whole life story. Therefore, I dedicate this achievement to my husband, Romulo Pinheiro, my spiritual and intellectual soul mate, for his permanent encouragement for me to carry out this important project for my academic and professional life.

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Patricia Peck Garrido Pinheiro.

“It is not the possession of truth, but the success that comes after research, where the search is enriched by it!” (MAX PLANCK (1858-1947))

PINHEIRO, Patricia Peck Garrido. *O direito internacional da propriedade intelectual aplicada à inteligência artificial*. 2018. 334f. Thesis (Doctoral degree in Law) – Faculdade de Direito, Universidade de São Paulo, São Paulo, 2018.

RESUMO

O estudo da legislação em vigor, nacional e internacional, sobre a propriedade intelectual das bases de dados é o ponto de partida dessa tese. A investigação apresenta um olhar evolutivo e comparativo do que ocorreu no tratamento da propriedade intelectual das bases de dados desde a Convenção de Berna, do Acordo sobre Aspectos dos Direitos de Propriedade Intelectual Relacionados ao Comércio - TRIPS, da Diretiva Europeia 96/9/EC relativa à Proteção Jurídica das Bases de Dados, da Lei Americana dos Direitos Autorais do Milênio Digital - DMCA e por fim da Lei 9610/98 de atualização de Direitos Autorais no Brasil, com os efeitos recentes das leis sobre proteção de dados pessoais como o Regulamento Europeu (*General Data Protection Regulation* - GDPR) e a lei brasileira (conferida pela lei nº 13.709, de 14 de agosto de 2018 ou Lei Geral de Proteção de Dados Pessoais - LGPD). A pesquisa suscita justamente a verificação da necessidade ou não de se atualizar a proteção jurídica sobre as bases de dados, tendo em vista a transformação tecnológica que ocorre desde os anos 90, período em que a maioria das normas sobre esta matéria foram criadas, até o momento atual, com a aplicação na Inteligência Artificial (IA). Se por um lado, houve um aumento da necessidade das empresas de acessarem e de usarem a informação, seja ela coletada por aplicações da *web*, pelos novos dispositivos de Internet das Coisas (IoT) ou usados no aprendizado de máquina (*machine learning*). Há, ainda, que se levar em consideração questões relacionadas às regras concorrenciais e de livre acesso à informação (direito ao conhecimento), que podem de algum modo limitar os anseios pela proteção deste ativo como uma propriedade intelectual empresarial. Neste contexto, o presente trabalho apresenta um estudo jurídico comparativo para compreender as vertentes seguidas na Europa, nos Estados Unidos e no Brasil com o intuito de atingir uma ampla análise do problema e traçar possíveis caminhos de solução visando um entendimento uniforme. Pensando nessa sociedade digital e na intenção da Organização Mundial do Comércio (OMC) em garantir um fluxo livre de dados entre países (*free data flow*), a tese sugere como uma das respostas às questões atuais sobre a intersecção natural entre o direito internacional da propriedade intelectual e a proteção da privacidade dos dados pessoais quando se trata da sua aplicação na internet e na inteligência artificial, a necessidade de elaborar um tratado multilateral com o intuito de atingir um consenso mínimo de quem teria direitos sobre a propriedade, o acesso e o uso das bases de dados digitais. Busca-se uma melhor resposta para tratar adequadamente este ativo tão valioso que envolve não apenas as bases de dados chamadas de primárias, mas até a análise do quanto esta nova camada robotizada será capaz de criar a partir do *machine learning* e se esta criação seria passível de proteção pela propriedade intelectual. Logo, esse novo contexto digital eleva não apenas a complexidade da discussão sobre a propriedade destas bases de dados, quer seja em seu processo tradicional de formação industrial ou em seu processo digital de composição híbrida que inclui também os dados pessoais, mas também o problema que paira sobre a construção de bases de dados derivadas, de conhecimento aprendido por máquina, e em que medida poderiam também ser objeto de proteção pela propriedade intelectual, não apenas por sua organização mas também pelo fato de que sua criação seria realizada por robôs. No contexto econômico do século XXI, cooperação e integração entre os países se tornaram fenômenos extremamente necessários, por isso, por fim, o trabalho conclui com a proposição de algumas estratégias com base nos princípios do Direito Internacional Privado para atender ao objetivo de dar maior eficácia à solução de conflitos envolvendo a matéria, que tem alcance internacional devido a sua natureza multiterritorial (intrínseca a própria internet). Dentre estes princípios repousariam os mais consagrados como o do tratamento nacional, da independência dos registros, da nação mais favorecida, da proteção mínima (*single undertake*), do esgotamento internacional de direitos (exaustão), da transparência, da cooperação internacional mútua, da patenteabilidade absoluta, da interpretação evolutiva e da licença compulsória. E quanto às estratégias, a proposta seria a

da aplicação de novas minutas de contratos com um padrão de cláusulas pré-definidas, que podem ser determinadas por um modelo de *Soft-Law*, e que possibilitem o uso de mecanismos de mediação e de arbitragem internacional para resolução de controvérsias. Afinal, este é o verdadeiro incentivo para os Estados-membros integrarem o modelo de constelação das Nações Unidas, encontrar respostas para um futuro livre, sustentável, seguro e pacífico.

Palavras-chave: Bases de dados. Propriedade intelectual. Privacidade. Internet das Coisas. Inteligência Artificial. Direito de Acesso aos Dados. Tratado internacional. Contrato. Arbitragem.

PINHEIRO, Patricia Peck Garrido. *International intellectual property law applied to artificial intelligence*. 2018. 334p. Thesis (PhD) – Law School, University of São Paulo, São Paulo, 2018.

ABSTRACT

The study of the current national and international legislation on the intellectual property of databases is the starting point of this thesis. The research brings an evolutionary and comparative view of what has occurred in the treatment of intellectual property of databases since the Berne Convention, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), European Directive 96/9/EC on Legal Protection of Databases, the Digital Millennium Copyright Act - DMCA and finally the Brazilian updated Copyright Law no. 9610/98, analyzing the effects of the recent laws on protection of personal data such as the General Data Protection Regulation (GDPR) and the Brazilian law (conferred by : law n. 13.709, from August 14, 2018 or General Law of Protection of Personal Data - LGPD) and by proposals for the regulation of artificial intelligence of both the European Union and the United States. The research raises precisely whether or not it would be necessary to update the legal protection of the database, bearing in mind the technological transformation that has taken place since the 1990s, when most norms on this matter were created, until the current moment that enterprises are reaching the applications of Artificial Intelligence (IA). On the one hand, there has been an increase in the need for companies to access and use information, whether collected by web applications or by new devices within the Internet of Things (IoT). Until it reaches the application in machine learning in the AI solutions, making the repositories of information essential for the evolution of the business, on the other hand, there has also been a great increase in regulations regarding the protection of individuals' privacy and personal data, and issues related to competition rules and free access to information (right to know), which may in some way limit the longing for the protection of this asset as an intellectual property business, have to be taken into account. In this context, the dissertation presents a comparative legal study to understand the trends in Europe, the United States and Brazil, to reach a broad analysis of the problem and outline possible solutions based on a uniform understanding. Thinking about this digital society and the intention of the World Trade Organization (WTO) to ensure a free data flow between countries, the thesis suggests as one of the answers to the current questions about the natural intersection between international intellectual property law and the protection of personal data when it comes to its application on the internet and artificial intelligence, the need to develop a multilateral treaty with in order to reach a minimum consensus of those who would have rights over the ownership, access and use of the database, their evolution as machine-learned knowledge database, even the analysis of how much this new robotized layer will be able not only to use these digital databases but also to create and if this creation would be subject to protection by intellectual property. Therefore, this new digital context raises not only the complexity of the discussion about the ownership of these digital databases, whether in its traditional process of industrial formation or in its digital hybrid composition process with the participation of personal databases of Internet users, involving rights of individuals and related third parties, direct or indirectly, to its composition, but also to the problem that arises about the construction of derived databases, of knowledge learned by machine, and to what extent they could also be protected by intellectual property, not only by their organization but also by the fact that its creation would be carried out by robots. Finally, the present work also identifies other strategies based on International Law principles, to meet the objective of giving a better legal effect in conflict settlement regarding this topic, which has an international scope due to its multi-territorial nature (intrinsic to the internet itself). These other strategies are, for example, the application of new draft contracts with a pattern of pre-defined clauses, which can be determined by Soft-Law, and which allows the use of international arbitration and mediation mechanisms for dispute settlements.

Keywords: Industrial database. Intellectual property. Privacy. Data access rights. Internet of Things. Artificial Intelligence. International Treaty. Contract. Arbitration.

PINHEIRO, Patricia Peck Garrido. *Geistiges Eigentum versus Privatsphäre von digitalen Datenbanken: Wer sollte Eigentum, Zugang und Nutzung von Rechten an Daten im Zeitalter von Internet of Things (IoT) haben?* 2018. 334s. Thesis (PhD) – Law School, University of São Paulo, São Paulo, 2018.

ZUSAMMENFASSUNG

Das Studium der aktuellen nationalen und internationalen Gesetzgebung über das geistige Eigentum von Datenbanken ist der Ausgangspunkt dieser Arbeit. Die Forschung bringt eine evolutionäre und vergleichende Sicht auf das, was bei der Behandlung des geistigen Eigentums von Datenbanken seit dem Abschluss unterschiedlicher Vereinbarungen und Gedankenansätze wie die Berner Übereinkunft; das Abkommen über handelsbezogene Aspekte der Rechte des geistigen Eigentums (TRIPS); die europäische Richtlinie 96/9 / EG über Rechtsschutz; der Digital Millennium Copyright Act - DMCA und schließlich dem aktualisierten brasilianischen Urheberrecht Nr. 9610/98, durch Gesetze zum Schutz personenbezogener Daten wie die Allgemeine Datenschutzverordnung (DSGVO); das brasilianische Gesetz (übertragen durch Gesetz Nr. 13.709, vom 14. August 2018 oder Allgemeines Gesetz zum Schutz personenbezogener Daten - LGPD); die Vorschläge zur Regulierung künstlicher Intelligenz sowohl in der Europäischen Union als auch in den Vereinigten Staaten, eingetreten ist. Die Forschung behandelt die Frage, ob es notwendig wäre, den rechtlichen Schutz der Datenbanken zu aktualisieren, unter Berücksichtigung der technologischen Transformation, die seit den 1990er Jahren stattgefunden hat, als die meisten Normen in dieser Angelegenheit erstellt wurden, bis zum gegenwärtigen Moment, mit der Anwendung in Künstlicher Intelligenz (AI). Auf der einen Seite gab es eine Erhöhung der Notwendigkeit für Unternehmen, auf Informationen zuzugreifen und zu nutzen, die entweder von Webanwendungen oder von neuen Geräten im Internet der Dinge (IoT) gesammelt wurden. Auf der anderen Seite hat es auch eine deutliche Erhöhung der Vorschriften über den Schutz der Privatsphäre und der personenbezogenen Daten von Privatpersonen gegeben. Fragen im Zusammenhang mit Wettbewerbsregeln und freiem Zugang zu Informationen (Recht auf Kenntnis), welches das Bedürfnis des Schutzes von geistigem Eigentum einschränken kann, müssen berücksichtigt werden. In diesem Zusammenhang präsentiert die Dissertation eine vergleichende juristische Studie, um die Trends in Europa, den USA und Brasilien zu verstehen, um eine umfassende Analyse des Problems zu erreichen und mögliche Lösungen auf der Grundlage eines einheitlichen Verständnisses darzustellen. Angesichts dieser digitalen Gesellschaft und der Absicht der Welthandelsorganisation (WTO), einen freien Datenfluss zwischen den Ländern zu gewährleisten, befasst sich die vorliegende Arbeit mit den Antworten auf die aktuellen Fragen bezüglich der Schnittstelle zwischen internationalem Recht auf geistiges Eigentum und dem Schutz der Privatsphäre im Umfeld von Internet-Anwendung und künstlicher Intelligenz. Ziel der Studie ist die Entwicklung eines multilateralen Vertrags über einen Mindestkonsens bezüglich der Rechte über Eigentum, Zugang und Nutzung digitaler Datenbanken. Diese Datenbanken werden als Primärdaten bezeichnet: ihre Entwicklung als maschinell erlernte Wissensbasen, die bereits von einem intelligenten Lernalgorithmus und Pseudoanonymisierungsfiltren durchlaufen wurden. Daraus konnten Sekundärdatenbanken erstellt werden. Schließlich wird analysiert, inwieweit diese neue robotisierte Schicht in der Lage sein wird, diese digitalen Datenbanken zu nutzen und zu erstellen, und ob die Erstellung einem Schutz durch geistiges Eigentum unterliegen würde. Dieser neue digitale Kontext erhöht die Komplexität des Problems aufgrund der Einbeziehung des industriellen Prozesses (und des traditionellen Schutzes auf Gerätepatenten) sowie der Rechte von Nutzern und Dritten, die direkt oder indirekt auf Datenbanken, die erstellt oder gesammelt wurden, verknüpft sind. Schließlich identifiziert die Studie auch andere Strategien (basierend auf den Prinzipien des internationalen Privatrechts), um das Ziel zu erreichen, eine bessere Rechtswirkung in der Konfliktlösung zu diesem Thema zu schaffen, das aufgrund seiner multiregionalen Natur (im Internet) selbstverständlich ist. Diese anderen Strategien sind beispielsweise die Anwendung neuer Vertragsentwürfe mit einem Muster von vordefinierten Klauseln, die durch Soft-Law bestimmt werden können und die den Einsatz internationaler Schieds- und Vermittlungsmechanismen für Streitbelegungen ermöglichen.

Schlüsselwörter: Industrielle Datenbank. Geistiges Eigentum. Privatsphäre. Datenzugriffsrechte. Internet of Things. Künstlicher Intelligenz (AI). Internationale Verträge. Verträge. Schiedsgericht.

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LIST OF ACRONYMS

ABNT	Associação Brasileira de Normas Técnicas (Brazilian Association of Technical Standards)
ADR	Alternative Dispute Resolution Methods
AI	Artificial Intelligence
ALI	American Law Institute
BGH	Bundesgerichtshof (Federal Court of Justice of Germany)
CDADC	Código do Direito de Autor e dos Direitos Conexos (Code of Copyright and Related Rights of Portugal)
CEDPI	Intellectual Property Defense Center
CIDIPs	Inter-American Conventions on Private Law
CJEU	Court of Justice of the European Union
CLIP	Conflicts of Laws in Intellectual Property
CNJ	Conselho Nacional de Justiça (National Council of Justice)
CTEA	Sonny Bono Copyright Term Extension Act
CUB	Berne Convention
CUP	Paris Convention
DBMS	Data Base Management System
PIL	Private International Law
DMCA	Digital Millennium Copyright Act de 1998
DRM	Digital Rights Management
USA	United States of America
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDPR	General Data Protection Regulation
GEMA	Gesellschaft für musikalische Aufführungs (Society for musical performing and mechanical reproduction rights)
IAB	Internet Architecture Board
ICANN	Internet Corporation for Assigned Names and Numbers
ICJ	International Court of Justice
IDI	Institut de Droit International (Institute of International Law)
IESG	Internet Engineering Steering Group
IETF	Internet Engineering Task Force
INPI	Instituto Nacional de Propriedade Intelectual
IoT	Internet of Things
IP	Internet Protocol
IP	Intellectual Property

IRTF	Internet Research Task Force
ISOC	Internet Society
ISP	Internet Service Provider
LAI	Lei de Acesso à Informação (Information Access Act)
MIT	Massachusetts Institute of Technology
MPG	Max Planck Institute for Innovation and Competition
NGO	Non-Governmental Organization
OAS	Organization of American States
PCIJ	Permanent Court of International Justice
TCP	Transmission Control Protocol
TFEU	Treaty on the Functioning of the European Union
TIEF	Treaty on Interpretation and Enforcement of Phonograms
TRIPS	The Agreement on Trade-Related Aspects of Intellectual Property Rights
UDRP	Uniform Dispute Resolution Policy
EU	European Union
UNCITRAL	The United Nations Commission on International Trade Law
UNIDROIT	International Institute for the Unification of Private Law
UN	United Nations
USP	Universidade de São Paulo (University of São Paulo)
W3C	World Web Consortium
WIPO	World Intellectual Property Organization
WTO	World Trade Organization
WWW	World Wide Web

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PART 1

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INTRODUCTION

1. Presentation of the problem and contextualization of the thesis

The people with ideas today are more powerful than those who operate machines and, in many cases, even more than those who own the machines. The world is shifting toward an economy that depends more on creativity and knowledge than on any other raw material, including oil.¹

“The species that survive are not the strongest species, nor the most intelligent, but those that adapt better to changes.” (CHARLES DARWIN - 1809 to 1882).²

“In times of renewal of the methods and the globalization of the teaching of law, the international jurist must seek inspiration in the totality of law, without losing sight of the variety of specialized areas.”³

It could be argued that the internet has brought a more international dimension of life, but through digital means, to all the individuals connected in the network, even if they never leave their countries of origin or even obtain a passport.

We began the new millennium with intellectual property as the great economic platform for the digital society. According to Manuel Castells: "new information technologies are not simply tools to be utilized, but processes to be developed. For the first time in history, the human mind is a direct force of production, not just a decisive element in the productive system."⁴

Since the Berne Convention ("*First Multilateral International Copyright Treaty*"), the protection of intellectual rights has followed in line with the economic development interests of countries. The current system was set up to avoid conflicts.

¹HOWKINS, John. *The creative economy*. São Paulo: Ed. Mbooks, 2012. p. 16. The journalist John Howkins is the author of the work *Creative Economy* (published by Editora MBooks, 2012).

² Phrase attributed to Charles Robert Darwin, in fact given in 1963 by Leon C. Megginson, professor at Louisiana State University, in a speech on his interpretation of the work. "On the origins of species by means of natural selection – on the preservation of favored races in the struggle for life" by Charles Robert Darwin.

³BASSO, Maristela. *Curso de direito internacional privado (Course of International Private Law)*. 3. ed. São Paulo: Atlas, 2013. p. 49.

⁴CASTELLS, Manuel. *A galáxia da internet: reflexões sobre a internet, os negócios e a sociedade* (The internet galaxy: reflections about the internet, business and society) Translated by Maria X. De A. Borges. Rio de Janeiro: Jorge Zahar, 2013.

The function of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was to strengthen the previous system that was the World Intellectual Property Organization (WIPO) and to maintain its complementarity and evolutionary interpretation.

There is a fraternity between free trade and the protection of intellectual rights. However, when there is conflict, it is one of interpretation, and domestic law is usually enforced.

For this reason, the principle of consistent interpretation as a commitment to the international objectives must be applied. According to José de Oliveira Ascensão,⁵ the information society has played a huge role in the globalization of intellectual rights.

Nevertheless, because intellectual property is regarded as a human right,⁶ as such, being a good, an asset, it has also become the object of trade.

And this, in itself, has brought elements of controversy and confusion to this Principle since its inception. This is further aggravated by the increasing relevance of databases for society, which is increasingly dependent on information.

Hence the great paradigm: ensuring a right of exclusivity (ownership) over data (and databases) or guaranteeing free access to information.

The database theme, in a way, caught the attention of the world in the 1990s, but was later abandoned by the international community. Why?

This thesis begins precisely in search of this answer and promotes a wide analysis of the differences and similarities, juxtaposing what is already known with the recent technical discoveries and their applications whose impacts are still unknown by

⁵ASCENSÃO, José de Oliveira. Sociedade da informação e mundo globalizado (The Information Society and the globalized world) . In: WACHOWICZ, Marcos (Coord.). *Propriedade Intelectual & Internet (Intellectual Property and the internet)*. 1. ed. (ano 2002), 4. tir. Curitiba: Juruá, 2005. p. 15-31.

⁶As article 27.2 Universal Declaration of Human Rights declares: "Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author." And in the International Covenant on Economic, Cultural and Social Rights article 15.c: "1. The right of every person to benefit from the protection of the moral and material interests that correspond to them by reason of the scientific, literary or artistic productions of which she is the author is a human right, which derives from the dignity and values inherent to every person. 2. In contrast to other human rights, intellectual property rights are generally of a temporal nature and it is possible to authorize their exercise or assign them to others. (...) 4 The right of every person to benefit from the protection of moral and material interests that correspond to them for reasons of scientific, literary or artistic productions of which she is the author has the purpose of fostering the active contribution of creators to the arts, sciences and to the progress of society as a whole."

the legal community, with observance not only of legal factors, but the current behaviors of a world globalized and connected by the internet, in a way not conceived back in the 1990s, which will highlight the necessity of revisiting the discussion on this issue.

It is society, with the principle of social autonomy, which creates the new challenges that the law must face.

Society creates the new challenges that the law must face and the binding behaviors that must apply. Currently, if an internet user wants to use any communications app, they have to accept the rules of use of the service and its privacy policy. This comes under the freedom of contract. The same goes for a taxi application service, for example.

But when we come to the large scale roll out of the Internet of Things in the everyday lives of individuals, can we be subject to the same codes of conduct and current contractual rules?

Or will it be necessary to come up with at least one rule of principles to regulate some premises at an international level and to guarantee a minimum standard of acceptable conduct in these environments, especially in a context of cities, houses, cars, refrigerators, generating and collecting data?

Who owns this data? What about databases? Who owns the rights to use? And access? How to protect them without taking away the freedom of information? And what would the responsibilities be? Who are the parties involved, who are the third parties? Who will be held responsible? How to evaluate the assets of a company that starts to manufacture Internet of Things (*IoT*) devices and hold all this value of databases (can it be considered an asset, as it is a good, or would it be a liability, because it is a risk)?

In addition, the thesis sought to further investigate the presence of the phenomenon of westernization of the East followed by the occurrence of "legal transplants", especially regarding European laws, with a belief in usefulness and necessity.

There is a predominance of the rules of the European Directives to give the dictates on various matters for the rest of the countries, in a process including "substantiation" of the

conflict rules, which now starts to assume thematic characteristics deduced from a mixed collection of international law cases.

Thus, due to this complexity, it was found in the preliminary research that private international law (PIL) would be the most appropriate discipline to receive the discussion on legal relations surrounding the dispute over the rights of the databases, because it is more updated in terms of the foreign conflicting elements and the phenomena of new times in the face of the impacts of globalization and digital technologies that have greatly relativized the boundaries between countries and their national sovereignty in terms of controlling the circulation of immaterial goods by electronic means.

In accordance with the teachings of Maristela Basso:

PIL offers solutions that seek to rationalize these conflicts, especially by means of continuity criteria (avoiding the fragmentation of the law, since it is interpreted and applied in its unit) and the normalization of legal relations (in order to make the relevant legal standards applicable)– 'standards' under a broader perspective.⁷

The reason for choosing to compare the 3 (three) legal systems, namely Brazilian, the European and the North American, was due to the intention of seeking a more neutral legal language, with terms and concepts different from those of the national legal language, if taken only in isolation, aiming to reach a more harmonious understanding of the subject that can be applied as a solution and response to the problems already faced by society in the most sensitive dimension of people: their data.

In addition, it was also possible to verify the existence of an embryonic supranational Digital Public Order, that would enable uniform and harmonized solutions, even an alleged electronic (or digital) *lex mercatoria*, considering the great pluralism of the legal frameworks involved by society in its systems.

Therefore, one of the reflections that was addressed on the subject was: would databases due to their essential nature in relation with the freedom of information be more related to the essential right to oxygen or the right to access to water?

It is important to note that that International Law is of the utmost importance as a conciliatory mechanism for various aspects of the international life of individuals and that,

⁷BASSO, Maristela. op. cit., p. 22.

since the 20th century,⁸ European and Latin American states have concluded important treaties on conflicts of laws in matters of nationality, domicile of persons, provision of food, protection of the child, even on water uses and sustainable development, in the search for balance in the equitable and rational use of water resources owing to it being a universal human right. This has even led to the creation of the Global Committee for the World Water Contract.

Water is one of the major topics of discussion among states, especially those share the same river basins. For International Law, the issue of water is analyzed both as a source of conflict and as a source of investment among the respective National States. And we can say that the data is as strategic for the digital economy of the twenty-first century as was water for the twentieth-century society's economy.

According to Jane Ginsburg's view,⁹ "intellectual property is, by its very nature, of an international dimension." It can be said that intellectual property is in the field of more internationalized individual rights in line with the single harmonization base promoted by WIPO and TRIPS. But what matters most in comparative experience is to see how the judiciary interprets the law. Hence particular attention has been paid to the analysis of the most recent court decisions on the subject of databases.

But it cannot be denied that information has become a currency of exchange and that many free services have this free exchange of user's data model, so that these knowledge bases should be protected as assets of these companies.

This is, therefore, the new frontier for the discussion of intellectual property, and will depend heavily on the use of the principles and tools of international law, as it will not be with national and local laws that this issue can be adequately addressed and resolved.

But clearly, there are two sides of intellectual property that must be observed in order to establish an environment of sustainable development: on the one hand there is private interest, which if well-defined can provide a healthy input for the economic strength of a

⁸ See Hague Convention on Nationality of April 12, 1930, Treaty of Private International Law of February 20, 1928 ("Bustamante Code").

⁹ Jane Ginsburg is a professor and teaches Intellectual Property at Columbia University Law School in the U.S.; she is also President of the U.S. branch of the Litteraire et Artistique Internationale Association (ALAI), founded in Paris in 1878 by Victor Hugo himself. She is the author of the international work *International Copyright and Neighboring Rights: The Berne Convention and Beyond*, Oxford University Press, 2006. RICKETSON, Sam; GINSBURG, Jane. *International copyright and neighboring rights: the Berne Convention and Beyond*. Oxford University Press, 2006. p. 25.

country. On the other hand, there is the public interest to drive the guarantee of access to information, knowledge and technology.

Most of the time, a particular private or natural resource may be in use by society for a long time without needing to be subject to international regulation, but gains this relevance over time. According to Hobsbawm,¹⁰ it was from the 18th century on, particularly, in England, the use of water gained strength due to two factors: population growth and increased industrialization of production. This promoted a profound social, economic, political, cultural and technological change from 1789 to 1848, the period of revolutions in Europe (between the French and Industrial Revolution).

This thesis seeks to investigate the latest facts about databases in its social and economic phenomenon, outside the field of Law, in order to redesign the best legal model for its treatment, which may have nothing to do with what has been thought by the legislations that are in force at the moment, at the national and international level.

Thus, as the theme of water falls within the list of essential rights, as René Cassin, who drafted the Universal Declaration of Human Rights, says, there is also the theme of intellectual property, and within it, that of databases.

Therefore, with regard to intellectual property, stimulating innovation, there is an ongoing need to renew and update legal frameworks, so that it is possible to maintain the "checks and balances" in the market, which by its very nature, tends to be unbalanced, due to the diverse interests involved.

Indeed, there is a great need to produce legal solutions, for the present and for the future. Thus, within the thesis, other sources of Private International Law (PIL) have been explored that can contribute to the construction of this future, especially the techniques of inspiration or persuasion called Soft Law.

Finally, according to the lessons of Norberto Bobbio,¹¹ after the decline of national isolation, there is a tendency of International Law to worry about the future of humanity. And Comparative Law certainly plays a key role in fostering international trade, improving the quality of life through the process of macro comparison and micro-comparison, it is able to

¹⁰HOBSBAWM, Eric J. *Da Revolução Industrial inglesa ao Imperialismo (Industry and Empire)* Rio de Janeiro: Forense-Universitária, 1983. p. 106.

¹¹BOBBIO, Norberto. *A era dos direitos (The Age of Rights)*. Translated by Carlos Nelson Coutinho. Rio de Janeiro: Campus, 2010.

establish general principles of Law recognized by civilized nations, serving as a common denominator, a cultural, political and legal bridge between them.

The social dimension of the digital revolution that is lived seems destined to fulfill the first law of Melvin Kranzberg:

Technology is neither good nor bad, but isn't neutral either. By this I mean that the interaction between technology and social ecology is such that the technological developments often have environmental, social and human consequences that reach far beyond the very immediate goals of the technical devices and practices themselves and the same technology can have very different results when introduced in different contexts or under different circumstances.¹²

In conclusion, Private International Law together with Comparative Law, by its functional power, is the best solution for drafting Law in a Digital Society that recognizes no territorial borders for the flow of digital data.

2. Research Objectives

The purpose of this thesis is to make a deep comparison of the rights related to the intellectual property of databases, relating similarities and differences of its treatment in force in the three main legal systems.

It is unquestionable that, in the enforcement of intellectual property protection in the digital environment, technology ends up dictating what is possible to be done. The digital revolution has changed the way of managing the means of reproduction, distribution and publication of intellectual property.¹³

If intellectual property could not be protected by the pure, abstract idea, not expressed in any kind of format, since this would go against the principles of freedom of creation and free enterprise, free movement of international trade itself, what about data traffic, information on the internet? Would it be possible to own these content bases produced by the thousands every day and extract them from the public-collective domain?

In the United Nations (UN) 2030 Agenda for Sustainable Development, Member States recognized the importance of the expansion of information, communication and global

¹²KRANZBERG, Melvin. Technology and history: "Kranzberg's Laws". *Technology and Culture*, v. 27, n. 3, p. 545-546, 1986.

¹³BARLOW, John P. The economy of ideas. *Wired online*, 2 Mar. 1994. Available at: <<http://homes.eff.org/~barlow/EconomyOfIdeas.html>>. Access on: 13 July. 2017.

interconnection technologies, highlighting the need to address profound digital inequalities and develop knowledge societies, based on inclusive, equitable, non-discriminatory education and respect for cultural diversity. In other words, the international community is very concerned about the fate of the use of information that is captured from the internet.

This means that there will be a tendency to generate mechanisms of technological control to ensure legal effectiveness for the protection of intangible assets, and this will probably be reflected in future international treaties or conventions on the subject, especially with regard to copyright.

In order to better define the problem, the main purpose of the comparison will be the nature of the legal protection of databases. Therefore, it is necessary to define in a very clear and objective way what are databases, in view of the regulations in force, which defined the legal rules regarding the subject, but reflecting a previous technological scenario to the current one, notably from the 90's.

Subsequently, an interpretative evolution of the concept is proposed for today, in order to adapt to the challenges already faced by companies, seeking to provide a solution that can meet the future trends that this concept will undergo in terms of transformations and that can already be evidenced from the case analyses that will be presented in their own chapter.

In view of this, a more in-depth comparison of the two current systems that have completely conflicting views on the matter of databases was sought: the European system and the American system. And, from there, to analyze these impacts in light of the legislation in force in Brazil and the trend of the reform in Brazilian copyright law in order to foresee which paths should be adopted by the national judiciary, in order to better address the issue in face of a scenario of opposing and even diverging international views on the subject

In addition, it was also intended to develop a better methodology for the interpretation and application of the rules of private international law on this matter in the analysis of concrete cases, presented in their own chapter, since those concerning this matter are becoming more widespread, to allow better integration of knowledge and thus filling the gaps that today afflict the judges in the different countries, since the theme is multi territorial, transnational and transcultural.

Finally, it is intended that this thesis may serve as a legislative policy instrument to inspire possible regulations on the subject, whether in the form of Soft Law or Hard Law.

The final objective is to bring a sense of usefulness to the present work, in the sense of benefit as a tool for construction and reform for application, including in developing countries, in order to reduce and eliminate inconsistencies, thus simplifying international business as it sheds light on the unknown, which enables the reduction of fear and legal insecurity in relations between different peoples and states.

3. Research Methodology

The present study was developed mainly based on a comparative and deductive method. In order to achieve the comparison, first of all, a detailed analysis of the topic was undertaken with respect to the legal regulations involved, the customs, ideas, case law, as well as the instruments of interpretation that are currently being used to understand all the social and economic effects of the change in behavior of society with the new digital data flows.

Thus, with the aim of achieving greater objectivity and results, the comparison was confined to the legal definitions that touch on this subject matter, namely, the discussion about who has the right of ownership, use and access of databases, with emphasis on those that are generated in electronic (digital) media, especially from web applications and devices that already have the Internet of Things, in a scenario of greater protection for the privacy of users, encompassing the new applications with the use of artificial intelligence that require much use of databases. And as one should look for those with greater influence on the construction of the legal rules in question, there is now a clear difference of visions, especially between the European Union and the US.

It is therefore timely to point out that the experience of the European Union has proved to be very enriching for the present study since it already reflects a community practice where the legislator sought to align domestic law with supranational rules.

Therefore, the proposal was that a comparison be made between these two systems with virtually opposite views (European and North American) and, using this, make a comparative analysis with Brazil, to then propose a solution which can meet the Brazilian needs to update its own legislation, as a guideline to develop a path to international harmonization on the matter.

Thus, a comparison was envisaged at two levels: the first level of macro comparison, which consists of checking the legal systems involved to classify and compare the family of rights (its origin), since this will affect the conclusion. And then, the micro-comparison method was applied, where a comparison was sought between the related legal definitions of the different legal systems with respect to their possible inclusion, exclusion or intersection on the object of comparative study.

It should be noted that the functional comparison method was applied, i.e., questionnaires were used to ascertain the understanding of the subject with specialists in the various locations (factual approach), with use of empirical research. This approach was adopted owing to the fact that there is still little literature on the subject.

Thus, in order to achieve a greater understanding of the topic, which is extremely current, field research was carried out in some teaching and research institutions representing the three legal systems that are the objects of the comparative study, namely, Brazil, the USA and the European Union. Direct contact was made with professors from institutions in these regions, who voluntarily joined the research and permitted the gathering of sufficient elements of analysis and proposals for the future, since the formal study in this area is still in its early stages.

Questionnaires were sent to professors on the subject at the 16 participating teaching and research institutions, listed below. In addition, over 8 months, 8 entities were visited to conduct face-to-face interviews. The others sent the answers *a posteriori* by digital means. The entities participating in the survey were:

Face-Face Interviews	Sending of questionnaire by digital means
São Paulo University (USP) – Brazil	New Hampshire University- USA
Coimbra University – Portugal	Queen Mary of London University –UK
Lisbon University - Portugal	Stanford University - USA
Porto University- Portugal	Akron University- USA
Columbia University - USA	Zurich University – Switzerland
Gottingen University– Germany	Oxford University – UK
Max Planck Institute Hamburg - Germany	Electronic Frontier Foundation (EFF) - USA
Max Planck Institute Munich – Germany	World Intellectual Property Organization (WIPO)

For the full list of respondent teachers and the questionnaire applied, see Annex D.

One important point to mention is that it was not possible to publish all the responses received in full within the scope of the thesis. This situation is due to the request of some of the interviewees, at the time of their participation in the research, to use the answers as a general analysis and not as a literal transcription. For this reason, some professors have excerpts inserted directly throughout the work, while there are others whose opinions were considered to support the statistical analyses the results of which are presented in item 7.2.

The objective of adopting the empirical research method and the relevance for this case was due to the uniqueness of the topic being addressed and the shortage of more recent references, since many published works reflect the legal mindset of the 1990s and the early 2000's.

In addition, a case law study was also carried out, with a selection of cases that were directly related to the subject matter of this study, that is, the dispute over the ownership of databases in the digital environment. The cases were chosen with the aim of comparing decisions in the three selected legal systems, as well as to verify lines of judicial interpretation where the matter has also been resolved with the application of competition law (antitrust law) and trade secrecy, due to the current gaps in the intellectual property legislation. All the cases chosen have distinctive characteristics and help to demonstrate the current relevance of the theme.

Certainly, knowledge of the historical context is also fundamental as a tool for the application of Comparative Law, due to its typical and atypical factors. It is for this reason that the use of comparative technique provides complete compliance with the result that is sought, since Comparative Law consists of a process to detect the invisible that hides behind the visible, as will be demonstrated regarding the intellectual property of databases.

As national law is considered by law as one of the main regulatory sources of the PIL, it is essential to analyze the regulations of the three legal systems involved in the comparison with respect to the intellectual property of databases and also the rules that, in some way, may affect the rights of those who are its manufacturers or owners (such as competition, consumer, privacy and data protection laws).

4. Structure of Work

In view of the contemporaneity of the subject and the complexity of the comparative analysis faced by the analysis of the European system, the US system and the Brazilian

system with regard to the international law of intellectual property on databases in an internet context of things (IoT) and artificial intelligence (AI), the thesis is structured in 5 parts, 9 chapters and the conclusion to facilitate a better understanding of the subject.

The first part strives to address the justification for the study of the intellectual property of databases in the internet era and why it is important and urgent for the international legal community. In addition to the introductory part, it brings together all the conceptual explanations on what databases are, showing their historical evolution as well as detailing the current law relevant to the subject both at the international and national levels, considering the countries which are the object of the comparison.

This first part also deals with the challenges of database protection in the face of new technological advances, with the analysis of the main impacts of the breakdown of the packaging paradigm for the protection of intellectual property and the transformations caused by the advent of the internet. This part also presents a formula for classifying the types of databases formed from digital media, which aims to provide the appropriate legal framework for the protection that is required.

In the second part, the international nature of intellectual property and of the digital society itself connected through the internet is addressed, with historical analysis and comparison between the *Urheberrecht*, *Copyright* and *Droit d'Auteur* systems, in order to present the current in order to present the framework of the current international intellectual property law, its main points of similarity and difference.

Further research was also conducted into the possibility of a Digital Public Order and the formation of what might be called an electronic or digital *lex mercatoria*. With this, the fundamental principles of Private International Law regarding the protection of intellectual property on the internet were presented and the issue of territoriality and conflict of laws in space was analyzed. Finally, a regulatory overview, comparing the three systems researched: the Brazilian, the European and the North American, is presented through an analysis with 10 indicators.

The third part of the work consists of observing the application of contracts as the most immediate legal measure for the governance of the relations of individuals and institutions through the internet, as well as addressing the gaps related to the ownership of databases on digital platforms. For this purpose, a survey was carried out of what has been applied by the main companies that represent the digital economy and hold a large portion of the data

capture and whose share value (corporate equity) is directly related to the economic value of their databases.

Therefore, any risk in the legal protection of these bases has a direct impact for these companies and for the market ecosystems in which they are operating. In addition, within this section, special attention has been given – with a chapter devoted to this - to the new relations brought about by the use of the Internet of Things and in the presentation of practical cases of some relevant industries and recent case law on discussions regarding the ownership of databases.

In the fourth part of the thesis, the focus was on the future of intellectual rights regulations on databases and the paradigm between intellectual property and human rights, especially freedom of information and privacy, considering the new legal framework of regulations on the protection of personal databases such as the European General Regulation (GDPR) and the processing of the Brazilian Law (LGPD) and an analysis of the overlapping, to the extent that they constitute elements limiting the guarantee of protection of the property of databases.

The last part seeks to respond to the problem presented, concluding with a historical, evolutionary and comparative synthesis, already considering a socioeconomic scenario of technological advances in the use of Internet of Things (IoT) and Artificial Intelligence (AI). Thus, this last chapter is dedicated to presenting case studies of comparative jurisprudence of the systems of the European Union (Europe), the United States (North American) and Brazil (Brazilian) and, finally, to presenting some proposals for solutions through new models that can better regulate the issue of databases from everything that was analyzed, closing with the conclusions.

PART 1
THE INTELLECTUAL PROPERTY OF DATABASES IN THE
DIGITAL AGE

This initial part of the thesis seeks to contextualize the reasons that led to the choice of the theme, as well as the presentation of the main issues that should guide the whole proposal of this work. In this way, it will be shown how the current legal framework of the patrimonial protection of databases functions, as well as approaching in depth the particularities of its nature within a framework of guarantees of intellectual rights, from a historical perspective until arriving at the current moment of context of a more digital society. In addition, this first part seeks to present concepts and to detail some essential principles for the understanding of the problem that is complex in nature due to the multiplicity of laws and gaps that still generate legal uncertainty for the holders of these intellectual assets.

CHAPTER 1. AN INTELLECTUAL PROPERTY ON DATABASES IN THE DIGITAL AGE

1.1. Information as a free good of the Knowledge Society

Freedom of information is one of the structural premises of the society in which we live. Interestingly, the new technologies that have allowed greater access to knowledge are also responsible for causing a true collapse in the model of production and sharing of intellectual creation. This is because the technical advances happened at a faster rate than the evolution of the ethical constraints of social behavior that would ensure a sustainable balance of this new dynamics of free data flows.¹⁴

Therefore, the freedom, by itself, as it explains Sofia de Vasconcelos Casimiro:¹⁵

[...] anchors the unregulated spaces of society and confers invisibility, before the Law, to several of the actions of the subjects that move in it. Therefore, it presents several manifestations that will converge in more specific principles such as the freedom of information.

And so, in turn, will end up impacting the study of intellectual property itself.¹⁶ The Brazilian author Carlos Alberto Bittar points out that although this freedom brings significant

¹⁴ “Tateoki illustrates this reality: “The social, economic and legal reality has changed drastically with the advances in communication technologies, more specifically with the advent of the world wide web in the last century. To confirm this affirmation, it is enough to observe the daily routine, with a fraction of seconds it is possible to transfer resources from one point of the globe to another (synonym of globalization), because the communication between people has become instantaneous anywhere on the planet.”. TATEOKI, Victor Augusto. A proteção de dados pessoais e a publicidade comportamental (The protection of information - a history of Darwinian evolution and the ascendancy of technology). *Revista Juris UniToledo*, v. 2, n. 1, p. 65-75, Jan/Mar, 2017.

¹⁵CASIMIRO, Sofia de Vasconcelos. A proteção da informação – história de uma evolução darwiniana e da ascendência da tecnologia (The protection of information - a history of Darwinian evolution and the ascendancy of technology). In: VICENTE, Dário Moura et al. (Coords.). *Estudos de direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária* (Studies of intellectual law in honor of Prof. Dr. José de Oliveira Ascensão: 50 years of university life). Coimbra: Almedina, 2016. p. 578.

¹⁶The considerations of Garnica on the general theory of intellectual property are extremely pertinent at this time: “Initially it is useful to mention that, among all, the term ‘intellectual property’ is the most comprehensive, so that all the others are contained in it, constituting subgroups of rights that have in common the property under the human creations and results of intelligence. For Sherwood (1992), intellectual property is a set of two things. Firstly, it is ideas, inventions and creative expression, which are essentially the result of private activity. Secondly, the existence of a public desire to give ownership status to these inventions and expressions. Thus, the term ‘intellectual property’ contains both the principle of private creativity and that of public protection for the results of this human activity characterized as creative. GARNICA, L. A.

impacts to the way the law is developed this does not mean that intellectual property rights cease to exist in this new reality:

Despite the intense sensation, in contemporary society, of unrestricted freedom of information traffic, of informational chaos, of anarchy in the control of the use of rights, of unrestricted expansion of digital borders and of the liberalization of the use of texts, neither the moral rights of the author nor the property rights of the author are revoked by the new dynamics of the digital economy. Therefore, the internet has not abolished copyright. However, there is a transformation of culture, of the way in which these rights are dealt with, which is undoubtedly more complex, and an effective problem of control of the use of information and effective protection of copyright creations.

However, the recent edition of the Civil Framework of the internet in the country (Law 12.965/2014), not only provides a response to the anomaly in the area, but also establishes one of the first experiences of global democratic regulation and a clear definition of the limits in the virtual world, consecrating rights explicitly linked to the dynamics of the internet.¹⁷

However, the existence of conflicts generated by the meaning of freedom of access and freedom of protection has become inevitable with the introduction of the new forms of technology and distribution of knowledge that the informational advance has brought with it. In this sense, understanding the parameters and limitations that involve public or private information or knowledge is essential:

The most important main idea is that knowledge is a public good. Economists use the knowledge of public good in a technical way; Paul Samuelson defined this term fifty years ago. A public good is one that has no rival. In contrast, a private good is one that is consumed by one person. For example, a single person can sit in a chair. The same idea holds true for food: if I eat a hamburger, you cannot eat it. Knowledge, however, is different. I just shared some knowledge with you, but this sharing did not take it away from me. Thus, knowledge has the quality of simultaneous consumption; not impeding that others can consume it at the same time.

Another way of putting this is that knowledge has no marginal cost associated with it. Thomas Jefferson wrote this in a much more poetic way: knowledge is like a candle, when one candle is used to light another, the light of the first is not diminished. Understanding this principle is at the

Transferência de tecnologia e gestão da propriedade intelectual em universidades públicas no Estado de São Paulo (Technology transfer and intellectual property management in public universities in the State of São Paulo) 2007. Dissertação (D (Mestrado em Engenharia de Produção) (Dissertation ((Master's Degree in Production Engineering)) - Universidade

Federal de São Carlos (Federal University of São Carlos), São Carlos, 2007. p. 54. Available at: <<https://repositorio.ufscar.br/bitstream/handle/ufscar/3565/DissLAG.pdf?sequence=1>>. Access on: 26 Jan. 2018.

¹⁷BITTAR, Carlos Alberto. *Direito de autor (Copyright Law)*. 6. ed. rev. atual. e ampl. Por Eduardo C. B. Bittar. Rio de Janeiro: Forense, Ebook, 2015. p. 4270.

core of understanding the efficient use of knowledge. It is more efficient to distribute knowledge freely than to restrict its use by charging for it.

Free distribution, however, could create a problem in encouraging the production of innovation, and that is the dynamic question.¹⁸

Thus, freedom of information has two facets: one, from the perspective of the subject, determines the right of access and free use;¹⁹ and the other, from the perspective of the object, determines that the content is freely accessible and usable. But logically, at some point, this will conflict with the rights of those who have control over the information.²⁰ For access to information could lead to access to private property, as Woodbury states:²¹

The term intellectual property appeared for the first time in the Court of Massachusetts in 1845, in the case "Davoll et al. V. Brown ". It was a conflict involving a patent application. The magistrate at the time wrote in his decision: "Only in this way can we protect intellectual property, the work of the mind, production and interests as the fruit of his honest industry, such as the wheat he grows or the herd he tends."²²

¹⁸STIGLITZ, Joseph E. Economic foundations of Intellectual Property Rights. *Duke Law Journal*, v. 57, p. 1699-1700, 2008.

¹⁹ When creating the WorldWideWeb Tim Berners-Lee explains that he imagined the future of the web as a space that would make possible the speed of access and exchanges between people, so that the knowledge and capacity of production / creation could be palpable and accessible to all: "I have a dream for the web and it has two parts. In the first part, the web becomes a much more powerful means for collaboration between people. I have always imagined the information space as something to which everyone has immediate and intuitive access, and not just to browse, but to create. [...] In the second part of the dream, collaborations extend to computers. Machines become capable of analyzing all the data on the Web—the content, links, and transactions between people and computers.". BERNERS-LEE, Tim. *Weaving the Web: the original design of the World Wide Web by its inventor – Tim Berners-Lee with Mark Fischetti*. New York: Harpercollins, 2000. p. 157.

²⁰ In the case of reality in Brazil, Bittar points out: "Even in a more specific way, as the Civil Framework of the Internet could not treat in a specialized and exhaustive way the matter of copyright, art. 19 provides: "In order to ensure freedom of expression and prevent censorship, the Internet application provider may only be held civilly liable for damages resulting from content generated by third parties if, after a specific court order, it fails to take steps to, within the scope and technical limits of its service and within the time period indicated, make the content indicated as infringing, subject to legal provisions to the contrary". The provisions of § 2 of art. 19 should be highlighted, in particular. It reads: "The application of the provisions of this article for copyright or related rights violations depends on a specific legal provision, which must respect the freedom of expression and other guarantees provided in art. 5 of the Federal Constitution". BITTAR, Carlos Alberto. *op. cit.*, p. 4270-4271.

²¹WOODBURY. & M. 53, 3 West. L. J. 151, 7 F. Cas. 197, No. 3662, 2 Robb. Pat. Cas. 303, *Merw. Patent Invention 414*. (1845). Available at: <http://rychlicki.net/inne/3_West.L.J.151.pdf>.

²²MACHADO, Jorge. Desconstruindo a propriedade intelectual (Deconstructing Intellectual Property) *Observatório (OBS*) Jornal*, v. 4, p. 245, 2008. Available at: <<http://obs.obercom.pt/index.php/obs/article/download/92/139>>. Access on: 10 July 2017.

The law began to treat intellectual property as commercial assets, bringing a vision of patrimoniality, or the ownership associated with the author, who would be endowed with a more personal right (moral) and a more material right (patrimonial), under the influence of the French revolution.

This is not to be confused with the Principle of Copyright, which would be the monopoly for reproduction (right to make copies), which began well before, with the Statute of Queen Anne of England in 1710 and conferred exclusivity on the one who detained it, notably the publishers.

It so happens that the principle of intellectual property is a kind of special property. But even if one wishes to abstain from the use of the term property, to use only intellectual rights, in the sense of the double faceted protection, both moral and patrimonial that they possess, the justification has always been that they encourage the author to continue investing in its creative process, thus allowing the whole society to take advantage of this collective gain of culture, science, arts, knowledge in general, insofar as the protection is temporary and, after the term, the goods become public domain.

The big issue is that intellectual rights are reactive, exclusive rights. In other words, they guarantee protection against third parties. So at the moment there is a record, out of what would be the scope of legal professional privilege for the public domain, it becomes common knowledge, however, there is a shield, a prerogative exclusive of spatial and temporal exploitation.

Therefore, many companies still prefer to maintain the confidentiality of their innovations and make technology transfers whilst keeping the guarantee of a layer of secret data. And it is important to point out that there is still the risk of compulsory licensing, as is the case with the pharmaceutical industry. The work of William Landes and Richard Posner, on the economic structure of intellectual property, which is based on a more utilitarian view, suggests a theory that intellectual property rights would maximize social welfare, through economic efficiency provoked by competition between economic agents, and that they could not be used to appropriate what is already in the common domain.²³

In any case, conflicts persist and reach intellectual property rights, impacting the most diverse sectors of society: from the market to the social sphere. That is why the discussion

²³LANDES, William M.; POSNER, Richard A. *The economic structure of intellectual property law*. Cambridge, Mass.; London, England: The Belknap Press of Harvard University Press, 2003.

about intellectual property takes place in two environments within the legal sphere: the internal and the external. However, even though this discussion takes place in two distinct spaces, both are interdependent and cannot be isolated, especially within the context of digital reality, in which the internationalization of issues is gaining ground more and more.

A clear example of this situation can be observed through the work of the *American Law Institute (ALI)* in developing the book "*Principles*", a document that is intended to serve as a guide for the resolution of conflicts involving intellectual property - and just this - in the international and national spheres. So that in the internal organization of countries the principles serve as a *soft law* instrument and represent a type of "action guidelines", since the domestic law take precedence. It is important to highlight that the ALI focused on the conflicts of international private law to create this document, making use of the comparison of several instruments such as TRIPS, the Berne Convention and the legislation of several countries, demonstrating the importance of the interconnection of legal knowledge for the resolution of problems involving intellectual property.

[...]these Principles can be used as guidance in fully domestic cases. The Principles are guided by the proposition that, as courts receive a wider range of disputes, a stronger association between the defendant and the prosecuting State is necessary to sustain and uphold the enforceability of the outcome of the judgment.²⁴

Continuing this line of reasoning, as Manuel Castells reminds us,²⁵ information and knowledge are fundamental ingredients in the production process of the Information Society. In this context the following question becomes valid: do we create or co-create intellectual assets? And now, if we consider the question of digital databases formed from the web or the Internet of Things, what would be the outcome of this social and economic equation?

The reality is that software piracy has expanded in line with the growth of the software industry. That is, technology that facilitates access to information also compromises its protection. And today there is this type of risk - of little or no protection - for various new intellectual assets, related to this more digital environment, in addition to the software itself,

²⁴AMERICAN LAW INSTITUTE. *Intellectual property: principles governing jurisdiction, choice of law and judgments in transnational disputes*. Philadelphia, EUA: American Law Institute, 2008. p. 165.

²⁵CASTELLS, Manuel. *The rise of the network society*. 2nd ed. Oxford: Blackwell, 2001. (The information age: economy, society, and culture; v. 1). Available at: <https://deterritorialinvestigations.files.wordpress.com/2015/03/manuel_castells_the_rise_of_the_network_societybookfi-org.pdf>. Access on: 10 June 2017.

which are the databases (both structure and content), the telematic services that range from websites to applications and the artistic works themselves (such as literary, musical and audiovisual works) now removed from the traditional paper-based product and migrated to electronic platforms..

According to Barlow, "[...] this whole context of change is linked to a change in the nature of information itself, both as an activity, as a way of life and as a relationship".²⁶ Certainly, if freedom of information is the rule, but there are two major exceptions to this rule, which are: intellectual rights, which are exclusive rights, such as the copyright, industrial rights and special rights of the manufacturer on a database; and confidentiality, upon which are based all sorts of limitations of access and use, removing the information from free public access for reasons of secrecy, whether due to privacy, business secret, justice secret, state secret.

It has become very clear that the growth in computer use, and the advent of the internet and the increase in digital means of communication, has boosted the development of databases in an unprecedented manner. It has also brought a greater relevance to this collection of information which, when compiled, has assumed a greater value to the Knowledge Society. Before this, in an analogous setting, it would have been much more difficult to build the databases, as well as to reproduce or reuse them. This means that there has also been an increase in risks involving infringements of the property rights of protection over databases

Due to this context, the European legislators decided to create a specific legal framework to deal with the theme of databases, with a two-pronged approach, both to protect the organizational structure with regard to the selection or arrangement of its components constituting a creative character and also to achieve the protection of the content in the sense of verification that there was a substantial investment for the creation and/or collection of the database, bringing the elements of *sui generis* system.

Here, then, it is necessary to initiate the research on the subject of the international law of intellectual property applied to artificial intelligence, presenting some of the dilemmas to which this work proposes to seek answers and whose initial elements for its understanding will be outlined in this introductory part. These questions were also shared with renowned

²⁶BARLOW, John. op. cit.

national and international professors who contributed to the research of the thesis to provide the most solid foundation for the conclusion of the work:²⁷

- a) What is the legal framework to define the existing legal protection of databases today in the principal systems analyzed: they were the Brazilian, European, and North American in a context of applications of IoT and Artificial Intelligence?
- b) Were there inconsistencies or incoherencies in the protection provided by this system that would cause risk to the holders? Or would it make it more difficult for third parties to gain legitimate access to databases?
- c) Is there any disadvantage to society resulting from improvements to the legal protection of intellectual property related to databases, especially considering the current context of the internet and the Internet of Things?
- d) How to balance the necessity to ensure greater protection to the diverse human rights that may be conflicting, among them: privacy, free access to information and intellectual property?
- e) What is the role of antitrust regulation with regards to database protection?
- f) What aspects of database protection are not covered by any legal means, be it law, convention, or international treaty, and which could be covered using other legal measures such as contracts and soft law mechanisms?
- g) Could contracts become the main mechanism to regulate legal protection to databases at international level, using the internet, to its fullest extent, including neighborhood rights along with other rights such as privacy, personal data protection and antitrust? If that is the case what still needs to be done to achieve greater legal efficiency in this regard?

1.2. Concept of databases

We migrated from the Information Society of the 1990s to the Network Society of the 2000s.²⁸ This network society depends on being connected to exist and needs the free flow of data. They are no longer people or things circulating around the world, but data. And this

²⁷See Annex D.

²⁸CASTELLS, Manuel. *A sociedade em rede: a era da informação* (The network society: the information age).. Tradução de (Translation by) Roneide Venancio Major. 10. ed. São Paulo: Paz e Terra, 2007.

data creates databases that establish connections and relationships that in turn are interconnected, generating obligations, responsibilities, rights. Everything that we are and what we want is in these global data flows, through the international digital route of the internet.

It is possible to attack a country's economy just by cutting off its data flow. The economic embargo is now the same. It is enough to determine that a country will no longer allow free access or flow of data from its citizens to another territory for this to have an effect greater than a tariff barrier. This is a new scenario, not yet thought through. For data begins to leave the realm of just being a key component of a base, a structure, to become a determining asset of the sovereignty of a State.

The threat to privacy and the security of databases can trigger a digital war between nations. As well as the deliberate erasure of an entire database of various public entities can generate real social chaos.²⁹ Imagine if this were to occur with the databases of public health or welfare? In this sense, dealing with databases is no longer an issue for discussion only of contractual issues, or of asset protection, but a matter of national security, of government strategy as a measure of protection of a resource essential for the economic sustainability of a country.

And it is precisely when a resource reaches this status of an essential good that it deserves to be duly debated in the international forum and become an issue for a Convention or International Treaty, as has already happened with other issues such as the ozone layer, water, human rights and health.

Without doubt the internet is essential to people's lives. But what is the use of the internet without the databases to be accessed? What is the internet without its content? It would just be one more means of transmitting messages. But its importance lies not only in its power as a means of communication, but in its supply and access to information.³⁰

According to Barém Leite:

²⁹PROOF. Internet das coisas e seus desafios de segurança (Internet of Things and its security challenges). *Proof*, 2017. Available at: <<https://www.proof.com.br/blog/iot-internet-das-coisas/>>. Access in: June 2017

³⁰ASCENSÃO, José de Oliveira. Bases de dados eletrônicas: o estado da questão em Portugal e na Europa (Electronic databases: the state of the art in Portugal and Europe). In: DIREITO da sociedade da informação (LAW of the Information Society). Coimbra: Ed. Coimbra, 2002. v. 3.

[...] one of the difficulties of the modern-day world is the almost connection and inter-relation “of everything”, as nobody is isolated anymore, everyone (and everything) is part of one big system, so that actions that at first seem small have consequences that we don't always consider in the beginning.³¹

In this context, it is important to point out some concepts about what the definition of a personal database around the world is:

In **Singapore** personal data is defined as data, true or not, about an individual that can be identified from this data. In **Mexico**, on the other hand, any information related to an identified or identifiable individual is considered personal data. In **Colombia**, personal data is defined as any information related to one or more identified or identifiable persons or which may be associated with an individual or legal entity. In the United States there are few federal or state laws defining personal information. It seems to Americans that the Principle of *Personally Identifiable Information* (PII) is more important than a watertight concept.³²

The Berne Convention was where we can see the first treatment on intellectual property of databases, and within the cultural context of the time - 1886 - it was only possible to view the databases as being something still very incipient, an analogy with the compilations such as the encyclopedias, anthologies, dictionaries or any arrangement or organization of information whose form had elements of originality that could receive the protection of copyright, but not its content itself, the individualized data.

According to Marcos Wachowicz:

[...] a database is defined as electronic files with data and information and determined and organized to facilitate the consultation, with various contents: cultural, jurisprudential, commercial, educational, etc the access to the computerized databases can be online or off-line, by telephone or by the internet; in any case the accessibility to the digital documentary base will have had prior agreement.³³

³¹LEITE, Leonardo Barém. O direito dos negócios e a propriedade intelectual (Business law and intellectual property). In: A PROPRIEDADE intelectual no novo milênio: ASPI 30 anos (Intellectual PROPERTY in the new millennium: ASPI-Sao Paulo Association of Intellectual Property 30 years). 1. ed. São Paulo: ASPI, 2013. p. 103.

³²CEROY, Frederico Meinberg. Os conceitos de dados pessoais (The concepts of personal data). *Jota*, 07 Nov. 2017. Available at: <<https://www.jota.info/opiniao-e-analise/artigos/os-conceitos-de-dados-pessoais-07112017>> Access: 10 March 2018.

³³WACHOWICZ, Marcos. *A proteção jurídica das bases de dados em face da revolução da tecnologia da informação* (The legal protection of databases in the face of the information technology Revolution). 2005. p. 17. Available at: <<http://www.gedai.com.br/sites/default/files/arquivos/artigo-base-dados-marcos-wachowicz.pdf>>.

The main reason why the protection of databases entered the international agenda for discussion of countries in the 1990s was the fact that there was a great concern about the ease with which it was possible to copy a database in the information market.³⁴ And this observation occurred soon after the great growth of the software industry in the 80s.

However, if on the one hand there were the defenders of the protection of the intellectual property of the databases, on the other there were many opponents. The main argument put forward by those opposing it - and which continues to be supported to this day - is the possible negative effects of creating a monopoly of information. The idea of protecting data simply for its being in a database without having to have the requirement of originality, but only because of the investment made in its creation has caused much debate.

Returning to the historical roots of data regulation in the world, it is important to remember that the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was adopted in 1993, and with its article 10, section 2, it stipulated that the member states of the World Trade Organization (WTO) were obliged to protect databases with laws on intellectual property. In 1996, the World Intellectual Property Organization (WIPO) proposed a package of measures, but they were not adopted due to a lack of support from the

Access on: 13 June 2017.

³⁴ In this sense, it is worth mentioning that there are several problems that privacy violations can bring to the user when applied in an unrestricted manner according to market logic; the actions of Facebook and partner companies of the social media are good examples of how the analysis of cases of violation of privacy through the use of databases are complex and involve several rights. Judge Sandra Ikuta's opinion on complaints involving Facebook and the Zynga Game Network is an example that illustrates this situation: "According to the relevant complaint, Zynga programmed its game applications to collect the information contained in the referrer's header, and then transmitted this information to advertisers and other third parties. As a result, both Facebook and Zynga allegedly disclosed the information provided in the referral headers (i.e., the user IDs on Facebook and the p.1103 address of the Facebook page that the user was viewing when the user clicked on the link) to third parties. In the separate lawsuits filed here, the complainants filed consolidated collective complaints against Facebook and Zynga alleging ECPA violations based on Facebook and Zynga's disclosure of the information contained in the reference headers to third parties. In *Robertson v. Facebook*, the authors claimed that Facebook violated the Stored Communications Act, 18 U.S.C. § 2702 (a) (2). In *Graf v. Zynga*, the complainants alleged violations of both the Stored Communications Act and the Wiretap Act, 18 U.S.C. § 2511 (3) (a). In both cases, the district court determined that the plaintiffs had stopped because they alleged a violation of their legal rights, but nevertheless granted Facebook and Zynga moves to disqualify the plaintiffs' claims under both the Wiretap Act and the Stored Communications Act for lack of a valid claim. The district court read the complaints alleging that the plaintiffs wanted Facebook, Zynga or third parties to receive the communications. Because both the Wiretap Act and the Stored Communications Act permit disclosures to intended recipients, 18 U.S.C. §§ 2511(3)(a), 2702(b)(1), the district court concluded that the complaints did not have a valid claim for violation of the Wiretap Act or the Stored Communications Act. LANDMARK PUBLICATIONS. *Cyber law: software and computer networks-contemporary decisions*. LandMark Publications, Ebook, 2015. p. 149-161.

countries involved. Then, in 1999, WIPO proposed a new Digital Agenda with a package of measures to protect the databases.³⁵ But of even more relevance were the steps taken by the European Commission, which managed to move forward and in March 1996 implemented - after some years of work - Directive 96/9/EC to protect the databases.

However, it should be noted that, despite the harmonizing effect of the Directive, its work has not completely eliminated all the disparities between the national laws of the Member States on this issue. Mainly because the Directive has left it up to each Member State to implement the necessary measures in relation to infringements of protected rights. Therefore, enforcement *in fact* depends on the application of the national courts where the infringement occurred and the interpretation of their respective judges.

From all this discussion, it appears that, in principle, pure data is not considered to be creative and/or original enough to be considered a work. This is because, otherwise, we would be facing an extremely restrictive situation in the field of freedom of information.

For a better understanding of the problem presented in this thesis, it is necessary to define some concepts in order to make a complete analysis of the subject:

- a) Algorithm: an efficient set of instructions sufficiently precise and unambiguous to be carried out by a machine (computer, IoT device, robot).
- b) Information: its original meaning was to ‘either outline or form an idea’, through the externalization of said ideas. The action of informing, in this sense, involves the transmission itself. This information is not to be confused with the packaging that can be embedded, since it is intangible. The information is a result of an interpretation of a set of data, capable of reporting or expressing facts and that, when duly assembled and analyzed can be used, applied to extract knowledge. According to Carlos Barriuso Ruiz,³⁶ the term information emerged in 1928, to define the quantitative measurement of the transmission capacities of the electrical communication systems.
- c) Databases: the databases can be structured (organized) or unstructured (sparse) and represent a set of elements related to facts, things or people. The base itself is what holds all the data but should not be confused with the latter.

³⁵CHWAB, Klaus; DAVIS, Nicholas. *Aplicando a Quarta Revolução Industrial (Shaping the Fourth Industrial Revolution)*. Translation: Daniel Moreira Miranda. São Paulo: Edipro, 2018.

³⁶BARRIUSO RUIZ, Carlos. *La contratación eletrónica (Electronic contracting)*. Madrid: Dykinson, 2002.

- d) Data: comes from the Latin *datum* “something given”. A datum is understood to be an element a set of which can generate information.
- e) Electronic or digital databases: they consist of the collation of data in electronic or digital format, either in their capture (collection) and or storage.
- f) Internet of Things: this concept was developed by the Massachusetts Institute of Technology (MIT) and represents the connection of things and objects to the internet and one another, with an exchange of information, which allows control, traceability, remote monitoring. Therefore, it is a definition that represents a phenomenon because it involves a range of variables. It can encompass devices, means of communications that allow connectivity, the data that is exchanged, the control of the devices and objects that become more intelligent due to this interconnectivity between the things that use and exchange information among each other.
- g) Artificial Intelligence: a system that combines mathematical and engineering functions to enable it to carry out activities or practice skills independently, to think and act rationally.”³⁷
- h) Machine learning: a scientific method of applying types of analysis algorithms expressed by equations that form a set of instructions for a machine so that it carries out a process of generation, testing, disposal and refining of hypothesis using predictive methodology from a certain considerable volume of databases, whilst possibly being able to develop decision making and self-programming skills.
- i) Computer program or software: as defined by Brazilian Law. 9609/98, article 1, the computer program is an expression of a set of organized instructions in natural or codified language, contained in a packaging of any nature, requiring the use of automatic machines for processing information, devices, instruments or

³⁷The term “artificial intelligence” was coined for a proposal for a “study of artificial intelligence for 2 months, ten men”, presented by John McCarthy (Dartmouth College), Marvin Minsky (Harvard University), Nathaniel Rochester and Claude Shannon (Bell Telephone Laboratories). The workshop, which took place a year later, in July and August 1956, is generally considered to be the official birthdate of the new field. Herbert Simon and Allen Newell developed the Logic Theorist, program, considered to be the first artificial intelligence program that would eventually prove 38 of the first 52 theorems of the mathematicians Whitehead e Russell. In 1957 Frank Rosenblatt developed ‘Perceptron’, an artificial neural network that allowed pattern recognition based on a two-tier computer learning network.

peripheral equipment, using digital or analogical systems, to enable them to operate in a specific manner and for specific purposes.

1.3. The rights involved in the databases

Initially, in order to better understand the rights involved in the databases, including whether or not there is a property right involved, or whether author's rights or copyright or other types of protection would be more appropriate, we should begin by examining the Berne Convention, in its article 2.5, which gives the definition of databases as compilations.³⁸

As was previously mentioned, it can be seen, from the outset, that just as the legislator underestimated the software by treating it merely as if it were something similar to a literary work, the same occurred with the databases when they were simply equated to compilations. Perhaps it was just not possible to imagine, at the time, the power that these two creations would eventually attain and their huge economic participation today, which has become extremely dependent on digital technologies and data.

Well, in view of this description from the Berne Convention, the other systems - the European and Brazilian – did a good job of protecting databases in their respective legislations, each one in their own specific way, which we have highlighted.

However, it is important to note that the United States has completely rejected such an understanding. The country never included the protection of databases in the scope of its national legislation, despite making use of contractual safeguards to ensure the rights especially under the claim of business secrecy and confidentiality.

In the case of the European Union, Directive 96/6 established the concept of databases to include "all databases, whatever their form (art. 1, 1), defining them as a collection of works, data or other independent elements, arranged in a systematic or methodical manner and susceptible of individual access by electronic or other means, differentiating between electronic and non-electronic databases (cons.14)."

The Directive provides a clear definition of the essential elements for its legal analysis, among them: the content (which can be any type of text material, sounds, images,

³⁸Berne Convention, article 2.5) the compilation of literary or artistic works, such as encyclopedias and anthologies, which, by choice and disposition of matter, constitute intellectual creations, as such, protected, without prejudice to the rights of authors on each of the works that make Part of these compilations.

numbers, facts, data, any collection of literary, artistic, musical or other works); and the form (which can be any works, data or other independent elements ordered in a systematic or methodical way and individually accessible by electronic means or others).

It should be noted that the approach of the Directive for databases was two-pronged: it protected both its structure (copyright) and its content (*sui generis*). The issue of *sui generis* protection will be detailed in a separate chapter.

The Directive also extends protection to other elements such as those necessary to enable consultation of the database, such as indexing systems (cons. 17, 21, 20). Therefore, the protection covers not only the database (its set and structure) but also the elements for its operation and consultation, guaranteeing both static and dynamic protection for the database.

It must be emphasized that copyright protection is about the form of expression of the database and not about its content as such (the data itself). This is called "protection of the amount" (of the whole).

In addition, both the Computer Programs Directive and the Database Directive require the criterion of originality, as already observed. This is to rule out the possibility of protection of a non-human (automated) creation. At the time, the proposal that came closest to the copyright model and that left aside the purist ideal of the notion of author was not accepted. This is because there is an understanding that the use of machines does not exclude human authorship.

In this sense, the view of the United States is that a program can be considered original if it results from the intellectual effort of a creator and not a copy of another. Protection being the rule and lack of creativity (originality) being the exception. And, probably, this has contributed a lot to the development of American industry. In addition, the copyright principle, unlike the *d'Dauteur law*, requires prior registration for protection to be granted. This makes for greater transparency and openness about developments in the market.

An interesting point to clarify the issue of databases involved the discussion of alphabetical lists, the same with respect to encyclopedias. Due to these types of works, the originality requirements in the organization of the databases were more rigorously put forward, as well as the contents were not protected in isolation, in order to avoid excluding another from being able to use a name or even an entry.

Brazilian Legislation adopted this understanding, when its ratified item XVIII, § 2 and 87,³⁹ since it is not possible to protect the data by copyright, and the database is only protected by its structure. But it is important to highlight a point that will be better developed ahead, which is the issue of databases having a deep proximity with the concepts of confidentiality and business secrecy. In a way, in many moments, there is a legal analysis related to the protection of these rights and their direct relationship with issues of competition law and freedom of information.

Brazilian Legislation declared the inviolability of freedom in the 5th article of its 1988 Federal Constitution and in the 10th clause it states that:

[...] “the expression of intellectual, artistic, scientific and communicative activity is free, unrestrained by censure or license.” In this text we perceive the expressions that specify in which circumstances freedom of speech may be exercised, under the terms of the law: XIV – access to information shall be ensured for all and the confidentiality of the source shall be protected, when necessary for professional secrecy.⁴⁰

The Declaration of the Rights of Man of 1789 affirms in its 4th article that:

4th Art. – The free communication of thoughts and opinions is one of the most precious human rights; every citizen must be able to speak, write, publish freely, but must respond to the abuse of this freedom in the cases determined by the law (Declaration of The Rights of Man, 1789).⁴¹

1.4. The protection of databases as a *sui generis* right

It is important to analyze the background to the creation of the *sui generis* right. In principle, in view of the difficulty of considering the legal solution to the problem of the ease of copying the databases and this generating a great financial loss for the manufacturer of these, since the United Kingdom does not recognize the principle of unfair competition, and on the other

³⁹ Law 9610/98, 2nd Article , § Paragraph 2: "the protection granted in item XIII does not cover the data or materials in themselves and is understood without prejudice to any copyright that subsists with respect to the data or materials contained in the works" and Article 87: "the holder of the equity right over a database shall have the exclusive right, with respect to the form of expression of the structure of such database, to authorize or prohibit: I - its total or partial reproduction, by any means or process; II - its translation, adaptation, reordering or any other modification; III - the distribution of the original or copies of the database or its communication to the public; IV - the reproduction, distribution or communication to the public of the results of the operations mentioned in item II of this article.”.

⁴⁰Federal Constitution of 1988.

⁴¹2002 Brazilian Civil Code, 52nd article: protection of individual rights, where applicable, shall apply to legal entities.

hand not being able to include the principle of investment protection in the scope of copyright, due to the prevailing understanding of the countries of the law system *Droit d'Auteur*, there remained only the possibility of creating the protection of the *sui generis*.⁴²

Why was it necessary to create *sui generis* protection for databases? According to Dario Moura Vicente,⁴³ the main reason was the fact the UK did not recognize the principle of unfair competition and that the databases would be very vulnerable in this respect. Hence this type of protection was created, which is something unique, to try to fill this gap (verbal information).

About the territoriality and the universality of the rights over intellectual assets, Dario Moura Vicente says that:

[...] the constitution in favor of certain people of exclusive rights, or monopolies, of use and exploitation of these assets- as in the case of copyright and related and industrial property rights-sucks, that is why special problems, while with respect to tangible things the respective physical appropriation by itself confers on the possessor the control over them, with respect to intellectual property it is necessary, in order to guarantee to a certain subject its exclusive enjoyment, that the legal system prohibits all the others from using and exploiting them without the consent of the respective holder, even if they have the tangible things that constitute the material supports of such property. This circumstance raises, in international situations, the problem of whether and under what conditions a similar prohibition can be enforced before a different legal system from the one that established it. However, the constitution of exclusive use of intellectual property involves the imposition of restrictions on competition between economic agents and the freedom of public access to such property, as well as, not infrequently, the very creation of new intellectual property from the existing ones. This is why, normally, such exclusives are only granted by the legal order of each country only if they are socially useful and to the extent that this is the case – i.e. because this is the most appropriate way to stimulate intellectual creation or innovation, to promote the differentiation of the goods and services available in the market or to ensure the proper functioning of this.⁴⁴

⁴²DREXL, Josef et al. Data ownership and access to data. Position statement of the Max Planck Institute for Innovation and Competition of 16 August 2016 on the Current European Debate. Available on: <http://www.ip.mpg.de/fileadmin/ipmpg/content/stellungnahmen/positionspaper-data-eng-2016_08_16-def.pdf>. Access on: 10 Feb. 2017.

⁴³Dario Moura Vicente. Personal Interview granted in Lisbon on 1th March 2017. Transcript of the original passage: "The *sui generis* right to databases was created in Europe and is a very controversial right. The problem is unfair competition, without authorization from the manufacturer of that database is considered as unfair competition. It turns out that in Ireland and England there is no such concept of unfair competition and that is why it was created to fill that gap in those two countries. Basically, it is a mechanism that makes it impossible for information to flow."

⁴⁴VICENTE, Dário Moura. *A tutela internacional da propriedade intelectual (The International Protection of Intellectual Property)*. Coimbra: Almedina, 2008. p. 14-15.

The issue is complex, given that, back in 1997, even Germany, adopted the Directive on databases in its national legislation, deleting the term *sui generis* and replacing it with the expression "protection of the manufacturer of databases", which was addressed with relevant laws. The United Kingdom, also in 1997, removed the term *sui generis* and database rights were classified as a property right.

The software and the database probably should not have been fully under copyright, they should have been in a separate category as moral protection does not seem appropriate. Perhaps the databases should not even be classed as intellectual property in view of the transformation that we are undergoing in becoming a "Robot Society", perhaps we are in need of a new type of law, as Basedow stated⁴⁵ (verbal information), in a personal interview.

As for the change in the nature of intellectual rights, in the vision of Ascensão:

With all this, information (always in the broad sense) develops an increasingly important role. It becomes a strategically decisive element of social evolution and a determining factor in people's behavior. [...] In this evolution, information, which would be the content, is changing its nature. It now encompasses any content of communication [...] Knowledge itself becomes a commodity; free knowledge becomes a relevant resource. It is increasingly the object of exclusive rights, which are intellectual rights. These, in turn, are increasingly dissociated from personal aspects to be considered mere patrimonial attributes, positions of advantage in economic life.⁴⁶

In the same line of reasoning, Jean-Luc Putz asserts:

In a broad sense, copyright falls into the category called "intellectual property". In the technical sense, it would be a true intangible right and property enforceable against all (*erga omnes* enforceability), and therefore an intellectual stance. It would then be a hybrid right, of a real and personal

⁴⁵Jürgen Basedow. Max Planck Institute. Personal interview granted in Hamburg on February 20 2017. Transcript of the original passage: "But when you do a research and you ask people what they are eating and you do that for a government. And instead of having people asking for that information, if you have machines who are doing this? Why can't we consider this as an intellectual property? Copyright is concerned with human dignity and in our law, it is not even possible to sell a copyright, I can transfer the right of exploitation but the moral rights it is not possible to transfer. It is very hard to put living habits as copyrights. But we are changing our society into a robotic one. There is no human contact and when I collected information itself it has no right. But when this data comes to a database and starts to be developed with a specific knowledge. I have to protect this information from being stolen. For the time being there is nothing like that. And he is not sure that someone would be able to claim that he or she is the owner of this data. You have to invent a new type of right. With databases, software rights and so on. There is of course the question of the access to the rights or if economic exploitation should be limited and complain. I cannot say that I want to protect an individual on his individuality (privacy) as soon as I say that this is an intellectual property. There is no longer individual protection and there is commercial exploitation. It is really hard to affirm that we can allow that each detail of our life could be exploited for commercial purposes."

⁴⁶ASCENSÃO, José de Oliveira. Sociedade da informação e mundo globalizado (Information Society and the Globalized World), cit., p. 19-22.

nature. More specifically, the connection with the right in rem would reside in the property right that is mandatory and confers on the holder the right of exclusivity. And on the other hand, it would be a pre-existing right, related to the human person of the creator, in its moral aspect. Therefore, from this unique understanding, it can be considered that it is a type of *sui generis* right.⁴⁷

So, in general terms, given all this, databases are protected by copyright and *sui generis* law in the European Community. Thus, both in the European and Brazilian systems, to be protected, the databases must constitute an intellectual creation by their selection or availability of content, without prejudice to the rights that remain on the content of the database (right apart, if there are any). If the databases are endowed with creativity (originality) they are guaranteed protection by copyright, if they are not, they will be granted protection by *sui generis* right and it must be demonstrated that there was a substantial investment for the creation or collection of the database that justifies its protection.

In the United States, on the other hand, protection occurs by copyright,⁴⁸ i.e., there is a requirement for registration, and there is no protection by *sui generis* right.

This, in short, protects investment in the production of information provided that it is substantial. And this includes the means dedicated to searching for the elements that will compose the database, as well as the means used to create the content of the database. Because it can be composed of new elements (data that did not exist), or by captured elements (data that already existed only obtained from public space or nature, or collected from individuals or things).

To illustrate the difficulty of implementing database protection, see this 2004 CJEU decision, which concluded that:

[...]the principle of investment linked to obtaining the content of a database within the meaning of article 7, No. 1 of Directive 96/9/EC, of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, it should be understood as designating the means dedicated to the search for existing elements and their collection on that basis. It does not include the means used to create the constituent elements of the content of a database. In the context of the preparation of a match schedule for the purposes of organizing football championships, the concept of investment

⁴⁷PUTZ, Jean-Luc. *Le Droit d'Auteur (Author's rights)* Promoculture-Larcier, 2013. Ebook Kindle Version. p. 399, 413, 427.

⁴⁸ U.S. Federal Constitution, article 1, Section 8, 8th clause.

is not therefore the purpose of the determining of dates, schedules, and pairs of teams for the different matches of these championships.⁴⁹

Therefore, according to the Court of Justice of the European Union (CJEU), the means used to create the constituent elements of a database would not be subject to legal protection by the exclusive right of the manufacturer. In the case of the fixture list, the information on the dates of the game (constituent elements) is not protected. It would not be possible to prevent another person from making use of it under the *sui generis* right (protection on the content of the database). Therefore, only the protection by copyright would remain, with the originality and exteriorization requirements (creativity). And even so, the protection would be of the structure (form and organization) and not of the content.

José de Oliveira Ascensão analyzed the issue, in an article entitled "Intellectual Property and Internet", in which he criticized the term *sui generis* about the content, in a very interesting way, since he highlighted the independence of the database of creativity of the one who owns it (which, incidentally, finds support in Directive 96/9/EC itself) because this, according to him:

[...] is not limited to the copyright protection of databases which, by the selection of disposition of the materials, constitute a specific intellectual creation -art. 3(1); it also created the *sui generis* right on the databases. This right is independent of whether or not the database is creative; the criteria only that the base "represents a substantial investment from a qualitative or quantitative point of view" -art. 7(1).⁵⁰

But equally, Ascensão observed⁵¹ - as to the qualification as a *sui generis* right - that "[...] the qualification of the right as *sui generis* clarifies nothing: it was only intended to avoid the classification as a right related to copyright. In essence, its objectives would be achieved through unfair competition."

It is worth remembering here, the words of Alexandre Pereira:

⁴⁹Jurisprudências do TJUE Proc (Proc jurisprudence of ECJ). C-203/02, *British Horseracing Board Ltd v William Hill Organization* e Proc. C-46/02, *Fixtures Marketing Ltd. Vs Oy Veikkaus Ab.*, Col. 2004, I-10365).

⁵⁰ASCENSÃO, José de Oliveira. *Propriedade intelectual e internet (Intellectual property and internet.)*. 2014. p. 8. Available at: <<http://www.fd.ulisboa.pt/wp-content/uploads/2014/12/Ascensao-Jose-PROPRIEDADE-INTELECTUAL-E-INTERNET.pdf>>. Access: 10 July 2017.

⁵¹Id. Ibid.

[...]that with regards to databases, the doctrine of *essential facilities*⁵² also applies which end up being an exception to protection, a kind of neighborhood right, allowing competitors to have access to the network and the essential means, who compete with those who refuse access, when other competitors control an essential infrastructure.⁵³

The understanding of Sánchez regarding the treatment of intellectual rights as property is worth mentioning:

The principle of property or dominion is much older than that of intellectual property. Property is the most complete real subjective right that encompasses the greatest number of faculties: freedom to access, to enjoy, to exclude, to claim, to pursue. This principle has undergone many transformations throughout history, from an absolute conception of classical Roman Law to a more limited conception of Justinian Law, through medieval change to the most bourgeois contemporary conception. In any case, it is a right that appears granted *ex lege* from the beginning, and that suffers limitations to its control since its acquisition by the holder whose restrictions are imposed on it for the benefit of society. Therefore, the most current vision is that of the social function of property, an idea that belongs to DUGUIT with clear precedents in COMTE's work and the Weimar Constitution.⁵⁴

Updating this doctrine to the present day, imagine if a certain company with a dominant position in the market, such as a large internet search engine, would have to give access to its databases to its competitors in order to avoid precisely this exclusive and disproportionate use of an essential infrastructure. In a way, the basis of the principle of neutrality would be derived precisely from this. It is interesting to note the difficulty that this principle has had to become established in the North-American system.⁵⁵

On the other hand, while dealing with Internet search engines, the Bundesgerichtshof - Federal Court of Justice of Germany - (BGH) considered that the search results presented

⁵²This doctrine is the basis of the U.S. Federal Communications Act (1934).

⁵³PEREIRA, Alexandre Libório Dias. *Direitos de autor e liberdade de informação (Copyright and freedom of information)*. Coimbra: Almedina, 2008. p. 420.

⁵⁴RAGEL SÁNCHEZ, Luis Felipe. La propiedad intelectual como propiedad temporal. In: VIDE, Rogel Carlos (Org.). *La duración de la propiedad intelectual y las obras en dominio público (The duration of intellectual property and works in the public domain)*. Madrid: Reus, 2005. p. 17-18.

⁵⁵According to information extracted from the official website of the Federal Communication Commission (FCC) of the United States, there is a current proposal to review the concept of network neutrality in the country, since the commission accepted the suggestion to stop regulating broadband as an essential service, reclassifying it as a private mobile service. In other words, unlike the rule established in 2015, which allowed the FCC to regulate the service of providers, there is the possibility in 2017 that the body will no longer interfere in the provision of internet, since it will no longer be classified as a telecommunications service. (FEDERAL COMMUNICATIONS COMMISSION. *Restoring Internet Freedom*. Available at: <<https://www.fcc.gov/restoring-internet-freedom>>. Access on: 1 June 2017).

by search engines do not violate the *sui generis* right of database manufacturers. That is, in a way, the search performed in search engines would be within the freedom of information.

However, the Court in Bailiff, Denmark, recognized in a case involving news sites⁵⁶ that the use of web bots for deep linking may indeed violate manufacturers' database protection rights under Danish author's rights laws transposing European Directive 96/9/EC.

In spite of all this, remember that there is the possibility of the creation of original databases and claims of the respective human creators with respect to the moral rights of their works.⁵⁷ This is why it is important to establish very clear clauses in the employment contracts of professionals who work with databases, since there has been a growing demand in the market for these specialists in data mining, Big Data, Data analytics. Thus, the question of the possibility of creation or co-creation of the database by users of products or services whose devices are information capture devices (such as smartphones, smart TVs, e-readers, smart watches, smart cars, smart robots, smart homes, smart appliances and virtually all equipment with Internet of Things devices - IoT) will be examined further.

Moreover, when we enter the scope of genetic databases, the issue becomes even more complex. This topic should be analyzed from two perspectives: that of the interest of health, both public (prevention and planning of public health) and private (pharmaceutical and hospital industry); as well as that of public security, due to the importance of genetic databases (biobanks) for forensic purposes.

Sharing this view are Helena Machado and Helena Moniz who explain what a genetic database, also known as a "biobase", consists of:

A genetic database for forensic purposes aggregates a set of genetic profiles that are determined from biological samples collected from a set of individuals or found at crime scenes. In the context of a criminal investigation, genetic profiles obtained through these channels may be compared with profiles already included in a forensic genetic database in order to determine whether or not a positive match occurs. The archiving of genetic profiles, and any other type of information contained in the database, is carried out in computerized files. The use of forensic genetic databases may serve criminal identification and civil identification purposes. In other words, it can be used for various purposes, such as: to identify perpetrators and victims of crime, victims of disasters, missing

⁵⁶ Jurisprudence of the Court of Bailiff in Denmark in the case *Danish Newspaper Publisher's Association v. Newsbooster.com ApS* de 05 June 2002.

⁵⁷SOUZA, Thiago Arpagaus de Souza. Direitos morais autorais da pessoa jurídica: possibilidade de aplicação (Legal entity's copyright: possibility of application). In: *A PROPRIEDADE intelectual no novo milênio (Intellectual Property in the New Millennium): ASPI 30 anos*. 1. ed. São Paulo: ASPI, 2013.

persons and to establish family ties between individuals. The reflections contained in this book focus exclusively on the role of forensic genetic databases in the field of application for criminal identification and investigation.⁵⁸

In view of the growing investment not only by the pharmaceutical industry but also by the State itself, especially the judiciary in the formation of these "biobases", due to their important role for health and social security, it is clear that forms of protection must be given to the exploitation of this information that also require high maintenance costs to ensure the security of the information due to the level of sensitivity of the data. The new personal data protection regulations also require a series of measures to be implemented to ensure that these "biobases" are properly handled.

The classification of these scientific databases (biological and genetic bases) as intellectual property is controversial, and a restriction of access to these bases could be considered a barrier to scientific and academic progress. Another complicating factor is the public interest of the State in accessing this information. Security of these bases must be kept to the maximum as they are of high risk both for those with the burden of storing and for the owners who may have their data exposed in the case of a leak or inappropriate use.

For this reason, many countries in recent years have enacted laws related to the issue of "biobases", as well as medical ethics and research on the human genome. Among them, Portugal, with Law no. 12/2005, which establishes in its article 16, 2: "[...] the free access of the scientific community to data emerging from research on the human genome must be guaranteed!"

But, what about the databases of public agencies? Would they be excluded from the protection of *sui generis* right? By the European Directive, they would be included. However, what about the United States? In light of the fact that, as has already been said, that the United States has not embraced the *sui generis* right, neither will it allow protection by copyright on public information.⁵⁹

⁵⁸MACHADO, Helena; MONIZ, Helena. *Base de dados genéticos forenses (Forensic Genetic Database)*. Coimbra: Coimbra: 2014. p. 14.

⁵⁹This protection is provided for in Article 17 of the U.S. Code § 105 which states: *subject matter of copyright: United States Government works. Copyright protection under this title is not available for any work of the United States Government, but the United States Government is not precluded from receiving and holding copyrights transferred to it by assignment, bequest, or otherwise. (Pub. L. 94-553, title I, § 101, Oct. 19, 1976, 90 Stat. 2546.)*

The end result is that the legislator should have created new, autonomous legal forms to be used for software and databases, and this distorted picture persists until today, in the wrong direction, which has been exacerbated by the increasing development of new digital technologies. Taking into consideration the new applications of artificial intelligence and the use of "caring robots", as well as the jurimetric systems in the judiciary, all this will have to be much better resolved from the point of view of ethical and legal aspects, in order to continue to generate incentives for innovation, which requires a lot of investment, but within acceptable parameters that meet the principles and treaties of human rights.

The solution of the creation of the *sui generis* ended up proving to be much more a palliative than a structuring measure, a kind of right connected to author's rights, but a substitute for the principle of unfair competition only when applied to databases. The result is it ended up being labelled as "copyright without work by the European academic community."⁶⁰

It is by its fluid and fragile juridical nature, destined for failure, without any condition for it to be sustainable over time. So much so that, several countries have not applied this terminology when adopting the Directive in their national legislation.

This is due to the fact that a special right has been reserved for the content of databases, but which in the end translates into a form of competitive protection of "economic and organizational performances" (Directive 96/9/EC art. 7, items 1 and 4). And this issue of having to demonstrate a substantial investment has remained very obscure, difficult to specify. After all, it is something very relative, depending on the type of database or the industry involved.

In fact, what happened was that the legislators at the time, for various reasons, did not want to confront the problem with the profound attention it required, as maybe it was too early, with such technological development being in its infancy, since this was before the beginning of the 2000s and the world would change very shortly after from the point of view of the socioeconomic impacts of the use of new digital technologies.

⁶⁰ASCENSÃO, José de Oliveira. *Propriedade intelectual e internet (Intellectual property and Internet)*, cit., p. 22.

1.5. The requirement of originality

The issue of originality applied to databases is a point that deserves careful consideration. How, in fact, should we consider the requirement of creativity for the formation of databases? In what sense does it mean that, in order to achieve copyright protection, there must be originality?

For Carlos Alberto Bittar: "Besides, it presents a relative originality, not demanding absolute innovation, so, in another way, the exploitation, even unconscious, of the common natural patrimony is inexorable."⁶¹

In the same way, Silmara Juny of Abreu Chinellato clarifies:

For their very lack of originality, it is innocuous the non-occurrence of copyright in relation to technical publications works, because they do indeed lack originality, in verbiis: The Brazilian doctrine has no doubts in applying the non-occurrence of Copyright Law to regulatory procedures, as we can see, for instance, in the lessons of Carlos Alberto Bittar which we have already witnessed, which emphasize the preponderance of collective interests to remove the copyright protection to certain works, including the regulatory procedures. There is no authorial tutelage to them nor to their form of expression, for lack of creativity. Being mere descriptions, there is no way to protect the way in which the description of the technical regulation is made.⁶²

It will be quite challenging for law to keep pace with the advances of the increasingly technological society if regulatory thinking wishes to fit the new businesses and behaviors of the digital age in a vision that was appropriate for the last century.

How long will law continue to look to the past to build the future? Because the answer will not always be in what has already been invented by previous generations of jurists, on the contrary, it may be extremely necessary to let go of these already obsolete pre-formatted models.

Real progress will only occur if it is also possible to innovate in Law, so that it can keep pace with the evolution of other sciences. Law needs to break paradigms again, as it

⁶¹BITTAR, Carlos Alberto. op. cit., p. 1333-1334.

⁶²CHINELLATO, Silmara Juny de Abreu. Norma técnica, direito de autor e direito do consumidor (Technical standard, Copyright and consumer law). In: MORATO, Antonio Carlos; NERI, Paulo de Tarso (Orgs.). *20 anos do Código de Defesa do Consumidor: estudos em homenagem ao Professor José Geraldo Brito Filomeno* (20 years of the Consumer Code, studies in honour of Professor José Geraldo Brito Filomeno). São Paulo: Atlas, 2010. p. 38.

once did in other eras. There are conceptual premises so solidified in intellectual property that almost a deconstruction of the principle is required for its readjustment to the digital reality.

True legal dogmas have been created, such as the requirement that protectable creation can only be human, that the work must be endowed with originality (creativity) and now what was once a tool of liberation has stifled the progress of new ideas for the advancement and prosperity of intellectual property in an economy no longer of movement of people, goods or services, but of data flows, where intellectual assets have become data.

1.6. Repression of unfair competition as a scope of *sui generis* right

Competition law has proven to be an important ally to the protection of intellectual property in recent years, mainly to fill in the gaps where the copyright legislation failed to give the proper treatment.

As the market is disputing data, and this competition is increasingly fierce, it is natural that the ethical and legal contours are given by the competition laws as well as by contracts.⁶³ After all, no business today can develop without data.

But this is a type of right that if poorly used may end up bringing a kind of unfair competition in reverse, that is, whoever owns the data may, by his right, exclude others from access to that information, which ends up resulting in hindrance of free market practices, depending on the market in which a certain company is active and the degree of dominance that it has with respect to the databases.

Imagine if a company like Google, which has a lot of access to information, overnight chooses to which companies it will provide access to the data and what data it will give, depending on the type of company, since Google today has several types of business and, due to this, many conflicts of interest.

In this sense, the report commissioned by the European Commission for the company Osborne Clarke PP⁶⁴ raises several concerns regarding the databases related to health, in

⁶³CANTNER, Uwe. Industrial dynamics and evolution – the role of innovation, competences and learning. In: DREXL, Josef; KERBER, Wolfgang; PODSZUN, Rupprecht (Eds.). *Competition policy and the economic approach: foundations and limitations*. Cheltenham, UK: Edward Elgar Publishing, 2011.

⁶⁴OSBORNE CLARKE LLP. *Legal study on ownership and access to data*. Final report – Study. A study prepared for the European Commission DG Communications Networks, Content & Technology. Europe Union, 2016. p. 22-24. Available at:

<<https://publications.europa.eu/en/publication-detail/-/publication/d0bec895-b603-11e6-9e3c-01aa75ed71a1/language-en>>. Access: 15 Feb. 2017.

particular due to the large occurrence of mergers and acquisitions of companies in this sector.⁶⁵

It was at this moment that the alert was raised, especially from the European community, in the face of the excessive concentration of economic power of databases with US companies and how this would affect antitrust law rules. And not only that, but also other rules such as the protection of personal data and those of information security and privacy (in the sense of not monitoring and spying on allies).⁶⁶

For this reason, simply leaving it only to the free agreement between the parties, to the business and contractual relations, may not be the best strategy when it comes to the dispute for the databases of the digital society, as will be seen. However, in order to better discuss the issue, it is necessary to highlight, first of all, what are the essential attributes for the existence of competition. According to Isabel Vaz's studies,⁶⁷ it is necessary to have the presence of three different factors: 1. Time; 2. Object; 3. Market.

Thus, in the understanding of Cristiane Manzueto, the necessary identity for there to be competition is not the territorial identity, but the identity of the market. And this is fundamental to the current scenario of digital reality with the multi-territorial space of the internet, since if it were another understanding, the institute of unfair competition would be much more limited.⁶⁸

José Oliveira Ascensão defined unfair competition as:

[...] the mere appropriation or the enjoyment of other's positions is not sufficient to characterize unfair competition. And the business elements of others can be protected by a private right or not. ...] if they are not protected, it must be taken into account that the great principle is that of free competition. And free competition leads us to say that everything that is not reserved is free. Freedom of competition implies that the business elements of others can be used by anyone. This means that even copying is a free

⁶⁵OSBORNE CLARKE LLP. *Commission Communication on "Free Flow of Data" Input from the Independent Automotive Aftermarket*. FIGIEFA - Automotive Aftermarket Distributors. Europe, 2016. Available at:

<https://www.figiefa.eu/wp-content/uploads/Free-Flow-of-Data-FIGIEFA-Input-2016_12_23.pdf>. Access: 23 June 2017.

⁶⁶DETERMANN, Lothar. *Determann's field guide to data privacy law: international corporate compliance*. 2nd ed. Cheltenham, UK: Edward Elgar Publishing, 2015. (Elgar Practical Guides).

⁶⁷VAZ, Isabel. *Direito econômico da concorrência (Economic competition law)*. Rio de Janeiro: Forense, 1993. p. 27.

⁶⁸MANZUETO, Cristiane dos Santos; TAVARES DIAS, Fernanda Mósca. Concorrência desleal, concorrência parasitária e aproveitamento parasitário (Unfair competition, parasitic competition and exploitation). In: *A PROPRIEDADE intelectual no novo milênio (Intellectual Property in the New Millenium: ASPI 30 anos*. 1. ed. São Paulo: ASPI, 2013.p. 187.

principle. For there to be unfair competition there must be a specific qualifier that makes imitation, in principle free, a prohibited activity.⁶⁹

This is an important lesson of Ascensão, since as he wisely puts "what is not reserved is free". Hence the importance of further analysis of the issue of database protection and how the rights related to them are, given that there are many and sometimes conflicting interests in them.

By carefully observing the rule of Article 195 of Law No. 9.279/96⁷⁰, it can be seen that there are some acts that notably qualify as unfair competition, since they are extracted from the very wording of the law, even though they do not have a limiting roll (merely an example), as they are: confusing acts, denigrating acts, acts that tend to error, acts that attack the competitor's organization, acts of cunning diversion of clientele and parasitic acts (such as some types of systematic imitation acts that exceed the reasonable limit of free price competition or that cause an aggressive dilution of another's brand disproportionately and unjustifiably).

In practical terms, it is due to the gaps left by the law, in all the systems compared here, be it the Brazilian⁷¹, the European or the North American, that when it comes to the protection of databases, on the one hand, they seem to protect, but in reality do not, as in many cases, the legal solution ends up being provided by anti-trust law.⁷² In the words of Calixto Salomão Filho:

Guaranteeing competition means, at the same time, guaranteeing different things. First of all, it is necessary to ensure that competition develops legally, i.e. that minimum rules of behavior are respected among economic agents. The objectives of these minimum rules are double-faceted. First, to

⁶⁹ASCENSÃO, José de Oliveira. *Concorrência desleal (Unfair Competition)*. Coimbra: Almedina, 2002. p. 441-442.

⁷⁰Lei 9279/96 - Art. 195: "Who commits a crime of unfair competition...: XI - Discloses, exploits or uses, without authorization, knowledge, information or confidential data [...] excluding those of public knowledge [...] who had access through a contractual relationship or employment, even after the end of the contract; XII - Discloses, exploits or uses, without authorization, knowledge or information referred to in the previous item, obtained by illicit means or access through fraud; Penalty: Detention from 3 (three) months to 1 year, or fine".

⁷¹Still with respect to the Brazilian legal system, it is necessary to mention articles 884 and 885 of the New Civil Code of 2002 which apply to the repression of unfair competition. 1.

⁷²Article 10a, § 2, of the Paris Convention for the Protection of Industrial Property (Paris Convention) also defines "an act of unfair competition [such as] any act of competition contrary to honest uses in industrial or commercial matters". From the provisions of Article 10bis of the Paris Convention, it can be concluded that any act committed in the context of the market that has the purpose or effect of diverting the clientele of an economic agent by means of deception is unfair.

ensure that the relative success of companies in the marketplace depends solely on their efficiency and not on their 'business savvy', i.e., their ability to divert consumers from their competitors without this resulting from comparisons based solely on market data.⁷³

The principle of unfair competition would eventually bring about a more effective protective outcome over time. Perhaps because it is easier to demonstrate the elements that typify business disloyalty than the originality in creating either the software or the databases.

According to Jane Ginsburg, technology should be an ally of authors and not seen as an enemy: "the future of copyright for professional authors is much more likely to depend on the development of consumer-friendly protection and payment tools."⁷⁴

In the end, the sui generis right ended up being an exception to the right of access and did not provide a greater guarantee against the possibility of imposing non-voluntary licenses.⁷⁵

⁷³ SALOMÃO FILHO, Calixto. Conduct aimed at market domination: legal analysis. São Paulo: São Paulo Law School, 2001. apud RODRIGUES JR., Edson Beas. Suppressing unfair competition in e-commerce: sponsored links, unfair marketing strategies, internet search engines and trademark rights violations. *Revista dos Tribunais*, São Paulo, v.104, n. 956, p. 35-93, nov. 2015. p. 12.

⁷⁴ GINSBURG, Jane C. O lugar do autor no futuro do copyright (The place of the author in the future of copyright). Ruth Okediji, ed., *Copyright in an Age of Exceptions and Limitations*, Cambridge University Press, 2015; Columbia Law and Economics Working Paper No. 512. Social Science Research Network (SSRN). Available at: <<https://ssrn.com/abstract=2574496>>. Access in 10 July. 2017.

⁷⁵ Non-voluntary licenses or also involuntary calls are provided for in Directive 96/9, Article 16. 3.

CHAPTER 2. CHALLENGES ON THE PROTECTION OF DIGITAL DATABASES WITH NEW TECHNOLOGICAL DEVELOPMENTS

2.1. The breaking of the paradigm of packaging and the internet

Digital technologies have made support irrelevant and eliminated the principle of scarcity, making creation easily shareable, especially in the field of copyright. Thus, it would be necessary to revise the current intellectual property model and deconstruct its principle through a new reflection of the theoretical bases and a revision of the current mechanisms of regulation of knowledge flows, so that the model could be rethought without any stimulus to create monopolies (which would be against the public interest) and only then would it be possible to create a healthy competitive ecosystem.⁷⁶

According to Miguel Baptista Pereira⁷⁷, in his work *Philosophy of Communication*:

All stored information is also debilitated and isolated and, therefore, Wiener formulated the principle of circulation, which transforms information into a process, from whose paralysis would result social decadence, because information is the cement of society. The conversion of information into merchandise stored for profit is synonymous with degradation and weakening of the continuous current that must irrigate society.

Since the beginning, it has been the control of copying and reproduction of intellectual assets that has always ensured a system of patrimonial exploitation of these resources, since there is a need to apply the same valid economic rule to other goods and services, which is the system of scarcity to determine value. Therefore, if the scarcity is eliminated, it also tends to reduce to zero the patrimonial value of the intellectual asset. Although moral rights over creations can still be preserved.

⁷⁶MACHADO, Jorge. op. cit., p. 11-12.

⁷⁷PEREIRA, Miguel Baptista *apud* PEREIRA, Alexandre Libório Dias. Bases de dados de órgãos públicos: o problema do acesso e exploração da informação do sector público na sociedade da informação (Databases of public bodies: the problem of access to and exploitation of public sector information in the information society). 2002. p. 1. In: ASSOCIAÇÃO PORTUGUESA DE DIREITO INTELECTUAL (PORTUGUESE ASSOCIATION OF INTELLECTUAL LAW). *Direito da Sociedade da Informação. (Information Society Law)* Coimbra: Coimbra Ed., 2002. Available at: <<https://estudogeral.sib.uc.pt/bitstream/10316/28778/1/BASES%20DE%20DADOS%20DE%20C3%93RG%20C3%83OS%20P%20C3%9ABLICOS.pdf>>. Access in: 26 July 2018.

Therefore, the breaking of the paradigm of packaging, as an element of imprisonment of the content, made the information free in a way never thought before. Until then, in the relations of mercantile goods with intellectual assets, in fact, the exchanges revolved around the medium, that is, what was acquired was the medium in which the content was and not the content itself.

Even though the internet was born from a desire to give access to collective knowledge, it must also promote the fair remuneration of those who invest their effort and time in the production of knowledge. And for this reason, Intellectual Property (IP) cannot be predatory, under penalty of not stimulating more innovation. That is why it is limited in time. But, what about the databases?

There is a great fear of illegitimate appropriation of information that should be of common access, of collective interest, by a few companies. Therefore, the focus of attention should be on how to create a model that allows this possible fragility to be corrected, rather than saying that it will not be guaranteed any protection at all and will remain as it is undefended by a set of basic rules and the beautiful pleasure of the free will of contracts.

There can be no barriers to access to knowledge through research or competition, provided that there is due caution. There are two exceptions to this rule of freedom of information: intellectual rights and rights of confidentiality. These include secrecy by force of law (banking, tax, justice), state secrecy, industrial or business secrecy, and privacy.

But of course, after the computer revolution, databases became more relevant. Because computers were, mostly, developed to replace humans in the processing of large volumes of data and come up with a result. And the consequence of that was the formation of databases.

But to increase the efficiency of computers, a leap forward was made, software programs were developed, which began to use a programming language to create algorithms⁷⁸. That is why some inconsistencies are beginning to appear in the way the protection of these new types of creations is approached. This is because, due to all the historical evolution of copyright, a simple analogy was made between software and literary

⁷⁸Algorithm is a word of Arab origin (*al-khuvarizmi*) which means a finite set of unambiguous instructions that produce predefined results for solving a problem.

works, equating them with each other. And adding, then, to the software, the requirements of exteriorization and originality. And the same happened with the databases.

But, as Alexandre Pereira states: "[...] the application of the originality requirement in the software domain greatly reduces its protection by copyright".⁷⁹ Would this be a merely symbolic protection?

This issue becomes relevant, because databases face the same dilemma, since it is very easy to reproduce them without even hurting any right, because the protection does not fall on the content itself, since the pure data is not protected, but on the structure and its entirety (the "whole" of the database).

US jurisprudence has developed a very interesting method - which looks more like a formula - to verify if software counterfeiting has taken place. It consists of an "abstraction-filtration-comparison" test. Thus, first the criterion of abstraction is checked, distinguishing itself in increasing order of generality, from the source code, the object code and the other essential elements of the program. The filtering is then carried out, where the functional elements relating to the efficiency or speed of the program are removed in order to compare the program with what remains in the public domain and then verify what would originate from it. In this way, it is possible to evaluate and distinguish the written or static structure of the program and its performative or dynamic structure.

However, according to Alexandre Pereira⁸⁰ this method provoked a rethink of software protection, causing many to seek in the patent institute a legal formula for more effective protection than in copyright. This way, the result would be protected and not only the form of expression, since there are many ways to express and reach the same result when it comes to writing a computer program.

2.2. Analysis of database formation in the digital age

One of the most picturesque points about databases is precisely their nature. This is because a database is ultimately a collection of elements that by their collating or grouping generates information. But an isolated data may not mean anything.

⁷⁹PEREIRA, Alexandre Libório Dias. *Direitos de autor e liberdade de informação (Rights of the author and freedom of information)*, cit., p. 399-400.

⁸⁰Id. Ibid., p. 401-402.

It is very interesting when one analyzes language as one of the techniques of Comparative Law, because in the English language the expression “piece of data” is used. For other languages, such as Portuguese, it doesn't seem to make any sense to say a "piece of data" or a "piece of information" in the same way as a “piece of pizza”. But this term is also used there to refer to a “piece of advice”.

The concept of databases has evolved with the advent of the computer and the growth of the software industry itself. With this, the term Database Management System (DBMS) was used to refer to the set of programs that enable the storing, modifying, extracting of information from a database.

As an example, a traditional database is organized into fields, records and files. A field is a single piece of information, a record is a complete set of fields, and a file contains a set of records (e.g.data-information-field-record-file).

Therefore, considering a phone book, it can contain a list of records. Each record has at least three basic fields, which are, name, address and telephone number. Normally, a request to a database is made through a query that means a stylized question.

Bringing this to the present day, analogously, a bitcoin, which is considered a type of digital currency, within the category of cryptocurrencies, is actually a database. Because it is formed by a system that contains a set of records, which in turn will store files with fields and all this will be accessible upon request. Almost all the structures of the digital product and service models originate in a database format.

That said, as Ning Zhao⁸¹ teaches, there are 4 legal theories that influence the choice of applicable law on intellectual property issues. And this is of extreme relevance in the analysis of the question about the databases. They are: the theory of property, the theory of personality, the theory of *sui generis* and the theory of monopoly (which is that of antitrust law).

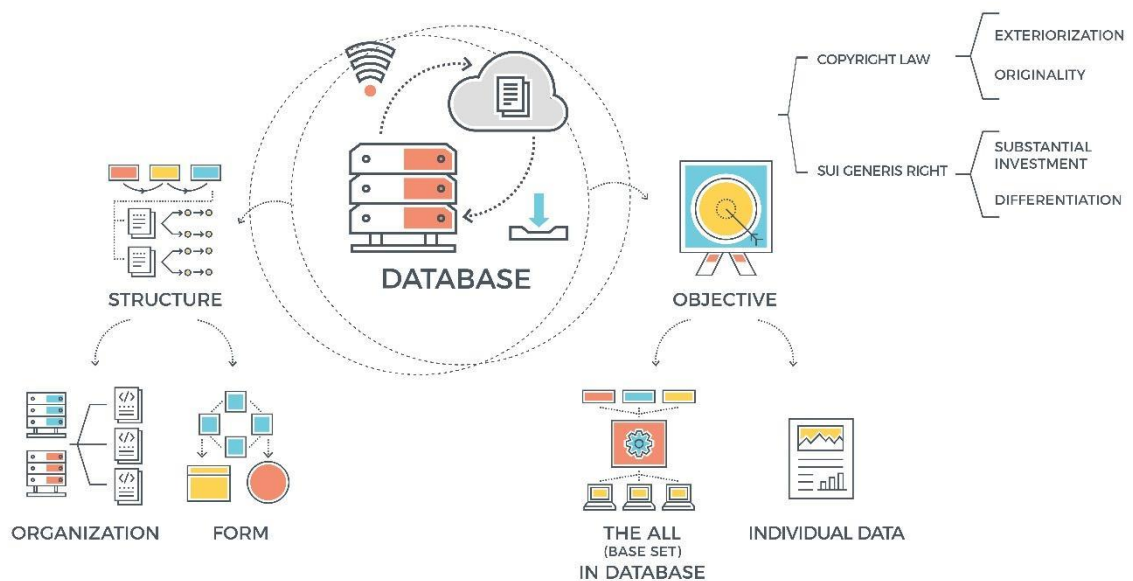
Now, would it be possible to transpose these four theories for the protection of the database? To do this, an analysis needs to be made of the types of data that can make up a database, how they can be made, by whom they can be made, and how their structures are created. And from this framework it is possible to define which of the theories best applies,

⁸¹ZHAO, Ning. *Choice-of-law in cross-border copyright and related rights disputes: comparative inspiration for the PRC*. Ulrik Huber Institute for Private International Law, 2012. p. 10-12. (Doctoral Series 14).

whether one, more than one, all, or none, if it would be necessary to create a new theory to meet the current complexity of the socioeconomic dynamics of databases.

Thus, we can demonstrate the database protection framework as follows, as shown in Figure 1:

Figure 1 - Formation of Primary Databases (*Data Lake*)



Source: The author

2.2.1. Corporate

These are the types of databases that are completely generated by the manufacturer (whether created or captured) and that do not comply with personal data protection legislation.

2.2.2. Personal

These are the types of databases in which the company is a faithful custodian for a limited period of time with the right to use the data, but does not have ownership over them, since they are under the aegis of protection of other regulations on personal data protection and privacy. They would be formed by the identification elements that make communication possible and ensure the minimum objective individualization required for life in society.

Personal data may have characteristics of sensitivity to attributes that may attract some factor of discrimination or prejudice against the data subject, or of secrecy for reasons of law.

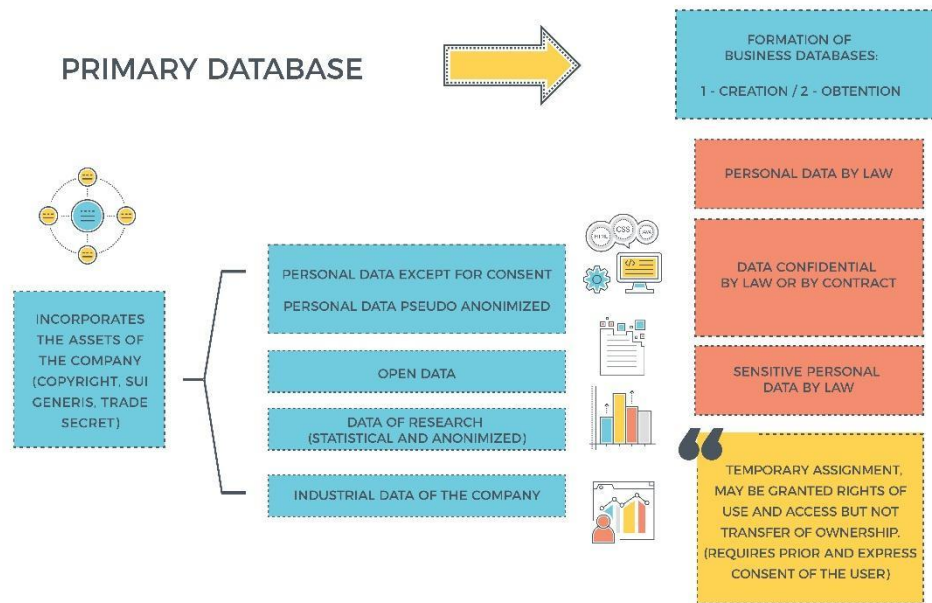
2.2.3. Hybrids

They are the types of databases in which there is an initial structure by creating or obtaining data of an industrial nature but after there is enrichment of the database with data capture of a personal nature, making the base then mixed, and new knowledge is generated from the information that belongs to the company (industrial) together with the information belonging to the individuals (personal), creating a third type of new database, which can still be expanded with new data by machine learning, with artificial intelligence and behavioral analysis of the user.

2.2.4. Comparative Figure of Data Types

For a correct analysis of the economic value of the data and how it should be legally protected, the data can be represented according to some criteria: a) structure: created or obtained; b) originality: creative or common; c) nature: industrial or personal; d) individualization: identifiable or anonymized; e) purpose: registered or enriched; f) confidentiality: confidential or public; g) restrictiveness: business secret or privacy; h) ownership: original or by assignment; protection: encrypted or open. As indicated in Chart 1:

Chart 1 – Comparative Figure of Data Types



Source: The Author

Therefore, it is necessary to create a matrix of conformity or legal compliance of the database, with verification of the related attributes, so that it can be verified how the rights related to them are established: whether by national law, by treaty or international convention, by contract between the parties, or by the use of other sources (customs, case law, codes of conduct or other soft law mechanisms).

From there, it is possible to assign a risk measurement⁸² to the value of the intangible assets of the databases, their impact on the value of a company's shares, the probability of there being a lawsuit related to violation of regulations on privacy, protection of personal data, unfair competition, trade secrets either at the national level or analyzing other countries, depending on the scope of the company's digital operation.

This type of evaluation tends to grow in importance both for preventive purposes, with respect to legal protection of the company, as well as for purposes of evaluation in mergers and acquisitions, for rating of shares in the capital market, performance of due

⁸²WORLD BANK GROUP. *World Development Flagship Report 2016: Digital Dividends*. Washington DC, 2016. Available at: <http://documents.worldbankorg/curated/pt/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf>. Access on: 10 June 2017.

diligence by shareholders, definition of insurance and premium value, evaluation for purposes of granting credit and guarantees, among other possibilities and economic and social investments, including for the development of public policies if applied to the Public Administration environment.

PART 2

THE INTERNATIONAL NATURE OF THE DIGITAL SOCIETY

This part seeks to analyze the very international nature of the digital society and its new challenges regarding territoriality and jurisdiction and how this identifies with the system of intellectual property protections after TRIPs, since there is no internet without content, nor artificial intelligence without databases. In this way, the fundamentals, and constituent principles of this great network of people and things connected that allows an uninterrupted transnational flow of data and the impacts of this on legal systems will be briefly presented. A historical analysis will also be made between the *Urheberrecht*, *Copyright* and *Droit d'Auteur* systems so that a bridge can be built between the legal thought that underpinned the emergence of the system of guarantees of intellectual rights until the present moment when an answer to the complexity presented by the new technologies is sought.

CHAPTER 3. THE INTERNATIONAL NATURE OF INTELLECTUAL PROPERTY

3.1. Information society, digital markets and intellectual property

First, it is curious when we see someone referring to the internet as *cyberspace* or to the laws of the internet as *cyberlaw*. According to Bob Metcalfe⁸³, this term would be incorrect because calling the internet cyberspace would be the same as treating it as desolate territory, no man's land, as was America in 1492 and the idea of the "Wild West of the American frontier."

The term cyberspace was first used by the writer of science fiction novels, William Gibson, in 1984, in his work *Neuromancer*.⁸⁴ The term cyberspace as well as the word *cyborg* comes from cybernetics, whose origin of the word is Greek and means "control of spaces". For this reason, the creator of one of the most important computer laws for the network society, prefers to call the internet InfoWorld or info space, because it is a network of information, not controls.⁸⁵

The internet was created, in short, to enable the transmission of data packages. And to this day, some data may not reach its destination. This is because the Transmission Control Protocol/Internet Protocol (TCP/IP) telecommunication network is a transmission protocol and there may be delays in delivery, as well as losses and even repetitions of deliveries. In the beginning, with few users, these errors or failures were not as worrisome as they are now, considering that today this type of problem can generate a real digital collapse.

Therefore, to keep the entire internet operating, it takes a lot of investment. And it is difficult to conceive that this model can be sustainable within a premise of gratuitousness considering that most companies that have mastery of the critical resources of internet infrastructure are of a private nature.

⁸³According to Robert Metcalfe, the electrical engineer who helped invent the ethernet and founded 3Com, the value of a telecommunications network is twice the number of users connected to it (this is one of the laws of information and technology). METCALFE, Bob. *Internet collapses and other infoworld punditry*. IDG Books, 2000. p. 2-3.

⁸⁴GIBSON, William. *Neuromancer*. São Paulo: Aleph, 1984.

⁸⁵Id. Ibid.

So, who really wants an open and free internet? End users, of course. Governments, perhaps. But there is a very high cost not only of maintenance, there is also the risk involving the intermediaries of the information that travels through the digital environment.

For this reason, many of the companies that provide access to the internet or its contents have been struggling in recent years to avoid any kind of civil liability as intermediaries of data flows. The problem is that there have always been many problems of copyright infringement, but in the past, there was a very high cost to make copies on the one hand, as well as a great difficulty for the intellectual rights holder to become aware of the illicit practice.

The lack of vigilance and the problem of ensuring the enforceability of obligations has always been very detrimental to the authors, but as the distribution generated high costs, this ended up balancing out the situation somewhat at the end.

In Chris Reed's,⁸⁶ view, what the internet made possible was the offer of pure information, delivered without the need for any packaging (support) and without the need to have a distribution network (intermediaries), as was the case with the traditional content industry.

In addition, in his view, although the term ownership is used to refer to the ownership of information, he understands that it is practically impossible to apply the concept of ownership to information products in the digital age, because ownership involves the right to exclusively own an asset and to exclude others from its ownership.

In other words, exclusive possession would be, conceptually, complex when applied to pure information, to data. This is because it has to be taken into account that the information in its most primitive state, which would be raw information, is considered as pre-existing and freely accessible to all and could only become the exclusive domain of someone if this person had added value to it, a creative intellectual effort.

That is why the law has been dealing with the rights to the ownership of information (databases) in a very limited way, and precisely because of this, the regulations have not proved adequate to preserve the position of the owners of information on the internet.

Therefore, what is observed as a result of all this context, is that unauthorized content has grown on the internet and that the alternative for solving this situation has been to

⁸⁶REED, Chris. *Internet law: text and materials*. 2. ed. Cambridge University Press, 2004. p. 175.

automate the regulation, with the use of technological measures (eg: copyright bots). However, unfortunately, automated methods often take off the air content resulting from sociocultural activities and that does not infringe rights. Many criticisms have been made of this surveillance of the YouTube robots, or of the German Institution of Collective Management of Copyright (GEMA)⁸⁷.

According to Chris Reed⁸⁸, lesson, there are three types of copyright infringement that a user can commit when accessing content or data on the Internet: 1. Store a copy; 2. Transmit this copy to others; 3. Encourage others to do actions 1 and 2.

For Cory Doctorow⁸⁹, what has happened with the most recent regulations is that, in an attempt to give a better answer to the problem of increasing piracy of content through the internet and digital media, instead of removing this content from the web, in some cases, what is done is to cut the connection of those who are accessing this type of copyright infringing material.

In a sense this would conflict with another principle, since the right to connect to the internet has been treated as part of the list of fundamental human rights. In countries such as France, New Zealand and the United Kingdom, after three warnings, any Internet Service Provider (ISP) can ban a user from accessing the internet for a certain period of time.⁹⁰

In other words, the focus of attention is shifting from the rights to the source of the content to the behavior of the users who will make use of the content. At the beginning of the internet there were those who thought that the internet could govern itself, have its own code of conduct without the need for intervention by laws.

However, the internet is more than an information network (a communication technology), it is a network of connected people, and for quite a long-time human society has realized the need to regulate the behavior of individuals through the clear definition of rules (standards) for a better community life.

⁸⁷GEMA – German institution of collective management of copyrights, formed in 1933. It is currently made up of 3,300 composers, lyricists and publishers, it has more than 6,400 members, more than 55,000 authors and still represents more than 2 million international rights holders in Germany through reciprocal agreements with other organizations. (GEMA. Represents the copyright of mote 70,000 members in Germany. Available at: <<https://www.gema.de/en/>>. Access on: 09 July 2017).

⁸⁸REED, Chris. *Internet law: text and materials*, cit., p. 71.

⁸⁹DOCTOROW, Cory. *Information doesn't want to be free: laws for the internet age*. San Francisco, US: McSweeney's, 2015. p. 128-129.

⁹⁰Id. Ibid., p. 126-127.

3.2. The intellectual property in International Organization

After the 1970s, after the oil crisis, society's economic model began to be based on technology and innovation. With this, intellectual property took a great leap forward. And finally, intellectual assets gained their place in international trade after the negotiation rounds of the General Agreement on Trade Tariffs (GATT) - Tokyo and Uruguay.

As a result, investors and Private Equity funds began to evaluate companies based on their two most important intangible assets: brands and databases. The price of a company's share became directly related to the value attributed to these intellectual assets, one, older, known to all, from the industrial era, another, much more recent, still suffering in the phase of technical and legal metamorphosis.

Although the treatment of the issue of databases can historically go back to the Berne Convention, the creation of WIPO by the UN in 1967 was a major milestone, since from that TRIPS emerged as a unique model to give treatment to 3 compartments: tangible goods, both goods and services and intellectual assets.⁹¹

It can be said that, today, the two most important intangible assets of companies are the brand and the databases. The brand is handled very well and clearly defined, it implies an infinite protection while the other concepts are temporary in time.

Due to this importance attributed to intellectual assets because of market needs, the regulatory logic the regulatory approach applied to them reflects the historical and social development of a society impacted by the globalization process:

Intellectual property has become one of the major issues in our global society. Globalization is one of the most important issues of the day, and intellectual property is one of the most important aspects of globalization, especially as the world moves towards a knowledge-based economy. How we regulate and manage the production of knowledge and the right of access to knowledge is at the heart of how well this new economy, the knowledge economy, functions and who benefits. At stake are issues of distribution and efficiency.⁹²

Because it is a vital issue, and because it brings a natural conflict between public and private interests, there certainly needs to be a construction of a solid legal framework within a *Check and Balances* model for there to be an efficient protection of these assets, without

⁹¹ TRIPS 6°, 13; GATT – art. III, XI (1), XIX, XX (b, d, g), XXIV should be observed.

⁹²STIGLITZ, Joseph E. Economic foundations of Intellectual Property Rights, cit., p. 1695.

creating distortions that might be detrimental to society, in the sense of access to information, or entrepreneurs, in the sense of stimulating innovation.

For this reason, it is a subject that certainly requires specialized technical expertise, whether from jurists or judges. It also requires a more comprehensive, globalized view, to give the necessary flexibility in the judgments of cases, using international mechanisms and mechanisms to resolve national issues.⁹³

In this sense, the great relevance of comparative law within the world legal system is evident, since with the evolution and internationalization of human rights⁹⁴ associated with the advent of the Information Revolution, this has gained much more significant proportions.

This is because the immediate interconnection that came with the development of technology has brought broad impacts to global communication, giving borders and distances a new perspective. As early as 1957, the U.S. Supreme Court stressed the importance of the real application of comparative law when analyzing the death penalty for persons under 18 years of age in the country, especially in the face of the difficulty of finding internal consensus on an issue:

Judge Sandra O'Connor, disagreeing since she did not find a sufficient consensus from the American State on the subject, had to say the following on the issue of comparative law:

I do not agree with Justice Scalia's claim [omitted quote] that foreign and international law has no place in our Eighth Amendment jurisprudence. For nearly half a century, the Court has always referred to foreign and international law as relevant to its assessment of evolving standards of decency ... A nation's evolutionary understanding of human dignity is certainly not entirely isolated, not inherently at odds with the values prevailing in other countries. On the contrary, we should not be surprised to find congruence between domestic and international values, especially where the international community has reached a clear agreement - expressed in international law or the domestic law of individual countries - that a specific form of punishment is inconsistent with fundamental rights.⁹⁵

Bringing this understanding to virtual reality, the development of internal policies and laws for the regulation and protection of personal data throughout the world follows this logic

⁹³BARBOSA, Denis Borges. Uma introdução à propriedade intelectual (An Introduction to Intellectual Property). São Paulo: Lumen Juris, 2010.

⁹⁴BARROSO, Luis Roberto. A Constituição e o conflito de normas no espaço. Direito Constitucional Internacional (The Constitution and the conflict of norms in space. International Constitutional Law). *Revista da Faculdade de Direito da Universidade do Estado do Rio de Janeiro (Journal of the Faculty of Law, Rio de Janeiro State University)*, Rio de Janeiro, n. 4, p. 201-230, 1996.

⁹⁵REIMANN, Mathias; ZIMMERMANN, Reinhard. *The Oxford handbook of comparative law*. Oxford-UK: Oxford University Press, 2006. p. 178-179.

of compliance, in which the comparative study of law is necessary as well as convergence of interpretation, in view of the fact that markets and exchanges of information take place globally in the digital world.

This fact also brings direct consequences with regard to the activity of the legal professional, since it is up to lawyers and jurists to be familiar with more than one system. This situation is very positive for the internal and external global organization - pointing to a notable advance in regulatory mechanisms through *soft law* - since it is increasingly possible to ensure that legal systems are connected to world trends:

[...] In general, when transmission is voluntary, and not coerced by colonization or war, the superior prestige of the export system, such as Roman law, or the obvious utility of the legal norm, such as comparative negligence, or of an institution, such as the ombudsman, motivates jurists. The more lawyers who know multiple systems, i.e. being comparatist, the more sophisticated this transmission can be.⁹⁶

Considering that it is said that there is no technological platform today that can survive without data, for example, and that data means content, these assets can only be embraced by intellectual rights or by *sui generis*.

In this sense, it is important to take a look at the considerations of the most different countries about what intellectual rights are and how they act, considering that data protection is carried out in the virtual environment - international and interconnected by nature.

The European legal system stands out due to the search and concern with the systematization of the new needs that data protection and other aspects of digital law have brought with its disruptive innovation.⁹⁷

⁹⁶REIMANN, Mathias; ZIMMERMANN, Reinhard. op. cit., p. 179.

⁹⁷ It can be observed that in the internet environment the regulatory model must undergo some adaptations that can be overcome or coexist with disruption, that is, the regulatory system must be able to overcome the legal instability that technology provides due to its constant innovation: "As a consequence, the legal framework should include the socially desirable demands of Internet users who are members of civil society and, at the same time, become manageable, available, realistic, feasible and easily intertwined with all aspects of social life. These developments caused by technologies and influenced by the socio-environmental parameters of an open society make regulatory systems more dynamic. Cyber Communities are able to successfully shape their internal relationships with non-legal tools (technical standards, terms of use, codes of ethics). Therefore, regulators should take into account the assessments of network engineers and communication theorists, pointing to the vital role played by environmental layers in communication networks. WEBER, Rolf H. Proliferação da "Governança da Internet" (Proliferation of "Internet Governance ") (1 September 2014). GigaNet: Global Internet Governance Academic Network, Simpósio Anual 2014 (Annual symposium). p. 3-4. Social Science Research Network (SSRN). Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2809874>. Access in: April. 2018.

Prior to 1996, nations belonging to the European Union had adopted different approaches to copyright in data compilations. Several employed an originality test similar to that of Feist. The United Kingdom, on the other hand, adhered to the traditional "sweat of the brow" or "industrious collection" approach. Other approaches fell somewhere between these perspectives. In 1996, in an effort to harmonize these approaches, the European Council and the European Parliament adopted Directive 96/9/EC and required Member States to prepare legislation to complete the implementation by 1998. In 2005, the European Commission published a report assessing the impact of the Directive on the production of databases in Europe.⁹⁸

It can be observed that the Union began to adopt *sui generis* protection for the resolution of issues involving the right to data protection. Although the European Union has pursued preventive innovation by introducing the concept of *sui generis* protection, the practical and market impacts were difficult to see at first:

Although the *sui generis* protection of the Directive was intended to stimulate the production of databases in Europe, it has had no proven impact. Empirical research indicates that the number of databases generated in the EU has not increased since the Directive was implemented by Member States. However, the European publishing and database industries continue to claim that *sui generis* protection is crucial to the continued success of their activities.

The UK remains the Member State with the largest relative production of databases. The reasons for this success may be the relative maturity of the UK database industry and the success of databases produced in English.⁹⁹

In a different manner, the American Law Institute defines intellectual property based on TRIPS and within the international context (between nation states):

[...] Intellectual property rights are exclusive rights created by law to protect intellectual creations. Major international intellectual property contracts, complemented by emerging international standards, provide the basis for the interpretation of the subject matter of intellectual property rights. Thus, the TRIPS Agreement applies to patents, copyrights and trademarks as well as related rights (rights of artists, phonogram producers and broadcasting organizations that are similar to copyright), geographical indications, industrial designs (designs and models), layout designs, plant varieties and rights to proprietary information (trade secrets) and, to the extent provided for in the Berne Convention, artists' resale rights (*droit de suite*). Through the incorporation of the Paris Convention, the TRIPS Agreement also covers "fair practices" and "established practices in international trade". These terms encompass claims that create private rights against on-lending, unauthorized use of trademarks, dilution, false

⁹⁸LAFRANCE, Mary. *Global issues in copyright law*. Eagan, Minnesota: West, 2009. p. 38.

⁹⁹Id. Ibid., p. 54-55.

association, misrepresentation, breach of confidential relationships and misappropriation. In addition, the Principles cover forms of intellectual property that are generally recognized, although outside the scope of the enforcement process under the TRIPS Agreement. This includes moral rights (*droit moral*) and contractual rights that limit the use of transferred information. For purposes of applicable law, the source of these claims may be states or their federal sub-units.¹⁰⁰

It is important to point out that, since that time, one could already feel that there was going to develop a major international dispute on intellectual property issues. The United States has created an extremely perverse bilateral system of negotiations, which is still enforced until today, especially with regard to developing countries, with laws that are created from the trade department that gives the US President the power to retaliate against countries that do not have the necessary intellectual protection. It is called Section 301 (or Special 301); where every April a watching list is published.

In relation to this situation, it is necessary to mention that the development and application of comparative law within Latin America follows logics and problems unique to the historical and social evolution of the region. Due to the process of colonization and exploitation experienced by Latin American countries, comparative law has often not been able to develop fully.

This happened because in many cases the lack of a previous structure purposely designed for the needs of that region caused enormous impacts for the potential development of a country based on coherent and well-structured laws. In this context, the reasoning of the French Enlightenment and the developments of the North American independence movement strongly impacted the legislative development of Latin American countries.¹⁰¹

In relation to the Brazilian legal reality, the development of internal codes followed some distinct steps, largely because the national independence here was not a revolutionary movement like in other Latin American nations.

¹⁰⁰AMERICAN LAW INSTITUTE. *Intellectual property: principles governing jurisdiction, choice of law and judgments in transnational disputes*, cit., p. 15-16.

¹⁰¹“The Hispanic-American independence movement was very familiar with the French Enlightenment philosophy and the French Declaration of Human and Civil Rights of 1789, the United States Constitution of 1787, and the Madison Federalist Documents, which had been translated into Spanish and circulated widely in Latin America during the wars of independence. REIMANN, Mathias; ZIMMERMANN, Reinhard. op. cit.

On the contrary, in the case of Brazil, despite the fact that there was a breakdown of the "province" with the "mother country" there was no break with the structure of government, since the independence was declared by D. Pedro I, prince of the Portuguese royal family. This situation made the Portuguese legislative influence much more prominent within the country and many institutes were maintained.

Nonetheless, over time, the country has adopted its own way of developing its domestic legislative scope to consider events and influences external to the reality of the new nation. A clear example of the importance and influence of comparative law in the development of Brazilian legislation can be observed through the Civil Code of 1916, by Clovis Bevilacqua:

[...] The Brazilian Code of 1916 had 1807 articles, and was divided into a general part containing three books on persons, property and legal facts, and a specific part containing four books on family law, property rights, obligations and succession. An introductory law regulated the applicability of the Code. Following Freitas's tradition, the Brazilian Code was predominantly an indigenous product: more than one third of its provisions are based on the pre-existing law, and another third are new provisions of an original Brazilian pedigree, extracted mainly from Freitas's Outline. Thus, only about a quarter of its provisions are based on outside sources, the most influential of which was the French Civil Code. [...] Besides being a source of legislative reform, comparative law was a highly practical discipline, as Clovis Bevilacqua underlined in 1897¹⁰²

In this sense, it can be understood that the influence and performance of comparative law goes beyond the textual/theoretical limits reaching the provision of legal practice.¹⁰³ It is also because of this that at the same time the study of comparative law is so necessary within the digital reality that it has made possible the real development of globalization and its impacts:

[...]the judge cannot limit themselves to the knowledge of their own law, because in some cases they will have to consciously study the foreign sources which inspired the legislator, in order to understand the provisions of their own law ...; because in other cases the gaps and deficiencies in the law of their country can be remedied by recourse to the appropriate provisions of the laws of civilized nations; and still in other cases, because they will be obliged to apply foreign law as a result of the commandments of the principles of conflict of laws.¹⁰⁴

¹⁰²REIMANN, Mathias; ZIMMERMANN, Reinhard. op. cit., p. 284.

¹⁰³ALMEIDA, Carlos Ferreira de; CARVALHO, Jorge Morais. *Introdução ao direito comparado (Introduction to Comparative Law)*. 3. ed. Coimbra: Almedina, 2013.

¹⁰⁴REIMANN, Mathias; ZIMMERMANN, Reinhard. op. cit., p. 285.

These social, cultural and historical characteristics have influenced the process of adoption/incorporation of international concepts within the Brazilian legal system in relation to the understanding and development of intellectual property rights.

Brazil has already incorporated TRIPs, so it is not a dichotomous country; although it has two laws: that of industrial property and that of copyright. This is because the mere fact of having two laws does not mean that the legal system treats separately the ideas about the intellectual property laws, given that the concepts on the subject are inseparable.

Still in relation to the case of Brazil, the decision of the Superior Court of Justice on the entry into force of the World Trade Organization (WTO) Agreement in the country (TRIPs) was within the principle of *single undertaking* - that is, approval with reservations is not allowed. It is important to point out that TRIPs is a legal treaty with a contract, with minimum standards to be incorporated by the domestic law of the member countries. On the other hand, the Berne and Paris Conventions were normative treaties, with harmonization of legislation.

The issue of intellectual rights being treated as personality rights occurs because this right brings with it two types of protection: injunction and the rectification. This situation arises because not only is the individual being protected, but also the public interest involved in the field of intellectual rights. Still on this subject, it is worth pointing out that the economic logic of the practice of the "profitable illegal activity" must be avoided, that is, the fact that it is cheaper to pay compensation than to comply with the valid legal rule.

According to Luís Silva Morais and considering article 6 of the 2001 Information Society Directive, he says that:

[...] without adequate harmonization at Community level, purely national regulation to address technological challenges can lead to significant differences in terms of the protection provided and can result in restrictions on the free movement of services and products incorporating or based on intellectual property, leading to a new compartmentalization of the internal market and to a situation of legislative and regulatory inconsistency.¹⁰⁵

¹⁰⁵VICENTE, Dário Moura; VIEIRA, José; PEREIRA, Alexandre; CASIMIRO, Sofia; SILVA, Ana (Coords.). *Estudos de direito intelectual em homenagem ao Prof. Doutor José de Oliveira Ascensão (Studies of Intellectual Law in Honour of Prof. Doutor José de Oliveira Ascensão)*. Coimbra: Almedina, 2016. p. 390.

Several authors strongly criticize this directive for failing to address moral copyright issues, as well as applicable contract law issues, and for failing to achieve the regulatory consolidation expected of it.

Meanwhile, the problem of protecting content on the internet is getting worse. This is because in the digital environment there is the possibility both of easy reproduction of information and its scope is unlimited. And all of this at a practically negligible cost, being a great stimulus for the infraction, within the limits of the "lucrative illicit" that is when breaking the law compensates more than complying with the law.

There has been a lot of discussion about the fact that content on the internet spreads rapidly, and often those who use it may not know its exact origin. In this sense, would it then be possible to impute legal liability for damage caused if the illicit origin of the content were unknown?

And this has been greatly expanded when the issue involves databases, since it is very easy to reproduce a database on electronic media and that, at some point, there is a distance from its original source, so that those who have access to it do not know where the data came from, especially in a current *Big Data* scenario.¹⁰⁶ But would this factor be sufficient as an exclusion of liability for those who made use of the data with violation of the rights of its legitimate owner?

The sectors of the economy where databases are commonly very critical and relevant are: financial institutions, insurance, the pharmaceutical industry, service companies or digital commerce, retail, energy, Industry 4.0 and online advertising.

Although this issue is of paramount importance nowadays, such discussion has been held since the 1990s, when the expansion and dissemination of digital content began to be part of everyday reality.

That's what the *World Intellectual Property Organization Copyright Treaty* (WCT)¹⁰⁷ discussed, the treaty specially developed to address the protection of works and intellectual rights embedded within the digital environment:

¹⁰⁶ The term *Big Data* refers to a large set of stored data, both structured and unstructured. The 5 Vs: speed, volume, variety, veracity and value are applied to *Big Data*

¹⁰⁷ According to the WIPO official site: "The WIPO Copyright Treaty (WCT) is a special agreement under the Berne Convention which deals with the protection of works and the rights of their authors in the digital environment. In addition to the rights recognized by the Berne Convention, they are granted certain economic rights. The Treaty also deals with two subject matters to be protected by copyright: (i) computer programs,

Article 11 of the WCT obligation derives from the recognition that works made available in digital formats may be particularly vulnerable to unauthorized copying and redistribution; unless the digital file can be protected against such acts, its susceptibility to unauthorized recirculation may discourage authors from making it digitally available to the general public. But the provision of a technological lock may offer only a short-lived consolation: the measure may be effective only for as long as it takes to develop and distribute a device to break it.¹⁰⁸

This issue raised by the treaty caused the different protection policy institutes to address the issue in such a way that the prevention of unauthorized copy sharing was effective, taking into account that the individual rights of authors and the rights of access to information of society were balanced within this new and unknown space.

From this power, it can be said that three different situations have emerged in a more relevant way: the understanding of the United States, that of the European Union and that worded by WIPO. All the countries/unions that adopt the agreement follow the guidelines established by WIPO, but from the perspectives of their own regulations.¹⁰⁹

It is also important to point out that the evolution of this international instrument followed the logic of need and legal intellectual development that the world - represented

whatever the mode or form of their expression; and (ii) compilations of data or other material ("databases")".
WORLD INTELLECTUAL PROPERTY ORGANIZATION - WIPO. *Summary of the WIPO Copyright Treaty (WCT) (1996)* Available at:

<http://www.wipo.int/treaties/en/ip/wct/summary_wct.html>.

¹⁰⁸RICKETSON, Sam; GINSBURG, Jane. *International copyright and neighboring rights: the Berne Convention and Beyond*, cit., p. 966.

¹⁰⁹“[...] International legislators questioned whether international standards should reinforce the efforts of copyright and other authors to prevent unauthorized copying, or whether technology and the market should create defenses and counter-traffickers, leading to a technological "arms race" if necessary. [...] WCT writers were not writing on a totally clean list, as WIPO itself considered proposing provisions prohibiting the distribution of "unauthorized decoders" of encrypted television broadcasts. In addition, in 1991, the European Commission required member states to prohibit "any act of putting into circulation, or possession for commercial purposes, of any medium the sole purpose of which is to facilitate the unauthorized removal or tampering with any technical device that could be applied to protect a computer program. Similarly, in 1992, the U.S. Home Audio Recording Act required all "digital audio recording devices" to be equipped with a "serial copy management system," which blocked multi-generational copying of digital music records. The law also prohibits the distribution of any device or provision of any service whose "primary purpose or effect is ... circumvent the system. More generally, many national laws contained a number of provisions in their unfair or unfair competition laws, as well as in their telecommunications and criminal laws, prohibiting a range of circumvention-related conduct, such as the sale of satellite decoders and computer hackers. The contours of the EU and US bans differ from each other and from the approach finally adopted at the WCT, but the same perceptions and policy determinations pervade all three. RICKETSON, Sam; GINSBURG, Jane. *International copyright and neighboring rights: the Berne Convention and Beyond*, quote, p. 966-967.

more occasionally by the industrialized countries - was experiencing - associated with the greater protection needs of nations without industrialization.¹¹⁰

The basic proposal lays down the following Article 13 "Obligations relating to technological measures":

- (1) The Contracting Parties shall make illegal the import, manufacture or distribution of defeat protection devices, or the offer to perform any service with the same effect, by any person who knows or has reasonable grounds to know that the device or service will be used for, or in the course of, exercising rights under the Treaty that is not authorized by the right holder or the law.
- (2) The Contracting Parties shall provide appropriate and effective remedies against the unlawful acts referred to in paragraph (1).
- (3) As used in this Article, "device deactivating protection" means any device, product or component incorporated into a device or product whose primary purpose or primary effect is to circumvent any process, mechanism or processing system that prevents or inhibits any of the acts covered by the rights provided for in this Treaty.
- (4) The object of the prohibition of the Basic Proposal.¹¹¹

Given this concern in preventing the strengthening of inequalities between countries for the contemporary realization applied to the appropriation of data, it can be said that the freer an economy is, the greater the fear about the appropriation of databases and the greater is the premise of free access to data for competitive reasons. For this reason, there are so many criticisms of the European model and the fact that the USA has not yet granted data manufacturers similar protection. In the case of the United States, if anything, the framework

¹¹⁰ "[The] analysis of the text of the Basic Proposal indicates that there were sufficient uncertainties about the object and scope of the prohibition to cause considerable controversy. Delegates expressed concern that the prohibition was excessive and would lead to abuse by copyright holders, particularly if the prohibition could be applied to prevent non-violators of protected works. The South African delegation, supported by delegations from other African nations, offered a proposal which was generally accepted. The provision should have three characteristics: first, it should be effective technological measures; second, it should be used by right holders in connection with the exercise of their rights under the Treaties; and third, it should restrict acts that have not been authorized by rightsholders or not permitted by law". The amendment that followed closely accompanied this proposal: Contracting Parties shall provide adequate legal protection and effective legal remedies against the violation of effective technological measures that are used by right holders in connection with the exercise of their rights under this Treaty and that restrict acts, in relation to their works, not authorized by the right holders concerned or permitted by law. This text differs from the one adopted in only two respects. First, in the final version, "authors" replace "right holders", which is more in line with the Berne Convention. Second, the final version adds "or the Berne Convention" to "rights under", thus avoiding ambiguity as to the coverage of the performance. RICKETSON, Sam; GINSBURG, Jane C., op. cit., p. 970-971.

¹¹¹ Id. Ibid., p. 968.

protects the databases by the original organization and from unauthorized reproduction for commercial purposes (*misappropriation*) and use by competitors (*free riding*).

For an improvement in the data protection situation to be found, it is necessary that all sectors of society work together to achieve an efficient, plural and safe model of action: "[...] data protection and privacy need communication strategies that establish an effective platform for dialogue between state legislators, non-governmental organizations, public interest groups and the international private sector."¹¹²

The European Copyright Directive in the Information Society, in article 5 (1) (b), deals with the need for the lawfulness of the source. That is, even if the reproduction occurs for private use, if the source is unlawful, the copy will be unlawful as well. There will be contamination. This was also the understanding of the Court of Justice of the European Union (TJUE) which gave judgment in 2014 on the subject in case C – 435/12 stating that it presupposes the lawfulness of the source from which the copies are created. If the source is not lawful, the copy, even if intended for private use, will not be equally lawful.

Within this context, in 2015, the Legal Affairs Committee of the European Parliament prepared a draft Motion to update the Information Society Directive with a strategic plan of 16 actions entitled "*A Digital Single Market for Europe*".¹¹³

The strategy is based on three key pillars: Pillar I seeks to integrate a set of legislative proposals to create a more modern and current copyright law for Europe; Pillar II aims to stimulate fair competition and combat abuses of dominant positions on the internet; and Pillar III aims to promote the free movement of data, avoiding restrictions on the location of access to data that may limit the freedom to transfer it within the European Union, as well as setting priorities for interoperability rules that are essential to promote a single European digital market.

The current situation calls for a major qualitative structural transformation at the regulatory level to make the innovative ways of promoting the circulation of intellectual content by digital means globally compatible.

¹¹²WEBER, Rolf H. Internet of Things – new security and privacy challenges. *Computer Law & Security Review*, v. 26, p. 27, 2010.

¹¹³The Digital Single Market for Europe is a European Union strategy consisting of a plan with several actions. EUROPEAN UNION. European Council of the European Union. *Digital single market in Europe*. Available at: <<http://www.consilium.europa.eu/pt/policies/digital-single-market-strategy/>>. Access in 10 July 2017.

It is important to point out that the needs and concerns of each region of the world are not homogeneous and general, which makes it difficult to establish dialogue and implement a general/less specific regulatory system, even in a regional context such as that of the European Union:

The specific security and privacy problem, however, is the assessment that privacy concerns are not identical in different regions of the world, which makes it difficult to apply general principles in cross-border business activities. Therefore, a basic legal framework should be introduced by an international legislator. However, the details of legal rules for the protection of security and privacy needs should be developed by the private sector.¹¹⁴

More recently, in 2016, the European Parliament initiated a major reform of copyright legislation aimed at complying with the Digital Single Market proposal with the presentation of the EU *copyright reform package proposal*.¹¹⁵

In addition, it should be noted that the legislation implemented in the United States of America, called the *Digital Millennium Copyright Act* of 1998 (DMCA), brought an innovation in copyright protection on digital platforms by setting out rules prohibiting the neutralization of technological measures.. What exactly does that mean? It means that software is now being used to enforce the law.

According to Professor Lawrence Lessig: "[...] by making it a crime to use a technology that can break the restrictions of technological measures, regardless of use, whether personal or commercial, thus always considering it a copyright infringement, is to delegate the creation of laws to the creators of software codes."¹¹⁶

What is observed is that instead of trying to design a new legal framework for the protection of intellectual rights brought by the new digital media, the technology itself is being used to ensure due protection, in a direct and contractual relationship. Since it is not

¹¹⁴WEBER, Rolf H. Internet of Things – new security and privacy challenges, cit., p. 28.

¹¹⁵A wide-ranging reform of *copyright* law is part of one of the actions under Pillar II of the European Digital Single Market. The description of the whole reform can be seen in these two documents: IMPLEMENTING the EU Copyright Directive. 2001. Available at: <<http://www.fipr.org/copyright/guide/eucd-guide.pdf>>. Access on July 10. 2017; EUROPEAN COPYRIGHT SOCIETY. *General Opinion on the EU Copyright Reform Package*, 24 Jan. 2017. Available at: <<https://europeancopyrightsocietydotorg.files.wordpress.com/2015/12/ecs-opinion-on-eu-copyright-reform-def.pdf>>. Access: 10 July 2017.

¹¹⁶LESSIG, Lawrence. Jail time in the digital age. *The New York Times*, 2001. Available at: <<http://www.nytimes.com/2001/07/30/opinion/jail-time-in-the-digital-age.html>>. Access on July 10. 2017.

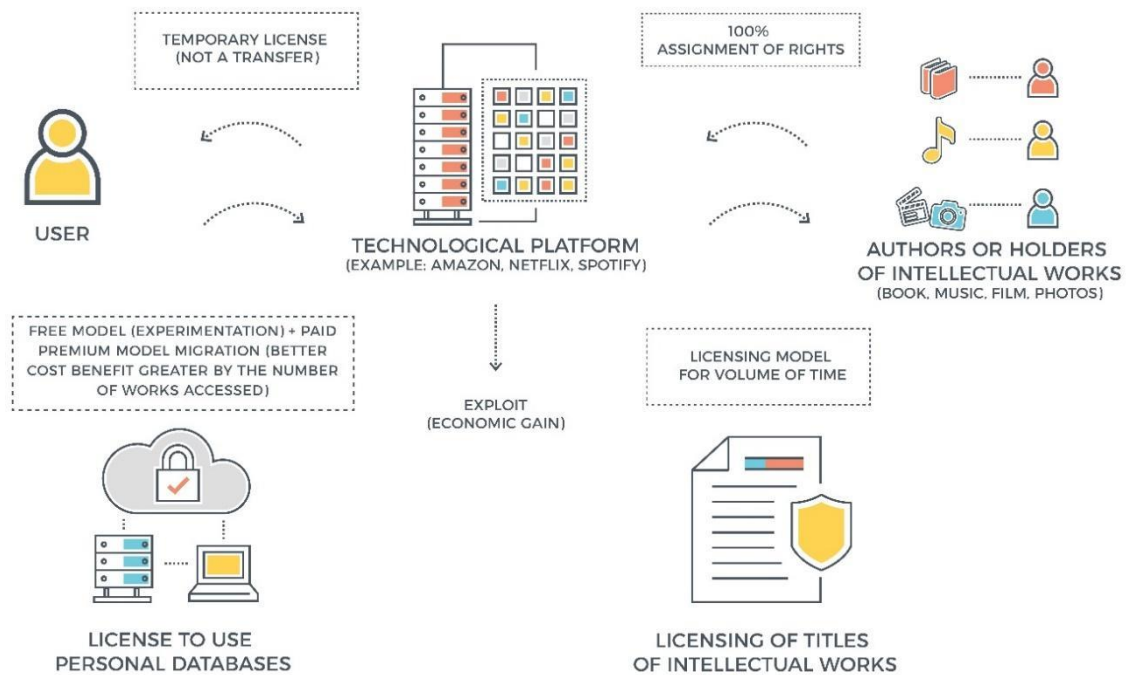
possible to protect the content itself or the databases, the technological measures that serve to fence in the intellectual assets are what is protected and the infraction is defined as the breach of these measures and not the access or use of the content itself.

Therefore, once the technological protection measure is used, it benefits from the protection against its circumvention afforded by the DMCA (United States) and the Portuguese Copyright and Related Rights Code (CDADC) - Portugal, by Directive 2014/26/EU on Copyright and Phonograms.

The biggest problem with this technical and legal strategy is that technological measures now empowered to determine what can and cannot be protected in practice. The intention was to search for a balance of values for the adoption of new legal rules, since there are several interests involved, such as authors, intermediaries, users, in compliance with all the variables involved.

The model adopted until now has ultimately delegated to the holder of the technology a very large concentration of power for the establishment of the relevant rules and could again be prone to imbalance and excesses.

To illustrate this better, Figure 2 shows more clearly how the data industry works and its relationship of interdependence with the entire digital economy:

Figure 2 – Business Model of the *Data Industry*

Source: The Author

An example of this distortion caused by the technological measures is the case in the United States involving the entire film and recording industry, in which there is the compilation of Massive Open Online Course tools ("MOOCs")¹¹⁷ with which it is possible for users to circumvent access controls in films and other audiovisual works for use in an educational context.

The creators and copyright owners opposed the proposed exemption, since it would need to be analyzed with great caution due to its huge potential impact. By its very definition, access to a MOOC it is open to anyone, and enrolment in a single course could be up to tens of thousands. In 2014 alone, between 16 and 18 million people participated in a MOOC. Despite the benefits brought by this technology, academics were unable to come up with any limitations or safeguards that could be employed to ensure that the exemption proposal was

¹¹⁷Class 3 exemption proposal: Audiovisual Works - Educational Uses - Massive Online Open Courses ("MOOCs"). The Notice of Proposed Regulations of December 12, 2014 ("NPRM") described this class proposal as allowing "students and faculty participating in Massive Open Online Courses ("MOOCs") to circumvent access controls on films and other legally made and acquired films, audiovisual works for purposes of criticism and comment. 79 Fed. Reg. 73.856, 73.860 (December 12, 2014).

not abused. That is, the result could be tens of thousands of potential breaches of Section 1201(a) and potential infractions.

The main focus of the debate raised at the time was that, bearing in mind the benefits of access controls, how was it possible to identify any particular class of work for which the prohibition of circumvention of access controls should be more strictly applicable.¹¹⁸

Its backers argue that the potential non-infringing uses are the same types of non-infringing uses as Proposed in Class 1 or Class 3. There is no way of determining whether all uses of educators' and college students' films are fair uses or could be infringing in some way.

In fact, it is not at all clear that fair use balances the uses for MOOCs in the same way as it evaluates the use of a work in a traditional classroom. Because of its size and its coverage, the effect of opening copyrighted content would be significantly greater than that of a traditional, limited classroom. Furthermore, although MOOCs are supposed to be educational, this does not mean that they are inherently non-commercial, or that they have a different function from the audiovisual works they seek to use: instead of providing educational content, MOOCs often function as marketing tools for universities, generate significant income for for-profit MOOC providers, and are used as a form of entertainment.

The broad definition of MOOC offered by proponents makes it particularly difficult to assess whether the intended uses do constitute in fact non-infringement. Academics define MOOCs as "free online versions of university courses open to anyone, with essentially unlimited enrollment." For an exception to be made under the United States copyright regulations, it must be made clear whether the content is open or free or requires course materials to be licensed; whether the provider is a not-for-profit or for-profit entity; or whether the courses require registration and/or identity verification. Without this, the proposed exemption for MOOC could potentially cover the internet in general, which would not be in keeping with the rules of exception that states it must be "restricted and focused".¹¹⁹

It is clear that it will be a great challenge to promote any kind of harmonization and there is still a long way to go.

¹¹⁸. See Exemption from the Prohibition of Circumventing Copyright Protection Systems for Access Control Technologies; Notice of Inquiry and Request for Petitions, 79 Fed. Reg. 55.687, 55.689 (September 17, 2014).

¹¹⁹

See 17 USC § 1201 (a) (1) (C) (iv).

3.3. Historical analysis between the *Urheberrecht*, *Copyright* and *Droit d'Auteur* systems, and the matrix of a community intellectual property right.

The world experienced a process of Europeanisation of copyright after the 1980s, notably influenced by French law and which resulted in the current community directives. However, despite the search for the harmonization of this right, there is a source of tension in its origin, due to the historical evolution of the three systems that converged to form the current understanding reflected in the European regulations.

At the center of every concept of doctrine is French law with the personalistic notion of the *Droit d'Auteur*. In another corner is the German copyright (*Urheberrecht*), which also includes the personalistic view, but with a monistic view of the creator. And on the other side, there is British law, defined as copyright where the economic question is much more interesting and there is no space for the personalistic aspect. This more commercialistic conception of copyright has always guaranteed a more appropriate legal instrument for the protection of the investments made on the work and its patrimonial interests, with other interests being addressed in the field of Common Law.

The *Droit d'Auteur* originated from the evolutionary process of French law and because of the revolutionary movement:

In France, literary and artistic property succeeded the privileges of printing and trading books. The first privilege was granted in 1507 by Louis XII. Printing privileges were granted by the King such as licenses to exploit the press for certain works (most of them 'already' in the public domain) and to market printed books.

The author's rights instituted by the revolutionary laws overruled the privileges. The Constituent Assembly of 4 August 1789 decreed the abolition of all privileges. In a situation of legal vacuum and universal proclamation of human and citizen's rights, author's rights emerged as the rights of creators of literary and artistic works.¹²⁰

One of the characteristics of this system is the personalism linked to the law. Despite this striking aspect of the French system, which values the protection of the rights of the individual, the introduction of attributes related to property and the right of exploitation were made possible within the list of qualities of the model.

[...] the *common law* system has led to a more pragmatic copyright system, permissive to transfers of ownership in a simpler way and with a high

¹²⁰PEREIRA, Alexandre Libório Dias. *Direitos de autor e liberdade de informação (Copyright and freedom of information)*, op. cit., p. 63-64.

degree of ownership in its basic essence. The law coming from England (and also from the other countries of the copyright system) is still interpreted in this way until today [...] The system based on the Roman-Germanic environment [...] led to an accentuated personalistic protection. [...] this generates, in the system of *droit d'auteur*, also a characteristic of ownership, but, in this case, with an attribution of private property to the subject-creator.¹²¹

In the same way, the *Urheberrecht* system also has its origins in the granting of privileges for printing, the same logic of the French system:

In Germany, the rights of the author also succeeded in printing privileges. Based on philosophical reflection, the *Urheberrecht* was formed through a monistic model, which unceasingly protects the author's moral and property interests, and is enshrined in the 1965 Act (UrhG).¹²²

The third conception is associated with copyright and combines the interests of protection of the work with the need to protect the property interests not only of authors, but also of investors in the background. According to Alexandre Libório Dias Pereira, the historical roots of copyright date back to the English Modern Age:

Copyright was "born" in a modern sense in the UK. Heir to the Stationers' privileges, it would be established by Queen Anne's Act (1709/10) and case law played a significant role in its construction. The 1956 *Copyright Act* is currently in force.¹²³

Professor Lawrence Lessig explains the operation of the logic of ownership combined with copyright: "Copyright gives copyright owners a right to property - just as much as the real property right gives homeowners the right to own the land on which their home is built."¹²⁴

Ginsburg and Gorman explain this logic of protection versus commercialization covered by copyright:

¹²¹DRUMMOND, Victor Gameiro. Os privilégios monopolistas como elementos comuns para os sistemas de *Copyright* e de *Droit d'Auteur* e o déficit filosófico do direito de autor (The monopolistic privileges as common elements for the *Copyright* and *Droit d'Auteur* systems and the philosophical deficit of the Copyright). In: VICENTE, Dário Moura et al. (Coords.). *Estudos de direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária. (Studies of intellectual law in honor of Prof. Dr. José de Oliveira Ascensão: 50 years of university life)* Coimbra: Almedina, 2016. p. 602.

¹²²PEREIRA, Alexandre Libório Dias. *Direitos de autor e liberdade de informação (Copyright and freedom of information)*, cit., p. 68.

¹²³Id. *Ibid.*, p. 65.

¹²⁴LESSIG, Lawrence. *Remix: making art and commerce thrive in the hybrid economy*. London: Penguin Books, 2009. p. 264.

Copyright is a form of "intangible" ownership. The theme of authors rights - such as the words of a poem or the notes of a song - may exist in the mind of the poet or composer, or may be communicated orally, without being incorporated into any tangible medium. Even when so incorporated, it is possible for people to recite a poem, sing a song, make a play or see a painting without having physical possession of the original physical embodiment of the creative work. (For example, the painting can be visualized through a reproduction as a poster or its image can be transmitted over the internet.) The Copyright Act attempts to make a clear distinction between the literary, musical or artistic "work" protected against unauthorized exploitation in various forms, and the physical object into which such work is incorporated. It is possible to be the owner of one without being the owner of the other.¹²⁵

This system is based on the logic of common law, which according to Victor Gameiro Drummond:

[...] common law is a much more pragmatic copyright system, allowing transfers of ownership in a simpler way and with a high degree of ownership in its elementary essence. The law from England (and also from the other countries of the copyright system) is still interpreted in this way until today. [...]. On the other hand, the Roman-Germanic system [...] led to an accentuated personalistic protection. [...] What is generated in the system *Droit d'Auteur*, is also a characteristic of ownership, but, in this case, with an attribution of private property to the subject-creator.¹²⁶

The understanding of this theory is particularly important for Latin American states since the impacts of the internationalization of social and cultural influences hold sway over the ways of thinking and law-making in various aspects. A clear example of this can be seen in the expansion of common law among Latin American countries, due to the market dominance that the United States has over this region.

Not surprisingly, the growing economic interest of the United States in Latin America [...] has begun to have an impact on Latin American legislation [...] Another interesting example of legislation inspired by common law ideas is the Brazilian adoption of legislation that allows various types of class actions. Based on studies of collective action, recognized in the United States, and its compatibility with the civil law system by Italian scholars in the 1970s [...], a group of prestigious Brazilian jurists developed a proposal to adopt the possibility of group actions. public interests. The law was passed by the Brazilian parliament in 1985 and was subsequently extended and applied to a variety of situations in which collective interests are affected. Brazilian courts and lawyers quickly

¹²⁵GINSBURG, Jane C.; GORMAN, Robert A. *Copyright law*. New York: Thomson Reuters, Ebook, 2012. p. 606.

¹²⁶VICENTE, Dário Moura; VIEIRA, José; PEREIRA, Alexandre; CASIMIRO, Sofia; SILVA, Ana (Coords.). *op. cit.*, p. 602.

accepted the new instrument, which, however, was developed independently of the US model and therefore in a very different manner.¹²⁷

Brazil has also been influenced by the North American system in the development of legal solutions for copyright, without leaving aside its Roman-French historical roots.¹²⁸

It is important to observe the emergence of copyright protection in the U.S. territory, since it is the object of comparative analysis of this thesis. The first Copyright Act is of 1790 and the second of 1976. The period of time that elapsed between one and the other is noticeable.

In addition, the U.S. was quite reluctant to accede to the Berne Convention, in fact, it took nearly 100 years to adopt it. In addition, its system provides that it is incumbent upon Congress to promote the advancement of science and the useful arts by guaranteeing authors and inventors limited periods of exclusivity on their works or inventions (Article 1. Paragraph 8, cl 8). And, more recently, they adapted the legislation for the digital environment with the *Digital Millennium Copyright Act* of 1998 in pursuit of this initiative.

Therefore, it can be observed that there were historical facts that led to the need to apply exclusivity to copyright, the most exclusive of which would be the guarantee of the property right. This made perfect sense due to the need to have economic power to exploit intellectual property, especially due to the need for large investments to ensure the reproduction of copies.

Regarding the understanding adopted by the different countries on the reproduction of copies, the understanding established by the Berne Convention deserves to be highlighted:

Accessing a work expressed in digital form may, however, imply reproduction under the Bern Convention: each capture of the work implies the creation of a temporary copy in the user's RAM: each seizure of the work implies the creation of a temporary copy in the user's ADR. As the previous discussion on the scope of the reproduction right in Article 9(1) indicated [...], the reference in this provision to "any form or form" may well encompass temporary digital copies of this kind. But the scope of the rights of reproduction proved sufficiently controversial at the diplomatic

¹²⁷REIMANN, Mathias; ZIMMERMANN, Reinhard. op. cit., p. 287.

¹²⁸According to Abrão: "It can be said that Brazil, like all countries with a Franco-Roman legal tradition, follows the traditional discipline of the author's and related rights, with respect to literary, artistic and scientific property. But, due to its international commitments, it also follows the discipline of the so-called intellectual property rights which includes, apart from traditional author's right, computer programs, databases, and industrial property rights". ABRÃO, Eliane Y. *Copyright and related rights*. São Paulo: Lumen Juris, Ebook, 2014. p. 22.

conference that produced the WCT, which resulted in many WCT signatories not being able to register for a model of the scope of the reproduction right that including access to the very same document about the reproduction right.¹²⁹

This idea can be complemented by the minimum parameters required by the Berne Convention for copyright to be guaranteed:

However, Berne sets only a minimum standard for copyright protection. Thus, nothing in Berne prevents the signatories from extending the scope of the copyrighted object under their domestic laws to include, among others, non-original selections, and data arrangements.¹³⁰

Hence the possibility of expanding the concept that involves the idea of intellectual creation in the current context, given the numerous possibilities brought with the databases or development of artificial intelligence.¹³¹ Complementing this understanding and in the words of Alexandre Pereira:

[...] the natural law conception of copyright, although not foreign to Anglo-Saxon thought (e.g. Locke), is at the origin of a discourse strange to the demands of freedom of information; in the sense that the limitations to copyright arise as external impositions by interests unrelated to the author-owner. The anchoring of copyright in "sacred property" would have the consequence that only limitations justified by public interest could be met and to the extent that the right-holder obtained adequate compensation. Thus, while Anglo-Saxon copyright is from its very roots in the service of the public interest, the continental *droit d'auteur* affirms itself as a natural right that imposes itself on that public interest and is intended to serve, first and foremost, the individual interests of the authors.¹³²

Despite all the regulatory initiatives, in most international, regional or even national laws on intellectual property, there is a very large space left for the freedom of contracts. In

¹²⁹RICKETSON, Sam; GINSBURG, Jane C., op. cit., p. 975.

¹³⁰LAFRANCE, Mary. op. cit., p. 25.

¹³¹°. The idea of "intellectual creation" was implicit in the notion of literary or artistic work under the Berne Convention for the Protection of Literary and Artistic Works (1886), to which Canada acceded in 1923, and which served as the precursor to Canada's first copyright. Act, adopted in 1924. Professor Ricketson indicated that by adopting an exhaustive or diligent approach to deciding what is original, common law countries such as England "have separated themselves from the spirit, if not the letter, of the [Berne] Convention," since works that took time, work or money to produce, but are not truly artistic or literary intellectual creations, are granted with copyright protection. Id. Ibid., p. 25

¹³²PEREIRA, Alexandre Libório Dias. *Direitos de autor e liberdade de informação (Copyright and freedom of information)*, cit., p. 80.

fact, the contracts assume a primordial role, since, if there is doubt about any issue related to the business established when the issue involves copyright, according to the Brazilian law itself, it must be interpreted strictly in favor of the author.^{133,134}

Therefore, the better a contract is drafted, the greater its clarity and objectivity, the lower the risks related to intellectual property, especially with regard to the other parties involved, who are holders of rights, but are not authors of the work.

But the world has changed, and so has the business model and the digital reality has brought other paradigms, and there is no longer this financial requirement that justifies a disproportionate concentration in the hands of a few, those that are not even the authors, but the holders of reproduction rights (copyright).

And it is this tension between all these interests, of authors and of the freedom of information itself, that brings to the surface the need for a complete revision and updating of legislation, even more so under a new technological reality such as the Internet of Things (IoT).

In this context, several research initiatives have emerged around the world to discuss the regularization and use of IoT in the global and local context. The European Commission (EC) was a pioneer in proposing a dialogue and data collection about the development of IoT, as well as its future:

The adoption by the European Commission of the Digital Single Market Strategy for Europe, consisting of three policy areas and notably the consolidation of security and data protection initiatives, is important for the adoption of IoT technology, and puts Europe in the driving seat of the development of IoT.¹³⁵

¹³³Lei 9610/98, art. 4o.: “*interpretam-se restritivamente os negócios jurídicos sobre os direitos autorais*” (*legal transactions on copyright are interpreted restrictively*).

¹³⁴Referring to the importance of the adoption of comparative law for the understanding of doctrinal developments within a country, it is relevant to point out that this understanding is also adopted in the English Consumer Rights Act of 2015 - a situation monitored by the European Union as well: "1 Where Part 1 applies This Part applies when there is an agreement between a trader and a consumer for the trader to provide goods, digital content or services, if the contract is a contract. 2 Key definitions [...] (9) "Digital content" means data produced and provided in digital form. UNITED KINGDOM. *Consumer Rights Act 2015*. Parliament: 24th Mar. 2015. Available at: <http://www.legislation.gov.uk/ukpga/2015/15/pdfs/ukpga_20150015_en.pdf>. Access on: Apr. 2018.

¹³⁵WEBER, Rolf H. Governance of the Internet of Things – from infancy to first attempts of implementation? *Laws*, v. 5, n. 3, p. 5, June 2016. Available at: <<http://www.mdpi.com/2075-471X/5/3/28/htm>>. Access in: April 2018.

In addition to this dialogue among the various actors that involve IoT, the EU together with several other IoT agents, both from the public and private sectors, initiated the Internet of Things Alliance (AIOTI). This alliance is the first open entity that was created with the intention of being an ecosystem for IoT - in the European environment - and establishing standards and practical references:

Being open to any entity that accepts the Alliance's terms of reference, AIOTI is working towards the creation of a dynamic European IoT ecosystem and aims to create a European IoT roadmap by 2020. The Alliance was built to assist the European Commission in developing IoT standardization policies in the future and will build on the work of the IOC (IoT Research Cluster) later described.¹³⁶

In addition to the various other research initiatives cited by the author, the work of some sectors should also be highlighted, such as *Article 29 Data Protection Working Party (WP29)* which created a compilation of information based on 3 main categories:

[...] The WP29 report focuses on three categories (already used) of IoT devices and their combinations, in particular (i) wearable computing for sensors, microphones and cameras embedded in everyday objects such as watches or glasses to extend their functionality; (ii) quantifying the self-control of devices used by individuals to record potentially sensitive data about their own physical condition or sports activities; and (iii) home automation, placed in homes or offices, which can be remotely controlled over the Internet (thermostats, washing machines, lamps, etc.).¹³⁷

After all, would the data be in the public domain? When developing a device capable of capturing behavior, such as a smartwatch that will measure how many steps one can take, or a smart car that knows how to analyze the driver's routes to better optimize time, would this data be owned by someone or nobody?

And, since there is considerable investment to obtain, organize, select, and maintain them, would it already justify the protection of *sui generis* rights by excluding rights of access and use by third parties? Because in this case, when incorporated into a database, they would already receive protection for a period of 15 years, following the transposition of Directive 96/9/EC.¹³⁸

¹³⁶Id. Ibid., p. 6.

¹³⁷Id. Ibid., p. 8.

¹³⁸According to Directive 96/9/EC, Article 10: The right provided by Article 7 must start from the date on which the database is created. And it will expire fifteen years from the first day of January of the year that follows its date of its creation. In case the database is made available to the public by any means or for any reason before the expiry date of the first paragraph, the term of protection will then expire fifteen years

But if they are associated with an individual, who is forming the database, would the rules of personal data protection be applied to them thus granting a greater limitation? This falls between exclusive uses and freedom of information, and we must be very careful that technical codes do not prevail over legal codes.

According to Alexandre Pereira's understanding:

[...]Nevertheless, freedom of information requires that the exceptions to this new right at least respect the limits of copyright, both in terms of commercial competition and in terms of the value of information as a condition for the possibility of thought and its free expression, as well as freedom of cultural creation and freedom of learning, without forgetting the reservation of private life.¹³⁹

These are the issues that we seek to address in this thesis, to understand how to give the due legal treatment to an asset of such relevance to society as databases, as without information there is no business, and certainly, due to the current dependence we have on technology, it can be said that without information there is no digital life at all.

In TRIPS, the protection of data compilations was foreseen, as observed in the analysis of its article 10, 2:

[...]compilations of data or other material, machine-readable or otherwise, which, depending on the selection or arrangement of their content, constitute intellectual creations, should be protected as such. This protection, which shall not extend to the data or the material itself, shall be without prejudice to any remaining copyright in such data or material.

In Brazil, TRIPS was adapted and applied in our copyright law 9.610/1998, in its article 7, as follows:

[...]protected intellectual works are creations of the spirit, expressed by any means or fixed on any tangible or intangible medium, known or invented in the future, such as [...] XII - collections or compilations, anthologies, encyclopedias, dictionaries, databases and other works, which, by their selection, organization or disposition of their content, constitute an intellectual creation.

counting from the first day of January of the year following the date on which the database was first made available to the public. Any substantial change, both quantitative and qualitative, in the content of the database, including a substantial change in the results of the cumulative addition, deletion or changes that could result in a substantial new investment, qualitative or quantitative, should qualify the resulting database as a new database so that it can have its own term of protection.

¹³⁹PEREIRA, Alexandre Libório Dias. *Direitos de autor e liberdade de informação (Copyright and freedom of information)*, cit., p. 433.

Not being object of protection as copyright the hypotheses of Article 8, namely, I - the ideas, procedures, regulations, systems, projects or mathematical concepts as such; II - the schemes, plans or rules to perform mental acts, games or business; III - the blank forms to be filled out by any type of information, scientific or not, and their instructions; IV - the texts of treaties or conventions, laws, decrees, regulations, judicial decisions and other official acts; V - information of common use such as calendars, agendas, registers or subtitles; VI - the names and individual titles and VII - the industrial or commercial use of the ideas contained in the works.

In fact, there is great pressure for greater freedom of access to knowledge on the internet, in a more social use of copyright, of cultural databases themselves (historical collections that are now in the hands of private owners, like curators of museums that have ownership of digital photos for example).

Therefore, there are two major challenges present, on the one hand, the risk of unlimited reproductivity that generates the loss of control and then of value, completely undermining the protection of intellectual property on digital platforms, whether moral rights or property rights. On the other hand, this leads to a tendency towards concentration, the development of technologies, business models and contacts that centralize and monopolize access to this information.

As a reaction to this risk, the ownership of the content was no longer transferred, adopting the model of access through licensing of use and technological formats such as streaming, in order to have greater control over the content (instead of the transfer that occurred with an acquisition or download).

In addition, there has been a perpetuation in the ownership of these intellectual assets over time, arriving at the model of near perpetuity to keep them as far away as possible from the public domain.

This movement can be better observed with recent regulatory changes on the subject, particularly in the United States, with changes to copyright legislation aimed at extending the terms of protection and restricting the types of use of content made available in digital form.

This was the case in 1998, when the *Sonny Bono Copyright Term Extension Act* (CTEA) came into force that extended the copyright protection period in the United States

by the author's lifetime plus 70 years. But for corporate property works (such as audiovisual works) the term was established at 120 years from creation or 95 years from publication, whichever is shorter. Works published before 1979 were increased by 20 years totaling 95 years from the date of their publication.

According to the teaching of Maristela Basso:

[...]the development of private international law in the United States has not yet reached a proper legislative stage. Basically, federal states pursue different orientations and local courts tend to decide on the basis of different cases, without being directly linked to the precedents of the higher courts. In addition to federal and state jurisprudence that influences the practice of 'conflict of laws', two regulatory instances can be identified in the US context: the Restatement of the Law of the Conflict of Laws and the Full Faith Clause of the US Constitution.¹⁴⁰

From the analysis of these regulations, both at the international and national levels, it can be understood that it is possible to protect the intellectual property of corporate databases. However, there is a caveat to be made regarding the way in which this information is incorporated into databases today, since its creation, organization and even the origin of the information in many cases is of a personal nature, or even, it is co-produced by the user, by the individual/client of the company that owns the database and transferred by assignment to the service provider.

In 2009, Laerte Morgado pointed out that the Brazilian legal system would need a specific regulation for the protection of personal data, due to the great technological advance that the world had been experiencing. According to Morgado there are three main reasons for this statement:

- (1) The enormous progress of information technologies worldwide is a reality that imposes serious risks of disrespect to the right to privacy of individuals;
- (2) on the international scene, there are countless countries that have a specific code for the protection of personal data, which may lead Brazil to be in a position of isolation;
- (3) in the specific case of the United Kingdom, the Data Supervising Entity has shown increasing action over the years, in cases of great relevance to British society, which confirms the conclusion that it is satisfying a specific requirement of that country.¹⁴¹

¹⁴⁰BASSO, Maristela. *Curso de direito internacional privado (Course in private international law)*, cit., p. 43.

¹⁴¹MORGADO, Laerte Ferreira. O cenário internacional de proteção de dados pessoais. Necessitamos de um Código Brasileiro? (The international scenario of personal data protection. Do we need a Brazilian Code?) *Âmbito Jurídico*, Rio Grande, v. 12, n. 65, June 2009. Available at: <http://www.ambito-juridico.com.br/site/index.php?n_link=revista_artigos_leitura&artigo_id=6336>.

Due to the wide circulation and processing of data and information of technology users, a new question has arisen that must be addressed from a legal point of view: how will the fundamental right to privacy continue to be respected with the extensive data handling carried out by technology companies?

In this sense, there is a conflict that still has no answer, nor a solution, given its contemporaneity: it is no longer only related to the historical tension between access to information (public domain) versus intellectual property (exclusivity of the holder). But it also includes the analysis of other issues involving personal data privacy and antitrust law.

3.4. Regulatory overview: comparative study of applicable laws regarding intellectual property, use rights and access to databases

The digital technology associated with the creation of global electronic communication networks, the de-materialization of the physical structures of works and their easy circulation across borders has made intellectual assets a fundamental component in international trade.

However, it turns out that the economic counterpart also ends up being very high. It is necessary to create mechanisms to effectively ensure the international protection of the rights of use and exploitation of works and services made available on the network. This is the main scope of the treaties concluded in 1996 under the aegis of WIPO.

Although the European Community is trying to alleviate the problems posed by the diversity of the Member States' national laws by harmonizing legislation, it is still a long way from eliminating the differences. Problems with the applicable law and the competent court for disputes arising from such acts are particularly acute.

In chronological terms, one can verify the intensity with which the regulations on intellectual property have come to be added in recent years, due to the current relevance of the subject and especially as a consequence of the expansion of markets.

For the sake of clarity, therefore, mention should be made of the European Patent Convention revised in the year 2000 and the London Protocol. In 2002 the Treaty on the Interpretation and Execution of Phonograms (TIEF) took place. In addition, there is the Trademark Law Treaty signed in Singapore in 2006. And clearly the Brussels I Regulation on legal jurisdiction over intellectual property obligations, the Rome I Regulation on legal

jurisdiction over contractual obligations and the Rome II Regulation on the legal competence are all applicable to non-contractual obligations.

Furthermore, in 2007 the European principles for conflict resolution were created - *Conflicts of Laws in Intellectual Property* (CLIP) and in 2008 the American - *American Law Institute* (ALI). There is also the recognition of foreign judgments on intellectual property with the Private International Laws of Switzerland (1987), Italy (1995), Belgium (2004).

According to Dario Moura Vicente,¹⁴² the theme of intellectual property of databases should be analyzed considering the following factors: territoriality, universality and ubiquitousness of intellectual property.

From a conceptual point of view, the databases would consist of a set of interrelated information organized according to a scheme to serve one or more applications accessible through a program.

Also, according to Dario Moura Vicente,¹⁴³ the European Directive grants database manufacturers the benefit of protection for 15 years to prohibit the extraction or reuse of all or part, evaluated in qualitative or quantitative terms, from the contents of the database.

On the one hand, there is the risk of unauthorized use of these databases and on the other hand, there is the cost for the collection and ordering of the data that it could cause (which is why for some the risk would amount to a market failure).

It is important to highlight that the most important regulation in force in the United States on intellectual property issues in the digital environment, and which in turn will also affect databases, is the *Digital Millennium Copyright Act* which envisages the enforcement of the *WIPO Copyright Treaty and the Performances and Phonograms Treaty*, to limit the liability arising from online copyright infringement for internet service providers.¹⁴⁴

For clarification purposes, regarding the object of study of this thesis, intellectual property in general and the more specific legal protection of databases, Chart 2 shows the essential elements of the comparative analysis of the three systems, namely, the Brazilian, the European and the North American:

¹⁴²VICENTE, Dário Moura. A tutela internacional da propriedade intelectual (The international protection of intellectual property), cit., p. 174-178.

¹⁴³Id. Ibid.

¹⁴⁴*Digital Millennium Copyright Act (Enrolled Bill [Final as Passed Both House and Senate] - ENR).*

Chart 2 – Comparative analysis of intellectual rights in Brazil, USA, EU

System Analyzed	Brazilian (Civil Law)	European (Civil Law – predominantly)	North-American (Common Law)
1. Origin	Author's Rights	Author's Rights	<i>Copyright</i>
2. Requirement for Intellectual Property	No prior registration required Requires externalization Requires originality even for databases	No prior registration required Requires externalization Requires originality even for databases	Requires prior registration Requires originality, but form for database is minimized The registration body has a consultative nature and allows requesting exceptions (<i>fair use exceptions</i>).
3. Provision for related rights	There is provision	There is provision	There is provision
4. Provision of <i>sui generis</i> right for the database	It is provided for in the Act itself (LDA)	It is provided for in a specific Law (Database Directive of 1996).	No provision (does not recognize)
5. Administration of Rights	Regulation by own law + contracts	Regulation by own law + contracts	Great autonomy of contracts
6. Technological Measures	There is no provision in a specific law	There is a provision for the prohibition of the neutralization of technological measures ((Phonograms Directive, Information Society Directive)	It provides for a ban on the neutralization of technological measures (Millennium Act)
7. State Law and the intellectual property of databases	There is no specific legal provision but there is the Access to Information Act (LAI).	The State has a law (the Crown)	State does not have the right to intellectual protection of databases by specific prohibition of law
8. Arbitrability	Provided for by law and conventions	Provided for by law and conventions	Provided for by law and conventions
9. Jurisdiction	Federal jurisdiction and may be State (exceptionally cases of unfair competition, contract violation).	CJEU when applicable European Directives and exceptionally national courts with respect to local laws.	From each federal state. But only the U.S. Congress can create or amend intellectual property law.

Source: The Author

Some considerations on the Brazilian system should be highlighted, especially in relation to the limitations of intellectual property, which will also be applicable to the

database, where applicable. In Brazil, it should be noted that the protection of databases is conferred by article 7º of Law no. 9610/08.¹⁴⁵

However, the Brazilian system was designed to impose a number of limitations on intellectual property rights. According to Denis Borges Barbosa's¹⁴⁶ clarifications, there are the following legal restrictions provided by law: temporal, technical (claims - functional equivalence), territorial, fair use, exhaustion and parallel import.¹⁴⁷

Therefore, it is clear that the intention of the Brazilian constituent legislator¹⁴⁸ was to ensure the protection of the authors of inventions, but within a system of limits. At the same time that protection was granted to intellectual property on the one hand, on the other, this protection was relativized by imposing a series of limitations, which within the digital context of society, often, in concrete cases, end up demonstrating that the protection was merely fictitious.

¹⁴⁵Brazilian Law 9610/98: Art. 7 "The creations of the spirit are protected intellectual works, expressed by any means or fixed in any support, tangible or intangible, known or that is invented in the future, such as: [...] XIII - the collections or compilations, anthologies, encyclopedias, dictionaries, databases and other works, which, by their selection, organization or disposition of their content, constitute an intellectual creation".

¹⁴⁶BARBOSA, Denis Borges. *Limites do direito de patente (Limits of the Law on Patents)*. 2002. p. 2-3. Available at: <<http://www.denisbarbosa.addr.com/103.rtf>>. Access on 10 July. 2017.

¹⁴⁷In compliance with Articles 41 and 43 of Law 9729/96 which limit Article 42.

¹⁴⁸Brazilian Federal Constitution of 1988: Article 5, item XXIX: "The law shall ensure the authors of industrial inventions temporary privilege for their use, as well as protection of industrial creations, trademark ownership, company names and other distinctive signs, in view of the social interest and the technological and economic development of the country". Art. 170, point IV: "The economic order, based on the valorization of human work and free initiative, aims to ensure to all a dignified existence, according to the dictates of social justice, observing the following principles: ... IV. IV. Free competition." Art. 219: "The internal market is part of the national heritage and will be encouraged in order to enable cultural and socioeconomic development, the well-being of the population and the technological autonomy of the country, under the terms of federal law".

Chart 3 below summarizes some of the other regulations affecting the Brazilian and European systems ¹⁴⁹:

Brazil:

**Chart 3 - Regulations on Intellectual Property in Brazil and Europe
(continuation)**

Treaties and Conventions	Date	Decree Enacting
Protocol on Arbitration Clauses	24/09/1923	Decree 21.187/1932
Convention on Private International Law (Bustamante Code)	20/02/1928	Decree 18.871/1929
International Institute for the Unification of Private Law (UNIDROIT)	15/03/1940	Decree 884/1993
Convention on the Recognition and Enforcement of Foreign Arbitration Awards	10/06/1958	Decree 4311/2002
Inter-American Convention on International Commercial Arbitration	30/01/1975	Decree 1902/1996
Inter-American Convention on General Rules of International Law	9/05/1979	Decree 1979/1996
Inter-American Convention on on the Personality and Capacity of Juridical Persons in Private International Law	24/05/1984	Decree 2427/1997
Protocol on Jurisdictional Cooperation and Assistance in Civil, Commercial, Labor, and Administrative Matters (Protocolo de <i>Las Leñas</i> – MERCOSUR)	27/06/1992	Decree 2067/1996
The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)	15/04/1994	Decree 1355/1994
Protocol of Buenos Aires on International Jurisdiction in Disputes Relating to Contractual Matters (MERCOSUR)	05/08/1994	Decree 2095/1997
UNIDROIT Convention on the International Return of Stolen or Illegally Exported Cultural Objects	23/03/1999	Decree 3166/1999
International Commercial Arbitration Agreement MERCOSUR	23/07/1998	Decree 4719/2003

¹⁴⁹According to an international survey conducted at Columbia University, under the guidance of Jane Ginsburg, the comparative analysis with the North American system is in Part 3, item 5.1, 5.2; Part 4, items 6.1, 7.1, Table 5, and Part 5, items 8.2, 9.3, 9.4 and Tables 1 to 4.

Amended Statute of the Hague Conference on Private International Law	30/06/2005	Decree 7156/2010
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Source: The Author

Europe:

Chart 3 - Regulations on Intellectual Property in Brazil and Europe

Sources of European Community Law	Detail
Regulation (CE) 44/2001	Brussels I
Regulation (CE) 2201/2003	Brussels II (entered in force in 2005)
Regulation (CE) 593/2008	Rome I
Regulation (CE) 864/2007	Rome II
Computer Program Directive (CE) 24/2009	
Database Directive (CE) 9/1996	
Information Society Directive (CE) 29/2001	Harmonization of copyright and related rights already within a digital agenda of the transformations brought by the Internet in early stages
Trade Secrecy Directive (CE) 943/2016	
Digital Single Market	Pillar III deals with the free flow of data - see Bernadete's information on new copyright rules
WIPO Performances and Phonograms Treaty 1996	
WIPO Copyright Treaty 1996	
Europe 2020 strategy (2013 press release) - proposal for a directive on trade secrets Europa.eu/ip-13-1176	Strategy to ensure greater Harmonization of intellectual property in Europe and encouraging the protection of innovation and trade secrets (industry secrets and business secrets)

Source: The Author

CHAPTER 4. THE INTERNATIONAL NATURE OF THE INTERNET

4.1. From *Lex Mercatoria* to *Lex Digitalis*: a worldwide right for the internet

If there is one thing that is common to everything that is studied about the technological landscape of modern life it is its constant change. And this permanent metamorphosis certainly makes the construction of any more effective legislation on digital issues problematic. This is because when we start to better understand the functioning of a certain technology, so that the law can then establish regulations to be used as guidelines for conduct, the technology changes and with it the behaviors are altered, and everything in a dynamic so blurringly fast and fluid that it causes us to return to square one.

As Hervé Jacquemin and Alexandre De Streel point out:¹⁵⁰

In recent years, we have seen great advances in the field of artificial intelligence and robots, due to undeniable technical progress and increasingly efficient data processing (in connection with the big data phenomenon). Among the most significant concrete achievements are autonomous vehicles, military drones or software that can help doctors, judges or lawyers in their professional activities. In addition to the ethical or philosophical issues it raises, this robotization of life is a real challenge to the law, as the rules currently in force may be inadequate or insufficient to deal with this new reality.

In a way, since the 90s, this is what we have been experiencing in the regulatory field, a series of frustrated attempts to bring a better legal framework, more harmonious, and with few successful initiatives. This does not mean, however, that it is impossible to regulate cyberspace, as Professor Lawrence Lessig points out:

I taught in Central Europe during the summers of the early 1990s; and I witnessed the transformation of attitude about communism, which I described as the beginning of this chapter [...] Real-space governments

¹⁵⁰JACQUEMIN, Hervé; DE STREEL, Alexandre. *L'intelligence artificielle et le droit* (Artificial intelligence and law) Bruxelles: Larcier, 2018. p. 20.

would become pathetic communist regimes. It was the withering of the state that Marx had promised, their existence extinguished by trillions of gigabytes shining in the ether of cyberspace. Cyberspace, history said, could *only* be free. Freedom was in its nature.

The reason why this was never cleared up was that cyberspace was a place where governments could not control the idea and that was an idea that I never understood. The word itself does not speak of freedom, but of control. Its etymology goes beyond the work of William Gibson (*Neuromancer*, published in 1984) to the world of "cybernetics", the study of distance control. Cybernetics had a perfect vision of regulation.¹⁵¹

And it is in this context that arises the need for understanding about internet governance, which can be understood as the evolution of the use and maintenance of the internet in order to create regulatory and policy devices that involve this technology: "According to a well-known description, internet governance is the simplest, most direct and inclusive label for the ongoing set of disputes and deliberations about how the Internet is coordinated, managed and shaped to reflect policy."¹⁵²

In the meantime, it is also important to understand the functions and space taken by law in the pursuit of such regulation. In short, law is understood as a system of rules and instruments that, when guided by standard social customs, increase acceptability (*customary behavior*). In general, laws can be pointed out as the means that impose limits on society and allow it to decide what these social limits are in accordance with the collective interest.

As Luís de Lima Pinheiro puts it,¹⁵³ as a global reality, the internet must be the object of governance, of globalized regulation. In addition, Pinheiro states that the phenomenon of transnational internet relations embodies a new *lex mercatoria*, or rather, *lex eletrônica*, and that it would be composed of a set of values shared by the vast majority of participants in the global internet community to ensure its functioning.¹⁵⁴

The greatest challenge for the construction of a digital legal system on the internet is its eminently private character, which makes it difficult to coordinate public policies and

¹⁵¹LESSIG, Lawrence. *Code and other laws of cyberspace*. New York: Basic Books, 1999. p. 5.

¹⁵²WEBER, Rolf H. Proliferation of 'Internet Governance' (September 1, 2014), cit., p. 1.

¹⁵³PINHEIRO, Luís de Lima. Reflexões sobre a governação e a regulação da internet, com especial consideração da ICANN (Reflections on Internet governance and regulation, with special consideration by ICANN.). In: VICENTE, Dário Moura et al. (Coords.). *Estudos de direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária.* (*Studies of intellectual law in honor of Prof. Dr. José de Oliveira Ascensão: 50 years of university life*) Coimbra: Almedina, 2016.

¹⁵⁴Id. Ibid., p. 370.

international organizations with the business interests characteristic of its decentralized and multi-territorial structure.

According to Lawrence Lessig, in order to be able to break this barrier to government action, it is necessary to create a legislative "architecture" that fits the architecture of the internet as it is:

In this context, I don't mean by "architecture" the TCP/IP regulation by itself. On the contrary, I simply mean regulation that changes the effective constraints of the internet architecture by changing the code on any layer of that space. If the technology or identification is absent, then by regulating the architecture in this sense, it alludes to steps that the government can take to induce the deployment of the technology.¹⁵⁵

Rolf Weber points out five different possibilities for thinking about internet governance. According to "Thesis 1: A functional approach to rule-making is necessary to adequately capture civil society's socio-political expectations," the creation of internet governance should go beyond the common regulatory project and consider not only the creation of rules themselves, but should also think of a political project in which the regulatory order should be guided:

[...] when designing a global internet governance framework, the function of the law should be considered in greater depth; following Bentham's utility principle and Luhmann's approach to stabilizing regulatory expectations, a functional approach that pre-empts the political project has to determine the order.¹⁵⁶

Thus, it is observed that in the internet environment the regulatory model must undergo some adaptations that can overcome or coexist with disruption, i.e., the regulatory system must be able to overcome the legal instability that technology provides due to its constant innovation:

As a consequence, the legal framework must encompass the socially desirable requirements of internet users who are members of civil society and, at the same time, become manageable, available, realistic, viable and easily integrated with all aspects of social life.

These developments caused by technologies and influenced by the social/environmental parameters of an open society make regulatory systems more dynamic. Cyber Communities are able to successfully shape

¹⁵⁵LESSIG, Lawrence. *Code 2.0*. New York: Basic Books, 2006. p.62.

¹⁵⁶WEBER, Rolf H. Proliferation of 'Internet Governance' (September 1, 2014), cit., p. 2-3.

their internal relations with non-legal instruments (technical standards, terms of use, codes of ethics).

Therefore, regulators should take into account the assessments of network engineers and communication theorists pointing to the vital role played by environmental layers in communication networks.¹⁵⁷

In contrast, Weber points out that another option would be the adoption of "Thesis 2: A stable internet governance structure can only be established if its rules reflect the socially desirable and manageable requirements of civil society members." This thesis proposes the creation of a system for internet governance that should be based on plurality and social participatory capacity, in which rules and alternatives arise through discussion and by themselves:

Cyberspace is particularly suitable for an 'open society', as new possibilities for participation can be discovered and previous involvement processes could be improved. "Openness" also presupposes that public forums are accessible and allow for an open exchange of views. Such a transparent scheme would allow for the broad involvement of participants with different backgrounds and multiple ideas. Taking note of the views of other individuals can lead to dynamic processes aimed at new social and environmental horizons. This type of involvement is particularly important, as behind each new technology lies the desire of someone to exercise control over it.¹⁵⁸

Therefore, during the process of creating rules, it is necessary to carefully consider and understand the level of freedom that the environment that surrounds it possesses in order to develop a balanced structure with the different social interests in common. Another precaution recommended is to seek to maintain this freedom, since the desire for cybersecurity, as well as the maintenance of commercial interests, has led to the breaking of the "openness of cyberspace".

Recently, the inventor of the World Wide Web, Tim Berners-Lee, proposed the implementation of a "Magna Carta" to protect and consolidate the independence of cyberspace since the web he created 15 years ago has been suffering a growing attack from governments and corporate influence, making it essential to secure an "open, neutral" system. Berners-Lee's Magna Carta plan should be adopted as part of an initiative called "the web we want," which calls on people to develop a digital charter of rights and an open internet.¹⁵⁹

¹⁵⁷Id. Ibid., p. 3-4.

¹⁵⁸WEBER, Rolf H. Proliferation of 'Internet Governance' (September 1, 2014), cit., p. 4-5.

¹⁵⁹Id. Ibid., p. 5.

More broadly, the third possibility referred to by the author foresees the constant promotion of freedom in cyberspace, as stated in "Thesis 3: A key objective of Internet Governance should be the permanent promotion of openness, constituting a concept of universality that enshrines the principles of free access and free communications." In the meantime, there is a proposal to adopt a system of multi-layered governance within the global system, so that the reality composed of values and facts will create a consensus of social standards or an informal order of regulations composed of the evaluation and description of reality, which, in turn, gives space to the creation of Law or institutional regulatory order:

Despite the fact that some elements, which define multi-layered governance in a global context, appear vague, important central themes can be extracted:

- Future regulatory problems, by their nature, will require broader and more collective decision-making than that applied in traditional systems; global interactions require the establishment of a framework of multi-stakeholders.
- Responses to new problems are complex at the global level, and flat structures at different sublevels facilitate decision-making by including relevant people and organizations in the process at the very heart of their respective concern.
- Ongoing processes of globalization and integration necessarily lead to an altered perception and notion of state sovereignty and call for new elements of legitimacy in this respect.¹⁶⁰

This understanding is the basis for the application of "Thesis 4: Multilayer governance is necessary to incorporate descriptive and prescriptive elements into decision-making processes and establish the basis for the implementation of the multi-stakeholder approach."

However, in applying this multi-layer model, it is necessary to consider a number of issues: i) in order to avoid conflicts with pre-existing rules, the process of creating new rules should study and consider these pre-existing rules so as to gradually modify them, where necessary, to avoid problematic shocks; (ii) another concern must be focused on the form that composes the rules per se, given that - in an information democracy context - every user must understand the rules and their language well in order to be able to follow them iii) at the same time, the meaning of the laws/rules must be in accordance with the reality and

¹⁶⁰WEBER, Rolf H. Proliferation of 'Internet Governance' (September 1, 2014), cit., p. 7.

expectation of cyberspace, since rules without practical meaning will not be recognized by the users of cyberspace and it is unlikely to be respected by them.¹⁶¹

In this sense, the rules and the regulatory system as a whole must be improved so that the needs of society are addressed by the legal instrument, as stated in "Thesis 5: The regulatory bodies must intensify their efforts to improve the quality of regulation in order to comply with the requirements of a legal structure that satisfies the demands of civil society". Therefore, the regulatory system must be in consensus with the jurisprudence, so that the legal mechanisms can be improved and adjusted according to the society's evolving needs:

Notwithstanding the different perceptions of the various different stakeholders in cyberspace, the common principles agreed on need to be incorporated into an easily identifiable structure. This can be achieved if - in addition to technical operability - legal operability is also improved. Legal operability is the process of making legal regulations work together across the legal jurisdictions. Whether new laws are enacted or existing laws are amended/reinterpreted depends on the particular circumstances. In view of the increasing fragmentation of cyber law, efforts should be made to achieve higher levels of legal and policy interoperability in order to reduce costs for cross-border businesses and boost innovation and economic growth¹⁶²

Building on the practical evolution of such concepts, the European Commission issued a release in 2014 on the necessity for the internet to be governed by a multi-stakeholder model, which should include not only governments and intergovernmental organizations, but also civil society. And the recommendation was to assign coordination to the *Internet Corporation for Assigned Names and Numbers* (ICANN), which is a sui generis legal entity. This is because there is currently no single intergovernmental organization that would better accomplish the Web's governance role.

The main point for consideration revolves around the need for international and multilateral treatment of the internet and for a neutral leadership to drive the process. And many initiatives have arisen in this direction, especially in the establishment of bodies for the development of guidelines (also called Soft Law) for further development of the internet, such as the *Internet Society (ISOC)*, *Internet Architecture Board (IAB)*, *Internet Engineering Task Force (IETF)*, *Internet Research Task Force (IRTF)*, *Internet Engineering Steering Group (IESG)* and the *World Wide Web Consortium* itself.

¹⁶¹Id. Ibid., p. 8.

¹⁶²WEBER, Rolf H. Proliferation of 'Internet Governance' (September 1, 2014), cit., p. 9.

As can be seen, with the evolution of internet use, its importance has grown exponentially in people's daily lives, which has increased the debate about the Internet of Things (IoT): "The Internet of Things (IoT) represents a technology based on the connection of everyday objects to the Internet, which exchanges, aggregates and processes information about its physical environment to provide value-added services to end users."¹⁶³

It should be noted that many of these recommendations deal with the standardization and operation of the worldwide network, and concern both technical issues and specifications relating to languages, formats and even types of protections (as occurs for content filters and data protection).

However, these technological advances have a two-pronged qualitative nature, since at the same time that technological evolution is simplifying the everyday life of the public and ensuring that the world and its relationships can be made increasingly automated and connected, a greater concern is also arising with regard to the guarantee of privacy, considering that the boundaries between what is public and the private are being increasingly challenged. Morgado makes this relationship clear when he highlights the situation of Brazilian municipalities in their quest to reduce local violence:

[...]For example, when the City Hall of a Brazilian city installs video cameras hidden in the most violent parts of the city, connected to remotely installed video receivers, observed by employees 24 hours a day, there is certainly the potential to reduce crime in the region, due to the inhibitory factor resulting from the fact that people know their public behavior is being observed and also there is the possibility of timely action from the police force, integrated into the surveillance mechanism. In the same sense, when databases with specific information on people from the international community are used, it becomes possible, with the use of modern data processing technologies, to carry out various types of police intelligence surveys, in order to make criminal investigation more effective. This is the case, for example, of a database with fingerprint data on the population of a country, which would make it possible to quickly and effectively identify fingerprints collected at the crime scene.

As we can see, with the progress of Information Technology, the applications in social control mechanisms - or not - are the most varied possible. However, the possibilities of abuse, resulting from the potential violation of people's intimacy, are real.¹⁶⁴

¹⁶³WEBER, Rolf H. Governance of the Internet of Things – from infancy to first attempts of implementation, cit., p. 2.

¹⁶⁴MORGADO, Laerte Ferreira, op. cit.

To reiterate this point, at the end of 2017, Roberto Dias, editorial assistant of the newspaper *Folha de S. Paulo*, published an opinion in which he pointed to 2018 as the year in which problems related to the protection of privacy would increase exponentially:

Expect a 2018 of much questioning and screaming. Individuals and legal entities will realize how their lives are being intersected all the time by decisions based on increasingly powerful algorithms.

Privacy issues will arise with unprecedented frequency, and many people will be bemused when the mobile phone asks them to evaluate a restaurant, they were in two days ago.

Business disputes arising from technological advances will be evident and substantial - the West Coast giants have reached a size that allows them to compete with the big banks.

The cycle of elections in Latin America will bring close to us problems of interference in voting that have already been seen in the rich world.¹⁶⁵

A clear and current example of possible data breach can be noted with the sale of information from social networking companies or banking companies that can use their user's online information inappropriately and without their informed consent. For example, imagine that a bank decides to sell its users' information to credit companies, or that a healthcare application makes its customers' personal information available in an improper manner.

Various adverse scenarios can be experienced by users in these situations and even extreme social phenomena could be stimulated with incorrect data manipulation, such as discrimination against race, social situation or even in relation to a specific medical condition. Because of this and seeking to preserve the individual rights of each person, national and international legal science has been discussing the developments of technological advancement, so that the European scenario is worth noting.

In this sense, it is necessary to identify and pinpoint the rights, both relative and pre-existing, that make conceptual constructions about databases possible:

The constitutional basis for the construction of the concept of personal data can be found in the Federal Constitution, when it provides that the intimacy, private life, honor and image of people are inviolable, as well as the secrecy

¹⁶⁵DIAS, Roberto. Avanços tecnológicos têm se mostrado silenciosos, impactantes e pouco visíveis (Technological advances have proven to be silent, impactful and barely visible). *Folha de S. Paulo*, Dec., 2017. Available at: <http://www1.folha.uol.com.br/cenarios/2017/12/1943494-avancos-tecnologicos-tem-se-mostrado-silenciosos-impactantes-e-pouco-visiveis.shtml?mobile>. Access on: 10 March 2018.

of correspondence and telegraphic communications, data and telephone communications. We cannot forget that the Constitutional Charter also states that the economic order, based on free initiative, observes the principles of free competition and favorable treatment for small companies incorporated under Brazilian law and that have their headquarters and administration in the country.

[...]

The balanced construction of the concept of personal data requires, in my view, a proper understanding of the importance of data for the new digital economy. Revolutionary technologies that are changing lives and the traditional world market such as Big Data, Internet of Things (IoT), Artificial Intelligence (AI) and Machine Learning are "fueled," so to speak, by data.

A very restrictive data protection law with extremely broad concepts will have the potential to harm the digital economy, development and Brazil's free enterprise.¹⁶⁶

Still on this new reality, it is possible to state that the internet has been developing under principles of self-regulation, from the creation of autonomous rules, which bring with them a more voluntary and cooperative character (non-binding as the traditional regulations).

However, those who believe that they are not effective are mistaken, because these behavioral guidelines are the basis for the decision-making of these organizations and ultimately have an impact on the vast majority of participants on the internet, connecting a multitude of addressees, with the enforcement of social sanctions such as the publication of a list of offenders, the exclusion of entities and the use of alternative methods of conflict resolution.

The use of self-regulation mechanisms, in addition to conferring greater independence in the sense of enabling the Open Society as Don Tapscott¹⁶⁷ says, also allows for better adaptability to the technical reality of the digital environment, which is very dynamic and changeable, because it allows an adjustment or updating of rules more quickly, as changes occur on the internet itself.

However, despite all these advances, the internet ultimately affects certain fundamental rights of individuals, and, in this respect, requires public regulation, since there are not only private interests to be protected. The issues that most deserve attention from the

¹⁶⁶CEROY, Frederico Meinberg. op. cit.

¹⁶⁷TAPSCOTT, Don; TICOLL, David; LOWY, Alex. *Digital capital: harnessing the power of business web*. Harvard Business School Press, 2000.

State would be precisely the fight against cybercrime, the protection of personality rights (among them privacy as one of the most fundamental and also intellectual property), extra-contractual liability, consumer protection.

But we are still a long way from achieving an International Convention on the internet that can satisfy all current requirements. And because of this challenge, when creating a more universal and uniform international framework becomes difficult, regional, bilateral and national initiatives tend to grow. And that is what has happened.

In the United States, although the creation of a specific codification was not developed, the country sought to ensure that international law could be respected through the creation of the *Safe Harbor*, a kind of certification issued to participating companies, demonstrating the adoption of a strategy based on soft law:

As Directive 95/45/EC of the European Parliament and the Council of the European Union established restrictions on the transfer of personal data to non-member countries that did not comply with the standard established in the European Union for the protection of personal data, the USA created the *Safe Harbor* structure, which certifies member companies, guaranteeing the European Union the adoption, by them, of adequate privacy protection measures, based on seven fundamental principles, such as guarantee of access to individual citizens' data, security, integrity, etc.¹⁶⁸

Unfortunately, for businesses and individuals using the internet, it becomes an even greater challenge to be under the aegis of a disparate diversity of rules, in which depending on each concrete case, the definition of applicable law, the rules of connection in terms of territoriality and jurisdiction may appear to be a truly hopeless mission.

In the current dynamics of globalized legal relationships, it is natural that a new *lex mercatoria* will emerge as a solution to meet the business needs that demand quick responses and more immediate measures for the urgent necessities of business in the digital age.

With all this, the current model of intellectual property protection on the one hand has become inefficient, for failing to bring guarantees to the holders in a digital, globalized context, without control of the physical support and without well-established geographical boundaries, but on the other hand has become predatory and a real barrier to free competition and free access to knowledge due to the excessive extension of the protection time that has

¹⁶⁸MORGADO, Laerte Ferreira. op. cit.

ended up generating distortions (not letting it fall into the public domain), which greatly damages the social interest.¹⁶⁹

4.2. Principles of Private International Law applicable to the Internet

What is most noticeable in the current scenario of internet transactions is the occurrence of conflicts of law in space, since in many cases there is a part of a legal system transacting with another part of another legal system and if it does not happen as arranged, certainly, the legal solution will have to be found in the remedies of private international law. But the multiplicity of sources, the anachronism and the lack of convergence of domestic laws has made this task extremely tough, in conjunction with the lack of specialists in the field.

Many times, the attraction to another jurisdiction in one place or another will not achieve the desired enforceability, making the legal process extremely expensive. This is why the use of more appropriate methods of dispute resolution, such as ADRs, would be a more viable and sustainable path. However, there is still no established culture for the most common e-commerce relations, despite the presumption of arbitrability.

Thus, it makes perfect sense to apply the principles of Private International Law (PID) to issues involving the discussion of intellectual property, especially with regard to databases related to the use of new digital technologies, due to their transnational nature.

Within the digital reality, it is increasingly possible to observe the need for interconnection between different countries - whether due to economic or social development - and the impacts that this contact may bring. In this sense, in order for examples of regulatory development under the influence of international parameters to be effective, it is necessary

¹⁶⁹Associated with this issue is the situation of disparity in the performance of judges. Western states generally structure the nation within the logic of the Three Powers - Legislative, Executive and Judiciary - which must act independently and in a complementary manner to ensure the full functioning of the country. This independence, however, does not mean that the powers are not related, often adopting a stance more or less consistent with their prominent role. And the judicial system does not escape from this reality, as can be seen through the expansion of judicial activism within Brazil, for example. In this context, judicial decisions evidently cannot be exempted from bias and endowed with total neutrality in practice, as the theory aspired to. Richard Posner points to this fact by analyzing the behavior of judges in relation to the existing and prevalent political and social situation in the United States: "[...] A judge closely aligned with the ideology of the party of the president that appointed him can deviate from this alignment as new unforeseen issues arise. A judge who was conservative when the main issues of the day were economic may become liberal when the central issues become a matter of national security or social policy, such as abortion or the rights of homosexuals. There is more: the outcome of Supreme Court cases can be predicted more accurately, but by a handful of variables, none of which involve legal doctrine, than by a team of constitutional law experts. POSNER, Richard A. *How judges think*. London-UK: Harvard University Press, 2008. p. 24.

to use some practical method of positive absorption of these different influences, so that domestic law is a development tool for the country in the global context.

This doctrinal experience has made it clear that the method of functionalism seems the most appropriate to encourage the development of the internal legal system of countries allied to these new needs brought with globalization and internationalization of knowledge, such as less formalism and rigidity of rules, for example. In any case, the use of this method does not foresee the abandonment or replacement of the more formalist and doctrinal methods, appearing more as a complement with directed action and that should be thought in its different forms of action:

In fact, modern legislators prefer functional equivalence to unification. For example, in the European Union law, directives must be implemented not in their doctrinal structure, but only with regard to their outcomes; implementing laws in member states are not similar but functionally equivalent. Similarly, the principle of mutual recognition in European Union law does not require similarity, but equivalence - presumably functional equivalence.

[...]

At the same time, functionalist comparison can help to criticize foreign law, especially when the legal system insists on its cultural autonomy. Functionalist comparative law can be useful here in preparing the ground for criticism, because it combines two important perspectives: cultural awareness, on the one hand, and an external perspective, on the other. By reconstructing legal culture in functional terms, functional comparative law helps to preserve the otherness of culture, while making it proportional to our own law.¹⁷⁰

The adoption of efficient methods in the comparative and practical understanding of the law of different countries is particularly relevant in the context of the Digital Age, in which ideas about territory and border are gradually becoming relativized, even if they have not been or even have a real prospect of being extinguished:

After all, if there is an international public order for sure, similarly, one can consider that there is also an international digital public order (on the internet). This is also Finkelstein's understanding when affirming that "scarce regulation and the inadequacy of the classic connection elements would justify the option for the incidence of Lex mercatoria in

¹⁷⁰REIMANN, Mathias; ZIMMERMANN, Reinhard. op. cit., p. 377-379.

international contracts entered into electronically.”¹⁷¹ In other words, there would be an "eLex mercatoria", which would have besides the mentioned advantages the fact of being universal, uniform and easily adaptable to new needs, but dependent on the will of the parties and able to annulled by civil society. Certainly, the decentralized power nature of the internet contributes more to a model of self-regulation, especially to further promote the digital economy, although certainly few states understand that this solution is adequate for the fiscal problem arising from these new digital trade exchanges.¹⁷²

In view of this, as Philip Jessup teaches: "[...] the search for private international law, as a matter of law, would be based on three premises: cooperation among peoples, equality among states and mechanisms for resolving interspatial and interpersonal conflicts."¹⁷³

Given that PIL consists of a set of collisional rules aimed at resolving conflicts of timeless, interspatial, international or internal rules, some principles may be applied, among them, one of the most common is the *lex fori*,¹⁷⁴ which is also the one adopted in Brazil.

Still on the Brazilian context, in the case of the application of the *lex fori*, the competence of intellectual property matters ultimately lies with the federal courts, which have the appropriate jurisdiction (trademark, patent, industrial property, software counterfeiting). However, if the cause involves unfair competition issues, contractual violations or even discussion of damages, then the matter must be dealt with in the state courts. It should be noted that only the Superior Court of Justice has jurisdiction to ratify a foreign arbitration award.

Furthermore, the Brazilian legal system has accepted the use of another source of the PIL, which are the customs as a measure of solution of controversies by the judiciary, as it is clear from article 4 of the Law of Introduction to the Civil Code Act, which states: "[...] when

¹⁷¹FINKELSTEIN, Claudio. E-lex mercatoria. *Revista de Direito Internacional e Econômico*, ano 3, n. 11, p. 102-104, (E-lex mercatoria. *Journal of International and Economic Law*, Year 3, n. 11, p. 102-104), Apr./Jun. 2005.

¹⁷²Id. Ibid.

¹⁷³JESSUP, Philip. *Conflicts of law. Transnational law*. New Haven: Yale University Press, 1956. p. 1. Available at: <<http://iglp.law.harvard.edu/wp-content/uploads/2014/10/IELR-3-Jessup-Transnational-Law.pdf>>. Access on: 12 May 2017.

¹⁷⁴Article 23 of the New Brazilian Code of Civil Procedure (former Article 89) and Article 8 of the General Law on Standard Application (LICC) apply to the application of the *lex fori*. In addition, article 115 of the Code of Bustamante (Decree 18.87129) and the Code of Private International Law for the Americas.

the law is omissive, the judge will decide the case according to similarities, customs and general principles of law.

The national courts' use of private international law is related to the internationalization of society's own values, as principles that are independent of time and space, such as: the principle of human dignity, equality, non-discrimination, broad defense, access to justice, free initiative, free competition, protection of the environment, protection of the historical and cultural heritage. Therefore, more recently, within this logic, it would also be natural to bring principles such as privacy, freedom of information, cyber-security into this system.

According to the teaching of Maristela Basso, "[...] custom is expressed by the repeated practice of certain behaviors which, through experience and the course of time, are admitted to be juridically observable, immediately binding individuals - on the internal level of States."¹⁷⁵

The greatest challenge has been the excessive attachment of states to the *lex fori* (especially the legislation of the relevant jurisdiction or national public policies) to the detriment of Community harmonization at international level between countries. According to Erik Jayme's analysis, this has led to an "international codification crisis" in private international law.¹⁷⁶

4.3. Intellectual property on the internet and the question of territoriality

There is a pressing country-level agenda to ensure that existing intellectual rights laws fit into a new context of the digital economy. This requires reform not only at the national level, but especially at the international level, given the cross-border nature of the internet and the need to define equivalent standards and measures of freedoms and protections agreed to be enforceable in different jurisdictions.

This is what is extracted from Alessandro Ferretti's work regarding the copyright revolution in a scenario of unlimited re production of the works detached from the original packaging:

¹⁷⁵BASSO, Maristela. op. cit., p. 90.

¹⁷⁶JAYME, Erik. *Considérations historiques et actuelles sur la codification du droit international privé. Recueil des Cours de L'Académie de Droit International* (Historical and current considerations on the codification of private international law. *Collection of Courses of the Academy of International Law*.) Nijhoff, Leiden, t. 177, p. 9-102, 1982. Available at <file:///C:/Users/Leonice/Downloads/67935-89367-1-PB.pdf>. Access on: 05 June 2017.

It is clear that both motives are based on a reasonable basis and, therefore, it is essential and necessary to achieve a break-even point without which we will continue to have legislation oriented in one direction or another, but incapable of providing effective responses for the community. Up until now we cannot deny that we are witnessing a "copyright dispute" that moves in its own directions from a European level. Just think of the non-binding resolution adopted on the subject by the European Parliament in Strasbourg on 9 July, which seems to ignore the essential points of the expectations of the defenders of 'freedom to the rights of the author', welcoming a vision closer to that of the publishers with the expectation and a construction of a set of minimum standards applicable for the whole of Europe in terms of copyright. The Commission will soon have to present a reform proposal [...] with the aim of adapting copyright in the European Union to the digital age.¹⁷⁷

What we see is that the break with packaging through the digitization process and the rapid advancement of technology and business models have quickly made the protective measures envisaged for copyright in the 1990s obsolete.

The reason why copyright law ultimately does not provide adequate tools for the preservation of the rights of owners of intellectual property on the internet is due to the following reasons: i) when the copying is made by a user for private or non-commercial (domestic) purposes it can be allowed within the principle of *fair use*.

As Chris Reed teaches,¹⁷⁸ the question to be asked regarding any law that proposes to regulate any activity on the internet is not whether it is applicable, but whether it is enforceable.

In addition, the user may have some kind of implied license that allows them to make the copy for private use; ii) when the copy is eventually made by the intermediary hosting the information, or they are only storing it temporarily, which does not make them liable for any infringement, or they are being used by the user to host the copy, which also removes their liability.

And worse, in the case of micro-information products, as with small database extractions, legal protection is even weaker, since often the product is not original enough to

¹⁷⁷FERRETTI, Alessandro; PRIMICERI, Salvatore; SPEDICATO, Annalisa. *Rivoluzione d'autore: il diritto d'autore tra presente e futuro (Revolution of authorship: the right of authorship between present and future)*. Primiceri Editore, 2015. p. 5-6.

¹⁷⁸REED, Chris. *Internet law: text and materials*, cit., p. 291-292.

bring legal protection, nor does it demonstrate substantial investment to constitute a work protected by copyright or sui generis right.

Thus, since the owners of new information products tend to need more and more economic protection for their assets, either copyright laws will have to be revised or a new form will have to be created to protect what they have created.

The distinction between applicability and enforceability is fundamental to the development of future rules for the internet. The binding force of a standard is due to the fact that it is a standard. That is why a system that has many rules, each one different from the other, making it contradictory, in practical terms ends up becoming impossible to demand obedience.

There are still three factors that make the internet a difficult place to guarantee enforceability: (i) the violator is beyond the reach of the claimant's jurisdiction; (ii) there is no technical possibility of identifying the violator for an action to be brought in the jurisdiction; (iii) there is a recognizable identity of the violator in the jurisdiction, but they are not subject to liability under the law.¹⁷⁹

The current model of intellectual property protection that is based on the determination of exclusivity control over a holder's creation limited in time (for a period of time) and space (in a territory) would be facing some critical challenges, which require its urgent review.

When discussing territoriality, i.e. the application of the law when the matter involves databases, the question is whether the connecting rules of private international law (already provided for under the Bustamante Code), such as the law of domicile or the law of nationality, should apply. Or should another criterion be applied? As for the origin of the database, where the databases will be located (stored).

According to Jürgen Basedow:

The challenge of territoriality at the international level has always been the backdrop for any intention to promote regulation at the level of an international treaty or convention. Especially in the field of intellectual property, since the early stages of the Paris Convention and the Berne Convention, the development of a uniform law for the protection of literary and artistic work on both sides of the Atlantic was the great pretension of the participants who wanted to adopt a minimum standard to be

¹⁷⁹REED, Chris. *Internet law: text and materials*, cit., p. 292-293.

implemented by each State and avoid any kind of discrimination of foreign works between States.¹⁸⁰

Theoretically, nothing prevents any government from pursuing the enforcement of its laws to regulate internet activities, which is an environment where the issue of geographic location is extremely closely linked. However, as this country will manage to impose the legal measures in a practical way against an organization that is in another country, out of the reach of its jurisdiction, it is the most relevant practical point to be addressed, as making the law, by itself, is the easiest part.

As regards the choice of which law is applicable from the point of view of territoriality, there are three principles to be considered: the *Lex loci*, *Lex contractus*, and *Lex fori*.

The *Lex loci* principle means the enforcement of the law of the country from which protection is sought, not where the protection is. That is, under the ALI principles it is possible for the parties to agree contractually on the law that will steer the dispute of the conflict, with sufficient autonomy for the parties. But it is important to emphasize that this effect will be only between parties, that is, only in what intellectual property can be treated and be valid between those who signed the contract, but not with effect for third parties. Hence, there is an insurmountable list of exceptions, because it would not be possible to create rights where there are none.

The *Lex originis* principle represents the law that governs the author's very personal status on their first publication, especially in countries where there is no protection of the *Lex loci* principle for copyright related to intellectual property contracts.

The *Lex Contractus* principle is precisely the one which determines that contracts make law between the parties, and which is internationally recognized under the premise *pacta sunt servanda*, creating a binding commitment of the parties to the obligations set forth in the contract. And the parties may choose the appropriate laws in the case of mandatory provisions, as is the case with the protection of the German copyright law for a reasonable remuneration of the author.

¹⁸⁰BASEDOW, Jürgen. Foundations of private international law in intellectual property. In: BASEDOW, Jürgen; KONO, Toshiyuki; METZGER, Axel (Eds.). *Intellectual property in the global arena: jurisdiction, applicable law, and the recognition of judgments in Europe, Japan and the US*. Tübingen: Mohr Siebeck, 2010. p. 9.

Finally, the Lex Fori principle, which is also adopted in Brazil, is widely used in the case of judicial proceedings and is also observed in the Rome I and Rome II Regulations. However, according to Basedow,¹⁸¹ when there is a case, often mainly in the European Union, contrary to common law countries, the treatment is by the substantive law and not the procedural law, and then the definition of the location is directed by the damages applying the *lex contractus* or *lex delicti* and not the *lex fori*.

Therefore, an alternative that has proved more viable has been the use of a principle of the law of the country of origin combined with a certain degree of harmonization and convergence with national laws.

But to define the country of origin, there are two points to be established: the principle of origin from the point of view of the consumer and from that of the commercial organization. According to European regulations, a commercial organization will be considered as such if there is: physical location with the necessary facilities installed, presence of team or agents representing the company, capability of the team or representatives to conduct business with consumers in that location.

According to the understanding of Jürgen Basedow:

[...]to the extent that intellectual property rights are covered, recital 26 of the Rome II Regulation provides for the 'protection of copyright and related rights, *sui generis* over databases and industrial property rights'. They have been established and are subject to the principle of *Lex loci* protection. The list is not exhaustive, according to the ALI principles moral rights should be added.¹⁸²

All goods subject to registration whose registration is essential, constitutive and declaratory of Rights are subject to the principle of territoriality, since the Berne and Paris Convention. Therefore, if there is a requirement for a database registration, the jurisdiction lies with the place of registration of that database.

But it appears that this principle has already become somewhat outdated and has more application for tax purposes than for the resolution of solution of conflict of law rules with cases from the internet.

¹⁸¹BASEDOW, Jürgen. Foundations of private international law in intellectual property, cit.

¹⁸²Id. Ibid., p. 11.

In addition, there are some distinctions of its use even within the intellectual property, when it refers to copyright and related rights, even if it does not require registration, as well as then for databases (especially with respect to the *sui generis*), since there would apply the rule of any location, that is, any law that has an effect on the specific case is valid. In other words, territoriality is relative.

Clearly, the internet brought a major breakdown in copy control systems, which were actually well resolved while there was more physical control of the support, but which became useless with the dematerialization of the content and its migration to the digital format. The difficulty in driving enforcement on the digital system to control intellectual assets results in their loss of patrimonial value.

It therefore follows that the only sustainable path for the continued growth of the internet is through public-private co-regulation at the international and multilateral levels.

PART 3

THE GOVERNANCE OF INTERNET RELATIONS THROUGH CONTRACTS

This part seeks to present contracts as one of the sources of law that has grown in importance to fill the gaps created by the great leaps of technological transformation. Some of the new business models based on the *Data Economy* and its governance through Terms of Use and Privacy Policy will be presented. The analysis will make some considerations about the relevance of transparency in relationships through digital media and the engagement with a business management committed to a model of ethical use of data (*Data Ethics*) for the development of IoT and AI solutions. Finally, some analysis will be presented about the parameters about what can be foreseen in these contracts and what measures have been taken to safeguard rights, risk mitigation and limit liability.

CHAPTER 5. NEW BUSINESS MODELS AND THE TYPES OF CONTRACT THAT GENERATE EXTRATERRITORIAL EFFECTS

This chapter seeks to present the growth and strengthening of the use of contracts as a means of resolving legal issues involving the internet. Due to its own multi-territorial nature, the digital environment has proven to be very complex for companies in order to have a clear understanding of which law to apply in a concrete case. For this reason, the contract, as a guiding instrument for an agreement between aspirations, has become the most used tool to deal with issues related to commercial-digital relations, whether between companies and users, or between companies.

5.1. The power of contracts in the digital age

Society changes faster than laws, as Manuel Castells quotes, "Change is in people's minds."¹⁸³

As well put by Alexandre Pereira:

[...] information is a mass traded economic good on the market for information products and services, and new contractual models have emerged, the purpose of which is precisely to provide information. The 'information contract' is proposed to cover a series of contracts the common denominator of which is information, understood either as a process of providing information or as an object of that process or information itself.¹⁸⁴

Therefore, as it is a very new field, there is a large area of contractual freedom to define clauses between parties. The protection of obligations and the effectiveness of these contracts are directly subordinated to the circumstances of the specific cases, with the multi-territorial problem brought by the internet, which has proven to be an exacerbating factor, hindering the exercise of some rights and the performance of some duties when there are breaches of contract.

¹⁸³Apud GIRON, Luís Antônio. Manuel Castells: a mudança está na cabeça das pessoas (Manuel Castells: change is in people's minds.). *Época. Ideias*, 11.10.2013. Available at: <<http://epoca.globo.com/ideias/noticia/2013/10/bmanuel-castellsb-mudanca-esta-na-cabeça-das-pessoas.html>>. Access: 10 July 2017.

¹⁸⁴PEREIRA, Alexandre Libório Dias. *Direitos de autor e liberdade de informação (Copyright and freedom of information)*, cit., p. 415.

According to Bygrave:

[...]the failure to establish international customized international regulation is partly justified by the fact that it has a minor role in internet governance and will hardly have one to play in the near future. However, some academics have predicted that the customs of cyberspace may bring some international regulation, but many barriers remain in the way of this type of development. As internet surveillance, it is very difficult for 'online laws' to become more or less uniform and consistent given the very dynamic environment of cyberspace. Anyone analyzing internet governance from the perspective of international law is more likely to be frustrated by doctrinal uncertainty and disagreement over the content of this type of regulation.¹⁸⁵

To the same extent that there is very much information, but flowing digitally, it is also much more challenging to ensure its protection and to apply methods of control and punishment when there is a violation of the established rules.

Therefore, it is precisely this failure of international rules that opens space for a greater governance of contracts on the internet. And the preference for contracts on the internet has a strong correlation with the creation of the web because they have been used since its creation.

As Bygrave teaches:

[...]the contracts have been used since the very beginning of the internet. They were the main legal tool used by U.S. government agencies to finance the research efforts of the scientific community in the development of the Internet and its precursors: ARPANET (Advanced Research Projects Agency Network), CSNET (Computer Science Research Network), and NSFNET (National Science Foundation Network). Co-operation contracts were the predominant form of contract in the process, particularly in the construction of NSFNET during the 1980s and early 1990s under the management of NSF. And contracts continued to be the US government's preferred legal tool for formulating the regulatory measures for internet-based commerce in the late 1990s. In an influential 1997 White Paper, the Clinton-Gore administration determined that 'the government should establish a predictable and simple legal environment based on a decentralized contractual model rather than a model based on rigid top-down regulation. Later, it was a private not-for-profit corporation registered in California that came to carry out the internet management mission, ICANN, which to fulfill its mission went on to apply even more informal contracts with other corporations and third parties. In addition, contracts are widely used to regulate the relationships related to the use of data on the internet by applications in all layers of online content.¹⁸⁶

¹⁸⁵BYGRAVE, L. A. *Internet governance by contract*. 2nd ed. Oxford: United Kingdom: Oxford University Press, 2015. p. 26.

¹⁸⁶Id. Ibid., p. 28-30.

But does the recognition of consensualism require a real consent? We must not confuse the propertization of obligation with the anti-propertization of the right itself. Repersonalization involves economic obligation with non-patrimonial rights (moral responsibilities). It is important to note that, to some degree, the trend toward the use of the binding contract in a unilateral manner has been a rather dangerous instrument for the complete protection of rights in this system of the autonomy of the contracting parties, since it ultimately favors one side over the other.

If the data are understood as a currency of payment, and in turn a claim paid for a service, they could be transferred without the consent of the debtor (Article 294) (transfers the obligation and not the contract - it is the assignment of the claim).

According to Guido Alpa,¹⁸⁷ there would be three contractual principles to be followed: contractual freedom, trust and good faith. And where do these principles rest? In Freedom (legal fairness) with Justice (natural fairness). And this is what consists in the problem of the paradigm of the Law and the paradigm of the Judge. For, in the end, it needs legal protection to ensure either the payment or compensation: whether it will produce effects or not (binding force and enforceability of contracts).

What is observed regarding the databases with the application of the terms of use on the internet, is that it uses the model of atypical contracts, according to the provision of article 425 of the Brazilian Civil Code. This is fully acceptable also within the principle of the autonomy of will in international contracts under the Inter-American Convention on the Law Applicable to International Contracts of 1994.

According to Chris Reed,¹⁸⁸ although private law lawyers may draft clauses, choose the applicable law and jurisdiction, how do they resolve issues where the use of the contractual instrument is not appropriate in the business relationships involved?

5.2. The terms of use on the internet and their legal effects

The internet has been ruled, or rather governed, by contracts. And these instruments have had a very great legal force, since they are applied in an extraterritorial, supranational way, so that a single company, provider of that digital service, can impose its rules for users

¹⁸⁷ALPA, Guido. *Da boa-fé no direito civil (Good faith in civil law.)*. Coimbra: Almedina, 2007. p. 291.

¹⁸⁸REED, Chris. *Internet law: text and materials*, cit., p. 310.

in several countries, under different legal systems, completely independently local laws, be they consumerist, competitive, intellectual or others.

In a way, as Fabrício Polido teaches, the most common model applied to the internet in terms of license agreements has been:

[...]specifically, public contracts (which means that they are open and available to the public). This gives them some peculiar characteristics compared to the classification within the Brazilian legislation of contracts: they are: (i) atypical, (ii) unilateral and (iii) free.¹⁸⁹

Considering copyright issues, in most of these contracts, which appear not only as Terms of Use, but have been simplified to such an extent that they appear only as a simple screen to give an "OK" in a request for "access" to data, there are clauses often determining the transfer (assignment) of data, and in other cases, there is nothing being detailed. That is, there is a great deal of doubt as to what has been agreed between the parties.

At the same time, the use of complicated, long and empty privacy terms and policies for accessible content does not educate users on what their rights are about data ownership, or even on what the processing mechanisms themselves consist of.

In this context, Professor Cíntia Rosa Pereira Lima and Professor Ricardo Bioni emphasize that this problem stimulates even more the indifferent behavior of users:

Several studies have found that users do not read privacy terms and policies and many of those who do are unable to understand them because of their very long texts and usually technical terms.

There are several studies and researches that demonstrate the problems that arise because users do not read the so-called *EULA*. These reasons range from the haste and ingenuity of the user to the difficulty in understanding the terms used by the provider of these services and applications.

Robert A. Hillman developed a questionnaire and applied it to 92 students in order to verify whether or not they read the electronic adhesion contracts. Only 4 students answered that they read (4%); and almost half, i.e. 40 students (44%) answered that they do not read the electronic adhesion contracts; 16 students answered that they read depending on the term

¹⁸⁹POLIDO, Fabrício Bertini Pasquot; ROSINA, Mônica Steffen Guise. Free open source software and creative commons in Brazil: Mapping the legal framework of alternative intellectual property licenses: In: METZGER, Axel (Ed.). *Free and open source software (FOSS) and other Alternative License Models: a comparative analysis*. Springer International Publishing, 2015. p. 84.

(17%); 33 students read depending on the supplier (36%); and 34 students read depending on the value of the electronic transaction (37%). Note that students could not mark more than one item for their response.

In this sense, some examples are symptomatic, such as: i) many users consented to a privacy policy that contained a clause authorizing a video game company to retain their souls; ii) according to researchers at *Carnegie Mellon University*, it would take \$781 billion worth of the user's working hours to read all the privacy policies and terms of each site accessed; iii) many users believe that the words "privacy policy" would mean the very protection of their personal data.

Therefore, the above examples illustrate that there is a barrier to be overcome for the user to be able to effectively manage their personal information.¹⁹⁰

It should be emphasized that in the issue of data, it makes all the difference in conceptual terms, to differentiate what is access from what is use, and finally, from what is sharing. This is because, an access means only being able to see (a consultation), the use involves a level more than the access (it means besides the consultation being able to use the information itself). And sharing is the level with the most powers, because it also includes the act of transferring, of being able to extract data.

It can be said that the current models of internet contracts started with a lot of detailed rules, but they were reaching the point of not saying anything else, just collecting consent with kind of "blank paper signature". And this trend came from the United States, as can be seen, due to its extremely liberal nature, and faces harsh criticism and opposing positions from the European Union, which has then implemented top-down regulations in an attempt to curb the US model, which has become something akin to a kind of "old western data industry."

Regarding Brazil, according to Polido's teaching:

Considering a proprietary approach, it is the exclusive right of the author to reproduce, edit, adapt, transform, distribute, include in a database, or use its content in any type of media or form existing in the present or invented

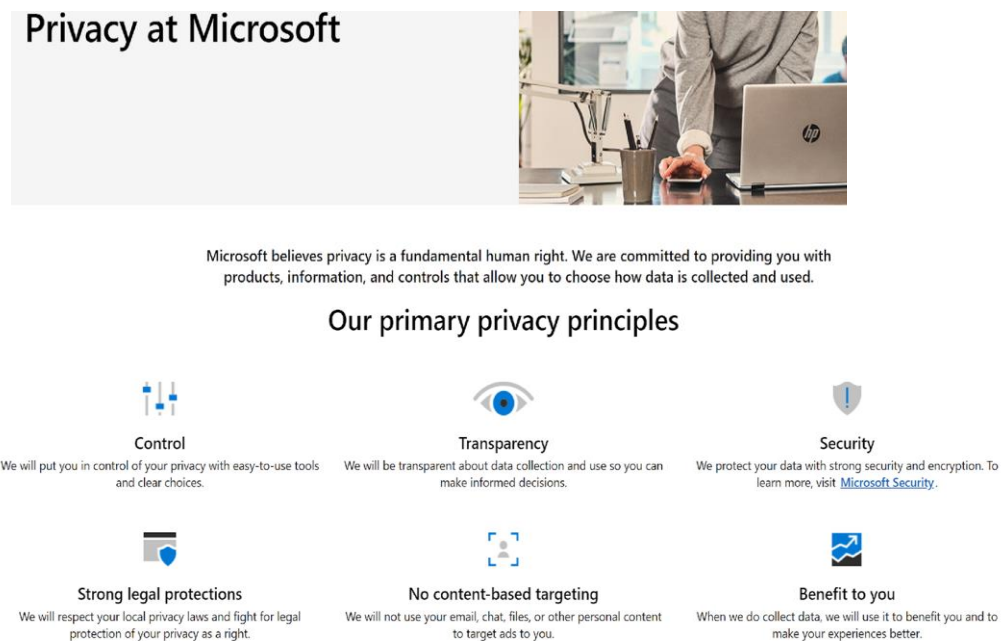
¹⁹⁰LIMA, Cíntia Rosa Pereira de; BIONI, Bruno Ricardo. A proteção dos dados pessoais na fase de coleta: apontamentos sobre a adjetivação do consentimento implementada pelo Artigo 7, incisos VIII e IX do marco civil da internet a partir da Human computer interaction e da Privacy by default (The protection of personal data in the collection phase: notes on the adjectivation of the consent implemented by Article 7, items VIII and IX of the civil registry of the Internet from Human computer interaction and Privacy by default). In: DE LUCCA, Newton; SIMÃO FILHO, Adalberto; LIMA, Cíntia Rosa Pereira de (Coords.). *Direito & Internet III: Marco Civil da Internet (Lei n. 12.965/2014)*. São Paulo: Quartier Latin, 2015. t. 1, p. 268-269.

in the future (article 29 of the Brazilian Copyright Law). These rights may be granted in whole or in part to their holders.¹⁹¹

The change in the rules related to users' privacy with the advent of new regulations on personal data protection has caused several companies to update their Terms of Use and Privacy Policies, in particular to comply with the European Regulation (GDPR).

Just as an example, below are the adjustments made by some of the largest technology companies,¹⁹² where the text updated in April 2018 is observed on the one hand and on the other hand which articles of the European regulations the improvements implemented in the document were striving to meet, as shown in Figure 3:

Figure 3 - Microsoft. Privacy Policy



Privacy at Microsoft

Microsoft believes privacy is a fundamental human right. We are committed to providing you with products, information, and controls that allow you to choose how data is collected and used.

Our primary privacy principles

- Control**
We will put you in control of your privacy with easy-to-use tools and clear choices.
- Transparency**
We will be transparent about data collection and use so you can make informed decisions.
- Security**
We protect your data with strong security and encryption. To learn more, visit [Microsoft Security](#).
- Strong legal protections**
We will respect your local privacy laws and fight for legal protection of your privacy as a right.
- No content-based targeting**
We will not use your email, chat, files, or other personal content to target ads to you.
- Benefit to you**
When we do collect data, we will use it to benefit you and to make your experiences better.

Source: <https://www.microsoft.com/en-us/trust-center/privacy>

In the business model of many digital services offered over the internet, there is a false impression of "free." In fact, the currency of payment has always been the personal data

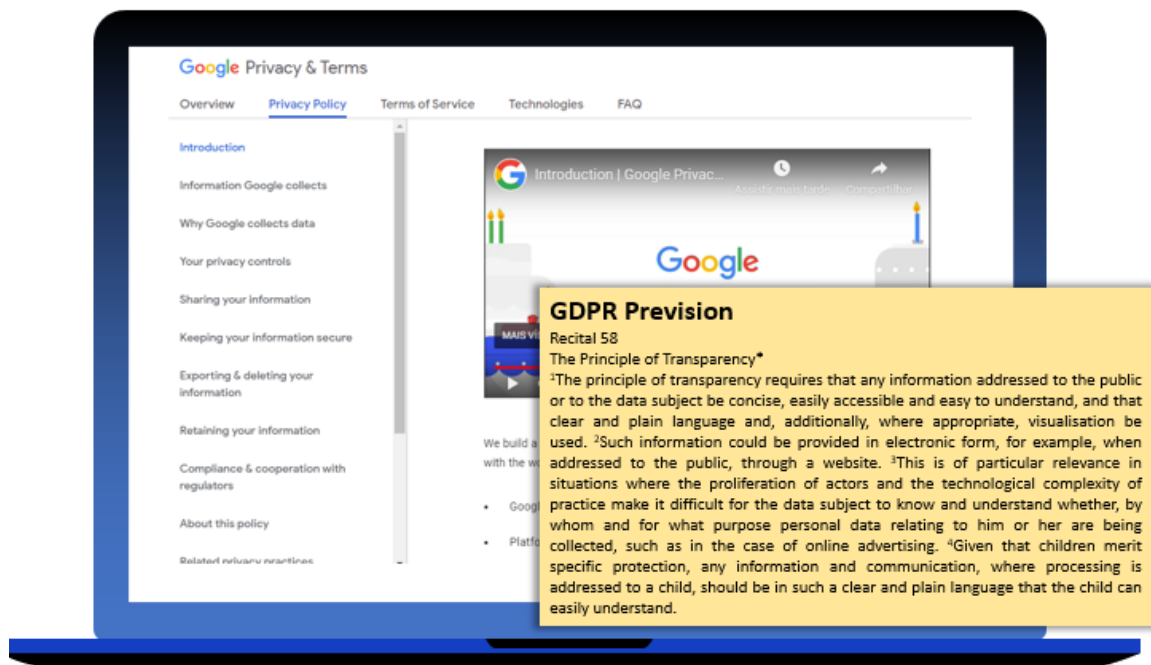
¹⁹¹POLIDO, Fabrício Bertini Pasquot; ROSINA, Mônica Steffen Guise. op. cit., p. 98.

¹⁹²MICROSOFT. *Microsoft Privacy Statement*. May 2018. Available at: <https://privacy.microsoft.com/en-gb/privacystatement>. Access on: 20 April 2018.

of users and their behavioral information (related to interactions on the platform and navigation data).

The format of this type of consumer contract is the unilateral registration type, in which the user, along with the privacy policy, has no way to discuss its clauses, is the *single undertake* type (which means, confirmation, because either everything is accepted, or nothing), as also occurs with the use of Google's services,¹⁹³ which to comply with the GDPR went on to present, in addition to the written policy, video guidelines, to meet recital 58 of the regulation, which can be seen in Figure 4:

Figure 4 - Google. Privacy Policy and Terms of Use



Source: <https://policies.google.com/privacy?hl=en-US>

It should be noted that, in the case of Brazilian law, there is already a limitation on the time permitted for the use of users' personal data since the Civil Framework Law of the Internet, in its articles 3, items II and III, 7, items I, II, III, VII, VIII, 8, 10 and 15.

¹⁹³GOOGLE. *Privacy Policy of Google*. Available at: <<https://policies.google.com/privacy/update?hl=pt-BR>>. Access in: 20 April 2018 and link for the vídeo tutorial GOOGLE. *Information Google collects | Google Privacy Policy*. Available at: <<https://youtu.be/YImVKT3Zvhw>>. Access on 20 May 2018.

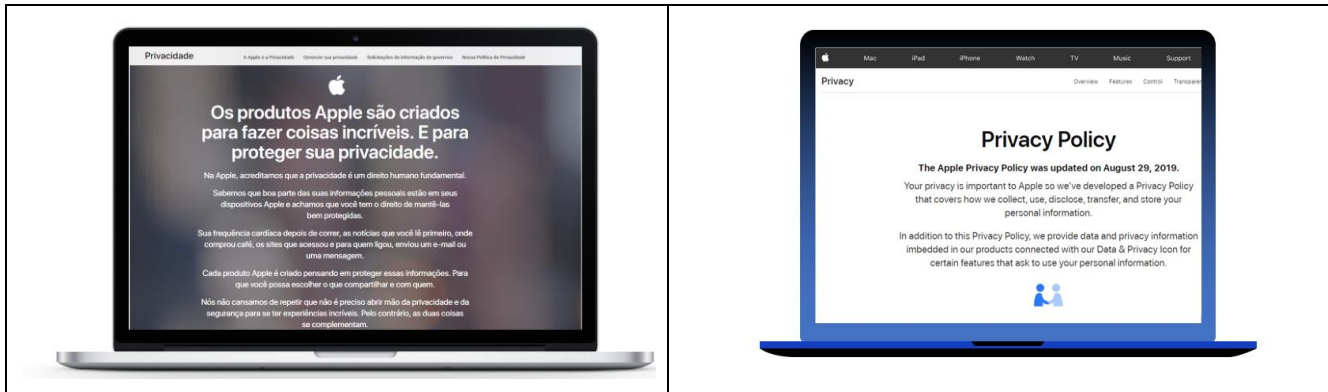
These recent changes in the laws raise a fundamental legal issue: if the data are used as currency within the business model that enabled the expansion of the internet itself, how to allow them to be returned later to the user at any time when they request, after having already consumed the product or provided the service that was part of the arrangement for the delivery of the data. In other words, if on the one hand the legislator's intention was to empower the user to have more control over the use of their personal data and demand greater transparency from companies, it turned out that the regulations exceeded this purpose by creating a scenario in which there was a certain "blank check" on the use of personal data (use for any purpose and for an indefinite period) to a situation of greater significance, that of being able to take back the currency that was used as payment.

This change of approach has generated a lot of discussion around the economic feasibility of implementing the entire list of requirements generated by the new regulations and maintenance of the offer of products and services still in the format in which they were originally produced, having to meet quality standards at a low cost or even for free.

Then, how can we harmonize the requirement that the personal data collected be revoked and deleted at any time upon the request of the user under the European Directive (GDPR) with the need to comply with what was agreed "pacta sunt servanda" and preserve the economic-financial balance of the contracts?

As for Apple, their site is able to describe their privacy policy in a very didactic way, and has also created a privacy portal where users can download all the data that the company has about them, as shown in Figure 5¹⁹⁴

¹⁹⁴APPLE. Apple users in the EU can now download all the info the company has on them. *The Verge*, May 23, 2018. Available at: <https://www.theverge.com/2018/5/23/17383692/eu-apple-users-id-privacy-portal-gdpr>. Access on: 30 June. 2018.

Figure 5 - Apple. Privacy Policy

Source: <https://www.apple.com/legal/privacy/en-ww/>

PART 4

THE FUTURE OF THE REGULATION OF PROPERTY RIGHTS, THE USE OF AND ACCESS TO DIGITAL DATABASES

This part is dedicated especially to the presentation of trends in the regulation of personal databases from a human rights perspective, aiming at the protection and empowerment of the individual over their information. Based on this premise of privacy protection, all the discussion that has taken place at the national and international levels will be presented to harmonize the issues involving the use of databases in order to enable technological innovation within a safe and healthy environment for users. Thus, the recent legislation that came into force on the protection of personal data will be analyzed, as will the reason for the close link between the issue of data and human rights, as well as the impacts of this paradigm shift on businesses and individuals. Finally, there will be further reflection on the creation of a Soft Law model with Standard Clauses for Contracts and the presentation of this agenda through the law of International Treaties to ensure greater effectiveness and enforceability.

CHAPTER 6. HUMAN RIGHTS VERSUS INTELLECTUAL PROPERTY IN THE KNOWLEDGE SOCIETY

6.1 Privacy as a limiting right to database ownership

Has the change in the perception that intellectual property should migrate from ownership to a human right been beneficial or harmful? Clearly there is no pretension here to question the moral right of the author over their work, but rather to make a critical analysis of how much the individualistic understanding projected for intellectual assets, in a context of more entrepreneurial and less artistic production, as is the case today, ended up hindering the very protection of creation. If protection ought to be the desired result, then it may be necessary to review the equation, since the problem is not being addressed as it rightfully deserves.

The great paradigm shift in the evolution of intellectual protection was not to bring moral protection, but to focus attention on the author instead of distribution (the one who had the right to copy, the copyright). Give the author the prerogatives to decide on their work, to have more control. But within this perspective, it does not matter if this author is a person, a group of people gathered around a legal entity (collective work), or even, a person using a robot with artificial intelligence.

However, as the use of new technologies advances, more distant and inefficient is the use of copyright law, whether at the national or international level, because it was not devised to be able to adapt to these technical and social innovations. Curiously, the law to protect the invention cannot reinvent itself.

One of the most interesting and emblematic cases on the discussion between intellectual property and human rights, especially privacy, occurred with the company Viacom that filed a lawsuit against Google claiming that its YouTube service was complicit with the copyright infringement practiced by its users, to the extent that it allowed them to mark the videos as private, making it difficult for Viacom's robots to be able to access them for removal. In its arguments, Viacom stated that privacy is incompatible with copyright protection in the 21st century because the ability of the public to communicate using privacy resources was a threat to creativity, which shocked everyone at the time.

Of course, the U.S. court judge did not accept Viacom's allegations. But after seven years of much litigation, the case was closed in an agreement between the two companies which determined that Google would collaborate with Viacom to remove content that infringed its intellectual property. The content of the agreement has not been revealed.

According to June Besek (verbal information),¹⁹⁵ content providers and internet service providers need to find more constructive ways to work together instead of resorting to litigation. This is because content providers rely on Google to filter their material and Google relies on the content of these companies to attract the public to their websites.

Looking at the situation through the perspective of the consumer prism, there is also a concern about how much personal knowledge companies can accumulate about the consumer's individuality in the "economic logic of data". Tim Berners-Lee already raised this question at the outset of the World Wide Web: "Perhaps the biggest concern for consumers in terms of privacy is that once they have bought enough products, companies will have accumulated enough personal information to affect them adversely or take advantage of them."¹⁹⁶

For these and other reasons, privacy laws have taken on greater force in recent years and consist of two main elements: (i) determining the circumstances in which a third party may have the right to collect, use and share personal data about an individual; (ii) create mechanisms to prevent the collection, use and sharing of personal data outside the established limits.

The challenge of dealing with the issue of privacy, especially when it touches on the issue of rights over databases, is that there is a large proportion of cultural importance involved in defining this concept, and thus the dialogue conducted at a more transnational level faces cultural barriers.

Even in the case of the United States, most protections related to privacy rights are granted through self-regulation of industry (whether in telecommunications, insurance, health, transportation, financial or other) and the binding effect is left to the individual to

¹⁹⁵Speech of June Besek - Professor at the Columbia University Faculty of Law - in an interview granted to Reuters on March 18, 2014. STEMPER, Jonathan. *Google, Viacom settle landmark YouTube lawsuit*. Available at: <<http://www.reuters.com/article/us-google-viacom-lawsuit-idUSBREA2H11220140318>>. Access on: 9 July. 2017.

¹⁹⁶BERNERS-LEE, Tim. *Weaving the Web: the original design of the World Wide Web by its inventor* – Tim Berners-Lee with Mark Fischetti, cit., p. 143.

question their own commercial and social relations (it is up to the consumer or user to report an infraction and proceed with a privacy breach complaint). For this reason, U.S. privacy laws have little reach outside the boundaries of that country's territorial boundaries.

The vision is completely different in those countries where there is an understanding that the state should play the leading role in protecting the privacy of its citizens. The best example of this model is the European which has developed an entire legal framework for the protection of personal data.¹⁹⁷

But regardless of the judge's decision and the final settlement of the case, it must not be forgotten that, in a way, we are moving towards a paradigm: the law eventually prohibiting privacy in the sense of preventing it from being used to protect a copyright infringement.

But the conflicts do not stop there, since the industry needs to create mechanisms to protect its intellectual property. And one of the strategies that has become more widespread is the use of digital locks. In other words, the tendency is to increase investment in security systems and encryption tools to encapsulate intellectual property in digital media, and this extends from creations to databases.

As Cory Doctorow teaches,¹⁹⁸ digital locks are proliferating, and in 2013, the industry had major conflict with the World Web Consortium (W3C) about bringing the internet up to the Digital Rights Management (DRM) standard. And the discussion was led by the technological partners of the entertainment industry, including Google, Apple and Microsoft and eventually W3C had to compromise so that a user's browser couldn't easily save a Netflix streamed movie.

This is due to the fact that on the internet content is not only transmitted, it is propagated. Technically this means that where it goes it stays. So, if there is no digital lock, it can be revisited, accessed again after it has already been used, and continuously.

One thing is certain, there is a need to establish new, clearer, transparent, rules to address all these issues more effectively. And these rules must have the ability to regulate the intellectual production industry and not the life of its users.

¹⁹⁷According to Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (General Data Privacy Regulation - GDPR) on the protection of personal data and on the free movement of such data and repealing Directive 95/46/EC.

¹⁹⁸DOCTOROW, Cory. *Information doesn't want to be free: laws for the internet age*, cit.

Nowadays, the acquisition of intellectual property rights - rather than being merely a consequence of the naturally occurring human creativity - is the direct objective resulting from the strategic planning of business activities. Research and development are the key factors for the productivity of companies; IP rights are usually their greatest assets. The respective activities that form the objective of strategic planning, such as cooperation contracts, mergers and outsourcing. (p.10) [...] The fundamental transformations in communication technologies, in particular the digitalization and transmission of information by satellite, also affect the exploitation and infringement of IP rights.¹⁹⁹

Great care must be taken with this legislative tendency to make everything an essential right, because someone ends up having to pay the bill for this. Behind the whole legal framework is a political and economic model. And that is why it is very difficult to export laws from one country to another. Who is going to pay the bill for an internet for everyone, the data for everyone?

On the one hand, there is a desire to stimulate digital inclusion and free access to information, but on the other hand, to limit the protection of intellectual property over data and databases, and the rights of use and exploitation by the industry of what is related to people's information, and that until then, was precisely the business model for paying the costs of all this infrastructure.

The implication is that the growing tendency of the application of human rights to databases could cause a collapse on the internet and this will have a high social and economic cost.

6.2. The regulation of the protection of personal data and its impact on the rights of use and access to databases

We can observe some relevant historical issues that marked the nature of the origin of the protection of intangible intellectual property and that still cause effects today. With regard to intangible heritage assets, in the beginning, they were granted or guaranteed by lords or princes, in a very individual relationship, even very personal, for the promotion of wealth, within a model of concession of exclusivity where exploitation or production could guarantee a participation in the revenue for the kingdom or for the State, by the extraction of royalties. Such rights, at a given moment, they could be revoked.

¹⁹⁹BASEDOW, Jürgen. Foundations of private international law in intellectual property, cit., p. 11.

Ultimately the intellectual property rights until today are dependent on the positive law, or as the European Court of Justice has already manifested, with respect to the right of companies, are creations of the national law that only exist by virtue of the legislation of several nations that determine their existence. That means they are not a natural right, but a created right. Therefore, that the remedies provided to solve the problems related to the violation of intellectual property, are nothing more than an intersection between the public law and the holders of intellectual rights in that respective jurisdiction.

Thus, the philosophical birthplace of intellectual property was due to a system of privileges and, therefore, there is a feeling that any expansion of its manifestation is something contrary to the most recent trends of public policies in favor of human rights and access to information. It ends up giving intellectual property a kind of tainted image due to this initial proximity to a legal model that uses premises of social exclusion and restriction of public access to intellectual property.

Regardless of whether the model has a purpose, which would be to stimulate creators in the risky investment that is creation, and that in the end all intellectual protection, however exclusionary it may be, is always temporary and eventually returns to the public domain, even so, the most current debates on the matter, conclude by closing any possibility of revisiting the matter with the justification that the expansion of intellectual rights protections would degrade collective rights.

Therefore, this has created a great barrier to the advancement of the issue that is so necessary to find the answers required for the questions related to the challenges brought by new technologies. What has this caused? That each attempt to find a solution alone, thus rolling back more than two hundred years of history.

What, then, would have been the reason that motivated several countries to adhere to the international conventions and treaties on intellectual property in the past? Fear was the main reason. There was great concern that those who did not participate might or might not have been guaranteed protections for their inventions or the authorial work of their creators, or would risk some kind of discrimination in the international trade of their inventions or creations by their authors.

Therefore, the States were gathered together, dialoguing, as representatives of commercial interests, not only of individuals, but of their countries, of their trade balances, ultimately, of their national intellectual sovereignty over others.

But what now? How can we resume this same level of dialogue? Again, only if there is a fear that their economies may be threatened in some way again, if they do not find a model for harmonizing intellectual property rules applicable to digital issues.

Well, and that is exactly what is starting to happen involving databases. Not in the field of intellectual protection, but on the contrary, in its limitations. With the regulations on the protection of personal data, which restrict the use of information related to individuals, it is still unclear what the impact of these new rules will be on the business model of companies and their asset value.

What does this new personal data protection system mean? At the outset, what motivated the need to propose a specific regulation for personal data was precisely a commercial issue, i.e. to define more clearly what can be marketed in terms of information on individuals.

However, at a certain moment, the agenda changed, and began to have a much greater tendency for the protection of human rights than for the definition of a model of DOs and DON'Ts for the market, following the international custom of applying checks and balances.

Analyzing now in comparative terms the European, Brazilian and North American legal systems on the issue of personal data protection, there is, right from the beginning, a tremendous divergence of views, mainly between the European Union and the United States. And this has resulted in a bipolarization of the issue and made its treatment more difficult in a multilateral forum.

The European approach is for maximum protection of the individual by the state, with a historical concern about the privacy of information. The United States, on the other hand, sees that there should be no public intervention and that the market should be governed by contractual rules. The abuses will be judged by the Courts based on the protection of the rights conferred by their federated entities, which have great autonomy.

In other words, the US constituent model itself makes it difficult to treat even privacy at the federal level, with there being no standardization of the matter even within the United States. Recently the State of California passed a regulation on online privacy,²⁰⁰ while on the

²⁰⁰CALIFORNIA passes Sweeping Law to protect online privacy. Available at: <<https://www.nytimes.com/2018/06/28/technology/california-online-privacy-law.html>>. Access on: 30 June 2018.

other side of the east coast New York State proposed its own new legislation on privacy with a much greater emphasis on issues of cyber security.

In the case of Brazil, there was an intense debate on the subject, which was the object of analysis in three draft laws, two of them initiatives of the House of Representatives and 4060/2012 and one an initiative by the Federal Senate PLS 330/2013. These projects resulted in Law Project PLC 53 and Law No. 13.709, of August 14, 2018.²⁰¹ Around one hundred and twenty-five countries in the world have already adapted their local laws to determine what can and cannot be done in the processing of personal data. In South America, Argentina, Chile, Colombia, Paraguay, Peru and Uruguay are examples of countries that already have specific legislation approved and in force.

It can be seen that there is a real clash over data dominance, and whoever manages to ensure that their regulation prevails over others will determine the rules of the game in the digital economy. Below, in Chart 4, follows a comparison between the European Data Protection Regulation (GDPR) and the Brazilian Personal Data Protection Act 13.709/2018 (LGPD):

²⁰¹ After approval by the Committee of Economic Affairs of PLC 53/2018, the text that regulates the processing of personal data in Brazil, both by the public power and private initiative, such project was sanctioned by President Temer, and became law No. 13,709 , of August 14, 2018, also called by the abbreviation LGPD (General Law of Protection of Data), with some articles of the text being vetoed.

Chart 4 - Comparative of Brazilian and European Data Protection Regulations

CONFORMITY ITEM	BRAZILIAN REGIME (LGPD)	EUROPEAN SCHEME (GDPR)
Definition and distinction of personal data and sensitive data. Such conceptualization seeks to delimit which rights and information are protected by the legal system.	art. 5, I e II Law No. 13.709 / 18 defines that personal data is any information that identifies or makes identifiable the natural person; Sensitive data are personal data on ethnicity, race, religious beliefs, political opinions, genetic / biometric data, and information on affiliations to any natural organization.;	art. 4(1), (13), (14), (15) art. 9 (1) It adopts the same principles and concepts for distinguishing and delimiting rights concerning personal data and sensitive data, and points out considerations regarding genetic, biometric and health data..
Mandatory user consent for information collection and limiting data processing as intended	art. 5, XII art. 6, I, II e III art. 7, I Data collection and processing may only be performed if the user [data owner or legal guardian in the case of legal minors] consents to the collection and processing. Every agent must point out the right purpose, guaranteed and justifiable to the processing of the data. In addition, you should ensure that the data will be used for this purpose only..	art. 4(11) art. 5 (1)(c) art. 25, (2) Predicts the need for a right purpose and use of data according to the intended purpose.
Distinction between ownership and responsibility over data, as well as delimitation of roles and responsibilities assumed in data processing	art. 5, V, VI, VII, IX art. 37 - 40 art. 43 - 45 First, the holder is understood as the natural person to whom the data subject to processing refer; On the other hand, the person responsible is the natural or legal person, whether public or private, who makes decisions about the processing of data. Two processing agents are defined: the controller - whose competence is to decide on the processing of the data - and the operator - who is the natural or legal person, whether public or private, who processes the data. Both agents are legally responsible for data security and privacy.	art. 4 (7), (8) art. 24 ao 31 There is the same distinction between ownership and agents, but agents are divided into controller and data processor. It is the Controller who makes the decisions about data processing and the processor who processes the data. Both are responsible for data processing..
Appointment of a person in charge of communication between the competent agents, holders and bodies	art. 5, VIII art. 41 In addition to the agents, there is the need to appoint a supervisor - natural personnel - to communicate any relevant information or facts regarding the processing of data. The person in charge shall act as a channel between the agents, holders and competent bodies and shall be appointed by the organization responsible for handling.	art. 37 - 39 Points out that the Controller must have a person responsible for everything related to data protection.
Application of mechanisms and practices based on free access to information and transparency between users and organizations	art. 6, VI art. 8 art. 9 From consent to data provision at the end of data processing information about the process should be clear, accessible and appropriate to the user's language and understanding so that their consent may be revoked at any time. It is important to point out that the user's consent must be given in writing or in any other way that demonstrates his free will.	art. 7(3) art. 13 (2)(c) art 14(2) (d) Holders are also entitled to clear and accessible information from the beginning to the end of consent to processing the data and may revoke consent at any time.
Adoption of data protection and security measures	art. 46 ao 49 Just as organizations are responsible for incidents - such as leaks - in the handling of data, they should apply measures to prevent and protect the security of data they handle, such as anonymizing and encrypting information. Still, in the event of any incident it is the organization's obligation to notify the authorities immediately.	art. 32, 33 e 34 It also points out that companies must put in place security measures - such as pseudoanalysis and data encryption - to ensure security in a preventive manner. In the event of any incident notification to the authorities shall be prompt.
Possibility of alteration and deletion of personal data	art. 15 - 17 art. 18, II, III, IV e VI The data subject may change or delete his or her personal data at any time, except as provided by law, such as tax purposes. Similarly, as soon as data processing comes to an end - either because it has fulfilled its purpose or because the user has revoked their consent - the information should be deleted.	art. 13(2)(b) art. 14 (2) (c) art. 16 art. 17 (1) Data subjects may also change or delete their data.
Sanctions in case of non-compliance	art. 52 - 54 Punishments range from warnings, fines, suspension and even prohibition of data processing activities. These punishments vary in form according to each case, depending on the severity of the damage, the offender's economic condition, recidivism, the offender's good faith, etc. and should be investigated through an administrative process that ensures adversarial, broad defense and the right to resource. The fines can be simple or daily with a value relative to 2% of private organization revenues limited to a total of \$ 50 million per infraction.	art. 83 It also provides for the application of gradual penalties and administrative fines that may reach 20 million euros or 4% of the company's annual revenues.
Creation of a competent body to supervise and ensure the protection of personal data and privacy.	art. 55 - 59 PLC / 53 foresaw the creation of the "National Data Protection Authority", an autarchic institution linked to the Ministry of Justice to carry out the supervision, elaboration of guidelines, application of sanctions, among other functions related to data protection within the scope of the legislation. . Such articles were vetoed in Law No. 13.709 / 18 and are awaiting prediction by the executive..	art. 51 - 59 Points out that each EU nation must provide 1 or more independent competent bodies to monitor the implementation of the GDPR.

Source: The Author

Coming back to Europe, it appears from the report submitted by Osborne Clarke LLP (2016),²⁰² for the European Parliament, the lack of consistency in the legal processing of data by the various national laws means that harmonization is necessary, much more on account of how valuable data has become for trade and industry than because of privacy or business secrets. According to the study in the UK, there is no regulation providing a legal basis for the protection of proprietary rights in the data, whether to protect it from being stolen, used or appropriated by others.

On the contrary, the law only provides limited protection for confidential information, including the possibility to prevent third party access, with some exceptions. But the problem here is that when there is a public interest in access to information, as in the case of health issues, and a third party wants to invoke the right of access.

In this way, the lack of protection of industrial data by more appropriate legislation causes companies to make all information confidential or business secret, also undermining legitimate third-party access to information that might have to come into the public domain after a minimum period of exclusive protection for its manufacturer or holder. The evidence is that the model is inclined to distortions and possible market failures if only within contractual rules.

Yet the same report found that other Member States of the European Union treat the matter completely differently. Germany and Italy provide greater protection for databases by laws relating to unfair competition. But Spain, for its part, does not consider pure data to be able to receive protection, even from the precepts of business secrecy. France has both civil and criminal law on the matter, but the criminal laws only apply when the offence is committed by directors or employees of companies, as they are also strongly related to the principles of competition law.

Consequently, as the study concludes, it is currently very difficult for a business to manage risks related to its data and databases in an economically efficient manner, since there are many ways to give access to the data and lose control over the data.

²⁰²OSBORNE CLARKE LLP. *Legal study on ownership and access to data*. Final report – Study, cit., p. 22-24.

In addition, the lack of clarity about what rights a company may have over the data it possesses can lead to errors, which can have legal and financial consequences, as well as compliance risks. For example, if a company thinks it owns information, it can make an investment and then find that it has no rights to that data. And this has a very big impact in the case of mergers and acquisitions of companies of technology or databases.

As seen, the effects of the European Regulation (GDPR) are mainly economic, social and political. It is just one of the many regulations that will emerge in this line, where control mechanisms are sought in order to bring a balance to the relationships within a digital business scenario without borders. The central focus is the guarantee of freedom, but the basis is transparency. In other words, these new rules come with a scope to allow free enterprise to innovate as long as it follows a set of values that are consistent with respect for fundamental human rights.

Consequently, the knowledge assets are in the large databases and for this treatment to occur, transparency is required. In fact, the foundations are being laid for a new culture of protection and appreciation of intangible assets and business actions that manage to use technology in an ethical, responsible and sustainable manner.

As a result, any business based on generating, collecting and exploiting data needs to be much more careful in defining and obtaining the necessary rights to use the data for the purposes that legitimize it. And these risks multiply greatly if the company's operation is "transnational or global. "

CHAPTER 7. PROPOSALS FOR SOLUTIONS THROUGH NEW MODELS THAT CAN REGULATE THE PROPERTY RIGHTS, USE AND ACCESS TO DIGITAL DATABASES

7.1. Proposal to create a Soft Law model with Standard Clauses for Contracts

Considering the dynamic and globalized nature of the internet, probably the best solution to address the conflicts related to the issues of access rights and use of digital databases, would be the development of a code of principles with recommendations of standard clauses to be considered in internet contracts, using as reference what is already known from the application of the ALI and CLIP principles and adding the idea of standard clauses to give a better treatment to neighborhood rights, with other rights of more public and collective interest, which cannot be relegated to a treatment only between the parties, in the private context of the contractual relationship, as are those of protection of personal, consumer and competitive data, according to chart 5:

Chart 5 - Analysis of the ALI and CLIP principles and their application to the Internet

Proposal to regulate conflicts of laws on intellectual property considering experience of the ALI, CLIP principles and bringing a solution to the Internet			
Comparative Aspects	ALI PRINCIPLES	CLIP PRINCIPLES	INTERNET PRINCIPLES (proposal)
Target group	North American Laws	European laws	Legal structure of the internet (all services or products offered via the web)
Categorization	Not Defined	Liabilities for violation and solutions (<i>remedies</i>)	<i>Liabilities for violation</i> and solutions (<i>remedies</i>)
Time-limit for the parties to impose their obligations	Any time after a conflict arises	At any time, before or after a conflict arises	At any time, before or after a conflict arises
Extension	All or part of the subject matter of the dispute	Only what involves the <i>remedies</i>	All or part of the subject matter of the dispute
Scope	The discussion of the existence, scope or duration of the copyright does not apply	Only for solutions in cases of copyright infringement	Only on rights of use and access to databases and for remedies in cases of infringement.
Limitations	Does not affect third party rights		
Rights involved	All types of intellectual property	copyright e trademark	Only on rights of use and access to databases and for remedies in infringement cases, it also covers issues of personal data protection, consumer protection and competition.
Initial presumption of rights	Universal (global)	Territorial	Universal (global)

Source: The Author

The research carried out in the course of the preparation of this thesis, through personal interviews, has corroborated this understanding of Jürgen Basedow, Reto Hilty, Josef Drexler, Gerald Spindler, Dario Moura Vicente, Rolf Weber, Daphne Keller, Ann Bartow, Nathália Mazonnetto.

According to Rolf Weber (personal information, 2017):²⁰³

As you have outlined very well, the issue of IoT ownership is not clear. (...) Data access and use needs to be regulated in basic terms within a more concrete environment of circumstances within each specific sector. (...) In principle, international regulation would be desirable (WIPO) but realistically this is unlikely to occur. Thus, regional regulations with the construction of a legal framework preferably based on commercial contracts should prevail (even with the new US administration returning to protectionism). (...) Contracts are probably not enough because we have competition laws. For now, antitrust enforcement is very cumbersome (lengthy, costly procedures, etc.), use of alternative procedures (online dispute mediation should be developed).

According to Daphne Keller (personal information, 2017):²⁰⁴

As far as I can see, the law is a mess, a mixture of rules motivated by proprietary goals and on the other hand by values such as privacy. We're going to have to work much harder on a thought that can bring these two together. For there is also a deep philosophical division about those who see intellectual property as a natural right of those who see it only as a way to maximize the progress of science and the arts. I think James Boyle and Duke have written well about that. I think we're unable to achieve a global understanding of privacy, especially because of the intersection of privacy

²⁰³Rolf Weber. Message received from Rolf.Weber@bratschi-law.ch. Personal interview granted on 17 June 2017. Extract from the original transcript: *“As you correctly outline, the ownership issue in respect of IoT data is unclear. (...) Access and use would have to be regulated on the basis of the concrete environment and circumstances, i.e. in a sector-specific way. (...) In principle, int’l regulations would be desirable (WIPO) but realistically the chances of getting to such regulations are low. Therefore, regional regulations and normative frameworks in preferential trade agreements might prevail (even if the new US administration is turning back to protectionism. (...) Contracts are probably not sufficient but we also do have competition law. For the time being, antitrust enforcement is cumbersome (lengthy proceedings, costly, etc.), i.e. alternative procedures (online dispute settlement should be developed)”*.

²⁰⁴Daphne Keller. Message received from daphnek@law.stanford.edu. Personal interview granted on 12 June 2017. Extract transcribed from original text: *“from what I can see the law is something of a mess, a mish mash of laws motivated by property goals and laws motivated by other values such as privacy. We will need to think harder about how to merge the two. There is also a deep philosophical split between those who see IP as a natural right or sweat of the brow right, versus those who want it only to maximize “progress of science and useful arts.” I think James Boyle at Duke has written well on this. I think we are impossibly far from reaching global agreement on anything touching privacy, particularly the intersection of privacy and expression rights. IP harmonization is likelier. And frankly I would like to see much more harmonization because the spillover from money/political might spent on copyright disputes hurts discussion of other issues affecting information and speech online. Contracts are not enough. Additional privacy, consumer protection, and public interest-based rules should apply”*.

and rights of expression. The harmonization of intellectual property is desirable. And frankly, when it comes to how much money can be spent on copyright disputes and political wear and tear involving other issues of information and freedom of expression, online contracts are not enough, because there is additionally privacy, consumer protection, and other applicable public interest rules.

For Ann Bartow (personal information, 2017)²⁰⁵:

I think the United States needs a legal framework that better understands and can address these privacy issues. A certain level of harmonization is certainly needed in the future. And contracts are not enough because there are many imbalances in the relations of power of information.

In the same vein, Nathália Mazonnetto (personal information, 2017)²⁰⁶ affirms that:

We are commonly led to believe that for the adequate protection of a good or interest, it would be necessary to enact new legislation to deal especially with the matter, especially when the theme is technological innovation, in which there is always the excuse that the technology, at the time that the legislative proposal was considered, was not even projected. Even so, I do not believe that this is a reason for an endless proliferation of laws. The discussion should be much more about good practices, interpretation and practical application of the regulatory provisions, in my opinion, than by the enactment of new laws. Nevertheless, consideration should also be given to the enforcement of established tenets derived from the regulatory system as a whole, as well as principles, which often solve the issue, regardless of legislation with specific treatment. I also invite you to think about the possibility of using so-called soft laws, especially in this context of innovation and technological development, as is commonly used in the context of international contracts and in disputes arising from these commercial relationships.

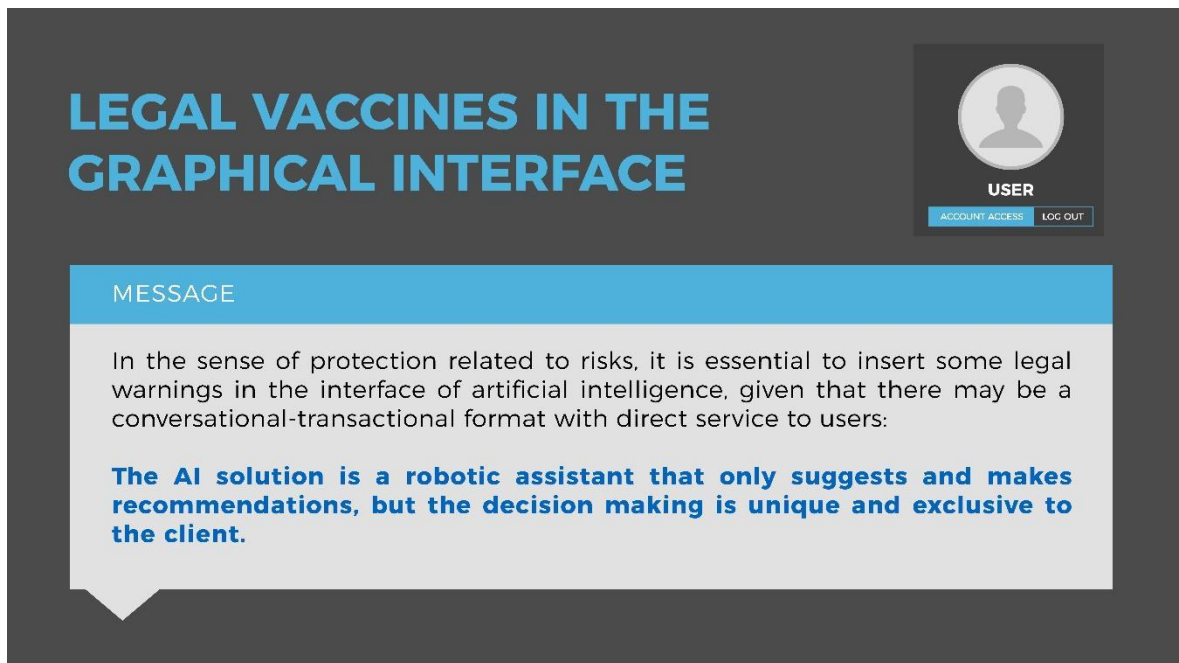
Finally, it is important to adjust not only the contracts related to the use of databases in a context of IoT and Artificial Intelligence, but also to introduce legal notices of protection on graphic interfaces, since the of the "educational message" for the end user tends to of the "educational message" for the end user tends to predominate, especially in the interpretation of a judge of a more consumerist tendency.

²⁰⁵Ann Bartow. Message received from Ann.Bartow@law.unh.edu. Personal interview granted on 10 July 2017. Extract transcribed from original: *"I think the U.S. needs a comprehensive privacy law framework to address these questions. Some sort of harmonization will surely be necessary in the future. And the contracts are not enough because of severe imbalances in power and information."*

²⁰⁶Nathália Mazonnetto. Message received from nathalia@mommallaw.com. Personal interview granted on 10 July 2017.

Below, in Figure 6, is an example of how this integration between the messages of a more contractual nature and the direct dialogue with the user through the platform would be, where the principle of inductive logic is used to convey the regulations in the actual navigation:

Figure 6 - Legal notice on the artificial intelligence interface with the user



Source: The Author

7.2. Proposal for an International Treaty regulating the rights of ownership, access and use of digital databases.

"We cannot solve our problems with the same thinking we used when we created them." (EINSTEIN, 1879-1955)

With regard to another possibility of solution also envisaged during the research of this thesis, it would be the realization of an International Treaty, if not to regulate the intellectual property of the databases, since this theme of property is very controversial and would hinder this debate in an international arena, but at least to deal with the harmonization of the rights of use and access, which in itself would already be a great evolution.

From the collection of the interviews and analysis of the questionnaires it was also found that:

a) For the question as to whether the current laws on the subject of intellectual property are sufficient to adequately address the theme of databases already in a context of Internet of Things (IoT) and Artificial Intelligence:

- ✓ 87% of the professors interviewed do not believe that the current regulations on intellectual property in databases are sufficient or appropriate for the contemporary "intelligent" context;
- ✓ 13% did not give an opinion on the topic.

b) When asked about the need to create a new international regulation on the intellectual property of databases to meet the most current context and advances in the Internet of Things (IoT) and Artificial Intelligence:

- ✓ 37% of respondents believe that it would be desirable to enforce international regulation, but feel that such a possibility is unlikely in practice;
- ✓ 25% believe that it is not possible to create an effective international regulation or even doubt the benefits of such a strategy;
- ✓ 25% believe that the best solution would be to create an international regulation to address the matter;
- ✓ 13% did not give an opinion on the subject.

c) On the regulation of the intellectual property of databases through contracts alone, with more flexibility between the parties, without having to draft new laws:

- ✓ 62% believe that contracts are not suitable or sufficient for this type of regulation, given that there are many rights involved and that they cannot be dealt with only in contracts (such as consumer protection issues, competition issues and public interest issues);
- ✓ 12% believe that the use of contracts is both acceptable and sufficient;
- ✓ 26% did not give an opinion on the subject.

Antônio Carlos Morato (personal information, 2017).²⁰⁷ who gave his authorization to transcribe his interview, also expressed an understanding in line with the majority of the

²⁰⁷Antônio Carlos Morato. Message received from antoniocmorato@gmail.com Personal interview granted on 22 June 2017.

interviewees, which is that an updated international regulation on the matter would be necessary, as seen here:

[...] the entire tradition of effective protection of intellectual rights derives from the regulation of intellectual rights since the Paris and Berne Conventions. In the contemporary world, the blurring of borders in the face of the advent of the information society can only lead to such a conclusion. [...] The ideal would be an international regulation even similar to the Uncitral Model Law (which, in fact, sets consumer contracts apart) or the adoption of a convention that would allow the fusion of provisions that deal with consumer relations and intellectual creations without, therefore, neglecting the balance and perspective that constitute them as distinct branches of Law.

As well as confirming the same vision, Alexandre Dias Pereira (personal information, 2017),²⁰⁸ who also authorized the transcription of an excerpt from the interview and expressed the following opinion:

[...] an international convention on the subject under the aegis of the WTO would perhaps be useful. He also reported that he already has a record published on health data in the *Essential Medicines and Health Products Information Portal*, designed and maintained by *Human Info NGO*.²⁰⁹

7.3. Proposed use of arbitration for settlement of disputes (WTO/WIPO model)

The 1990s were landmark years for establishing the main regulatory frameworks for intellectual property at the international level. Many countries adopted TRIPs in their national legal systems during this period. Recalling that TRIPs is a treaty with three types of regulatory arrangements: substantial or compliance rules that bring minimum standards of protection; procedural rules that make the substantial rules effective; and result based rules that determine the extent of reparation and compensation for damage suffered by the holders of the right in the case of abuse.

Therefore, TRIPs brought a set of minimum standards, as well as a whole structure for the implementation of a dispute settlement system, according to its annex 2, in addition to the transition rules contained in part 4 of the same treaty.

²⁰⁸Alexandre Dias Pereira. Message received from aldp@fd.uc.pt. Personal interview granted on: 7 July 2017.

²⁰⁹It is possible to access the publication of Alexandre Dias Pereira in the Essential Medicines and Health Products Information portal through the link: WORLD TRADE ORGANIZATION – WTO. *Essential Medicines and Health Products Information Portal*. A World Health Organization resource. Available at: <<http://apps.who.int/medicinedocs/en/d/Jh3009ae/>>.

However, it is more recently that intellectual property has experienced even greater innovation with the use of alternative dispute resolution methods (ADR). This arbitrability enables the identification of the property object of intellectual assets.

The relevance of this consists in the fact that the greatest challenge for intellectual property does not lie in the need for regulatory protection by special law (*numerus clausus*), but in the need to bring about its enforcement, i.e., to ensure its efficacy in reality, bearing in mind that the multi-territorial issue has always been a major barrier to the guarantees of the rights of holders of intellectual property, a reason that has justified its debate in the International Conventions since Berne and Paris (CUB and CUP).

. When one thinks about intellectual property and all the dynamics that arise from the use of new technologies, one cannot help but imagine it as a model of a viable solution to the application of narrative standards²¹⁰ (or recognition standards), which, despite not possessing an enforceable and binding power, are centered on the logic of persuasion because of their proximity to market practice. Moreover, they are known to have effect in more than one country at the same time and are called Soft Law sources

This model has been evolving. There are many successful cases of the application of recommendations (such as opinions), guidelines, codes of conduct, model laws, principles, such as CLIP Principles (Europe) and ALI Principles (USA). Brazil, on the other hand, has not developed anything that matches the European and North American models, which have even inspired the Japanese and Korean models.

However, even though there are many positive points regarding the application of Soft Law, since they can always serve as an argument or reference, the greatest criticism of this model lies precisely in its non-binding character, since it does not provide the necessary legal security to the parties in that there is no guarantee of its effectiveness in a specific future case. The model may or may not be complied with.

²¹⁰Article 249 (ex-189) of the Treaty establishing the European Community (consolidated version Nice), Part V (The institutions of the Community), Title I (Institutional provisions), Chapter 2 (Common provisions and several institutions): "In order to carry out their task and in accordance with this Treaty, the European Parliament together with the Council, the Council and the Commission shall adopt regulations and directives, take decisions, make recommendations or deliver opinions. The Regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States. It shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods. A decision shall be binding in its entirety upon those to whom it is addressed. Recommendations and opinions shall not be binding.

Therefore, they would serve much more as guidelines or sources of inspiration to enable the development of practices, where there is consensus among the parties in their application, facilitating the implementation of the recommendations contained therein. However, in the case of disagreement, this model tends to be fragile because it is not equipped with binding force (enforcement).

Regarding the use of an appropriate model (previously the term alternative was used) for dispute resolution, something similar to that developed by ICANN since 1999 could be applied to the issue of domain disputes with the *Uniform Dispute Resolution Policy* (UDRP), which is already a tried and tested model.

However, it should be emphasized that the ICANN model is not arbitration as such, since the procedure does not exclude the jurisdiction of the state courts and is not legally enforceable. But it has the effect of cancelling, transferring or modifying a domain name, thus achieving the result expected by the parties, and is therefore considered extremely efficient. This is because all ICANN-accredited registrars must follow its determinations and are bound by its recommendations and decisions.

Of course, it would be advisable to adopt an arbitration model itself. This could be done using the WIPO model of dispute resolution in the WTO - WIPO, with the use of business-to-business arbitration that could be used for database issues.

In the sense of the issue of objective arbitrability applied, intellectual property, as Karin Klempp Franco's lesson says:

] in Brazilian law under the first article, which defines that for a matter to be submitted to arbitration it is necessary that it involves available property rights. Specifically, in relation to Intellectual Property, there is no provision in Law no. 9.307/1996,²¹¹ or in the legislation related to intellectual property that prohibits or indicates the arbitrability of controversies in this field. Some difficulties arise in relation to the public interest component that these rights contain. Even if private entities agree on a solution to a particular dispute, the public component of an Intellectual Property Right may render that solution ineffective.²¹²

²¹¹ Updated by Law no.. 13.129 de 2015.

²¹²FRANCO, Karin Klempp. Propriedade intelectual e ADRs no Brasil: algumas considerações sobre arbitragem, conciliação e mediação. In: A PROPRIEDADE intelectual no novo milênio: ASPI 30 anos. (Intellectual property and ADRs in Brazil: some considerations on arbitration, conciliation and mediation. In: Intellectual property in the new millennium: ASPI 30 years) (1. ed. São Paulo: ASPI, 2013. p. 95.

Concerning the European and North American systems are concerned, the question of arbitrability would also be a possibility. Both legal systems are envisaged, as well as the CLIP and ALI principles.

It should be noted that WIPO²¹³ currently has an international arbitration and mediation system for dispute resolution in the ADR model, based in Geneva, Switzerland, in operation since 1994, to handle cases of international commercial disputes between private parties, especially those involving issues related to technology, entertainment and intellectual property.

Also, according to Karin Klempp Franco:

Issues of contractual rights derived from Intellectual Property Transactions do not present any special challenges compared to other commercial arbitration cases. In fact, arbitration involving transactional Intellectual Property, mainly franchise and rights license agreements, is common in Brazil. Difficulties arise when Intellectual Property disputes face the scope and validity of the underlying Intellectual Property Law.

Issues that usually arise would be those related to: (i) public order, (ii) lack of free disposition of the parties on these rights, (iii) "inter parties" effects of the arbitral award, (iv) exclusive jurisdiction of this matter reserved to certain courts and organs.²¹⁴

Considering that the legal requirement of arbitrability would be that the dispute be centered on the patrimonial object of the intellectual property (its transactional element), the discussions on moral rights of author, inalienable, would then be excluded from the arbitration proceedings due to their inalienability. However, there is the understanding that its (monetary) equity reflex could be the object of discussion in arbitration proceedings, particularly if there if there is a contractual provision between the parties.

It is also possible to bring to arbitration the resolution of controversies about business secrets, since in the vast majority of cases, its legal protection is mainly due to contractual clauses, in the case of Brazil also by Law 9.279/96. In the United States, the *Defend Trade Secrets Act* (DTSA) applies, and in the European Union, the *Trade Secrets Directive*. Thus, in recent years, it has been observed that there has been a strengthening of the concept of the

²¹³WIPO's dispute resolution system is best known for domain dispute resolution (called UDRP), but it also performs other types of mediation and arbitration as it appears from the information available on its website WORLD INTELLECTUAL PROPERTY ORGANIZATION - WIPO. Alternative Dispute Resolution. Available at: <<http://www.wipo.int/amc/en/>>. Access on: 07 July 2017.

²¹⁴FRANCO, Karin Klempp. op. cit., p. 95.

trade secret (business secret), which has also been stimulated by the growth of the digital economy.

Regarding the use of arbitration or other means of friendly conciliation, it should be noted that countries with a civil law culture end up placing much more emphasis on formality. However, the recent reforms of civil and civil procedure codes, as well as the new arbitration law²¹⁵, in Brazil and the updates in this particular area in several other European Union countries, such as Portugal, Spain, France, Italy and Germany, indicate that there is a growing tendency towards establishing non-adversarial methods of dispute resolution and their prioritization inside the Romano-Germanic tradition of conciliation (*conciliabo*).

The National Institute of Intellectual Property (INPI) itself has inaugurated a Center for the Defense of Intellectual Property (CEDPI), the initial project of which is to deal with the mediation of trademark conflicts, but which may evolve to provide treatment for the resolution of other controversies, so perhaps that could include software, copyrights or even databases. Also, an INPI-WIPO agreement was established, specifically to provide assistance for mediations involving holders who are foreigners.

Furthermore, the National Council of Justice (CNJ) implemented resolution 125/2010 with the purpose of creating a national judicial policy for the appropriate treatment of conflicts and to offer a permanent incentive for the solution of conflicts, through consensual methods.²¹⁶ According to the measure, conciliators and mediators must be registered by the courts, undergo specific training and are prohibited from rendering services to the parties that are involved in the conciliation or mediation.

According to the International Court of Justice, when judging disputes, it must decide in accordance with the precepts of international law, using the relevant sources, such as: international treaties and conventions, international customs, general principles of international law, jurisprudence, doctrine, and the principle of equity.

In addition, according to the lesson of Maristela Basso, the list of PIL sources for conflict resolution purposes can include: "[...] the techniques of inspiration or persuasion (as

²¹⁵ New Brazilian Arbitration Law n. 13,129 of 2015. n. 13.129 de 2015.

²¹⁶ Resolution 125/2010 available in full at: NATIONAL COUNCIL OF JUSTICE. Available at: <<http://www.cnj.jus.br/busca-atos-adm?documento=2579>>.

evident manifestations of a model of flexibility of PIL sources in their narrative dimensions or through a common sense identification as sources of soft law).”²¹⁷

To conclude, new technologies such as the use of blockchain can help in the management of intellectual rights and there are already a number of initiatives in this regard, since a large part of the challenge consists precisely of the ability to identify the right holder and make them accompany the work in a digital environment so that they can be advised if there is a use by third parties that could lead to some kind of authorization or remuneration for the right holder

For Birgit Clark, the blockchain, considered as a chain of immutable information blocks used to record transactions, can be used in many ways to help protect intellectual property rights, such as: a) provide evidence of authorship and generate evidence of registration and authentication; b) control the distribution of both what is registered and what is not; c) provide genuine evidence of first use for trade purposes; contribute to copyright management (DRM) especially for online music sites; assist in the enforcement of copyright contracts, licenses and exclusivity of distribution networks through the use of smart contracts; d) transmit online payments in real time to rights holders; e) could also apply in cases of parallel import control.²¹⁸

²¹⁷BASSO, Maristela. *Curso de direito internacional privado (Course of private international law)*, cit., p. 101.

²¹⁸CLARK, Birgit. Blockchain and IP Law: a match made in Crypto Heaven? *WIPO Magazine*, n. 1, 2018. Available at: <https://www.wipo.int/wipo_magazine/en/2018/01/article_0005.html>. Access on: 17 Dec. 2018.

PART 5

**INTELLECTUAL PROPERTY APPLIED TO THE INTERNET OF
THINGS AND ARTIFICIAL INTELLIGENCE**

The last part of the work is dedicated to analyzing the current scenario of technological advances and taking a look into the future. Thus, the main concepts involving the Internet of Things (IoT) and Artificial Intelligence (AI) will be addressed. This part is dedicated to a more profound analysis of the ethical and legal paradigm around the discussions on property rights on databases and intellectual property in IA, with a more detailed case study of the automobile industry regarding the autonomous car and presentation of the jurisprudential vision on the subject in the European Union, the United States and Brazil, using an approach of Comparative Law and dialogue of sources. To finalize the conclusions are presented, which strive not only to understand the problem, the magnitude and complexity of which demonstrated that it will require a great deal of international cooperation among the countries, but also to present a contribution for the future.

CHAPTER 8. NEW BUSINESS MODELS WITH THE INTERNET OF THINGS

8.1. The Internet of Things: concept and legal effects

One of the biggest developments of the Information Age today is the Internet of Things (IoT), a system that allows people and machines to be increasingly inter-connected. Whether through user/machine or machine/machine logic, IoT has changed people's behaviors, habits, and quality of life.

These changes come as a result of the evolution of humanity's historical process that, while creating an economic paradigm where the technique was used for exploitation in an unconscious manner, has caused a considerable necessity for behavioral changes so that the market could also change and be less destructive.

As Professor Adalberto Simão Filho summarizes in a most enlightening manner:

The increase in entropy can also be generated by consumption, recycling of the goods produced, with the consequent return to nature. There is a loss of available energy in the process of transforming natural resources into economic value.

For Rifkin, the so-called entropic invoice of the industrial era is due and must be paid. This invoice, which demonstrates the inefficiency of the current economic model and the need to submit it to the laws of thermodynamics, is impregnated with the accumulation of carbon dioxide emissions in the atmosphere, climate changes generated by the use of fossil fuels, destruction of the terrestrial biosphere.

And it is in this undesirable apocalyptic environment, generated as a consequence of the Second Industrial Revolution, that, in Rifkin's view, a new technological platform emerges, powerful enough to accelerate the end of capitalism in the known form and generate a paradoxical contradiction.

This technology-based platform is the result of the union of the internet of transmissions and communications with the internet of energy and the integrated internet that came to work in this century and was called the Internet of Things. IoT.²¹⁹

The law, of course, has not been oblivious to these transformations which are still in the process of development. This is because IoT impacts directly on the functioning of market

²¹⁹SIMÃO FILHO, Adalberto. Revisitando a nova empresarialidade a partir do Marco Civil em contexto de Internet das Coisas (Revisiting the new entrepreneurship from the Brazilian Civil Rights Framework for the Internet in the context of the Internet of Things). In: DE LUCCA, Newton; SIMÃO FILHO, Adalberto; LIMA, Cíntia Rosa Pereira de (Coords.). *Direito & Internet III: Marco Civil da Internet (Law and Internet III: Brazilian Civil Rights Framework for the Internet)* (Lei n. 12.965/2014). São Paulo: Quartier Latin, 2015. t. 2, p. 42.

logic,²²⁰ thereby introducing to the legal system the essential requirement for analysis of the possible developments that these changes have brought about. Does the traditional contract meet the requirements for agility and assertiveness of managers of the present and future? Is the digital contract - which is becoming increasingly a reality in the market - equivalent to the traditional contract or is it a new concept to be analyzed? How to deal with digital fraud? Or with the terms of subscription associated with the consumption of digital products and services?

All these questions - extremely relevant and urgent for contemporary society - are related to the development of law in the reality of IoT. But what is IoT?²²¹ According to the European Parliament's Research Service, IoT can be defined as the improvement of communication between machines/computers and the environment/persons in an interactive way via the internet:

The Internet of Things (IoT) has been defined in several different ways. Generally speaking, it refers to a distributed global network (or networks) of physical objects that are capable of detecting or acting in their environment, and capable of communicating with each other, other machines or computers. These "smart" objects come in a wide range of sizes

²²⁰According to the survey conducted by Freund et al (New businesses based on the Internet of Things. FAE Magazine, v. 1, p 12-13, 2016) "The figures on the potential IoT market are quite uncertain. They range from 28.1 billion connected devices (objects or machines) (IDC, 2014), through 38.5 billion and reaching 50 billion devices by 2020. By comparison, estimates for the world's population in five years are 7.6 billion, leading to a ratio of 3.7 devices connected per person by IDC, 5.0 by Juniper, and 6.6 by Cisco accounts. According to Gentili (2015), there are currently 13.4 billion connected devices, of which 130 million are in Brazil, according to a study by the Brazilian Association of Software Companies (ABES) in partnership with the International Data Corporation (IDC). The same IDC predicts that the global IoT market will jump from US\$ 1.9 trillion in 2013 to US\$ 7.1 trillion in 2020. Cisco estimates that IoT could add \$352 billion to the Brazilian economy by the end of 2022. Of that total, US\$70 billion is related to public sector projects and another US\$282 billion from the private sector. According to Cisco, Brazil accounts for more than a third of the US\$860 billion that the IoT will add to the Latin American economy in the coming years. Latin America is at the forefront of the Internet of Things, according to Jordi Botifoll, Cisco's president for the region. According to a survey by Tata Consultancy Services Limited (2015), which interviewed executives from 795 companies worldwide, Brazil lead IoT investments in Latin America in 2015. Brazilian companies will invest US\$ 79.9 million, equivalent to R\$ 303 million, in IoT studies and initiatives. More than other emerging economies, such as India (US\$ 24.6 million) and Mexico (US\$ 1.8 million). In global terms, Brazilian companies, compared to the other countries surveyed, were the ones that most reported an increase in revenue, around 11% to 20%; in 2018, the volume of resources contributed by Brazil's private sector in IoT should grow 21%, rising to US\$ 95.6 million or R\$ 363 million.

²²¹Faccioni Filho (*Internet das coisas. Internet of Things*. Hut: UnisulVirtual, Digital Book, 2016. p. 11) brings a historical and opinionated view on the concept: "The "Internet of Things" has recently emerged as a new concept of "network", which includes communications and processing of the most diverse equipment. The word "internet", with the symbolic power it has for the entire world population, came to incorporate the new expression "Internet of Things," and thus give it scope, immediate understanding of magnitude, technology and future prospects. IoT - Internet of Things1 - as the Internet of Things is better known, is a new vision for the Internet, in which the Internet starts to embrace not only computers, but also everyday objects. This is not exactly a new technology, but a new frontier in which the internet is deepening. This is the result of the technological advance that has been continuously being made, especially the electronic miniaturization and the various communication protocols".

and capabilities, including simple objects with embedded sensors, home appliances, industrial robots, cars, trains, and wearable objects such as watches, bracelets, or shirts. Their value lies in the vast amounts of data they can capture and, in their ability, to communicate, supporting real-time control or data analysis that reveals new insights and promotes new actions.²²²

Another interesting aspect of this large network of communication and information exchange that is the IoT concerns the wide range of impacts on the most different aspects of human life, these can be negative - such as the extinction of jobs, reduction in staff and vulnerabilities of security and privacy - or positive - such as improvement in quality of life, greater access to health services, education and more flexibility in industrial processes.²²³

One way or another, the legal system is ultimately impacted by all these changes. In the specific case of intellectual property, the Internet of Things brings a more complex scenario,²²⁴ since many cases are dealt with within the rules of patent and utility model. This is because, as it is in reality a traditional industrial good that connects to the internet and as a result has the capacity to generate databases (created or obtained), it is very natural that the

²²²DAVIES, Ron. *The Internet of Things – opportunities and challenges*. European Parliament Research Service (EPRS), 2016. Available at: http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/557012/EPRS_BRI%282015%29557012_EN.pdf. Access in July 2018.

²²³According to the International Telecommunication Union (ITU), IoT will still bring many developments that can have a very beneficial social impact: "In a report prepared with the multinational company Cisco Systems, the United Nations agency identified the reasons why the 'Internet of Things' (or IoT) has enormous potential for achieving the 2030 Agenda in developing economies. The IoT concept concerns a growing number of devices, from computers and smartphones to simple sensors and chips, that are connected to the Internet and are able to communicate with other equipment, often without the need for human intervention. This connectivity is already extensively used in storage systems, fleet management, environmental monitoring and many industrial processes. By 2020, it is estimated that 20 billion devices will be connected in some form of network.

²²⁴It is important to point out that in addition to the complexity of the IoT problem from a legal point of view, another difficulty can be pointed out: the greater interconnection/communication of legal practices among the most different countries, due to the expansion of markets as a consequence of the globalizing evolution brought about by the high and rapid development of technology. In this sense, the analysis of the recent stance adopted by Japanese courts facing the inevitable influences of the US legal system in the country is interesting to analyze: Recent judicial decisions in Japan have further strengthened the protection of intellectual property and increased its harmonization with US practices. For example, in a recent case, the Osaka Supreme Court elucidated a doctrine of equivalents, very similar to that recognized in US courts, in search of an author in a patent case. This decision was significantly expanded from the previous Japanese procedure. As such, it reflects a significant increase in the scope of the patent. In another case, the Tokyo Supreme Court took the unprecedented step of nullifying the JPO's decision to declare the problem patent invalid. In another, the Japanese Supreme Court adopted the first sales doctrine, developed by US courts.

This doctrine limits the patent's right to exclude parallel imports of products it legally places on the market to cases where the patent holder imposes a territorial restriction on its buyers. By applying the U.S. territorial restrictions permission, this decision markedly increased protection against parallel imports of patented products into Japan. Despite this trend towards convergence, differences remain in national systems (STERN, Robert M. *Issues and options for U.S.- Japan trade policies*. Ann Arbor, Michigan: The University of Michigan Press, 2005. p. 167).

understanding is that all this could be integrated into the patent, as happens with the patentability of software (when it is embedded in an industry model).

Consequently, if a car is manufactured, and this car has a black box that allows you to connect on the internet and generate databases, then the manufacturer understands that it has the property over everything. By the principle of absolute patentability, resulting in symbiosis, the interdependence of all the parts, that need each other to be the whole. In autonomous cars this becomes more evident.

This is the understanding of the European Union's industry policy adviser, who believes that data can indeed be stored as part of a whole license, including the right to collect, copy, transmit, aggregate, as well as a patent.

In addition, non-exclusivity clauses could be used as part of negotiations between companies, which is already the case in the aviation industry. And regulators would have the role of defining standardization rules, especially those related to data protocol standards and formats, to simplify the sharing and interconnectivity of information.²²⁵

The issue in the car industry is very topical and requires a speedy resolution. This is because the European Parliament has passed legislation requiring all cars, compulsorily, from 2018, to have a mechanism, called eCall, which is activated automatically, to make automatic contact in the event of a car accident, enabling tracking as per a black box.²²⁶

Despite this enacted law, there is a great sense of discomfort regarding the possibilities of companies using this data or it even falling into the wrong hands, such as it being hacked by criminals. Will security measures be effective and will privacy be respected?^{227,228} These are the concerns of opponents of the law, despite all its positive points in the

²²⁵EARLY, Chas. All new cars must contain emergency 'black boxes' by 2018, says EU. *BT.com*, Apr. 30 2015. Available at:

<<http://home.bt.com/lifestyle/motoring/motoring-news/all-new-cars-must-contain-emergency-black-boxes-by-2018-says-eu-11363978335138>>. Access on: 29 June 2017.

²²⁶The European Parliament has decided this year 2017 that the device called eCall will be mandatory from 2018 and should come as standard in every new car or small van.

²²⁷As can be seen, the issue of information security and privacy are essential points of concern in the reality of IoT, since the changes brought about by the expansion also make information, data and privacy more vulnerable, given that the degree of exposure of systems is much higher in this new reality. According to the Internet Security Threat Report 2018 (ISTR), a study conducted by Symantec, there was a 600% increase in attacks against IoT between 2016 and 2017, showing that the concern with information security must be real and more than necessary.

²²⁸The Symantec study analyzed the activities of more than 175 million terminals located in 157 countries, so that the survey also showed that there was a 13% increase in reported vulnerabilities and a 25% growth in vulnerabilities related to Industrial Control Systems.

sense of its potential to save the lives of victims of car accidents, by quickly triggering the distress call from the car itself.

According to Frédéric Simon,²²⁹ German industry has been asking the European Commission to exercise caution with regard to the free flow of information, due to concerns about the increased risk of exposure related to business secrets and the impact on investments in the digital economy that this type of open data measure may entail.^{230 231} On the other hand, however, the response of the Director General of Justice, Dirk Staudenmayer, head of the contract law unit of the Justice Department Commission, to the concerns raised by the German car industry was: “[...] we want to ensure that all market participants have access to the data as far as possible.”

One of the industries most interested in accessing car databases is insurance. This information can both lower the cost of a policy and determine who is liable in the event of an incident.

According to Juliet Stott,²³² with the use of this type of technology, nicknamed "the spy in your car," the insurance company will be able to install a device to transmit data related to the driver's driving habits (whoever is driving the car) to the company and monitor indicators that range from the type of road that the car is on, how fast the person is driving, how much strength the person uses to brake, if they indicate to turn in a street.

In other words, the device allows the monitoring of everything that can really determine whether or not a person is driving dangerously. Even fairer than the form that defines the amount to be paid of the premium by the person's age, their marital status, whether

²²⁹SIMON, Frédéric. *EU struggles for balance on free flow of business data*. *Europe*. Oct 14, 2016. Available at: <<https://www.euractiv.com/section/innovation-industry/news/eu-struggles-for-balance-on-free-flow-of-business-data/>>. Access on: 28 June 2017.

²³⁰A good example of German precaution against the free flow of information/data can be seen in the case of the "My friend Cayla" doll from Genesis Toy, which was banned in Germany because the toy had a device considered spying due to its ability to collect and transmit information about children who played with it. The doll asked questions to the children, working as a virtual "friend", the problem is that the device could receive commands from anyone who was less than 10 meters from the doll, and could also transmit and collect the information acquired.

²³¹According to CNET Magazine, the doll "My Friend Cayla" was banned in Germany on the grounds that the microphones inserted in the doll are classified as hidden spy devices, which violates the privacy rules of the country. The US Federal Trade Commission - the U.S. consumer protection agency - also understood that the toy violates privacy rules by recording conversations and transmitting audio files to a remote server without parental consent. Other consumer complaints about the doll have been made in several countries such as France, the Netherlands, Belgium, Ireland and Norway.

²³²*Apud* SIMON, Frédéric. *op. cit.*

they have children or not, and that in fact does not measure anything related to the matter of how the person actually drives.

And then there is a curious situation, because there is an accumulation of passenger data, because there is not a human driver and it could be that the owner of the car is even the company that manufactured it and that now offers direct to the final consumer the service of transport rather than selling the transport product itself.

The robots that run the smart home have a similar concept like LG Robotics, where their models are manufactured using this industry + internet + database relationship (everything together and interdependent) and can then be protected within a patent and not necessarily dependent on the separate protection that could weaken the databases with the legal model of copyright or *sui generis*.

According to Saskia Sassen,²³³ the transformation of urban spaces into intelligent information cities²³⁴ will be the next big revolution. Its main characteristic is the predominance of data flows that will determine public management decisions, priorities, investments, even where people go.

So, everything is information in the smart city²³⁵ with things interconnected by the internet. Imagine a lamp post that warns that there is a hole in the road, a traffic light that warns of a crash, the police can locate anyone anywhere, because everything can be read by everyone with geolocation and biometrics. And how are the rights of use and access to all this data? Especially in Public Institutions.

²³³SASSEN, Saskia. The global city: introducing a concept. *Brown Junior of World Affairs*, v. 11, n. 2, p. 27-43, 2005. Available at: <<http://www.saskiasassen.com/pdfs/publications/the-global-city-brown.pdf>>. Access on: 15 July 2017.

²³⁴Smart cities can be understood as cities that make use of technology to develop their planning project with citizens, proving to be an innovative proposal from a democratic point of view: "According to the European Union, Smart Cities are systems of people interacting and using energy, materials, services and financing to catalyze economic development and the improvement of quality of life. These interaction flows are considered intelligent for making strategic use of infrastructure and services and information and communication with urban planning and management to meet the social and economic needs of society. According to the Cities in Motion Index, IESE Business School in Spain, 10 dimensions indicate the level of intelligence of a city: governance, public administration, urban planning, technology, the environment, international connections, social cohesion, human capital and the economy" (FUNDAÇÃO GETÚLIO VARGAS. O que é uma cidade inteligente? What is a smart city?) FGV Projetos, 2015. Available at: <<https://fgvprojetos.fgv.br/noticias/o-que-e-uma-cidade-inteligente>>. Access in: July 2018).

²³⁵Currently, examples of smart cities are Songdo in South Korea, Copenhagen in Denmark and Santa Ana in the US, according to Exame magazine.

8.2. The ownership of databases on the Internet of Things (IoT)

Certainly, according to Wolfgang Kerber, Big Data and digitalization have greatly challenged the discussion - both political and academic – of how to build a legal framework to adapt markets to address the new problems that are inherent to the Digital Economy. There is a broad consensus that data analysis and storage in large knowledge repositories are the primary factor in developing the critical resources needed for innovation.²³⁶

The big question about who owns the data is extremely deep and controversial. The issue has two dimensions: one part is personal data, but it is processed under its own legal framework with specific laws in a separate section. On the other hand, the great majority of the data collected in the Digital Society are somehow subject to secrecy, business secrecy or even intellectual property laws (copyright).

But much of the data generated is created by machines, by sensors. This applies especially to the data collected from the internet in Industry 4.0.²³⁷ of intelligent devices. Therefore, there is a perception that this specific data would not be protected by any exclusive right of ownership. Despite the fact that manufacturers can obtain protection as to the "ownership" of this data.

According to the survey conducted among the professors interviewed and according to the analysis of the studies already published by the Max Planck Institute in Munich and Hamburg, until 2018, there is a tendency in favor of the management of intellectual property of databases through contracts rather than through new regulation. On the contrary, any initiative to regulate could be dangerous for innovation and competition in the digital economy, because it is not clear what the results would be of ensuring the monopolization of

²³⁶KERBER, Wolfgang. *A new (intellectual) property right for non-personal data?* An Economic Analysis. Marburg, 2016. p. 2. Available at: <<http://www.uni-marburg.de/fb02/makro/forschung/magkspapers>>. Access in June 2017.

²³⁷According to Hahn (HAHN, J. Rizzo. Learn what Industry 4.0 is and discover the opportunities it creates. National SEBRAE, 2016. Available at: <<http://www.sebrae.com.br/sites/PortalSebrae/artigos/saiba-o-que-e-a-industria-40-e-descubra-as-oportunidades-que-ela-gera,11e01bc9c86f8510VgnVCM1000004c00210aRCRD>>. Access in: Jul. 2018) the concept of industry 4.0 appears after 2010: "It was in the 2011 edition of the Hannover Fair that the concept of Industry 4.0 began to be revealed to the general public. The initiative, strongly sponsored and encouraged by the German government in association with technology companies, universities and research centers in the country, proposes an important paradigm shift in the way factories operate today. In this vision of the future, there is a complete decentralization of the control of production processes and a proliferation of interconnected intelligent devices along the entire production and logistics chain. The expected impact on industry productivity is comparable to that provided by the Internet in several other fields, such as e-commerce, personal communications and banking.

information, and this would be going against the European initiative on the free flow of data.

Mainly, because there is a very fine line separating what it would be to protect the isolated data (coded information at the syntactic level) from what it would be to protect the content of the information (semantic level). Clearly, this does not mean that companies cannot protect their data with other mechanisms, such as through business secrets or even through contracts, for example.

Despite the understanding that there would be no need to introduce a new exclusive property right for databases, there is a general recognition of the risk of not having the most adequate legal guarantees for their protection that could address all these different, often conflicting, interests in them.²³⁸

One of the major benefits of raising the issue of database ownership has been the possibility of contributing to a better understanding of data governance in the digital economy,²³⁹ especially of information flows over the internet and the problems related to the treatment of privacy that are directly related to these flows.

From the point of view of competitive regulation, the question of what circumstances would lead to the understanding that a set of data or a database or just an isolated piece of data could consist of an essential facility and, in turn, have the refusal of protection in the sense of access privilege only for that which is its holder, according to Article 102 of the *Treaty on the Functioning of the European Union* (TFEU), has already been widely discussed.

From the point of view of competition regulation, the question of which circumstances would lead to the understanding that a set of data or a database or only an isolated piece of data could consist of an essential facility and, in turn, have the refusal of protection in the sense of a privileged access just for its holder, according to Article 102 of

²³⁸MEDEIROS, Heloísa Gomes. Propriedade intelectual na sociedade informacional: produção e proteção de bens imateriais em tempos de capitalismo cognitivo (Intellectual property in the informational society: production and protection of immaterial goods in times of cognitive capitalism.). *Publica Direito*, 2014. Available at: <<http://www.publicadireito.com.br/artigos/?cod=7c2af8b8038c80b6>>. Access on: 18 July 2017.

²³⁹ According to the conception of Rêgo (RGO, Bergson Lopes, *Gestão e governança de dados: promovendo os dados como ativo de valor nas empresas- (data management and governance: promoting data as a value asset in companies)*. Rio de Janeiro: Brasport, 2013. p. 92-93) In general Data is developed from three central pillars: "People, processes and technology are the three common components in all Data Governance programs. These components must act in an integrated manner for the purpose of implementing the policy and data strategy defined for the Data Governance program."

the *Treaty on the Functioning of the European Union (TFEU)*, has already been widely discussed.

For Kerber, the question of who should own the data has emerged as both a legal and a political discussion. On the one hand, the issue is related to personal data protection laws. On the other hand, it is not clear how much data generated by the digital economy would be protected within the system of copyright.²⁴⁰ This is because much of the data produced in the digital economy model is carried out within a machine-made application (without being produced by humans). This applies especially on the data collected from the internet, which are fundamental for data analytics. And this has been applied in Industry 4.0, of the production of smart devices, also called Internet of Things and for that reason this data has been called industrial data.²⁴¹

But, still analyzing Kerber's vision, there is a great paradigm to be solved, because the monopolization of information and the impediments to its free circulation would harm innovation and the digital economy, but the business secrets of this industry cannot be left unprotected. In Germany, therefore, a discussion brought by Zech²⁴² began to gain ground, with four justifications for creating a type of exclusive property right for the data created by the machines. The reason was to allow the maintenance of data access (disclosure) and to stimulate the creation of data markets.²⁴³

²⁴⁰KERBER, Wolfgang. Competition, innovation and maintaining diversity through competition law. In: DREXL, Josef; KERBER, Wolfgang; PODSZUN, Rupprecht (Eds.). *Competition policy and the economic approach: foundations and limitations*. Cheltenham, UK: Edward Elgar Publishing, 2011.

²⁴¹It is important to note the interdisciplinary nature of the issue and the impacts that legal developments can offer: "In recent years, US public companies have been obliged to comply with the Sarbanes-Oxley Act (SOX) of 2002. This law was promulgated after the collapse of Enron in 2001. It requires executives from publicly held companies to be personally liable for the company's credibility, the financial report provided to the shareholders. Section 302 of SOX compliance is directly related to IT, since most companies engage in e-commerce. This requires that the IT infrastructure be managed transparently and responsibly, as well as proof that internal controls exist to prevent fraudulent activity. Compliance with SOX has introduced the introduction of Control Objectives for Information and Related Technology (COBIT) as the generally accepted framework for IT auditors to assess compliance with SOX. The COBIT financial reporting process is based on an internal control of the COSO framework (Hawkins, Alhajjaj & Kelley, 2003). The COSO was introduced in 1992 by the Committee of Sponsoring Organizations of the Treadway Commission, a management structure for internal controls" (CHEONG, Lai Kuan; CHANG, Vanessa. The need for Data Governance: a case study. *ACIS 2007 Proceedings*, 2007. P. 1000. Available at: <<https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1110&context=acis2007>>. Access in: July. 2018.

²⁴²For Professor Kerber's quotation on Professor Zech, see *Dorner*, Big Data e "Dateneigentum". Grundfragen des modernen Daten- und Information- shandels, Computer und Recht, (Data ownership." Basic issues of the modern data and information trade, computers and law 2014, 617, Zech, Daten als Wirtschaftsgut - Überlegungen zu einem "Recht des Datenerzeugers"(Considerations on a "right of the data producer.), Computer und Recht (computers and law), 2015, 137, Zech.

²⁴³KERBER, Wolfgang. *A new (intellectual) property right for non-personal data?* cit., p. 2-3.

In addition, a new intellectual property protection could make public the information²⁴⁴ that was kept as a business secret to help build data markets by allowing greater exchange of this data and optimizing the transfer of data allocation. In addition, it would also enable the economic value of the data to be better adjusted by clarifying ownership of the data. A regulation will bring more balance to the market than simply leaving it up to the discretion of the contracts.²⁴⁵

Kerber, mentions in his analysis the important work of Herbert Zech,²⁴⁶ but makes reservations about who should have the intellectual property right over the databases, to whom it should be granted. Whether it should be for the data producer, the data coder or the company that is responsible for producing the data, or the company that benefits the most from the information. This is an unresolved issue from the point of view of the legal discussion, especially as the business networks are very interconnected and interdependent.²⁴⁷

For example, in the case of airlines, who owns the data in the black box of the aircraft? Is it the company that manufactures the aircraft, such as Airbus? Is it the company that buys the aircraft and operates it like Latam or Lufthansa? Or would it be a third party, unconnected with these parties, offering maintenance services to the aircraft, or would it be an insurance company in the event of an air accident? Or, in the latter case, would we be concerned with only limited (exceptional) access rights and not property rights?

Most industries rely heavily on data and use it within a network of shared information, so it becomes somewhat obligatory to have to provide access to data in certain contexts to other companies.

Therefore, even in the case of business secrets, due to the need to share information to foster the development of the industry itself, confidentiality agreements are concluded. That is, ultimately, everything is more regulated by contracts and that is why many countries have been reviewing and updating their legislation on trade secrets, as the USA did in 2016²⁴⁸

²⁴⁴MARQUES, J. P. Remédio. Propriedade intelectual e interesse público (Intellectual property and public interest.). *Boletim da Faculdade de Direito da Universidade de Coimbra, (Bulletin of the Faculty of Law of the University of Coimbra)* Coimbra, v. 79, p. 293-354, 2003.

²⁴⁵Id. Ibid., p. 5-6.

²⁴⁶ZECH, Herbert. Data as a tradeable commodity. In: DE FRANCESCHI, Alberto (Ed.). *European contract law and the digital single market: the implications of the digital revolution*. Cambridge: Intersentia, 2016. p. 51-79.

²⁴⁷KERBER, Wolfgang. *A new (intellectual) property right for non-personal data?* cit., p. 6.

²⁴⁸The United States published the *Defendant Trade Secret Act (DTSA)* in 2016.

and as Europe intends to do.

There are, in fact, many points that need to be addressed in order to deal more adequately with this matter, which only an isolated analysis of competition law will not be able to answer. This is because if consumers have the right to data portability, competitors can gain access to a set of data directly from consumers. Therefore, the problem of access to corporate private databases is now more linked to a digital economy infrastructure issue.

In the end, this may mean creating specific obligations for data holders to ensure levels of access to the data, whether for some public profiles or even for all public. And this still needs to be made much clearer, as it will have impacts from the point of view of standardization and interoperability between systems, especially with the Internet of Things (IoT).

It can be said, even if belatedly, that finally we are facing a unique moment for the legal system to definitively reach a stage of overcoming the dichotomous model, which separated copyright and related rights (literary, artistic, scientific property) from industrial property (trademarks and patents of invention) precisely with all the digital transformation that society is going through, especially when we observe the types of inventions that are being created in the field of the Internet of Things and Artificial Intelligence. This is because there is in its natural composition, a certain integration between industry components with digital applications and widespread use of databases, i.e., a mix of patent and copyright together.). It is thus feasible to introduce into the protection package the premises involved in patent law, specifically the principle of absolute patentability (everything is patentable).

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Certainly, the issue of rights involving databases is one of the most important issues of the 21st century in terms of governance and sustainability of the digital economy itself.²⁵⁰

8.3. Practical case study

²⁴⁹RISH, Michael. Everything is patentable. *Tennessee Law Review*, v. 75, 2008.

²⁵⁰As Wachowicz points out (WACHOWICZ, Marcos. . *A proteção jurídica das bases de dados em face da revolução da tecnologia da informação (The legal protection of databases in the face of the information technology revolution)*, cited, p. 29): "The reflections on the problem of legal protection of databases in the face of the Information Technology Revolution should be based on an interdisciplinary approach, focusing on the legal, sociological, economic and technological aspects of this phenomenon. The tutelage of the databases of Intellectual Law should stimulate the diffusion of Information Technology and propitiate the emergence of technological innovations inherent to the Information Society."

8.3.1. Automotive industry

Certainly, some industries are more deeply and rapidly impacted by technological changes than others. Regarding the issue of databases, object of this study, one can list the 5 (five) industries that will be impacted due to their great dependence on information, not only their own, but also as part of a business network (data market chain), they are: the financial, automotive, insurance, health and pharmaceutical industries.

Germany has passed the law²⁵¹ for self-driving cars, also called autonomous or self-driving cars, and from 2018 the European Union will demand that all cars have a black box to send an alert when there is a car accident.

In other words, there are great changes occurring in the automotive industry with the advances in technology, in general, aimed at increasing the safety of drivers and passengers themselves, but which will have profound impacts on current business models in this industry, especially with regard to databases.

All these cars that possess a black box²⁵² are able to collect a lot of data, both from the machine and from its users (driver and passengers). This data is also extremely crucial in the event of having to investigate the reasons for an accident and who is responsible for it.

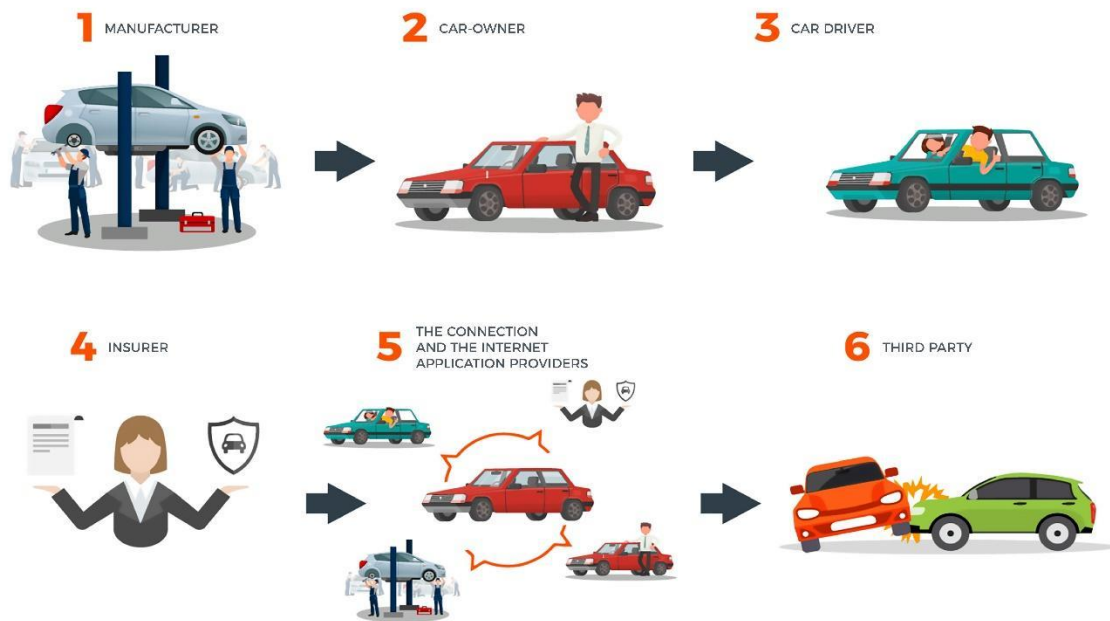
From the point of view of data storage, under the approved regulations, the data will have to be stored for 6 months (minimum period) and if there is an accident for 3 years. And if the data is not deleted after the period, fines will be imposed in accordance with the privacy and data protection regulations in force in the European Union *General Directive Privacy Regulation* (GDPR), which amount to around 4% of the total turnover of the company worldwide. This is an extremely costly fine.

And that's where the whole debate on the subject commences. How far does the industry data extend and where does the personal data begin? Who has ownership rights over the data generated by the black box of the car? Certainly, it is necessary to differentiate the types of data (according to table 1). In addition, there are many parties involved, as well as different interests, as Figure 7 demonstrates:

²⁵¹FRESHFIELDS BRUCKHAUS DERINGER. *Automated driving*. Germany, June 21, 2017. Available at: <<https://www.freshfields.com/en-gb/our-thinking/campaigns/digital/internet-of-things/connected-cars/automated-driving-law-passed-in-germany/>>. Access on: 01 July 2017.

²⁵²EUROPEAN UNION. Europe Commission. *Black Boxes/In-Vehicle Data Recorders*. Brussels. Available at: <https://ec.europa.eu/transport/road_safety/specialist/knowledge/esave/esafety_measures_known_safety_effects/black_boxes_in_vehicle_data_recorders_en>. Access on: 28 June 2017.

Figure 7 - Case study of the autonomous car industry



Source: the Author

We have, then, the manufacturer (car producer), the owner of the vehicle (car owner), the various users or even passengers who may be in the car (car users), the insurer (car insurance company) and third parties (which can be someone in another car, another manufacturer or even a public authority, such as the police investigating an accident).

All of these have some kind of right of access and right to use the data. If data is anonymized, it has an effect, but if it is individualized, it attracts the regulation of personal data protection in the countries where it applies, as in the case of the European Union with the GDPR.

In the United States there is nothing in this sense and in the case of Brazil we would apply the Civil Rights Framework for the Internet²⁵³ in part, but that could be solved with a privacy policy, but this is a new kind of relationship for the manufacturer to establish not only with the owner, but also with the users of the car.

Therefore, the big issue of data collection through the black box of automobiles, or of any device that has this type of resource, which is essential in the Internet of Things (IoT),

²⁵³METZ, Rainer; BINDING Jörg; HAIFENG Pan; HUBER, Florian (Eds.). Consumer data protection in Brazil, China and Germany. Göttingen: Göttingen University Press, 2016. Available at: <www.oapen.org/download?type=document&docid=610409>.

involves the following issues: i) who is responsible for recording the data and deleting the information; ii) what are the technical details about how the data will be stored and where will they be stored in the device; (iii) how will the data be protected (information security).

The analysis of the automobile industry is quite unique, as there is a tangle of interconnected relationships. The increased collection of data and its use by companies is justified for the purpose of safety and also brings financial benefits to users. But how can these rules be more clearly defined to prevent abuse?

But is this the best solution? The German regulation, which emerged as a model for others (benchmarking), retained all liability for the human driver (even if they are not driving) and also for the owner of the vehicle.²⁵⁴ But is this the best solution?

Moreover, if there is one segment that is extremely dependent on data related to the automotive industry, it is the insurance industry. And for this type of business, the information can mean the difference between paying too much or saving a lot on a policy. This is what is happening with the widespread popularity of new insurance products targeting the market of young drivers under 25 years of age.

Several insurers have offered the possibility of differentiated discounts if the customer allows access to vehicle and driver information, either through means of a cell phone app or access to the black box of the car.²⁵⁵

²⁵⁴The German law on *automated-driving* cars provides that: i) the driver no longer has to keep their hands on the steering wheel and leave steering control to the vehicle itself; ii) however the driver must keep attention and take control again if they observe that there is any risk that may exceed the automated response capability of the car; iii) the driver still holds responsibility for oversight, for taking back control if necessary; iv) black box records when the driver delegates control of the car to the vehicle; v) the driver remains the driver of the car for all purposes, never becomes a passenger and always retains liability; vi) the driver's liability may be excluded if in the event of an accident it is shown that there has been a failure of the system, in which case the manufacturer will be liable; and vii) the owner of the vehicle remains liable to the victims of an accident, even in the case of an accident caused by a failure of the system, but his/her insurer may claim compensation from the manufacturer.

²⁵⁵ This is already a reality in the UK, where more than 30 insurers offer this type of policy, including Aviva, Admiral, Direct Line, Tesco and Co-op Insurance, according to the British Insurance Brokers' Association (Biba). STOTT, Juliet. Black box car insurance: a young driver's new best friend behind the dashboard. The Guardian, England, March 26, 2016. Available at: <<https://www.theguardian.com/money/2016/mar/26/black-box-car-insurance-cuts-young-drivers-premiums>>. Access on: 30 Jun. 2017.

In the United States, the regulation on access to information related to car drivers is protected by privacy.²⁵⁶ And the U.S. federal system makes it difficult to harmonize the matter, at a national level in the country, as well as at an international level.

Finally, it is important to point out, albeit briefly, that the health and pharmaceutical industries are also evolving in this direction and are already taking their first steps. Therefore, there is a strong tendency for this to be an extremely relevant theme for those segments with significant critical impacts on society.

²⁵⁶Política de Privacidade dos dados dos motoristas no Estado de Nova Iorque (Driver Data Privacy Policy in New York State): DRIVER'S Privacy Protection Act (DPPA). *What is the Driver's Privacy Protection Act (DPPA)?* Available at: <<https://dmv.ny.gov/drivers-privacy-protection-act-dppa>>.

CHAPTER 9. THE EVOLUTION TO ARTIFICIAL INTELLIGENCE

9.1. The new ethical and legal paradigm of Artificial Intelligence

According to Cécile Huet, Deputy Head of the Unit for Robotics and Artificial Intelligence, Director General of Communication, Content and Technology of the European Parliament, the European Union Robotics and Artificial Intelligence project development program, entitled H2020, is one of the largest in the world. The Purpose is to build a European model of a Data Economy.

In order to stimulate the development of the market, some measures are necessary, among them, the definition of an ethical standard and a legal framework that can guarantee greater security for relationships and transactions based on data.

The application of regulations in this area is intended to facilitate the removal of data location restrictions that still hinder the adoption of cloud computing on a more massive scale. According to Cécile, the benefits to users and service providers would exceed 19 billion euros by 2020 if these measures were introduced.²⁵⁷

And in the legal environment this improved situation can already be seen, as Alexandra Captariu points out:

Artificial intelligence, known since the 1950s, has already passed the Turing test, as it behaves like human beings and has resources as unlimited as all the collective knowledge of the internet. For some law firms, law students and young lawyer-researchers are already obsolete. The proof? Take the example of Ross. This is a machine with artificial intelligence that was recently acquired by the law firm BakerHostetler in the United States to conduct research on bankruptcy law. This machine is not only able to provide thousands of decisions relevant to a specific issue, but it is can also interact with lawyers who have posed a question, adapt the answers to the needs of lawyers and to produce appropriate, tailor-made assumptions. This invention has a certain appeal and can, of course, appeal to experienced

²⁵⁷EUROPEAN COMMISSION. Cross-border data flow in the Digital Single Market: data location restrictions. *Report / Study*, 10 Jan. 2017. Available at: <<https://ec.europa.eu/digital-single-market/news-redirect/51708>>. Access on: 24 July. 2017; EUROPEAN COMMISSION. Facilitating cross border data flow in the Digital Single Market. *Report / Study*, 10 Jan. 2017. Available at: <<https://ec.europa.eu/digital-single-market/news-redirect/51704>>. Access on: 24 July 2017 e EUROPEAN COMMISSION. *Building a European Data Economy*. Available at: <https://eur-lex.europa.eu/content/news/building_EU_data_economy.html>. Access on: 24 July 2017.

lawyers who think they can reduce the number of employees they would have to pay and increase the efficiency of their practice.²⁵⁸

There is a current search for smarter regulation that can meet the demands and expectations of the post-digital society. This is what has been called *smart regulation for smart industry and cities*. In other words, the balance between innovation and protection must be measured.

From this perspective, the issue of analyzing data (*data analytics*), the Internet of Things (IoT), and artificial intelligence platforms on demand (*AI platforms*) is often analyzed from a ethical and legal perspective under five aspects: (i) safety; (ii) liability; (iii) data protection); (iv) ownership and (v) employment

9.2. Intellectual Property in Artificial Intelligence

Data are intangible assets, and as such cannot be described by traditional definitions of ownership. The legislation relating to the protection of property has often lead to the courts linking "ownership" with regard to non-personal data to the ownership of the physical means of storage of such data, i.e. still from the point of view of the medium (wrapping) rather than the database itself.²⁵⁹

And it is very important to keep in mind that artificial intelligence is not just another type of technology, because its scope and capacity is different from the others, as Barthe Emmanuel summarizes:

To understand where artificial intelligence in the law is, you have to know what you're talking about. And to know what we're talking about; we need to start with categories and definitions. The first stage of this work of definition and categorization is that of the technologies used and the companies involved.

To define technologies, because maintaining the original definition of artificial intelligence, given its imprecision, is impossible. The term "artificial intelligence", created by John McCarthy, is defined by one of its creators, Marvin Lee Minsky, as "the construction of computer programs that engage in tasks that are, for now, performed more satisfactorily by human beings, because they require high level mental processes such as: perceptual learning, memory organization and critical reasoning". The definition of Larousse is a little less vague, but it remains insufficient: "the

²⁵⁸CAPTARIU, Alexandra. L'intelligence artificielle et le droit: les limites à questionner (Artificial intelligence and law: the limits in question). *Journal L'Obiter*, 2018. Available at: <<http://journalobiter.com/lintelligence-artificielle-et-le-droit-les-limites-a-questionner/>>. Access on: 14 Nov.2018.

²⁵⁹H. Zech, dados como uma mercadoria comercializável, em: ZECH, Herbert. (Data as a tradeable commodity), cit., p. 59-60.

set of theories and techniques implemented to obtain machines capable of simulating intelligence."

The philosopher and researcher in information and communication Science Pierre Lévy, frankly, defines AI as: "Artificial Intelligence is an expression of "marketing" to design the most advanced and perpetually-in-motion zone of processing techniques of Information."

Therefore, there are technologies that need to be differentiated from each other and, behind these technologies, there are applications (software, if you prefer) and their developers, large IT and internet companies. Or start-ups, all companies that work on applying the latest computer technologies to the law are commonly called "legal technology." Companies and AI products in law are a subset of legal technology. However, we must distinguish AI from all the legal technology.²⁶⁰

Alan Turing posed the following question in the 1950s: "Can machines think?"²⁶¹ As defined by Russell and Norvig,²⁶² the theory of artificial intelligence is related to a set of processes of rationalization of machine behavior in which a measurement is taken based on a pre-established expectation of expected intelligence for that pattern of activity. There are thus four objectives to be pursued in the development of artificial intelligence systems: (i) to act rationally; (ii) to think rationally; (iii) to act as a human being; (iv) to think as a human being).

According to Pedro Domingos,²⁶³ there are five schools of thought of artificial intelligence for the development of *machine learning* solutions, they are: i) Symbolists; ii) Connectionists; iii) Evolutionaries; iv) Bayesians and v) Analogists.

Depending on the line followed, you can design either pure or hybrid algorithms. In any case, every algorithm is always a meticulous pattern. While scientists create theories, engineers create devices, computer scientists create algorithms that are at the same time a set that involves theory + device + databases.²⁶⁴ That's why in the artificial intelligence race, whoever has the best algorithms and the most data wins.

²⁶⁰BARTHE, Emmanuel. *Intelligence artificielle en droit: derrière la "hype", la réalité*. Un blog pour l'information juridique, (Artificial intelligence in law: behind the "hype", the reality. A blog for legal information) Nov. 2017. Available at: <<http://www.precisement.org/blog/Intelligence-artificielle-en-droit-derriere-la-hype-la-realite.html#definir>>. Access on: 17 Nov. 2018.

²⁶¹TURING, Alan M. Computing Machinery and Intelligence. *Mind*, v. 49, p. 433, 1950.

²⁶²RUSSEL, Stuart J.; NORVIG, Peter. *Artificial Intelligence: a modern approach*. Prentice Hall, 1995. Available at: <<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.259.8854&rep=rep1&type=pdf>>.

²⁶³DOMINGOS, Pedro. *O Algoritmo Mestre (The Master Algorithm)*. São Paulo: Novatec, 2015. p. 19.

²⁶⁴DOMINGOS, Pedro. op. cit., p. 27 e 37.

Artificial intelligence involves, in an objective way, the development of a "specialist system," which would be one that is equipped with a set of commands capable of allowing it to acquire and make available the operational knowledge of a human specialist in a certain area or field of action.²⁶⁵

Therefore, a "specialist system" of artificial intelligence would consist of an algorithm that has an inference mechanism capable of drawing conclusions from the facts (data provided) and the knowledge stored in its databases (historical learning).

In order to progress, all areas of science need to have data proportional to the complexity of the phenomenon they are studying. The result of artificial intelligence is only possible if there is a considerable database, both from a quantitative and qualitative point of view, to allow machine learning within the "*example-feedback*" methodology.

Therefore, those who develop technology need to be allowed access to these databases, not only public databases (open or in the public domain) but also private databases (applied and enriched), whether in the partnership model (through joint venture or research), use license (whether paid or not), or another established format.

However, it transpires that machine-generated data as well as essentially industrial data do not benefit from protection by other intellectual property rights, since they are not considered to be the result of an intellectual effort.

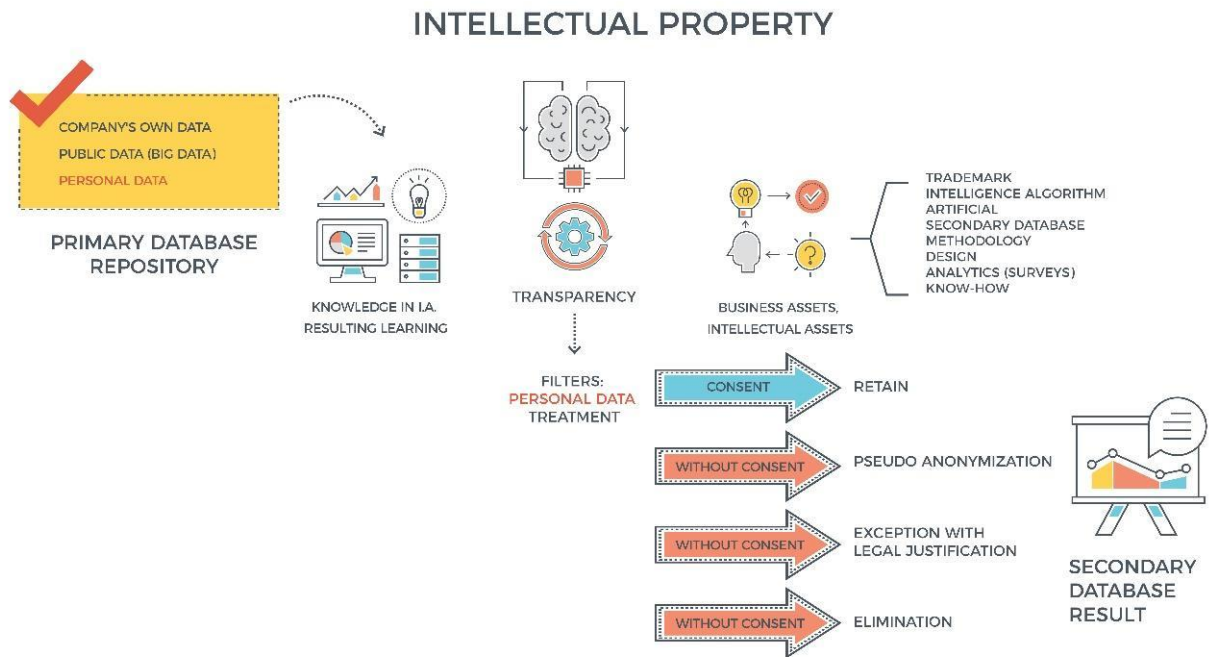
On the other hand, the databases resulting from the application of analytics methods would be subject to protection, since it is possible to demonstrate that there was a considerable intellectual effort made in the design of the data integration process or the analytical algorithm (software), besides the investment of resources and time. Thus, the evolution of the application of machine learning algorithms may represent precisely the ability to assign inventiveness elements to databases.

Still on the examination of the legal nature of the protection of artificial intelligence, it is important to highlight that for AI, the primary database is called the data lake, that is, the layer that gathers the widest source of information that may be useful to feed the analytics system that has been developed.

²⁶⁵GUARIZI, Débora Deflim; OLIVEIRA, Eliane Vendramini. Estudo da inteligência artificial aplicada na área da saúde (Study of applied artificial intelligence in the health sector). *Colloquium Exactarum*, v. 6, n. esp., p. 26-37, December. 2014.

As observed in Figure 8:

Figure 8 – Artificial Intelligence Composition Model



Source: The Author

Therefore, it is possible to concede that there is a use of creativity (originality) at the moment the primary database (or data lake) passes through the learning filter to generate a resulting knowledge base. This will have added value and will make the artificial intelligence algorithm itself mature, learn, evolve which results in it having a higher valuation.

It should be noted that the European Union has also adopted legislation on the protection of undisclosed know-how and commercial information (trade secrets) against their illegal acquisition, use and disclosure. According to this directive,²⁶⁶ information (including data) classified as a 'trade secret' can be protected if it meets the following requirements: (a) it is secret; (b) it has commercial value because it is secret; and (c) it has been subject to reasonable measures, in the circumstances, by the person legally in control of the information, to maintain it as secret (secrecy).

²⁶⁶Directive (EU) 2016/943 of 8 June 2016 on the protection of know-how and confidential business information (trade secrets) against its unlawful acquisition, use and disclosure.

There are also other regulations that can be applied as protective measures to prevent or restrict access to databases according to how they meet the requirements of: protection of consumers' personal data; payment information (Payments Directive).

However, the General Competition Law provides for exceptions that guarantee the right of access to the database, according to the established interpretation of the CJEU, which has developed four conditions, namely: that the data are essential for the other party; that there is no competitive relationship between the parties; that the refusal of access to the database is a measure that prevents the free flow of competition; and that there is no reasonable grounds for refusal.

On the basis of an analysis of the existing legislation in the European Union,²⁶⁷ the following considerations can be made: there is not yet a comprehensive legislative framework concerning the rights that can be exercised in relation to access to non-personal databases or that are anonymized, in particular as regards data created by computer processes or collected by sensors processing information from equipment, machinery or software, or in relation to the conditions under which such rights can be exercised (example of IoT and Artificial Intelligence applications); apart from the Trade Secrets Directive, there is no legal protection in relation to investments made in data generation and/or collection; there are rules on access to private data in a very limited number of sectors (notably the financial, health and public sectors)

By comparison, in the United States most registrations for purposes of protecting artificial intelligence are taken to the Patent Office (USPTO) based on Class 706.²⁶⁸

²⁶⁷OSBORNE CLARKE LLP. *Legal study on ownership and access to data*. Final report – Study, cit., p. 79.

²⁶⁸Class 706 - DATA PROCESSING - ARTIFICIAL INTELLIGENCE

Class Definition: GENERAL STATEMENT OF THEME CLASS

This is a generic class for artificial intelligence type computers and digital data processing systems and corresponding data processing methods and products for intelligence emulation (i.e. knowledge-based systems, reasoning systems and knowledge acquisition systems); and including systems for reasoning with uncertainty (e.g., diffuse logic systems), adaptive systems, machine learning systems and artificial neural networks.

(1) note. This class includes systems with a faculty of perception or learning.

(2) note. This class also provides data processing systems and corresponding data processing methods to implement demonstrations of mathematical theorems or automated logic (U.S. PATENT AND TRADEMARK OFFICE). U. S. Patent Classification System - Classification definitions: Class 706. U.S.

Patent and Trademark Office, 2000. Available at

<<https://www.uspto.gov/web/offices/ac/ido/oeip/taf/def/706.htm>>. Access in: Jul. 2018).

According to Mark Davison,²⁶⁹ the prospect of achieving an international treaty on the protection of databases is highly unlikely. Although now with the new implications of IoT and AI solutions this may again become a priority on the agenda of state leaders.

Despite the relevance of the topic, the discussions are still at an early stage and have produced little on the subject. Most Member States have not yet developed any policy on 'data ownership' issues and access to commercially held data. In this sense, the legal framework has been far more contract-based, even if it has limited effects.

9.3. International law applied to Artificial Intelligence and regulatory trends in the European Union and the United States

The United States' vision has been to specifically recommend, through the work of the Institute of American Electrical and Electronics Engineers (IEEE-U.S.), which is fundamental to the development of Artificial Intelligence, that the United States government seek sufficient technical knowledge to be able to regulate AI matters. This recommendation is in line with that of the National Science and Technology Council in its 100 Years Study of Artificial Intelligence that more technical expertise is required to create a political, legal, and regulatory environment that enables nascent innovation to thrive for the benefit and protection of the U.S. public.²⁷⁰

From the American perspective, some interpretations of federal laws have turned some practices that were legal in the traditional environment into illegal on the internet and the removal of these barriers is essential. The plan is to involve an inter-agency panel in a coordinated manner to determine how Artificial Intelligence technology should be regulated at the federal level. There are at least sixteen different agencies operating in various sectors of the economy related to AI, so it is important to achieve a uniformity of best practices and standards to meet national security objectives, public trust, ethics and other property and liability law issues.

²⁶⁹DAVISON, Mark. *The legal protection of databases*. Cambridge: Cambridge University Press, 2003. p. 293. Available at: <<https://books.google.com.br/books?isbn=1139435655>>. Access on 23 July 2017.

²⁷⁰STANFORD UNIVERSITY. *Artificial intelligence and life in 2030*. One-hundred-year study on artificial intelligence. Report of The 2015 Study Panel. Sept. 2016. Available at: <https://ai100.stanford.edu/sites/default/files/ai100report10032016fnl_singles.pdf>. Access on: 23 July. 2018.

In doing so, the United States seeks to create new, short-term technological rights consistent with the accelerated progress of Artificial Intelligence to enable the property generated by the AI to be "invention" or "work" as defined by current U.S. patent and copyright laws, but redefining its term, which may be shorter in nature than the time required to process a patent or copyright application in other areas.

The use of AI in computational vision and human-computer interactions is expected to have far-reaching implications and AI-enabled robots are expected to perform difficult and dangerous tasks that require human-like intelligence. Ultimately, the goal is for AI to improve the quality of life through smart cities and decision support in health, social services, criminal justice and the environment.²⁷¹

There is intense international competition for the supremacy of AI. And the competitive advantage will be with those who have: a) the best technology; b) the skilled labor; c) the updated and consistent regulatory framework. In addition to the United States the European Union, Japan and China are in this dispute for AI leadership.

The major North American concern is the exploitation of security vulnerabilities in AI systems that could endanger the entire system and generate a national security incident. Therefore, in addition to consumer acceptance, social acceptance will also depend on the security of the system. Public understanding of AI security should be responsible for driving the policy and regulatory agenda. Achieving transparency, in terms of how a system is designed and what it is used for, remains a challenge and an obstacle to its adoption.

It is imperative that industry, academia, and government accurately clearly communicate both the positive potential of AI and the areas that require caution. There are legitimate reasons why people have doubts about the use of technology. Programming artificial intelligence systems will require a common sense of ethical behavior or, at a minimum, AI programming to have behaviors for ethical implications.²⁷²

²⁷¹Source: "O Plano Estratégico Nacional de Pesquisa e Desenvolvimento de Inteligência Artificial", Programa de Pesquisa e Desenvolvimento de Redes e Tecnologia da Informação (NITRD), 2016. UNITED STATES OF AMERICA. *The national artificial intelligence research and development strategic plan*. National Science and Technology Council. Networking and Information Technology Research and Development Subcommittee. Oct. 2016. Available at:

<https://www.nitrd.gov/PUBS/national_ai_rd_strategic_plan.pdf>. Access on: 24 July 2018.

²⁷²Design alinhado eticamente: Uma visão para priorizar o bem-estar humano com inteligência artificial e sistemas autônomos. Iniciativa Global IEEE para Considerações Éticas em Inteligência Artificial e Sistemas Autônomos, (Ethically aligned design: A vision to prioritize human well-being with artificial intelligence and autonomous systems. IEEE Global Initiative for Ethical Considerations in Artificial Intelligence and

To address these and many other social issues, the IEEE USA recommended: (i) encouraging the development of AI to meet the pressing needs of humanity; (ii) getting the media on board for them to illustrate the beneficial uses of AI and the important steps being taken to ensure security and transparency; (iii) developing economies capable of absorbing AI systems, providing ample employment opportunities for those who might otherwise be unemployed or losing their businesses; (iv) promoting dialogue and ongoing debate on the social and ethical implications of AI systems; and (v) initiating an international dialogue to determine best practices for the use and development of artificial intelligence systems and codify this dialogue into international rules and regulations.²⁷³

The robotics industry is already the most important in Japan. China wants to be a world leader in AI due to the strategic importance of AI for national security and economic growth.²⁷⁴

Established in 1982, the European Artificial Intelligence Coordination Committee (ECCAI) coordinates the development of AI in Europe and promotes the study, research and application of AI. The European Parliament is discussing the issue of robot civil liability and its legal personality and the development of a specific directive on the subject.²⁷⁵ Brazil, on the other hand, does not yet have relevant initiatives on the specific regulation of artificial intelligence.

In isolation, some countries have sought to devise national laws, such as France, which has enacted recent legislation on Open Data²⁷⁶ setting out provisions obliging commercial undertakings to open - under certain conditions - data they hold for re-use, in particular data generated in the context of public procurement (Article 17), commercial data

Autonomous Systems, 2016) 2016. 27 R. Arkin, "Ética e Sistemas Autônomos: Perigos e Promessas [Ponto de Vista]." ARKIN, Ronald C. (Ethics and Autonomous Systems: Perils and Promises). *Proceedings of the IEEE*, v. 104, n. 10, p. 1779-1781, Oct. 2016. Available at: <<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7571204>>. Access on: 24 July 2018.

²⁷³EDELMAN, Benjamin G.; LUCA, Michael. *Digital discrimination: the Case of Airbnb.com.* *Harvard Business School Working Paper*, 28 Jan. 2014. Available at: <<https://hbswk.hbs.edu/item/digital-discrimination-the-case-of-airbnb-com>>. Access on: 23 July 2018.

²⁷⁴YUAN, Li. China gears up in artificial-intelligence race. *Wall Street Journal*, Aug. 24, 2016. Available at: <<https://www.wsj.com/articles/china-gears-up-in-artificial-intelligence-race-1472054254>>. Access on: 23 July 2018.

²⁷⁵The European Parliament discusses a regulation on the subject "Civil Law on Robotics", see European Parliament website:

<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2017-0051+0+DOC+XML+V0//PT#BKMD-12>.

²⁷⁶Loi n° 2016-1321 de 7 de outubro de 2016 para a República Francesa, (Law No. 2016-1321 OJ French Republic No. 0235 of October 7, 2016 for the French Republic)

for the establishment of official statistics (Article 19), certain data on electricity and gas production and consumption held by transmission and distribution system operators for re-use by any other party (Article 23) and certain data on changes in real estate ownership for re-use by certain third parties (Article 24). Such data are defined as 'data of public interest'. According to the government's proposal, the aim of the articles mentioned is to 'improve the circulation of data and knowledge' in order to give France a competitive advantage in the digital economy.

In Germany, there is an intense debate on the emerging issues of 'data ownership', access to data and liability. There is a particular focus on the implications for Industry 4.0 developments. In the German view, there is a need for further regulation to adequately allocate rights to data.²⁷⁷

The Estonian government has launched the idea of creating a fifth freedom, namely the free movement of knowledge and data, alongside to and in parallel with the four freedoms of the internal market established by the EU Treaties.²⁷⁸

Finally, Finland presented a legislative proposal for a new Transport Code stipulating that essential information concerning passenger transport services (including services operated by private companies) should be disclosed as open data. The proposal also lays down provisions for the interoperability of ticket and payment systems, as well as the opening of interfaces. Under the term "MyData",²⁷⁹ the government is developing a conceptual model of a future data architecture that is designed around the individual with respect to personal data.

²⁷⁷EUR-Lex. *Commission Staff Working Document on the free flow of data and emerging issues of the European data economy Accompanying the document Communication Building a European data economy*. COM (2017) 9 final. Available at:

<<https://eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX%3A52017SC0002>>.

²⁷⁸ See speech by the President Ilves of Estonia, in the European Parliament on 2 February 2016. FORMAL sitting – Estonia. *Toomas Hendrik Ilves, President of the Republic of Estonia*. 2 Febr. 2016. Strasbourg. European Parliament. Available at:

<<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+CRE+20160202+ITEM-005+DOC+XML+V0//EN>>. Access on: 23 July 2018.

²⁷⁹White Paper published 2015: POIKOLA, Antti; KUIKKANIEMI, Kai; HONKO, Harri *MyData – A Nordic Model for human-centered personal data management and processing*. Ministry of Transport and Communications, [2015]. Available at:

<<https://www.lvm.fi/-/mydata-a-nordic-model-for-human-centered-personal-data-management-and-processing-860616>>. Access on: 23 July 2018.

What is observed in all these countries is that with the emergence of IoT-enabled devices, the tone of the database ownership dialogue has changed and is still undergoing transformation as the transition to an Artificial Intelligence-based society is underway.

As machines, tools, and devices equipped with IoT-connected sensors generate a large amount of data, which in turn is an important source for Big Data analytics, enabling data-driven innovation, the question of "who owns the data" becomes more relevant.

In a comparative overview: (i) the *sui generis* protection offered to databases in the EU does not exist in the US; (ii) protection of trade secrets are available in both the EU and the US. But there is still no indication of plans at a federal or state level to regulate data rights or access to commercially maintained data. All loopholes are being addressed by individual contracts.

But some specific sectors demand rules, even if they are vertical (sectorial) regulations to give better treatment to the matter in order to seek a standardization (market standardization), they are: the sector of connected vehicles (to improve urban mobility and to delimit responsibilities); the data-driven energy sector (to balance the supply of electricity use and the adoption of smart metering); the sector of intelligent housing (which also includes smart housing services); the health sector; the agricultural sector (for gains in the value chain and to reduce end-to-end food loss); and the sector of official statistics (such as population census, employment data, other information from relevant research for sustainable economic and social development).

In any of these sectors of the economy, one thing is certain, it will always be fundamental to be able to measure the value of intellectual assets involved in AI project investments.

From the point of view of equity analysis of assets related to artificial intelligence, there are some simulations that can be performed considering the application of two equations, which take into account a matrix of revenue X risk X responsibility, as illustrated in Figure 9.

Figure 9 - Evaluation equation of the intellectual property of artificial intelligence

EQUATION 1

Data:

PIIA: value of the intellectual property of artificial intelligence.

v_{sec}: value of the license to use the secondary knowledge base.

l_{aa}: license to use the learning algorithm.

n_u: number of users.

f_p: anonymization factor.

f_{cbdpp}: consent factor of the primary personal database.

f_{rbdpp}: Contamination factor/privacy risk of the primary personal database.

$$PIIA = (v_{sec} + l_{aa}) \times (n_u \times f_p + n_u \times f_{cbdpp}) - f_{rbdpp}$$

EQUATION 2

Data:

AITV: value of AI technology.

v_{base}: value of the initial machine learning algorithm (base)).

n_{cam}: number of layers of learning.

n_{ex}: number of examples.

t_{fed}: amount of application time with feedbacks.

g_{bd}: generation of new databases of resulting knowledge.

c_{td}: capacity of decision making (by inverse deduction, backpropagation, Bayesian inference, statistical prediction, judgments by similarity, analogy and support vectors).

c_{int}: ability to interact directly with humans (use of natural language, use of conversational assistant, use of transactional assistant).

c_{ens}: ability to teach other AI learners (networked learning with other AI).

f_{risk}: risk factor (learning deviations and probability of ethical failures in AI behavior).

$$AITV = v_{base} \times n_{cam} \times (n_{ex} \times t_{fed} \times g_{bd}) \times c_{td} \times c_{int} \times c_{ens} - f_{risk}$$

Source: The Author

In illustrative terms, the value of the intellectual property of artificial intelligence, in terms of asset valuation, would have a direct relationship with the investment made in the development of the learning algorithm (or the license value assigned to it), as well as the value assigned to databases, and these should be divided into two categories: the primary database, which still has the privacy risk factor, and therefore its value is higher the higher the consent and/or anonymization factor applied to the database related to the holders (users); and the secondary database, which should be understood as machine learning (the resulting

knowledge by analytics or feedback and that starts to feed back to the database). And this can be determined using the model in equation 1.

Another evaluation method would be the one performed by the second formula that brings a more in-depth analysis about the technology itself, i.e., what type of learning algorithm is being addressed, since its learning capacity can be a factor in reducing to practically zero the obsolescence factor (which was not considered in the equation), on the contrary, the more elements of self-determination and decision are involved, the more up-to-date it is, but there is a new risk to be considered which is that of learning deviation with ethical and behavioral failure (challenge of teaching the algorithm what is an error and when it has erred and therefore should disregard that resulting learning).

For David Klein, strategic management of intellectual capital is a key element in enhancing innovation in both the private and public sectors and must be part of a structured organizational policy.²⁸⁰ We can also add that it applies not only for companies but also for countries, as a strategic vision of governments and states.

9.4. Comparative jurisprudential analysis of cases involving databases

Case Law is an important source of private international law due to its direct and immediate relationship with the various mechanisms for the resolution of transnational disputes by courts. In other words, it brings together a set of mixed cases with external elements and their respective solutions that serve as inspiration for the judicial analytical method. As it is up to the judges to draw on their experience in developing general principles of interpretation, these references serve as a basis for upholding the law applicable to the specific case when there are elements of strangeness that require the use of foreign law in the court.

Certainly, there is a more satisfactory result when the court is specialized, mainly because the national courts are subject to variations due to the greater or lesser degree of experience of magistrates in matters of private international law, especially in matters related to international contracts, protection of intangible assets and transfer of technology.

²⁸⁰KLEIN, David A. *A gestão estratégica do capital intelectual (The strategic management of intellectual capital)* Rio de Janeiro: Qualitymark, 2002. p. 2.

A brief consideration should be given to the possibility of the constituted States favoring the use of exclusive jurisdiction rules both on international law and on the validity of duly registered Intellectual Property Rights (IPRs) when involving cross-border adjudication. Thus, the practice of the State that is in favor of cross-border adjudication of issues of validity of registered IPRs does not confirm, but neither does it exclude that rules of exclusive jurisdiction are an expression of common rules of international law.²⁸¹

In the context of the direct jurisdiction of the international courts for the judgment of issues related to the internet and new technologies, there has still been low usage, with a greater inclination towards the national court for resolving these cases. Exceptionally, there are judgments involving the Permanent Court of International Justice (PCIJ) created as an institution of the League of Nations and its successor the International Court of Justice of the UN (ICJ).

Would they be qualified to judge cases involving conflicts over the ownership of databases and which law to apply, European, American, or Brazilian, since there is no international convention or treaty on the subject that completely resolves the complexity of the issue today?

What has been observed is a greater predominance of the Court of Justice of the European Union (CJEU) and its strengthening in recent years as the main creator of jurisprudence on various matters of private international law, since it has jurisdiction to adjudicate disputes based on the application and interpretation of the rules of the constituent treaties of European Community law. Its decisions have been able to create precedents in several cases related to internet issues, as they are transnational in nature.

Considering that this work aims to carry out a comparative law study, it is necessary to analyze the evolution of the intersection of international law on intellectual property and how this integration started to be observed from WIPO and the increased complexity of its use as the issues involving the new technologies and the internet evolved.

One of the motivations for comparison, particularly in some regulatory systems such as law, is that comparison is considered a necessary prelude to the development of some form of synthesis. For example, in the European Union, the extensive use of the comparative method by the European Commission is capable of generating sufficient information on the

²⁸¹UBERTAZZI, Benedetta. *Exclusive jurisdiction in intellectual property*. Heidelberg, DE: Mohr Siebeck, 2012. p. 99.

practices of each member state in a particular issue, so that common points can be identified, and enable harmonization to proceed more easily, and identify where differences occur to know where difficulties and barriers may be, in order to achieve harmonization and be able to develop a strategy to resolve this issue.²⁸²

From a judicial perspective, a thorough analysis of intellectual property protection includes a consideration not only of the statutory provisions of the law, but also of other factors that impact the incentive to create and the protected works or content's availability for use. More significantly, the dramatic growth in the use of digital technology and the internet has made more material available to more people than ever before. However, this technology has also provided opportunities for inappropriate use of materials on an unprecedented scale. Changes in the law to try to prevent or remedy these misuses do not necessarily represent a shift in the philosophy on the appropriate scope of protection and have not altered the fact that both authorized and unauthorized users of protected materials generally have greater opportunities to use the material than they had prior to these technological developments.

In this sense, there are two fundamental principles for consideration: on the one hand, the doctrine of originality is established for the purpose of conferring intellectual protection to works; on the other hand, there is the doctrine of *fair use* that aims to balance the different interests involved in the market of the creative economy.

The first legal cases on database compilations date back to the early 1990s. The 1991 U.S. Supreme Court ruling in *Feist Publications v. Rural Telephone Service Co.* was considered a legal landmark. As a result, the rapid evolution of technologies for collecting, organizing, reproducing, and distributing information in development; and the European Union's actions in harmonizing the laws of its member states have driven a lively debate in both WIPO and the U.S. Congress.

In copyright law terminology, a database is a "compilation": "a work formed by the collection and assembly of pre-existing materials or data." Compilations constitute one of the oldest forms of authorship protected by United States law, dating from the eighteenth century.²⁸³ The first compilation cases that discussed the basis for copyright protection

²⁸²MCCRUIDDEN, Christopher. What does it mean to "compare", and what should it mean? 2017. In: BESSON, Samantha; URSCHALER, Lukas Heckendorn; JUBÉ, Samuel (Eds.). *Comparing comparative law*. Genève: Schulthess, 2017. p. 77.

²⁸³Copyright Act of May 31, 1790, United States, ch. 15, 1 Stat. 124.

identified the efforts of the compiler- "their own expense, or skill, or work, or money" - as the contribution that justified protection..

Thus, in a series of decisions from 1879 to 1903, the United States Supreme Court held that "Writings" that could be protected under the copyright clause of the Constitution should be "original," and indicated that creativity would be a component of originality.

Following this line of reasoning, it is worth commenting on this case of the European Union in which it was possible to grant protection to the database, as shown in Table 1, because it was considered that it had originality. Otherwise, in cases where this is not observed, the judicial discussion has often been resolved within the scope of competition law.

Table 1 - Analysis of Case Law - Case 1 [2012] C-604/10 - Football DataCo

<p>Analysis of Case Law – Case 1 [2012] C-604/10</p> <p>Place: United Kingdom</p>
<p>Parties: Football DataCo vs Yahoo! (Football DataCo Ltd, Football Association Premier League Ltd, Football League Limited Scottish Premier League Ltd, Scottish Football League, PA Sport UK Ltd v Yahoo! UK Limited, Stan James (Abingdon) Limited, Stan James PLC, Enetpulse APS).</p>
<p>Main points: Reference for a preliminary ruling - Court of Appeal (UK)- Interpretation of Article 3(1) of Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases (OJ 1996 L 77, p. 20) - Concept of 'databases which, by reason of the selection or arrangement of subjects, constitute a specific intellectual creation by their author' - Computer catalogues of football matches planned for the coming season,</p>
<p>Territoriality: United Kingdom; Judgment of the Court of Justice of the European Union ("CJEU").</p>
<p>Applied Law: Directive 96/9/EC of the European Parliament and of the Council.</p>
<p>Decision: "On the basis of the considerations set out above, I propose that the Court of Justice answer the questions referred by the Court of Appeal in the following terms:</p>
<p>1. A database may be protected by copyright within the meaning of Article 3 of Directive 96/9/EC only where it constitutes the original intellectual creation of its</p>

author. For that purpose, activities carried out for the creation of the data may not be taken into account. In the case of a football calendar, it is an activity of data creation to determine all the elements relating to each individual match.

2. That directive precludes a national law from recognizing copyright protection for a database which does not satisfy the requirements set out in Article 3 of that directive'. The decision in *Football DataCo v Yahoo!* confirms that a database may attract copyright in its original structure. However, copyright will not be contemplated for the content of the data itself, as explained in the Study conducted by Osborne Clarck LLP:

Source: The Author.

Then, in addition to the doctrine of originality in judicial decisions, what was referred to as "the sweat of the forehead" in the American view was considered. The first cases were factual compilations, such as catalogs and directories, which deserved protection not because they were endowed with originality (creativity) but because of the work (applied effort, investment, time) in their creation and/or organization. And this understanding produced a certain uniformity of jurisprudence at the time especially as regards compilations.

But even at that beginning, the magistrate's intention was to prevent the "copier" from competing unfairly with the "compiler" by appropriating the fruits of their efforts (much like what would later be seen in the field of unfair competition). In general, the judicial analysis started to consider in concrete cases if there was a situation of extraction of the original base with reuse in the state in which it was demonstrating totally parasitic use.

It is important to mention that it has been a great challenge to harmonize the requirements of the International Treaties within the system of protections brought by WIPO with the national systems and with all the technological innovations that have occurred since the 1990s.

A good illustration of this is the statement made to the Subcommittee on Courts and Intellectual Property of the Chamber in the United States, in a session dated September 16, 1997, on the implementation of the WIPO Copyright Treaty (H.R. 2281) and the regulation of Limitation of Liability on Copyright on the Internet (H.R.2180), in order to allow the United States to adhere to the two International Treaties on Intellectual Property concluded in Geneva in 1996, causing the addition of a new section 512 to the Copyright Regulation.

The main objective was to guarantee the minimum applicability and enforcement for the protection of copyright rights in works in digital format. Thus, the two WIPO treaties ultimately required each Member State to protect works owned by other Member States, with the enforcement of technical standards introduced in the amendments made in sections 104 (which deals with the conditions and requirements for protection of works from other countries, making foreign works eligible for protection in the United States), 104A (which provides for protection of pre-existing works from other countries), 411(a) (which determines that registration of copyright in the United States is a precondition for bringing an infringement of the rights of a particular work to justice).

However, one of the most important points was copyright protection provisions with the application of effective technological measures to enable the development of an environment that can disseminate works and ensure that right-holders are protected against infringements. Thus, a new chapter 12 was created in title 17 to implement these obligations and the prohibitions were provided for in sections 1201 and 1202, with sections 1203 and 1204 dealing with the enforcement of civil and criminal penalties.

Thus, most cases related to intellectual property and use of new technologies have been dealt with on the basis of these articles and the new section 1201 has become the jurisdictional implementation of Article 11 of the WIPO Copyright Treaty and Article 18 of the WIPO Performance and Phonograms Treaty.

There was then a change of understanding since after exhaustive analysis of cases, the United States Copyright Office realized that the U.S. laws were insufficient to meet the obligations assumed in the Treaties. This prompted the Copyright Office to commit to reviewing the doctrine of contributory infringement in addition to a number of federal laws such as the Audio Home Recording Act, art 17 U.S.C § 1002, Communication Act, 47 U.S.C. § 2314, Electronic Communication Privacy Act, 18 U.S.C. §§ 2510 et seq and Computer Fraud and Abuse Act, 18 U.S.C. § 1030.

However, despite all efforts, there is still much controversy in the implementation of treaty requirements. This is due to the fact that there is a major challenge of harmonizing the different interests involving the protection of copyrights owners and at the same time avoid hindering the development of technological innovations that can improve the legitimate consumption of users of protected works and also access to materials in the public domain

and the application of access and use assumptions under the exception of the doctrine of fair use.

In this regard, it is interesting to note that the European Union has sought to resolve the issues using the following approach: Step 1 - verify whether copyrightability applies; Step 2 - verify whether *sui generis* protection applies; Step 3 - verify whether competition protection applies; Step 4 - verify whether secrecy or business secrets apply; Step 5 - verify whether contractual protection applies (restrictions or limitations on use defined in terms of use or contracts). The case in Table 2 below illustrates this situation:

Table 2 - Analysis of Case Law - Case 2 [2015] C-30/14 - Ryanair Ltd

<p>Analysis of case law - Case 2 [2015] C-30/14</p> <p>Place: European Union</p>
<p>Parties: Ryanair Ltd v PR Aviation BV.</p> <p>Main points: The subject-matter of the request for a judicial decision is the interpretation of Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases (OJ 1996 L 77, p. 20).</p> <p>That request was made in the context of a dispute between Ryanair Ltd ('Ryanair') and PR Aviation BV ('PR Aviation') concerning the use by the latter of data from Ryanair's website. Ryanair brought an action against PR Aviation alleging infringement of Directive 96/9/EC (database protection) in view of the fact that the data obtained from Ryanair's website were being used for commercial purposes. Legal protection of databases - Database not protected by copyright or <i>sui generis</i> right - Contractual limitation of the rights of users of the database.</p> <p>Territoriality: Supreme Court of the Netherlands; Judgment of the Court of Justice of the European Union/ Court of Justice of the European Union ("CJEU").</p> <p>Applied Law: Articles 6(1), 8 and 15 of Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996.</p> <p>Decision: Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases must be interpreted as not applying to a database which is not protected by copyright or <i>sui generis</i> right under the directive,</p>

so that Articles 6(1), 8 and 15 of the directive do not prevent the creator of that database from setting contractual limits on its use by third parties, without prejudice to the applicable national law. "The main limitation of the Trade Secrecy Directive, from the perspective of a data-based commercial entity, is precisely the fact that it requires data to be kept secret; protection will be forfeited if the data are made public at any stage. Any license granted on the data carries the risk of loss of control if the licensee does not adequately protect the data. The right to claim damages against the licensee is only a partial solution if the licensee is unable to pay the full amount of future lost revenue in potential future licensing, and the Directive allows an action to be taken against a third party receiving the data only if that third party knew or should have known that the person who transmitted it was not authorized to do so. If, for example, the data was inadvertently published on the internet, it is likely to be difficult to locate all third-party recipients and even more difficult to establish that each of them knew or should have known that the publication was unauthorized. In addition, data holders subject to mandatory disclosure obligations under the various sector-specific laws will lose all rights under the Directive as soon as the necessary disclosure is made. (Osborne Clarck LLP, 2016, p. 12).

Source: The Author.

All this has greatly increased the cases of legal disputes related to intellectual property issues and their interaction with new technological applications, be it the use of the internet, Digital Platforms, IoT devices and Artificial Intelligence.

In addition, there has also been a growing demand for prior consultations to request exceptions to the United States Copyright Office. Mainly with respect to the application of section 1201. This is because the understanding of the U.S. Copyright Office that the doctrine of fair use is an integral element of the Copyright Act and that it plays an fundamental role in balancing the rights between the parties and the different interests involved, considering on the one hand those of the creators (authors), the industry (which still concentrates the ownership and distribution of copyrights) and the users.

Some background may be useful when considering the topic of access controls. It has long been accepted in U.S. law that the copyright owner has the right to control access to their work and may choose not to make it available to others or to do so only on defined

terms. This means not only that a copyright owner can keep a work unpublished forever, but also that they can publish it while controlling the conditions under which others can see it - such as charging a fee or imposing restrictions on how the work can be used.

Thus, making a work accessible online without permission from the author, or keeping it accessible (published) after manifestation to the contrary by the holder, would constitute the infringement provided for in section 1201.

This issue has become very controversial as in the case of *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996). The central point is that by law the owner of the intellectual rights would have the prerogative to keep the work locked and the right to give access to the key only to those who were chosen (selectively). The jurisprudential interpretation is that it would be similar to a locked cabinet where not even under the doctrine of fair use would it be permitted to break-in to have access to the content.

In dealing with the responsibility of those who participate in bringing infringing works to the public, the courts have, over the years, developed doctrines of contributory infringement and indirect liability to supplement the possible direct infringement that can occur through acts of distribution and public display. Under the current law, a person is liable for direct violation if they engage in an act covered by section 106 without authorization, regardless of their knowledge or intent. 17 USC § 501.

A person is additionally liable for the violation of another if they have the right and ability to control the violation, and receive a direct financial benefit, with or without knowledge of the violation. *RCA / Ariola Int'l v. Thomas & Grayston Co.* 845 F.2d 773, 781 (8th Cir. 1988). A person is responsible for an indirect infraction that induces, causes or materially contributes to the infraction of another person, knowing or having reason to know of the infraction. *Sony Corp. v Universal City Studios, Inc.*, 464 USA 417, 435 (1984).

The issue of service provider liability is of great concern to all interests involved and has received enormous attention both in the United States and internationally.

It is critical to ensure that any new exemption does not undermine the ability of copyright owners to enforce their rights and to have significant recourse to prevent violations occurring on the internet or on digital platforms. At the same time, of course, liability should not be improperly imposed.

The reason for this is to constitute a system in which copyright owners and service providers work together to minimize infringement and develop the internet as a means of exploiting copyrighted works. And time is pressing, as the issue tends to become even more complex as it moves into the realms of Artificial Intelligence as will be detailed in a separate chapter in Part 5 of this paper.

That means, with all the technological evolution and the independence of the support and dematerialization of works aiming at their digitalization or migration to digital media, the main question is how to guarantee the right of the owner in terms of access control over their work so that this does not entail an appropriation of the databases (knowledge bases) that could hinder future access to the information itself and, in turn, restrict free information. This challenge is well demonstrated in the case of Box 3 which deals with the application of the *Digital Millennium Copyright Act (DMCA)*:

Table 3 - Analysis of Case Law - Case 3 [2012] 676 F.3d 19 - Viacom Int.

<p>Analysis of case law - Case 3 [2012] 676 F.3d 19</p> <p>Location: United States</p>
<p>Parties: VIACOM INTERNATIONAL, INC. v. YOUTUBE, INC.</p> <p>Main Points: Viacom International Inc and other copyright holders claimed direct and indirect copyright infringement based on public performance, reproduction of more than 79,000 audiovisual works on the Youtube website, through its online video sharing service. The applicants claimed that Youtube would not be within the exceptions of the <i>Digital Millennium Copyright Act (DMCA)</i>, called <i>Safe Harbor protection</i>, since it was aware of or chose to turn a blind eye to the violations by its users because it in fact benefitted from this, because it brings them more audience and they earn revenue from the higher volume of users.</p> <p>Territoriality: global and the legislation of the <i>Digital Millennium Copyright Act</i> was applied, involving infractions originating from several locations, but occurring in the Youtube environment (whose headquarters is in California) which attracted the U.S. laws to the case, because the headquarters of VIACOM is also in the U.S.</p> <p>Applied law: 17 U.S.C. & sect; 504(c), § 512 safe harbor of the <i>Digital Millennium Copyright Act (DMCA)</i> - requires knowledge and awareness of the repeated infringement and 512(c)(1)(B) of the DMCA.</p>

Decision: in the first instance, all the discussion of the application of the doctrine "Willful blindness" that would be when the offender claims ignorance of the law or of the facts to preclude civil or criminal liability (this argument has been common in cases of internet, especially those of copyright infringement). Although it is known that the term of use of the tool requires the user not to insert content not authorized by the authors (data from third parties), there would be a certain duty of vigilance on the part of the resource provider, since, technically, Youtube generates copies of the videos in a process called "transcoding" and would have a financial gain with this behavior. That is, the use of unauthorized content from third parties attracts users, and this generates revenue, so there is financial exploitation and benefit. The case was appealed but an agreement between the companies in 2014 settled the case.

Source: The Author

Furthermore, how could a user who has legally acquired a work make use of it by applying the doctrine of fair use for purposes of freer use or the means of technological controls imposed on it require that any use other than that provided by the owner requires the user to pay some additional fee or to enforce the exceptions provided in the Copyright Law.

In any case, the doctrine of *fair use* is subject to the limitation of economic damage, ensuring that fair use cannot unjustifiably harm the legitimate interests of the owners or conflict with the exploitation of the database.

In this regard, there is great concern, especially on the part of the European Union, regarding the patrimonial protection of databases as assets that may be appropriated, whether by the intellectual property or by other *sui generis* right and the impact of this on the continuity of innovation, and there are even points of divergence with the North American vision. This is because, in a way, this could make the protection even more comprehensive (restriction to the rights of third parties), since it would not be limited to the doctrine of originality, nor necessarily subject only to human creation considering the advances of Artificial Intelligence.

When the subject goes deeper into the use of databases, there is naturally an intersection with the right to privacy, especially with regard to personal databases. And this has been a very hot topic that tends to grow in importance due to the new personal data

protection regulations that have come into force in several countries, impacting *data driven business* models. As the case below in Table 4 demonstrates:

Table 4 - Analysis of Case Law - Case 4 [2003] 329 F.3d 9 - Pharmatrak

<p>Analysis of case law - Case 4 [2003] 329 F.3d 9 (1st Cir.2003)</p> <p>Location: United States</p> <p>Parties: Rob Barring, Noah Blumofe, Jim Darby, Karen Gassman, Robin McClary, Harris Perlman and Marcus Schroers vs Pharmatrak Inc, Pfizer Inc., Pharmacia Corporation, SmithKline Beecham Corporation, Glaxo Welcome, Inc. e American Home Products Corporation.</p> <p>Main points: In summary, pharmaceutical companies invite their customers to access their websites and learn more about their medicines, in return they offer discounts on medicines. In this case, Pharmatrak Inc. had created a service called "NetCompare" to access the navigation information of internet users and compare their behavior. The pharmaceutical industry, client of the service, was emphatic in saying that it wanted the data anonymized or that the users had to be made aware for reasons of privacy. But it emerged that use of personally identifiable data was verified and the prior and express consent of users was not defined so clearly, which motivated the filing of the action. Due to the use of cookies without notification, it was understood that there was a violation of state and federal law.</p> <p>Territoriality: only the jurisdiction of the State of Massachusetts (USA) was applied despite being related to the Internet.</p> <p>Applied law: Electronic Communication Privacy Act of 1986 (ECPA), 18 U.S.C. § 2511(2)(d).</p> <p>Decision: In the lower court, the Court held that customers in the pharmaceutical industries had consented by contracting with Pharmatrak. However, on appeal, there was a decision that there had been a violation of Title I of the ECPA by Pharmatrak. The main point is that there was no clear privacy policy presented to the user that disclosed to them that there were cookies and that the data would be shared. However, the same Court found that the victims could not demonstrate any evidence that there</p>

was damage to them of at least \$5,000 (five thousand dollars). But due to all the repercussions of the case, Pharmatrak's operations were terminated.

Source: The Author.

There is certainly a greater challenge on the part of companies to have clear and transparent policies on the use of personal data and how its composition is made in the modeling of databases that will be used in analytics, scores, Artificial Intelligence applications. It is almost impossible to develop a machine learning application without the widespread consumption of databases of all kinds (including personal databases).

In the European view, the public interest has prevailed above even the premise of protection of business secrets, professional secrecy and patrimonial protection of databases, which is what is observed in the case on screen in Table 5:

Table 5 - Analysis of Case Law - Case 5 [1985] QB 526 - Lion Lab

<p>Analysis of case law - Case 5 [1985] QB 526</p> <p>Location: European Union</p>
<p>Parties: Lion Laboratories v. Evans</p> <p>Main Points: Lion Laboratories manufactured and marketed the Lion Intoximeter (breath testers) that were used by the police to measure drivers' blood alcohol levels. Two former employees approached the press with four documents taken from Lyon. The documents indicated that the Lion Intoximeter had failures that could have resulted in a significant number of drivers being wrongly convicted. Lion filed lawsuits against its former employees and Express Newspapers Limited to restrict disclosure of the information.</p> <p>Territoriality: England</p> <p>Applied Law: Article 10(2) of the Convention for the Protection of Human Rights and Fundamental Freedoms (1953) (Cmd. 8969).</p> <p>Decision: "Courts shall restrict trust and copyright violations unless there is just cause or excuse to break trust or copyright infringement. The fair cause or excuse this case has is the public interest in confidential information. There is confidential information that the public may be entitled to receive and others, in particular the press, now</p>

extended to the media, may have a right and even a duty to publish, even if the information has been obtained illegally in flagrant breach of trust and regardless of the informant's motive. Employees of Intoximeter manufacturers (breath testers) are not responsible for leaking information that questions the accuracy of the equipment."²⁸⁴(Free Translation). The Lion Laboratories v. Evans case is extremely relevant to the issue of industrial data because it demonstrates that the public interest principle related to misconduct, error, or illegal activity can be used to allow the disclosure of a trade secret and is an exception to copyright infringement.

Source: The Author

On the other hand, the U.S. understanding is more in the sense of protecting business secrets, especially if it involves disclosure of information by former employees, as shown in Table 6:

Table 6 - Analysis of Case Law - Case 6 [2017] Preliminary Injunction - Waymo

<p>Analysis of case law - Case 6 [2017] Preliminary Injunction²⁸⁵</p> <p>Location: United States</p>
<p>Parties: WAYMO LLC v. UBER TECHNOLOGIES INC</p> <p>Main points: The big issue surrounding the case is the evidence incriminating Uber of having hired a former Waymo employee who was in possession of more than 14,000 confidential files related to the company's intellectual property, with all the databases of the autonomous car project (IoT) and who would then break the laws related to business secret protection.</p> <p>Territoriality: U.S. jurisdiction.</p> <p>Applied law: S.1890 - Defend Trade Secrets Act - 2016 (DTSA).</p>

²⁸⁴ Original extract: "However, acquisition, use and disclosure of trade secrets will be lawful where that acquisition, use or disclosure is required or allowed by EU or national law. For instance, rules on whistleblowing may permit the otherwise-unauthorized disclosure of secrets, if their disclosure serves a public interest related to misconduct, wrongdoing or illegal activity". OSBORNE CLARKE LLP. *Legal study on ownership and access to data*. Final report – Study, cit., p. 22-24.

²⁸⁵ This case is very recent and will be further investigated until the thesis is filed. It is extremely important because it involves issues of database use, violation of the Google-owned Waymo company's business secrets by the Uber company. There is still no decision to be attached because there was only preliminary hearing (in progress). Source: OHNSMAN, Alan; DRANGE, Matt. Waymo V. Uber Suit Could Become Criminal Case Following Judge's Referral to Justice Department. *Forbes Staff*, May 11, 2017. Available at: <<https://www.forbes.com/sites/mattdrange/2017/05/11/judge-refers-waymos-uber-lawsuit-to-justice-department-grants-partial-injunction-in-case/#fd93d341ff3>>. Access on: 17 July 2017.

Decision: Not yet tried. The lower court judge accepted Waymo's request to paralyze the operation of the Uber R&D area in the self-driving cars division until the trial.

Source: The Author

As for liability, based on the development of *Big Data* solutions, a series of sophisticated products and services totally dependent on databases (data-based products and services) have emerged from the application of technologies such as the Internet of Things (IoT) and cloud computing. This also contributes to the expansion of the use of Artificial Intelligence (AI), allowing applications of autonomous systems (such as robots) for employment at both industrial and private levels (personal consumption).

In order for all this to be possible, there is a complex interdependence being formed by three distinct layers: 1. *data layer*; 2. *technology layer*; and 3. *apps layer*. This creates a series of actors ranging from sensors, devices to autonomous systems, connectivity networks, data platforms and digital infrastructures.

Anand and Anagha (2015) divide IoT into three major stages: the first when data is collected using sensors; the second when this data is analyzed with the help of complex algorithms; and the third stage is Big Data, capable of analyzing large volumes of data and transmitting the result quickly.

Zanoni (2015) defines Big Data as the relationship, storage, management, visualization, linking and leveraging of large volumes of data along with the tools (software) used to analyze the information.²⁸⁶

If a damage occurs in this context, the legal challenge has been how to establish the roles and responsibilities of each in this value chain, as well as their relationship with the event, their duty of legal compliance and the insurable elements.

Since the liability is directly related to the individual or legal entity responsible for assuming the damage caused to third parties, it is essential to delimit the three types of liability conditions in this digital ecosystem, according to the report on the European Digital Market²⁸⁷: a) contractual; b) non-contractual; c) the product (related to manufacturer liability).

²⁸⁶FREUND, Fabiana Ferreira et al. Novos negócios baseados em internet das coisas (New business based on the Internet of Things), cit., p. 11-12.

²⁸⁷Source: SWD (2016) 110 final, EU-Lex. *Commission Staff Working Document Advancing the Internet of Things in Europe Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions*

Depending on the situation it is quite difficult, when there is a damage resulting from a problem in an IoT device how to properly determine the relationship between the defect and the harmful result.²⁸⁸ Another situation is the use of security systems in smart homes where, in the event of an emergency, there is a duty for the system that locks the doors to have to unlock them, turn on the emergency exit lights and the call the fire department. But if this does not in fact happen, how is it possible to determine whether the failure was the IoT sensors to react to the event, whether it was the data server or even the internet connection?

Therefore, the development of IoT technology has a tendency, from a legal point of view, to create operational interdependence between the manufacturer of the product (device) and the provider of the service or the application. That is to say, it increases systemic risk and joint liability in this type of business model. What leaves some questions remaining: who is responsible for certifying product safety and how to deal with risk and liability management if the technology performs in a unsafe manner and causes damage (how to distribute risk and liability in the value chain)?

And the same applies in the case of autonomous technologies or services, as is already happening with cars and other machine learning applications. The greater the degree of autonomy, the greater the discussion about who is liable and how to delimit the separation of what belongs to the manufacturer, what belongs to the owner and what may or may not be imputed to an eventual "electronic person" (taking into account the personality endowed upon the robotic entity).

In principle, in the countries of the European Union, the law is currently quite clear in the sense that the owners of registered cars are, in the first instance, responsible for accidents caused by their vehicles and obliged to be insured against such an eventuality, according to the *Motor Insurance Directive*. Car owners or the insurer may then have the opportunity to appeal against the vehicle manufacturer if it can be established that the accident was caused by a defect for which the manufacturer is liable under the *Defective Product Directive*. This was confirmed in the recommendations of the GEAR 2030

Digitising European Industry Reaping the full benefits of a Digital Single Market. SWD/2016/0110 final. Available at: <<https://ec.europa.eu/digital-single-market/en/news/staff-working-document-advancing-internet-things-europe>>. Access on: 23 July 2018.

²⁸⁸ Case *Hufford v Samsung Electronics (UK) Ltd.*, 148 the plaintiff failed to demonstrate the causal link and the cause-and-effect relationship that it was the freezer that had generated the fire in his residence.

Commission working group on automated and connected vehicles.²⁸⁹ All of this is intended to ensure legal certainty for the parties involved and to reduce the risks related to the burden of proof.

In Brazil, the major practices have been to recognize only the enforcement of the foreign sentence and the granting of the exequatur of letters rogatory. There is not a national diplomatic initiative to take the lead in the Latin American region or at least in Mercosur regarding the jurisprudential understanding on internet issues as has been the case with the CJEU. Nor has the national legislature seen the regulatory field as an opportunity to boost the digital economy, as has been the approach of the European Parliament, since the one that takes the lead in standardizing regulation on a given subject ultimately leads the market.

Thus, in Brazil, we may observe isolated decisions on extremely relevant matters regarding copyright protection on the internet, with some cases of disputes over the use of databases, as reported in Box 7:

Table 7 – Case Law Analysis - Case 7 (2012) - Webmotors

<p>Analysis of case law - Case 7 (2012)</p> <p>Location: Brazil</p> <p>STJ - ApCiv 20030110899943 - j. 30/5/2012</p>
<p>Parties: Webmotors S/A vs Tecnoworld Tecnologia v Informática Ltda. and others.</p> <p>Main Points: "The Plaintiff, Webmotors S/A, filed an ordinary lawsuit seeking the conviction of the defendants in the obligation to refrain from invading the records of customers stored in its databases, since the alleged abusive practice of Defendants would be affecting its privacy policy, damaging its commercial and financial image, with the enticing of its customers. If the dynamics of the facts denotes the deviation of purpose practiced by the defendant, with respect to obtaining hidden information from customers</p>

²⁸⁹The GEAR 2030 High Level Group gathering the relevant Ministers, Commissioners and stakeholders was set up in October 2015 to make recommendations to the Commission to tackle the future challenges affecting the automotive sector by 2030. On automated and connected vehicles, the goal of the group is to present first recommendations by the end of 2016 (link here below) with final recommendations by mid-2017: COMMISSION launches GEAR 2030 to boost competitiveness and growth in the automotive sector. *Growth: Internal Market, Industry, Entrepreneurship and SMEs*, European Commission, 26/01/2016. Available at:

<http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=8640>. Access on: 23 July 2018.

of a competitor's car sales site and its unethical use, we must recognize the practice of unfair competition.”

Territoriality: 1st Civil Class of the Court of Justice of the Federal District and Territories, Brasilia.

Applied Law: Unfair competition, under the terms of Article 195 of Industrial Property Law No. 9.279/96; Federal Constitution of 1988 unfair competition, without complying with the principles of honesty and commercial correctness.

Decision: “[...]in the present case, all the elements capable of configuring the practice by the defendants of unfair competition are present, through the undue capture of clientele, which caused damage to the plaintiff. In this case, therefore, the author's objections deserve to prosper so that the defendants refrain from invading/accessing the records of customers stored in their databases. In view of the foregoing, I dismiss the interlocutory appeal and **NEGO PROVIMENTO (DENY a MOTION)** for the Defendants to appeal, upholding the sentence for indemnification.”

Source: The Author

But even though the matter of database protection may give rise to discussion regarding the application of intellectual property, what has been observed is that the principle most used in the Brazilian judiciary has been unfair competition. As can be seen from the two following cases, in Tables 8 and 9:

Table 8 – Case Law Analysis - Case 8 (2014) - All Match

<p>Analysis of case law - Case 8 (2014)</p> <p>Place: Brazil</p> <p>Appeal No 0219056-85.2007.8.26.0100</p>
<p>Parties: Apelante All Match Processamento de Dados Ltda and R.M.R. vs Apelada Data Solutions Serviços de Informática Ltda.</p> <p>Main points: "CIVIL RESPONSIBILITY - Unfair competition - Allegation of use of confidential information by defendants - Ownership of the author's programs and its undue access by the defendants verified – Co-defendant who ceased to provide services to the author and became a partner in the accused company, starting to develop a similar activity - Existence of a high degree of similarity in the databases of companies, indicating</p>

that the defendants used information taken from the author and updated it - Defendants who developed their database using as a basis the author's database – A fine is due, as per established in the confidentiality term - Material damages found - Infringement of intellectual property of computer program - Attorneys' fees - Undue reduction - Compliance with the relevant commands of procedural law - Sentence maintained - Article. 252 of RITJSP/2009 - Appeal dismissed."

Territoriality: 1st Chamber of Private Law of the Court of Justice of São Paulo.

Applied Law: Unfair Competition; Article 252 of RITJSP/2009.

Decision: "[...] Due to the foregoing it has been verified that the co-defendant R.M.R. was correctly condemned to pay a fine to the amount of R\$ 100,000.00, as established in the "Declaration and Commitment" (pages 39), signed between him and the author. Furthermore, as noted by the Judge of Law, "once the violation to the intellectual property of computer program owned by the plaintiff is demonstrated, it is necessary to condemn the legal entity to pay losses and damages, since it has been found to be the direct beneficiary of this violation./The amount will be ascertained in a settlement by arbitration and will correspond to the net profit obtained by the defendant in the services rendered that have any relationship with the plaintiff's database or the programs "Data Setting" or "Manager" or "TF/PJ Revenue Research" or "MQEXEC"". (pages 337). ...] AGREEM in the 1st Chamber of Private Law of the Court of Justice of São Paulo, to render the following decision: "They dismissed the appeal. V. U.”

Source: The Author.

Table 9 - Analysis of Case Law - Case 9 (2017) - Jr do Brasil

Analysis of case law - Case 9 (2017)

Location: Brazil

Appeal No 0029835-79.2013.8.26.0001

Parties: Apelante Jr Do Brasil Comercio De Ferramentas Ltda - Epp, vs Apelado Silva & Lopes Do Brasil Comercio De Ferragens E Ferramentas Ltda - EPP.

Main points: Compensation. Allegation of unfair competition. Enticement of clientele and theft of the author's client database by a partner of the defendant, who was its employee. No proof. Burden of proof of the author. Oral and documentary evidence that did not prove the initial claim. Rejection upheld. Appeal not granted.

Territoriality: Court of Justice of the State of São Paulo.

Applied Law: Article 373 of the Code of Civil Procedure.

Decision: "Thus, there was no evidence of any act of unfair competition practiced by the defendant against the plaintiff, there was no other solution to the dispute than the dismissal of the request, as the decision rightly judged the request. For the foregoing, NEGOTIAMENTO (DENY a MOTION) for the appeal, and increase the honorary amount of the attorney's fees to 15% of the value of the case (article 85, paragraph 11, NCPC).".

The judgments presented demonstrate the importance of the production of evidence through expert examination to configure unfair competition when it comes to invasion or unauthorized access to the database. The use of the constitutional principles of honesty and commercial correctness ends up being a way of trying to conceptualize the term "unfair competition".

Source: The Author

In addition, the Courts have also faced issues related to the protection of privacy, in the case of *the right to be forgotten*, but still a long way from being consolidated enough to create a regional reference. If we observe, there is no Inter-American Convention or Mercosur Protocol on issues related to Electronic Commerce, Intellectual Property on the Internet, Privacy and Data Protection. Except in matters of Human Rights, which in fact the region has managed to advance since the American Convention on Human Rights of 1969 (Pact of San José) and the Vienna Declaration of 1993.

The limitations regarding the intellectual property concept have motivated database producers to become more innovative in the development of strategies and protection mechanisms, especially with three approaches: (1) increase the structure of databases and/or their content to incorporate a greater element of creativity/originality; (2) increase legal shielding through contracts with more specific clauses on databases and (3) apply technological safeguards to prevent unauthorized access and use (improve controls over databases).

Finally, it is clear that there are still paradigms to be overcome regarding the adaptation of laws when it comes to the definition of liability in automated decision making in contracts between machines (as occurs with the use of *Smart Contract and Blockchain*),

which has seen an increase of applications available for the Stock Exchanges, Auctions, Agribusiness, among others.

CONCLUSION

The objective of this work was to investigate possible responses to the problem related to the need to ensure a system of protection of databases on artificial intelligence considering the relevant rules and principles of Private International Law and Intellectual Property as well as to identify new approaches and spaces for the creation of possible new legal structures that could better serve the socio-economic complexity of current business models and public and private order aspirations aiming ultimately to stimulate innovation but in compliance with values that protect human dignity and the free flow of data

Accordingly, a number of solutions have been sought to create a legal framework that could be better adapted to the current data economy by removing the remaining barriers to the movement of data and resolving the legal uncertainties created by new data technologies.

Will it be possible to achieve the objective of private international law, to advance the internationalization of values, in order to harmonize guarantees for the entire globalized community of the "digital society" that is connected in a single large network called "internet" with the free flow of data between countries?

A good way to summarize all the above is with one of the teachings of José de Oliveira Ascensão:²⁹⁰ "[...] who dominates the information dominates the world". This is what the Information Society is, a great struggle for property, for access, for use, for data control. And whoever holds it will have the power.

According to all the research undertaken to develop this work, the theme of the databases allows, due to their richness and scope, the application of all PIL sources of as a whole, including those listed in Article 38 of the Statute of the International Court of Justice.

²⁹¹

Considering the historical, comparative and evolutionary analysis of the legal concepts of Private International Law and Intellectual Rights, it is worth highlighting the fact

²⁹⁰ASCENSÃO, José de Oliveira. Sociedade da informação e mundo globalizado (Information society and a globalized world), cit., p. 19.

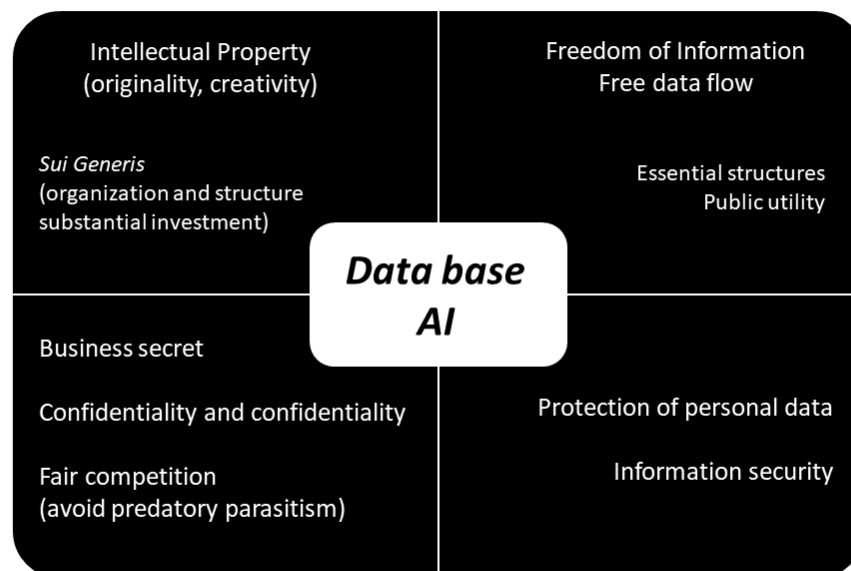
²⁹¹Statute of the International Court of Justice, article 38: "The Court, whose function is to rule on disputes submitted to it in accordance with international law, shall apply: a. international conventions, whether general or special, which establish rules expressly recognized by the litigating States; b. international custom, as proof of a general practice accepted as law; c. the general principles of law recognized by civilized nations; d. subject to the provision of Article 59, the judicial decisions and the doctrine of the most qualified jurists of the different nations, as an auxiliary means for determining the rules of law. This provision shall be without prejudice to the Court's power to decide a matter *ex aequo et bono*, if the parties so agree".

that the assets involved in a context of artificial intelligence consist of: i) Brand; ii) Algorithm (software); iii) Primary database (not endowed with creativity but with unique elements of organization and structure); iv) Machine learning methodology; v) Interface/design (illustration or industrial design); vi) Know-how and business secret; vii) Secondary database (endowed with elements of creativity attributed by machine learning due to the application of analytics).

There are, therefore, several elements that are already, in isolation, subject to protection by the principle of Intellectual Rights, demonstrating that it would then be more appropriate for the protection to continue to be handled as intellectual property with a hybrid formatting composed of patentable elements and other elements more affected by copyright protection.

Figure 10 shows a summary table of all the rights involved in the legal protection of databases, so that it is possible to understand their complexity and magnitude:

Figure 10 - Risk and Safeguard Matrix for AI Databases



Source: The Author

Émile Durkheim (1893, 1895), one of the founders of sociology, who coined the term "collective consciousness," stated that the individual is the fruit of the pressures of society,

and that is the reason many of their ways of dealing with others are of collective and not only individual origin.

In the field of intellectual rights, as Landes and Posner assert,²⁹² the basic principle of intellectual property is the specialty of protection, since it is not possible to appropriate what is already in common domain. And thus, an exclusive right is granted to the one who holds the intellectual rights, thus generating limitations or excluding rights for the others.

Furthermore, the guiding rule is the principle of correction, that is, the protection of intellectual property should never be impeded so that someone can participate and compete in a certain market, but the conditions for their entry are that it must be based on a set of rules for it to be done correctly. There is, then, a whole system designed to achieve a certain social, cultural and economic balance.

And this formula must be applied with coherence and consistency. For this reason, Society could in no way seek to make a leap of progress at the expense of private property. It would be the same as saying that in order to promote social well-being, legitimate private ownership of land should be removed. History has rightly shown that progress must go hand in hand with the legal certainty of social and business relations. It is very difficult to conceive of creative freedom and its partnership with private initiative unless it is backed by the security guaranteed by the institutions and the state.

The learning that each robotized entity must achieve, whether alone or in a network (connected to its peers) must be protected under the umbrella of private property (business or personal) and with legal reinforcements related to the safeguards given to intellectual assets until the depreciation of this important asset is avoided under the justification of increased protection of privacy as new regulations on personal data emerge.

The invention process that goes through the stages of discovery, creation, improvement in the cycle known as "PDCA" requires for the improvement of the innovation the appropriation of the final result of the knowledge generated by the process, which is a legitimate gain for whoever has invested their efforts to invent something. Even if this has, as it always has, a temporal limitation, i.e., a term of protection limited in time in accordance with the interests of society in which technological development plays a social role.

²⁹²LANDES, William M.; POSNER, Richard A. *The economic structure of intellectual property law*, cit., p. 70-222.

In other words, it is preferable from the point of view of legal certainty to apply public measures that encourage the sharing of results with research centers or third parties, as occurs in the provisions of articles 218 and 219 of the Brazilian Federal Constitution,²⁹³ with the revision given by Constitutional Amendment 85/2015, Innovation Law 13.243/2016 and Digital Transformation Decree 9.319/2018.

Therefore, with all of the above in mind, is there in fact a need for the human requirement for the protection of databases? The vast majority of the time the creations will be entrepreneurial and it is therefore feasible to confer protection to the rights of legal entities.

However, the complex situation in the data industry raises the big problem of precisely who owns the data and who is liable. After all, if there are opportunities for business, there are risks of two kinds: the known ones, where the duty is to prevent and not to make reparation, and the unknown ones where the duty is to take precautions.

And if, due to the risk, an event occurs that causes damage,²⁹⁴ it will have to be compensated. The point is that in the current context, in which multiple rules are confused so that there are none that are applied (null effect), it is difficult to understand the very relationships between the parties, and who has an obligation to do what for whom. And for this reason, even with the legal protection of this business ecosystem, with the application of insurance, the rules need to be clearer.

²⁹³Federal Constitution of 1988, Art. 218. The State shall promote and encourage scientific development, research, scientific and technological training and innovation.

§ Paragraph 1. Basic and technological scientific research shall receive priority treatment from the State, taking into account the public good and the progress of science, technology and innovation.

§ 2. Technological research will focus mainly on the solution of Brazilian problems and on the development of the national and regional productive system.

§ 3. The State will support the formation of human resources in the areas of science, research, technology and innovation, including through the support of technological extension activities, and will grant to those who deal with them special means and conditions of work.

§ 4. The law shall support and stimulate companies that invest in research, creation of technology appropriate to the country, training and improvement of their human resources and that practice systems of remuneration that ensure the employee, disconnected from the salary, participation in economic gains resulting from the productivity of their work.

§5. The States and the Federal District are authorized to link part of their budgetary revenue to public entities that promote teaching and scientific and technological research.

§ 6° The State, in the execution of the activities foreseen in the heading, will stimulate the articulation between entities, both public and private, in the various spheres of government.

§ 7. The State shall promote and encourage the performance abroad of public institutions of science, technology and innovation, with a view to carrying out the activities provided for in the heading.

²⁹⁴Damage is an injury to a legally protected interest. Therefore, it covers off-balance sheet characteristics. That is why we have: moral damage, aesthetic damage, material damage, social damage. According to article 944 of the Brazilian Civil Code, compensation is measured according to the extent of the damage. Therefore, it has two natures: compensatory and punitive. With the idea of prevention and precaution.

It is important to emphasize, in the case of databases, especially with those more embedded in the scenario of the Internet of Things and intelligent cities, there is still the possibility of the occurrence of "social damage", which as Professor Antonio Junqueira de Azevedo says,²⁹⁵ would be a figure that is not only harmful to the material or moral heritage of the victim, but reaches the whole society, an immediate lowering of the standard of living of the population, an interpretation of Article 944 of the Brazilian Civil Code.

The final result of the equation is that, not being able to protect property with the correct legal measures, without having the instruments to calculate the consequences, or even being able to determine who is liable, there is a direct impact on the accident rate, that is, there is a distribution of risk to all. It is the socialization of risk as a substitute for civil liability. Thus, in the near future, there could be a collective bill to pay because of regulatory inertia.

It is imperative to have at least one commitment to protecting the natural digital resources essential to the sustainability of the "digital society" (natural digital resources essential), including the protection of databases.

Could the Hague Conference take up the role of harmonizing and unifying the issue of databases? It is an intergovernmental organization made up of more than 60 member states that meet periodically to negotiate treaties with the general objective of "progressive unification of private international law."

We do not want to repeat a new Bustamente Code for the digital environment, but certainly, given that doctrine plays an important role in the practice of private international law, we hope that this study can serve as an academic basis for the demands for regulating legal relations, which have effects in more than one country on new technologies and with the growing relevance of databases as an essential resource for the "digital society".

Or could the Institute of International Law (IDI) take on the role of developing general principles on this matter, considering the Institute's objectives? For the design of a Soft Law that could guide lawyers in the international practice of the subject that is so complex, multifaceted and full of transnational specifics. After all, in recent years ILI has

²⁹⁵JUNQUEIRA DE AZEVEDO, Antonio. Por uma nova categoria de dano na responsabilidade civil: o dano social. *Revista trimestral de Direito Civil (For a new category of damage in civil liability: social damage. Quarterly Journal of Civil Law)* Rio de Janeiro, v. 5, n. 19, p. 216, July/Sept.2004.

been dedicated to publishing several Resolutions²⁹⁶ with the purpose of supporting the standardization of international private law.

In addition, this task could be undertaken by the International Institute for the Unification of Private Law (UNIDROIT) or the United Nations Commission on International Trade Law (UNCITRAL), for sure, any of these international organizations would have complete competence to take the lead in the advancement of this agenda more adequately than the national supervision by states, given the international nature of the Internet.

According to Maristela Basso:

[...] the constitutional interpretation of the PIL also serves to identify and verify the pluralism of civil rights in national legal systems. With this, it is possible to guarantee in PIL the respect for the most varied sources of law and the coexistence of rules of different legal systems that regulate facts covered with transactional connection and generate immediate territorial and extraterritorial effects.²⁹⁷

Any proposal for self-regulation should involve: voluntary participation; rules should be developed in conjunction with members of the productive sector (industry) to ensure that they are more effective and there is a greater commitment to compliance; there should be a direct channel of complaints to report violations of the rules and an alternative dispute resolution model (ADRs) should be set up.

According to Chris Reed,²⁹⁸ the cross-border nature of the Internet poses two types of challenges for the construction of any regulation, especially on databases: (i) national laws that control how information is handled with respect to information as a good (property), or as personal data becomes less significant and relevant or even impossible to enforce; (ii) the multiplicity of overlaps of applicable laws and jurisdictions in a particular case make it subject to contradictory regulations or no regulation at all.

We must avoid a situation in which there is too much regression of status in private international law. It is necessary to look for ways to enable debate in a broader forum for the discussion of new technological issues the impact of which go beyond national and regional borders and calls for remedial measures at a more globalized level. Despite the European Union's successful initiatives in addressing digital issues such as copyright, e-commerce and

²⁹⁶Example of IDI Resolution: Resolution II on conflict of laws in commercial matters, adopted at the Turin Session of September 12, 1882.

²⁹⁷BASSO, Maristela. *Curso de direito internacional privado (Course of International Private Law)*, cit., p. 24.

²⁹⁸REED, Chris. *Internet law: text and materials*, cit., p. 308.

personal data protection, there is a regional limitation. Perhaps a more multilateral space such as the United Nations (UN) or another international body of the same scope should be the solution.

We must be very careful about any tendency of "Europeanization" or even "westernization" of the rules that have an impact on the Global Digital Economy, as well as limiting it to a bilateral or national treatment of issues of great repercussion for the international community, since intellectual property is a human rights issue and it has been shown that data are a resource as essential for the "information society" of the 21st century as was water for post-industrial society.

The universality of cross-border exchanges through digital media requires special treatment, new principles, updated rules debated in an international forum and a more appropriate dispute settlement procedure than the application of the *lex fori* rule and the use of local courts.

Certainly, there is a legitimate concern with the competition within this dynamic of international data flows and the exchange of intellectual assets without borders, as Luis Silva Morais teaches:

Given the latitude of the potential problems at stake, this Inquiry will also be a very sensitive component of this set of initiatives aimed at the effort of the "Digital Single Market for Europe", not least because the business groups that will be predominantly targeted will be large groups operating in the Internet universe coming from the USA [...] not having so far been especially targeted by the US antitrust rules, *maxime* in terms of '*monopolization*' which represents in some way the regulatory parallel, although with certain limits, to the abuse of dominant position regime under EU competition law).²⁹⁹

Therefore, it is understandable why the protection should come under international law, because the local approach is not sufficient. It makes sense to follow the principles introduced by TRIPs to solve the issues of digital intellectual property.

In an enlightening summary Maristela Basso explains the importance of these principles, which arise since GATT, with CUP and CUB, going through TRIPs and reaching the Patent Cooperation Treat - WIPO (PCT), among them: national

²⁹⁹MORAIS, Luis Silva. Sociedade da Informação, mercados digitais, direito de autor e concorrência – É chegada a hora de uma grande reforma europeia? (Information society, digital markets, copyright and competition - Is it time for a major European reform?) In: VICENTE, Dario Moura et al. *Estudos de direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária* (Studies of intellectual law in honour of Prof. Dr. José de Oliveira Ascensão: 50 years on university life). Coimbra: Almedina, 2016. p. 395.

treatment;³⁰⁰ independence of registrations, most favored nation, minimum protection (*single undertake*), international exhaustion of rights, transparency, mutual international cooperation, absolute patentability, evolutionary interpretation, compulsory license). The whole logic of the international system is for the cooperation of the member states, especially outside the limits of their territories. This is the real incentive for them to join the United Nations constellation model. In the economic context of the twentieth century and XXI cooperation and integration have become extremely necessary strategies.³⁰¹

In the same way, Maristela Basso complements by explaining that the States party to GATT since 1994 recognize as absolutely necessary the establishment of adequate standards and principles related to the existence, scope and exercise of intellectual property rights related to trade and the implementation of effective and appropriate means for the application of rules of protection of intellectual property rights related to trade, taking into account the existing differences between the national legal systems, within a system of flexibility. Similarly, Maristela Basso elaborates by explaining that the States party to the GATT since 1994 recognize as absolutely necessary the establishment of adequate standards and principles concerning the existence, scope and exercise of trade-related intellectual property rights and the establishment of effective and appropriate means for the enforcement of trade-related intellectual property rights protection to reflect differences in national legal systems, within a framework of flexibility.³⁰²

For Miguel Reale the regulatory issue involves an arduous continuous and evolutionary work that must accompany the change of reality:

The standardization, therefore, therefore, is not a brain work or imaginative fruit of an arbitrary will, but the result of a positive analysis of empirical data, an analysis that always culminates in an act of decision, in the choice of one of two or more possible solutions. Structural realities are inseparable from their constructive and expansive paths, because, ultimately, with them they make body, being as they are, their concrete forms.³⁰³

³⁰⁰GATT 477, articles I and III; TRIPS, article 3,1; 4°; 6°, 63, 2, 67, 69.

³⁰¹Class given by Professor Maristela Basso note dated 22.08.2016

³⁰² Class given by Professor Maristela Basso note dated 26.09.2016

³⁰³REALE, Miguel. *Direito como experiência (Law with experience)*. São Paulo: Saraiva, 1992. p. 147.

The consequences of the late recognition that digital society is international and globalized can be extremely disastrous and the legal barriers that are now being built can become insurmountable.

It can be concluded, within a general conceptual view, that in fact, issues involving databases are suited to be addressed by Private International Law, thus making it easier to deal with the rules of conflict of laws that will necessarily occur due to their transnationality.

In addition, it has been observed that public participation in the development of policies on the use of databases has been increasing, because there is a great public interest involved and also issues related to consumer and competition law, which justify more state intervention on the subject, its being dealt with merely by contractual law not being sufficient.

In any case, there is a large margin for action and enforcement of contracts, especially with regard to business secrets, confidentiality and protection of personal data (privacy policy rules for partners and third parties).

According to the teachings of Leonardo Barém Leite:

[...] the evolution of the legal treatment granted to the legal entity, especially in relation to the attributes of its personality, has sensitive effects on Intellectual Property. Currently, in view of the change in the creative process and its dynamics, the legal entity plays an essential role in the conception of intellectual works that communicate with society.³⁰⁴

In this sense, probably one of the quickest and most short-term solutions would be the use of the technological measures model (as has already been done with the Millennium Act and Phonograms Directive), in which confidentiality is protected (business secret and privacy) with a layer of technology and it is prohibited to neutralize the technological measures. If it cannot protect the content of databases, since the current legislation only protects their structure (organization) and even so, in two types of scenarios, when there is originality (creativity) copyright applies, and when there is not, the protection of *sui generis* applies (but which is neither harmonized nor uniform, as has been seen).

With regard to infringements, the analysis of the cases presented would, in principle, be better dealt with if the *lex loci* principle were applied. And where the infraction becomes

³⁰⁴LEITE, Leonardo Barém. O direito dos negócios e a propriedade intelectual (The Law of business and intellectual property), cit., p. 160.

very pervasive, due to the territorial challenges of the absence of internet borders, there may be a clause that determines the application of soft law to decide the case, with guidance based on the principles of ALI or CLIP, or something new that is created only for databases, since there is a tendency to have very different results and decisions, depending on whether it is from the perspective of the United States or the European Union.

This means that, if the possibility of an international articulation for a hard law type regulation is not feasible, it is proposed, at least, the making of a soft law on mandatory contractual clauses which should be applied in the relations involving the databases (Mandatory clause contracts), inspired by the CLIP and ALI principles, but also by the European Directive of Abusive Clauses.

As for the practical application of the thesis to Brazilian law, it is high time the copyright law, in force since 1996, was revised and, for sure, the issue of database protection will deserve special attention, especially in relation to the protection of *sui generis*, articles 11, 22 and 87.

Having said that, it is expected that this thesis will serve as a doctrinal support for future regulatory improvements, or even, as long as there is no improvement in the law and the gaps persist, that may contribute to the guidance of judges for a more adequate treatment of the issue in concrete cases.

Therefore, the ideal would be to propose that the databases be treated as a type of essential natural resource (natural digital resources), to justify the adoption of an international treaty that relies on a bigger vision than that of just the discussion of property, that of the Sustainability of the Digital Society, which is based on the pillars: guarantee of energy sources, right of access to the internet (connection) as an essential right, protection of databases and guarantee of freedom of information (balance all rights involved with access and use of data, industrial property, economic exploitation, confidentiality, business secret, consumer, competition, testing two rights), information security.

Without a doubt, the possibility of being able to deal with the rights of use and access to databases in an international discussion forum for the elaboration of an updated treaty on the multilateral issue would be the best and most effective solution, which could even result in a model of dispute resolution in the ADRs model, through a Supranational Entity. But, as explained and examined in this research, this will still require a great debate, and the other proposals for solutions may contribute to build the steps to reach this final result.

This could make it possible to better balance all the rights involved, such as the protection of industrial patrimony, access and use of data, economic exploitation, confidentiality, business secrecy, consumer guarantees, protection of competition and information security.

In this sense, it has become clear that the European Parliament's current vision is that for the dynamism and smooth functioning of a data economy, it is necessary to authorize and protect the movement of data within the European internal market in order to guarantee the protection of the four fundamental freedoms of the European Union's single market already enshrined in the Treaties (goods, workers, services and capital). One of the greatest sources of concern has been about the geographical location of data creating barriers to its movement.

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Furthermore, there are still privacy concerns, but they do not constitute an excuse to restrict the free movement of data in an unreasonable way. As already mentioned, the GDPR foresees that throughout the EU there is a single set of rules with a high level of protection of personal data. It enhances consumer confidence in online services and ensures a uniform application of the rules in all Member States by strengthening the powers of national data protection authorities. GDPR provides the necessary confidence for data processing and forms the basis for the free movement of personal data within the EU. GDPR prohibits restrictions to the free movement of personal data within the Union for reasons related to the protection of personal data.³⁰⁶

Unfortunately, the research showed a trend on both the US and European sides towards greater data location, an approach often based on the false idea that localized services are automatically more secure than cross-border services.

In addition, the market for data services is influenced to a large extent by the lack of transparent rules and a strong perception of the need for data location. This may limit the access of companies and public sector organizations to cheaper or more innovative data

³⁰⁵Source: PUBLIC consultation on Building the European Data Economy. *Digital Single Market*. Consultation, 10 January 2017 to 26 April 2017. Available at: <<https://ec.europa.eu/digital-single-market/news-redirect/52039>>. Access on: 24 July. 2018.

³⁰⁶Article 1(3) For example, a dynamic IP address registered by a provider of online media services when a person consults a website which that provider makes available to the public constitutes personal data in relation to that provider, where that provider has legal means of identifying the person concerned on the basis of additional information available to that person's internet provider. See judgment in Case C-582/14, Breyer, ECLI:EU:C:2016:779, paragraph 49.

services, or force companies operating across borders to provide excessive data storage and processing capacities. This could also prevent data-driven businesses, in particular new businesses, Startups and SMEs, from expanding their activities and entering new markets.

Automatically generated 'raw data' would not, at first sight, be eligible for protection by existing intellectual property rights under the current legislation under review, as they are not considered to be the result of an intellectual effort and/or have no degree of originality. The *sui generis* right provided for in the Directive on the legal protection of databases (Directive 96/9/EC) - which grants manufacturers of databases the right to prevent the extraction and/or full or substantial reuse of the contents of a database - for its part, ensure a degree of protection only on condition that the creation of such a database entails a substantial investment in the obtaining, verification or presentation of its contents..

The Directive on the protection of trade secrets (EU Directive 2016/943) could provide a layer of protection to the trade secret against its unlawful acquisition, use and disclosure. In the meantime, for data to be considered a trade secret, measures must be taken to protect the confidentiality of the information, which constitutes a company's intellectual capital.

Thus, under the comparative laws, legal actions against data only apply if they meet certain specific conditions to be classified, for example, as an intellectual property right, a database right or a trade secret.

Consequently, there are currently no comprehensive policy frameworks either at national or international level for automatically generated raw data that does not qualify as personal data, or for the conditions of their respectful economic exploitation. Therefore, the issue is largely entrusted to contractual solutions.

But the problem with leaving everything to contracts is that it tends to be unbalanced, especially as these relations often involve the application of adherence clauses.

That is, the different market players that control the data, depending on the specifics of each segment, can take advantage of existing gaps in the regulatory framework, or of the legal uncertainties described above, by imposing unfair standard contractual clauses on data users or through limiting technical means, such as their own formats or the use of encryption.

Thus, an alternative would be the creation of a regulation that could address the issue within a focus notably on what would be considered abusive in contracts related to Data

Market Providers and Users, especially for IoT and Artificial Intelligence applications, inspired by the precedent already set by Directive 97/7/EC and 97/13/EEC that deals with unfair terms in adhesion contracts.

Certainly, the best alternative would be to deal with the issue of ensuring access to automatically generated data and the legal protection of databases resulting from Artificial Intelligence applications (machine learning) within a coordinated approach at International Treaty level, precisely in order to avoid fragmentation country by country or even by regions, since this would be detrimental to the development of the data economy in global terms, with consequences in all member states, since the internet from its inception has had an international and cross-border nature stimulating a globalized market for the supply of products and services.

Therefore, some best practices can be summarized for the purpose of the most adequate analysis of the matter:

- a) Making databases more creative in order to increase the likelihood of copyright protection by bringing, in addition to the selection of facts, also analysis indicators (analytics) so that there is an application of inventiveness (creativity, originality);
- b) Improve access to automatically generated anonymous data (generated by machines) through the creation of rules for sharing, reuse and aggregation;
- c) Apply more specific contractual clauses to meet the need of covering current gaps. For example, the one that deals with rights to machine learning:

MACHINE LEARNING. THE SERVICE PROVIDER is the only holder and owner and owner of any systemic learning occurred in the scope of the Software by means of artificial intelligence parameterized or neural, which make up the knowledge base learned, resulting from the application of the analytics algorithm, prediction, deduction and inference, without implying any violation of the rights to confidential information, business secrets, protection of personal data related to THE CONTRACTING PARTY. its employees, customers and / or users, which make up the primary database

- d) Implement Terms of Use in the data platforms for the purpose of establishing more clearly and transparently the limits and conditions of use of the databases:

You have received a non-exclusive and non-transferable limited license that confers rights of use and access for research purposes in the online platform of digital content and repositories. This license confers the right of online use (viewing and access) in electronic format, by you, NOT INCLUDING the rights of reproduction, local storage, printing, capture for publication on the Internet, social media or other digital platforms and/or distribution to third parties, assignment or transfer to relatives and/or heirs.

- e) Pricing policy that may give differentiated treatment to the types of license according to the types of rights of use granted to the databases;
- f) Technological safeguards with the adoption of technical measures that can support the management and control of use and access to databases as well as the guarantee of confidentiality (when the premise of business secrecy is needed or to meet the regulations for protection of personal data and cyber security);
- g) Introduce a non-legislative approach through self-regulation with the adoption of recommendations for best practices in ISO standardization, certification and/or creation of *Guidelines (Soft law)* developed by the market itself;
- h) Conclude an International Treaty on the subject of ethics, the principle of property protection and liability in Artificial Intelligence applications.

Finally, from the point of view of the legal approach on databases and software, the view of law has been very limited when compared simply with literary works and/or with compilations (such as encyclopedias and anthologies). Certainly, the level of development of digital technologies presented both in the innovative perception of the Internet of Things (IoT) and Artificial Intelligence, already demonstrates that it will be necessary to address the issue again to develop solution to match the complexity of the issue. Reducing the analysis to an analysis of whether or not there are elements of human creativity is to oversimplify from the methodological point of view what is today this innovative business model that has a unique interdependence between the databases and the product or service solution that will be offered to the market.

To determine that the copyright or patent registration will be refused if there is no original authorship, and what this means exactly when we move forward in the use of machine learning with apprentice algorithms and autonomous applications with

conversational assistants and robots, is to leave the whole new data economy and robotization at the mercy of an immense legal uncertainty.

Certainly, in the era of industry 4.0, of the sharing economy, of the open society, the application of the originality standard as the only method is no longer consistent with the current reality, and at the very least a hybrid method should be adopted, which considers the efforts (investments of resources and time), and restrains the practices of unfair competition or abuse by the users themselves (use outside the limits determined by the license).

Criteria should be created in order to avoid the appropriation of raw data, since this would be the same as allowing someone to appropriate the "oxygen of the planet". Remembering that every property always involves not only rights, but also exclusions. To use an analogy, protecting those who apply resources to guarantee qualitative data with the application of intelligence would be the equivalent of protecting those who are capable of producing "drinking water" (collect, sanitize, qualify, improve and deliver within standards for safe consumption).

Finally, there is the question of the duration of protection, whatever the type of right to be granted to the databases in IoT and Artificial Intelligence applications, what should be the time granted to the protection of property or to guarantee the right to use and access the data? In a comparative analysis, the United States proposal has been around 25 years (longer duration) and the European Union around 15 years. The Nordic countries, on the other hand, have suggested that it should not exceed 10 years within a doctrine of "*misappropriation*". Considering the importance of harmonizing the free flow of data with the need to return the investment made, the suggestion is that it should be for the shortest possible term tending to equal the patent term due to the industrial applications of both the IoT and the AI.

It is believed, frankly, that the best proposal to respond to the problem of database protection in an Internet of Things and Artificial Intelligence scenario will continue to rest within intellectual property, but, if possible, with a more international approach adopting the law of treaties, technological safeguard measures and the use of an international dispute settlement forum, with the possibility of using alternative methods such as mediation and arbitration.

To conclude, I would like to take advantage of the words of Chris Reed, who for more than 30 years has been widening his study on how to regulate the internet, and who says that it is extremely difficult for a company or individual to act totally within the law on

the internet, when it trades globally. Because the laws applicable to the internet have chosen the path of being national (local) laws, at some point it will be breaking some law somewhere. And the worst thing is that if one of the reasons to have a legal system is to have a behavior control system, then this lack of uniformity ends up generating just the opposite, the loss of control.³⁰⁷

³⁰⁷REED, Chris. *Making laws for cyberspace*. United Kingdom: Oxford, 2012. Prologue, p. 8-9.

REFERENCES

ABRÃO, Eliane Y. *Direitos de autor e direitos conexos (Copyright and related rights)*. São Paulo: Lumen Juris, Ebook, 2014.

ALMEIDA, Carlos Ferreira de; CARVALHO, Jorge Morais. *Introdução ao direito comparado (Introduction to Comparative Law)*. 3. ed. Coimbra: Almedina, 2013

ALPA, Guido. *Da boa-fé no direito civil (Good faith in civil law)*. Coimbra: Almedina, 2007.

AMERICAN LAW INSTITUTE. *Intellectual property: principles governing jurisdiction, choice of law and judgments in transnational disputes*. Philadelphia, EUA: American Law Institute, 2008.

APPLE. Apple users in the EU can now download all the info the company has on them. *The Verge*, May 23, 2018. Available at: <https://www.theverge.com/2018/5/23/17383692/eu-apple-users-id-privacy-portal-gdpr>. Access on: 30 June 2018.

ARKIN, Ronald C. Ethics and Autonomous Systems: Perils and Promises. *Proceedings of the IEEE*, v. 104, n. 10, p. 1779-1781, Oct. 2016. Available at: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7571204>. Access on: 24 July 2018.

ASCENSÃO, José de Oliveira. Bases de dados eletrônicas: o estado da questão em Portugal e na Europa (Electronic databases: the state of the art in Portugal and Europe). In: DIREITO da sociedade da informação (LAW in the information Society). Coimbra: Ed. Coimbra, 2002. v. 3.

_____. *Concorrência desleal (Unfair competition)*. Coimbra: Almedina, 2002.

_____. *Propriedade intelectual e internet (Intellectual property and internet)*. 2014. p. 8. Available at: <http://www.fd.ulisboa.pt/wp-content/uploads/2014/12/Ascensao-Jose-PROPRIEDADE-INTELECTUAL-E-INTERNET.pdf>. Access on: 10 July 2017.

_____. Sociedade da informação e mundo globalizado (The Information society and a globalized world). In: WACHOWICZ, Marcos (Coord.). *Propriedade Intelectual & Internet (Intellectual Property & Internet)*. 1. ed. (2002), 4. tir. Curitiba: Juruá, 2005. . In: WACHOWICZ, Marcos (Coord.).

BARBOSA, Denis Borges. *Limites do direito de patente (Limits of patent rights)*. 2002. Available at: <http://www.denisbarbosa.addr.com/103.rtf>. Access on: 10 July 2017.

_____. *Uma introdução à propriedade intelectual (An introduction to intellectual property)*. São Paulo: Lumen Juris, 2010.

BARLOW, John P. The economy of ideas. *Wired online*, 2 Mar. 1994. Available at: <<http://homes.eff.org/~barlow/EconomyOfIdeas.html>>. Access on: 13 July 2017.

BARRIUSO RUIZ, Carlos. *La contratación eletrônica (Electronic contracting)* Madrid: Dykinson, 2002.

BARROSO, Luis Roberto. A Constituição e o conflito de normas no espaço. Direito Constitucional Internacional (The Constitution and the conflict of norms in space. International Constitutional Law). *Revista da Faculdade de Direito da Universidade do Estado do Rio de Janeiro, (Journal of the Law School of the State University of Rio de Janeiro)* Rio de Janeiro, n. 4, p. 201-230, 1996.

BARTHE, Emmanuel. *Intelligence artificielle en droit: derrière la “hype”, la réalité. Un blog pour l’information juridique, (Artificial Intelligence in Law: the “hype”, the reality. A blog for legal information)* Nov. 2017. Available at: <<http://www.precisement.org/blog/Intelligence-artificielle-en-droit-derriere-la-hype-la-realite.html#definir>>. Access on: 17 Nov. 2018.

BASEDOW, Jürgen. Foundations of private international law in intellectual property. In: BASEDOW, Jürgen; KONO, Toshiyuki; METZGER, Axel (Eds.). *Intellectual property in the global arena: jurisdiction, applicable law, and the recognition of judgments in Europe, Japan and the US*. Tübingen: Mohr Siebeck, 2010.

BASSO, Maristela. *Curso de direito internacional privado (Course of International Private Law)*. 3. ed. São Paulo: Atlas, 2013.

BERNERS-LEE, Tim. *Weaving the Web: the original design of the World Wide Web by its inventor – Tim Berners-Lee with Mark Fischetti*. New York: Harpercollins, 2000.

BITTAR, Carlos Alberto. *Direito de autor (Copyright Law)*. 6. ed. rev. atual. e ampl. Por Eduardo C. B. Bittar. Rio de Janeiro: Forense, Ebook, 2015.

BOBBIO, Norberto. *A era dos direitos (The age of rights)*. Tradução de Carlos Nelson Coutinho. Rio de Janeiro: Campus, 2010.

BRASIL. Senado Federal. Secretaria de Informação Legislativa (Secretariat of Legislative Information). *Lei nº 13.709, de 14 de agosto de 2018 (Law No. 13.709, of August 14, 2018.)*. Dispõe sobre a proteção de dados pessoais e altera a Lei nº 12.965, de 23 de abril de 2014 (Marco Civil da Internet) Provides for the protection of personal data and amends Law No. 12.965, of April 23, 2014 (Civil Framework of the Internet)). Available at: <<http://legis.senado.leg.br/legislacao/ListaTextoSigen.action?norma=27457334&id=27457354&idBinario=27457731&mime=application/rtf>>. Access on: 17 Aug. 2018.

BYGRAVE, L. A. *Internet governance by contract*. 2nd ed. Oxford: United Kingdom: Oxford University Press, 2015.

CALIFORNIA passes Sweeping Law to protect online privacy. Available at: <https://www.nytimes.com/2018/06/28/technology/california-online-privacy-law.html>. Access on: 30 June 2018.

CANTNER, Uwe. Industrial dynamics and evolution – the role of innovation, competences and learning. In: DREXL, Josef; KERBER, Wolfgang; PODSZUN, Rupprecht (Eds.). *Competition policy and the economic approach: foundations and limitations*. Cheltenham, UK: Edward Elgar Publishing, 2011.

CAPTARIU, Alexandra. L'intelligence artificielle et le droit: les limites à questionner (Artificial intelligence and the right: the limits to questioning). *Journal L'Obiter*, 2018. Available at: <http://journalobiter.com/lintelligence-artificielle-et-le-droit-les-limites-a-questionner/>. Access on: 14 Nov. 2018.

CARSON, David O. *Statement: Database and Collection of Information Misappropriation Act of 2003*. United States: United States House of Representatives – 108th Congress, 1st session, Sept. 2003.

CASIMIRO, Sofia de Vasconcelos. A proteção da informação – história de uma evolução darwiniana e da ascendência da tecnologia (The protection of information - the history of Darwinian evolution and the ancestry of technology.). In: VICENTE, Dário Moura et al. (Coords.). *Estudos de direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária (Studies of intellectual law in honor of Prof. Dr. José de Oliveira Ascensão: 50 years of university life)*. Coimbra: Almedina, 2016.

CASTELLS, Manuel. *A galáxia da internet: reflexões sobre a internet, os negócios e a sociedade (The internet galaxy: reflections on the internet, business and Society)*. Translation by Maria X. De A. Borges. Rio de Janeiro: Jorge Zahar, 2013.

_____. *The rise of the network society*. 2nd ed. Oxford: Blackwell, 2001. (The information age: economy, society, and culture; v. 1). Available at: https://deterritorialinvestigations.files.wordpress.com/2015/03/manuel_castells_the_rise_of_the_network_societybookfi-org.pdf >. Access on: 10 June 2017.

_____. *A sociedade em rede: a era da informação (The network society: the information age)*. Translation by Roneide Venancio Major. 10. ed. São Paulo: Paz e Terra, 2007.

CEROY, Frederico Meinberg. Os conceitos de dados pessoais The concepts of personal data). *Jota*, 07 Nov. 2017. Available at:

<https://www.jota.info/opiniao-e-analise/artigos/os-conceitos-de-dados-pessoais-07112017>>. Access on: 10 March 2018.

CHEONG, Lai Kuan; CHANG, Vanessa. The need for Data Governance: a case study. *ACIS 2007 Proceedings*, 2007. P. 1000. Available at: <https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1110&context=acis2007>>. Access on: July 2018.

CHINELLATO, Silmara Juny de Abreu. Norma técnica, direito de autor e direito do consumidor (Technical standard, copyright and consumer law). In: MORATO, Antonio Carlos; NERI, Paulo de Tarso (Orgs.). *20 anos do Código de Defesa do Consumidor: estudos em homenagem ao Professor José Geraldo Brito Filomeno (20 years of the Consumer Defense Code: studies in honor of Professor José Geraldo Brito Filomeno)*. São Paulo: Atlas, 2010.

CHWAB, Klaus; DAVIS, Nicholas. *Aplicando a Quarta Revolução Industrial (Applying the Fourth Industrial Revolution)*. Translation: Daniel Moreira Miranda. São Paulo: Edipro, 2018.

CLARK, Birgit. Blockchain and IP Law: a match made in Crypto Heaven? *WIPO Magazine*, n. 1, 2018. Available at: https://www.wipo.int/wipo_magazine/en/2018/01/article_0005.html. Access on: 17 Dec... 2018.

COLLINS, Katie. That smart doll could be a spy. Parents, smash! *CNET Magazine*, Feb. 2017. Available at: <https://www.cnet.com/news/parents-told-to-destroy-connected-dolls-over-hacking-fears/>. Access on: June 2018.

COMMISSION launches GEAR 2030 to boost competitiveness and growth in the automotive sector. *Growth: Internal Market, Industry, Entrepreneurship and SMEs*, European Commission, 26/01/2016. Available at: http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=8640. Access on: 23 July 2018.

CONSELHO NACIONAL DE JUSTIÇA (NATIONAL COUNCIL OF JUSTICE). Available at: <http://www.cnj.jus.br/busca-atos-adm?documento=2579>.

DAVIES, Ron. *The Internet of Things – opportunities and challenges*. European Parliament Research Service (EPRS), 2016. Available at: http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/557012/EPRS_BRI%282015%29557012_EN.pdf. Access on: July 2018.

DAVISON, Mark. *The legal protection of databases*. Cambridge: Cambridge University Press, 2003. p. 293. Available at: <https://books.google.com.br/books?isbn=1139435655>. Access on 23 July 2017.

DETERMANN, Lothar. *Determann's field guide to data privacy law: international corporate compliance*. 2nd ed. Cheltenham, UK: Edward Elgar Publishing, 2015. (Elgar Practical Guides).

DIAS, Roberto. Avanços tecnológicos têm se mostrado silenciosos, impactantes e pouco visíveis (Technological advances have been silent, impactful and barely visible). *Folha de S. Paulo*, Dec., 2017. Available at: <http://www1.folha.uol.com.br/cenarios/2017/12/1943494-avancos-tecnologicos-tem-se-mostrado-silenciosos-impactantes-e-pouco-visiveis.shtml?mobile>. Access on: 10 Mar. 2018.

DOCTOROW, Cory. *Information doesn't want to be free: laws for the internet age*. San Francisco, US: McSweeney's, 2015.

DOMINGOS, Pedro. *O Algoritmo Mestre (The Master Algorithm)*. São Paulo: Novatec, 2015.

DREXL, Josef et al. *Data ownership and access to data*. Position statement of the Max Planck Institute for Innovation and Competition of 16 August 2016 on the Current European Debate. Available at:

<http://www.ip.mpg.de/fileadmin/ipmpg/content/stellungnahmen/positionspaper-data-eng-2016_08_16-def.pdf>. Access on: 10 Feb. 2017.

DRIVERS Privacy Protection Act (DPPA). *What is the Driver's Privacy Protection Act (DPPA)?* Available at: <<https://dmv.ny.gov/drivers-privacy-protection-act-dppa>>.

DRUMMOND, Victor Gameiro. Os privilégios monopolistas como elementos comuns para os sistemas de *Copyright* e de *Droit d'Auteur* e o déficit filosófico do direito de autor (Monopoly privileges as common elements for the Copyright and Droit d'Auteur systems and the philosophical deficit of copyright law). In: VICENTE, Dário Moura et al. (Coords.). *Estudos de direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária (Studies of intellectual law in honor of Prof. Dr. José de Oliveira Ascensão: 50 years of university life)*. Coimbra: Almedina, 2016.

EARLY, Chas. All new cars must contain emergency 'black boxes' by 2018, says EU. *BT.com*, Apr. 30 2015. Available at: <<http://home.bt.com/lifestyle/motoring/motoring-news/all-new-cars-must-contain-emergency-black-boxes-by-2018-says-eu-11363978335138>>. Access on: 29 June 2017.

EDELMAN, Benjamin G.; LUCA, Michael. *Digital discrimination: the Case of Airbnb.com*. *Harvard Business School Working Paper*, 28 Jan. 2014. Available at: <<https://hbswk.hbs.edu/item/digital-discrimination-the-case-of-airbnb-com>>. Access on: 23 July 2018.

ESTÚDIO ABC. Conheça 3 cidades inteligentes pelo mundo (Meet 3 smart cities around the world). *Exame*, 07 July 2017. Available at:

<<https://exame.abril.com.br/tecnologia/conheca-3-cidades-inteligentes-pelo-mundo/>>. Access on: July 2018.

EU-Lex. *Commission Staff Working Document Advancing the Internet of Things in Europe Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Digitising European Industry Reaping the full benefits of a Digital Single Market*. SWD/2016/0110 final. Available at: <<https://ec.europa.eu/digital-single-market/en/news/staff-working-document-advancing-internet-things-europe>>. Access on: 23 July 2018.

_____. *Commission Staff Working Document on the free flow of data and emerging issues of the European data economy Accompanying the document Communication Building a European data economy*. (COM(2017) 9 final. Available at: <<https://eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX%3A52017SC0002>>.

EUROPEAN COMMISSION. *Black Boxes/In-Vehicle Data Recorders*. Brussels. Available at: <https://ec.europa.eu/transport/road_safety/specialist/knowledge/esave/esafety_measures_known_safety_effects/black_boxes_in_vehicle_data_recorders_en>. Access on: 28 June 2017.

_____. *Building a European Data Economy*. Available at: <https://eur-lex.europa.eu/content/news/building_EU_data_economy.html>. Access on: 24 July 2017.

_____. Cross-border data flow in the Digital Single Market: data location restrictions. *Report / Study*, 10 Jan. 2017. Available at: <<https://ec.europa.eu/digital-single-market/news-redirect/51708>>. Access on: 24 July 2017.

_____. Facilitating cross border data flow in the Digital Single Market. *Report / Study*, 10 Jan. 2017. Available at: <<https://ec.europa.eu/digital-single-market/news-redirect/51704>>. Access on: 24 July 2017.

EUROPEAN COPYRIGHT SOCIETY. *General Opinion on the EU Copyright Reform Package*, 24 Jan. 2017. Available at: <<https://europeancopyrightsocietydotorg.files.wordpress.com/2015/12/ecs-opinion-on-eu-copyright-reform-def.pdf>>. Access on: 10 July 2017.

EUROPEAN UNION. European Council of the European Union. *Digital single market in Europe* Available at: <<http://www.consilium.europa.eu/pt/policies/digital-single-market-strategy/>>. Access on: 10 July 2017.

FACCIONI FILHO, Mauro. *Internet das coisas (Internet of Things)*. Palhoça: UnisulVirtual, Livro Digital, 2016.

FEDERAL COMMUNICATIONS COMMISSION. *Restoring Internet Freedom*. Available at: <<https://www.fcc.gov/restoring-internet-freedom>>. Access on: 1 June 2017.

FERRETTI, Alessandro; PRIMICERI, Salvatore; SPEDICATO, Annalisa. *Rivoluzione d'autore: il diritto d'autore tra presente e futuro (Revolution of authorship: the right of authorship between present and future)*. Primiceri Editore, 2015.

FINKELSTEIN, Claudio. E-lex mercatoria. *Revista de Direito Internacional e Econômico*, (Journal of International and Economic Law) year 3, n. 11, p. 99-106, April/June 2005.

FORMAL sitting – Estonia. *Toomas Hendrik Ilves, President of the Republic of Estonia*. 2 Febr. 2016. Strasbourg. European Parliament. Available at:

<<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+CRE+20160202+ITEM-005+DOC+XML+V0//EN>>. Access on: 23 July 2018.

FRANCO, Karin Klemp. Propriedade intelectual e ADRs no Brasil: algumas considerações sobre arbitragem, conciliação e mediação. In: *A PROPRIEDADE intelectual no novo milênio: ASPI 30 anos (Intellectual property and ADRs in Brazil: some considerations on arbitration, conciliation and mediation. In: Intellectual property in the new millennium: ASPI 30 years)*. 1. ed. São Paulo: ASPI, 2013.

FRESHFIELDS BRUCKHAUS DERINGER. *Automated driving*. Germany, June 21, 2017. Available at: <<https://www.freshfields.com/en-gb/our-thinking/campaigns/digital/internet-of-things/connected-cars/automated-driving-law-passed-in-germany/>>. Access on: 01 July 2017.

FREUND, Fabiana Ferreira et al. Novos negócios baseados em internet das coisas (New business based on the Internet of Things.). *Revista FAE*, v. 1, p 12-13, 2016.

FUNDAÇÃO GETÚLIO VARGAS. O que é uma cidade inteligente (What is an intelligent city?) *FGV Projetos*, 2015. Available at: <<https://fgvprojetos.fgv.br/noticias/o-que-e-uma-cidade-inteligente>>. Access on: July 2018.

GARNICA, L. A. *Transferência de tecnologia e gestão da propriedade intelectual em universidades públicas no Estado de São Paulo. 2007 (Technology transfer and intellectual property management in public universities in the State of São Paulo. 2007)*. Dissertação (Mestrado em Engenharia de Produção) (Dissertation (Master in Production Engineering) - Universidade Federal de São Carlos, São Carlos, 2007. Available at: <<https://repositorio.ufscar.br/bitstream/handle/ufscar/3565/DissLAG.pdf?sequence=1>>. Access on: 26 Jan. 2018.

GEMA. Represents the copyright of mote 70,000 members in Germany. Available at: <<https://www.gema.de/en/>>. Access on: 09 July 2017.

GIBSON, William. *Neuromancer*. São Paulo: Aleph, 1984.

GINSBURG, Jane C. The author's place in the future of copyright. Ruth Okediji, ed., *Copyright in an Age of Exceptions and Limitations*, Cambridge University Press, 2015; Columbia Law and Economics Working Paper No. 512. *Social Science Research Network (SSRN)*. Available at: <<https://ssrn.com/abstract=2574496>>. Access on: 10 July 2017.

_____; GORMAN, Robert A. *Copyright law*. New York: Thomson Reuters, Ebook, 2012.

_____; TREPPOZ, Edouard. *International Copyright law: US and EU perspectives: texts and cases*. Cheltenham, UK: Edward Elgar Publishing, 2015.

GIRON, Luís Antônio. Manuel Castells: a mudança está na cabeça das pessoas (Manuel Castells: Change is in people's heads). *Época*. Ideias, 11.10.2013. Available at: <<http://epoca.globo.com/ideias/noticia/2013/10/bmanuel-castellsb-mudanca-esta-na-cabeca-das-pessoas.html>>. Access on: 10 July 2017.

GOLDMAN, Eric. *Internet law: cases & materials*. Santa Clara University, 2016.

GOOGLE. *Information Google collects | Google Privacy Policy*. Available at: <<https://youtu.be/YlmVKT3Zvhw>>. Access on: 20 May 2018.

_____. *Política de Privacidade do Google (Privacy Policy of Google)*. Available at: <<https://policies.google.com/privacy/update?hl=pt-BR>>. Access on: 20 April. 2018.

GUARIZI, Débora Deflim; OLIVEIRA, Eliane Vendramini. Estudo da inteligência artificial aplicada na área da saúde (Study of Artificial intelligence in the health sector). *Colloquium Exactarum*, v. 6, n. esp., p. 26-37, Dec. 2014.

HAHN, J. Rizzo. Saiba o que é a Indústria 4.0 e descubra as oportunidades que ela gera (Know what Industry 4.0 is and discover the opportunities it generates.). *SEBRAE Nacional*, 2016. Available at: <<http://www.sebrae.com.br/sites/PortalSebrae/artigos/saiba-o-que-e-a-industria-4-0-e-descubra-as-oportunidades-que-ela-gera,11e01bc9c86f8510VgnVCM1000004c00210aRCRD>>. Access in: July 2018.

HOBSBAWM, Eric J. *Da Revolução Industrial inglesa ao Imperialismo (Industry and Empire)*. Rio de Janeiro: Forense-Universitária, 1983.

HOWKINS, John. *The creative economy*. São Paulo: Ed. Mbooks, 2012.

IMPLEMENTING the EU Copyright Directive. 2001. Available at: <<http://www.fipr.org/copyright/guide/eucd-guide.pdf>>. Access on: 10 July 2017.

JACQUEMIN, Hervé; DE STREEL, Alexandre. *L'intelligence artificielle et le droit (Artificial Intelligence and Law)* Bruxelas: Larcier, 2018.

JAYME, Erik. Considérations historiques et actuelles sur la codification du droit international privé. *Recueil des Cours de L'Académie de Droit International (Historical and current considerations on the codification of private international law. Collection of Courses of the Academy of International Law)*, Nijhoff, Leiden, t. 177, p. 9-102, 1982. Available at: <<file:///C:/Users/Leonice/Downloads/67935-89367-1-PB.pdf>>. Access on: 05 June 2017.

JESSUP, Philip. *Conflicts of law. Transnational law*. New Haven: Yale University Press, 1956. p. 1. Available at: <<http://iglp.law.harvard.edu/wp-content/uploads/2014/10/IELR-3-Jessup-Transnational-Law.pdf>>. Access on: 12 May 2017.

JUNQUEIRA DE AZEVEDO, Antonio. Por uma nova categoria de dano na responsabilidade civil: o dano social. *Revista trimestral de Direito Civil (For a new category of damage in civil liability: social damage. Quarterly Civil Law Magazine)*, Rio de Janeiro, v. 5, n. 19, p. 211-218, July/Sept. 2004.

KERBER, Wolfgang. Competition, innovation and maintaining diversity through competition law. In: DREXL, Josef; KERBER, Wolfgang; PODSZUN, Rupprecht (Eds.).

Competition policy and the economic approach: foundations and limitations. Cheltenham, UK: Edward Elgar Publishing, 2011.

_____. *A new (intellectual) property right for non-personal data? An Economic Analysis*. Marburg, 2016. Available at: <http://www.uni-marburg.de/fb02/makro/forschung/magkspapers>>. Access on: 10 June 2017.

KLEIN, David A. *A gestão estratégica do capital intelectual (The strategic management of intellectual capital)*. Rio de Janeiro: Qualitymark, 2002.

KRANZBERG, Melvin. Technology and history: "Kranzberg's Laws". *Technology and Culture*, v. 27, n. 3, 1986.

LAFRANCE, Mary. *Global issues in copyright law*. Eagan, Minnesota: West, 2009.

LANDES, William M.; POSNER, Richard A. *The economic structure of intellectual property law*. Cambridge, Mass.; London, England: The Belknap Press of Harvard University Press, 2003.

LANDMARK PUBLICATIONS. *Cyber law: software and computer networks-contemporary decisions*. LandMark Publications, Ebook, 2015.

LEITE, Leonardo Barém. O direito dos negócios e a propriedade intelectual (Business Law and Intellectual Property). In: A PROPRIEDADE intelectual no novo milênio: ASPI 30 anos (Intellectual PROPERTY in the new millennium ASPI 30 Years) . 1. ed. São Paulo: ASPI, 2013.

LESSIG, Lawrence. *Code 2.0*. New York: Basic Books, 2006.

_____. *Code and other laws of cyberspace*. New York: Basic Books, 1999.

_____. Jail time in the digital age. *The New York Times*, 2001. Available at: <http://www.nytimes.com/2001/07/30/opinion/jail-time-in-the-digital-age.html>>. Access on: 10 July 2017.

LESSIG, Lawrence. *Remix: making art and commerce thrive in the hybrid economy*. London: Penguin Books, 2009.

LIMA, Cíntia Rosa Pereira de; BIONI, Bruno Ricardo. A proteção dos dados pessoais na fase de coleta: apontamentos sobre a adjetivação do consentimento implementada pelo Artigo 7, incisos VIII e IX do marco civil da internet a partir da *Human computer interaction* e da *Privacy by default* (The protection of personal data in the collection phase: notes on the consent adjectivation implemented by Article 7, items VIII and IX of the civil framework of the Internet from *Human computer interaction and Privacy by default*) In: DE LUCCA, Newton; SIMÃO FILHO, Adalberto; LIMA, Cíntia Rosa Pereira de (Coords.). *Direito & Internet III (Law and Internet III)*: Marco Civil da Internet (Lei n. 12.965/2014). São Paulo: Quartier Latin, 2015. t. 1, p. 263-290.

MACHADO, Helena; MONIZ, Helena. *Base de dados genéticos forenses (Forensic genetic database)*. Coimbra: Coimbra: 2014.

MACHADO, Jorge. Desconstruindo a propriedade intelectual. *Observatório (OBS*) Jornal (Deconstructing intellectual property. Observatory)*, v. 4, p. 245, 2008. Available at: <<http://obs.obercom.pt/index.php/obs/article/download/92/139>>. Access on: 10 July 2017.

MANZUETO, Cristiane dos Santos; TAVARES DIAS, Fernanda Mósca. Concorrência desleal, concorrência parasitária e aproveitamento parasitário. In: A PROPRIEDADE intelectual no novo milênio: ASPI 30 anos (Unfair competition, parasitic competition and parasitic exploitation. In: Intellectual PROPERTY in the new millennium: ASPI 30 years). 1. ed. São Paulo: ASPI, 2013.p. 187.

MARQUES, J. P. Remédio. Propriedade intelectual e interesse público (Intellectual property and public interest). *Boletim da Faculdade de Direito da Universidade de Coimbra*, Coimbra, v. 79, p. 293-354, 2003.

MCCRUDDEN, Christopher. What does it mean to “compare”, and what should it mean? 2017. In: BESSON, Samantha; URSCHELER, Lukas Heckendorn; JUBÉ, Samuel (Eds.). *Comparing comparative law*. Genève: Schulthess, 2017.

MEDEIROS, Heloísa Gomes. Propriedade intelectual na sociedade informacional: produção e proteção de bens imateriais em tempos de capitalismo cognitivo (Intellectual property in the information society: production and protection of immaterial assets in times of cognitive capitalism). *Publica Direito*, 2014. Available at: <<http://www.publicadireito.com.br/artigos/?cod=7c2af8b8038c80b6>>. Access on: 18 July 2017.

METCALFE, Bob. *Internet collapses and other infoworld punditry*. IDG Books, 2000.

METZ, Rainer; BINDING Jörg; HAIFENG Pan; HUBER, Florian (Eds.). *Consumer data protection in Brazil, China and Germany*. Göttingen: Göttingen University Press, 2016. Available at: <www.oapen.org/download?type=document&docid=610409>.

MICROSOFT. *Microsoft Privacy Statement*. May 2018. Available at: <<https://privacy.microsoft.com/en-gb/privacystatement>>. Access on: 20 April 2018.

MORAIS, Luis Silva. Sociedade da Informação, mercados digitais, direito de autor e concorrência – É chegada a hora de uma grande reforma europeia? (Information society, digital markets, copyright and competition - Is it time for a major European reform?) In: VICENTE, Dario Moura et al. *Estudos de direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária (Studies of intellectual law in honour of Prof. Dr. José de Oliveira Ascensão: 50 years of university life)*. Coimbra: Almedina, 2016. p. 395.

MORGADO, Laerte Ferreira. O cenário internacional de proteção de dados pessoais. Necessitamos de um Código Brasileiro? (The international scenario of protection of personal

data. Do we need a Brazilian code?) *Âmbito Jurídico*, Rio Grande, v. 12, n. 65, June 2009. Available at:

<http://www.ambito-juridico.com.br/site/index.php?n_link=revista_artigos_leitura&artigo_id=6336>.

OHNSMAN, Alan; DRANGE, Matt. Waymo V. Uber Suit Could Become Criminal Case Following Judge's Referral To Justice Department. *Forbes Staff*, May 11, 2017. Available at: <<https://www.forbes.com/sites/mattdrange/2017/05/11/judge-refers-waymos-uber-lawsuit-to-justice-department-grants-partial-injunction-in-case/#fdf93d341ff3>>. Access on: 17 July 2017.

OSBORNE CLARKE LLP. *Commission Communication on “Free Flow of Data” Input from the Independent Automotive Aftermarket*. FIGIEFA - Automotive Aftermarket Distributors. Europe, 2016. Available at:

<https://www.figiefa.eu/wp-content/uploads/Free-Flow-of-Data-FIGIEFA-Input-2016_12_23.pdf>. Access on: 23 June 2017.

_____. *Legal study on ownership and access to data*. Final report – Study. A study prepared for the European Commission DG Communications Networks, Content & Technology. Europe Union, 2016. p. 22-24. Available at:

<<https://publications.europa.eu/en/publication-detail/-/publication/d0bec895-b603-11e6-9e3c-01aa75ed71a1/language-en>>. Access on: 15 Feb. 2017.

PARLAMENTO EUROPEU. *Disposições de Direito Civil sobre Robótica (Provisions of Civil Law for Robotics)*. 2017. Available at

<<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2017-0051+0+DOC+XML+V0//PT#BKMD-12>>. Access on: 12 Nov. 2018.

PEREIRA, Alexandre Libório Dias. Bases de dados de órgãos públicos: o problema do acesso e exploração da informação do sector público na sociedade da informação (Databases of public bodies: the problem of access to and exploitation of public sector information in the information Society). 2002. p. 1. In: ASSOCIAÇÃO PORTUGUESA DE DIREITO INTELLECTUAL. *Direito da Sociedade da Informação*. Coimbra: Coimbra Ed., 2002. Available at:

<<https://estudogeral.sib.uc.pt/bitstream/10316/28778/1/BASES%20DE%20DADOS%20E%20C3%93RG%20C3%83OS%20P%20C3%9ABLICOS.pdf>>. Access on: 26 July 2018.

_____. *Direitos de autor e liberdade de informação (Copyright and freedom of information)*. Coimbra: Almedina, 2008. p. 420.

PINHEIRO, Luís de Lima. Reflexões sobre a governação e a regulação da internet, com especial consideração da ICANN (Reflections on internet governance and regulation, with special considerations of ICANN). In: VICENTE, Dário Moura et al. (Coords.). *Estudos de Direito intelectual em homenagem ao Prof. Dr. José de Oliveira Ascensão: 50 anos de vida universitária ((Studies of intellectual law in honour of Prof. Dr. José de Oliveira Ascensão: 50 years of university life)*. Coimbra: Almedina, 2016.

POIKOLA, Antti; KUIKKANIEMI, Kai; HONKO, Harri *MyData – A Nordic Model for human-centered personal data management and processing*. Ministry of Transport and Communications, [2015]. Available at:

<<https://www.lvm.fi/-/mydata-a-nordic-model-for-human-centered-personal-data-management-and-processing-860616>>. Access on: 23 July 2018.

POLIDO, Fabrício Bertini Pasquot; ROSINA, Mônica Steffen Guise. Free open source software and creative commons in Brazil: Mapping the legal framework of alternative intellectual property licenses: In: METZGER, Axel (Ed.). *Free and open source software (FOSS) and other Alternative License Models: a comparative analysis*. Springer International Publishing, 2015.

POSNER, Richard A. *How judges think*. London-UK: Harvard University Press, 2008.

PROOF. Internet das coisas e seus desafios de segurança (Internet of Things and its security challenges). *Proof*, 2017. Available at: <<https://www.proof.com.br/blog/iot-internet-das-coisas/>>. Access in: June 2018.

PUBLIC consultation on Building the European Data Economy. *Digital Single Market. Consultation*, 10 January 2017 to 26 April 2017. Available at: <<https://ec.europa.eu/digital-single-market/news-redirect/52039>>. Access on: 24 July 2018.

PUTZ, Jean-Luc. *Le droit d'auteur (Copyright Law)*. Promoculture-Larcier, 2013. Versão Ebook Kindle.

RAGEL SÁNCHEZ, Luis Felipe. La propiedad intelectual como propiedad temporal (Intellectual property as temporary property.). In: VIDE, Rogel Carlos (Org.). *La duración de la propiedad intelectual y las obras en domino público (The duration of intellectual property and works in the public domain)*. Madrid: Reus, 2005.

REALE, Miguel. *Direito como experiência (Law as an experiment)*. São Paulo: Saraiva, 1992.

REED, Chris. *Internet law: text and materials*. 2. ed. Cambridge University Press, 2004.

_____. *Making laws for cyberspace*. United Kingdom: Oxford, 2012.

RÊGO, Bergson Lopes. *Gestão e governança de dados: promovendo os dados como ativo de valor nas empresas (Data management and governance: promoting data as a valuable asset in companies)*. Rio de Janeiro: Brasport, 2013.

REIMANN, Mathias; ZIMMERMANN, Reinhard. *The Oxford handbook of comparative law*. Oxford-UK: Oxford University Press, 2006.

RICKETSON, Sam; GINSBURG, Jane. *International copyright and neighboring rights: the Berne Convention and Beyond*. Oxford University Press, 2006.

RISH, Michael. Everything is patentable. *Tennessee Law Review*, v. 75, 2008.

RODRIGUES JR., Edson Beas. Reprimindo a concorrência desleal no comércio eletrônico: links patrocinados, estratégias desleais de marketing, motores de busca na internet e violação aos direitos de marca (Suppressing unfair competition in e-commerce: sponsored links, unfair

marketing strategies, internet search engines and trademark infringement). *Revista dos Tribunais*, São Paulo, v.104, n. 956, p. 35-93, Nov. 2015.

RUSSEL, Stuart J.; NORVIG, Peter. *Artificial Intelligence: a modern approach*. Prentice Hall, 1995. Available at:

<<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.259.8854&rep=rep1&type=pdf>>.

SASSEN, Saskia. The global city: introducing a concept. *Brown Junior of World Affairs*, v. 11, n. 2, p. 27-43, 2005. Available at:

<<http://www.saskiasassen.com/pdfs/publications/the-global-city-brown.pdf>>. Access on: 15 July 2017.

SIMÃO FILHO, Adalberto. Revisitando a nova empresarialidade a partir do Marco Civil em contexto de Internet das Coisas (Revisiting the new entrepreneurship from the Civil Framework in the context of the Internet of Things). In: DE LUCCA, Newton; SIMÃO FILHO, Adalberto; LIMA, Cíntia Rosa Pereira de (Coords.). *Direito & Internet III: Marco Civil da Internet (Law & Internet III: Civil Framework of the Internet)* (Law n. 12.965/2014). São Paulo: Quartier Latin, 2015. t. 2, p. 27-47.

SIMON, Frédéric. *EU struggles for balance on free flow of business data*. *Europe*. Oct 14, 2016. Available at:

<<https://www.euractiv.com/section/innovation-industry/news/eu-struggles-for-balance-on-free-flow-of-business-data/>>. Access on: 28 June 2017.

SOUZA, Thiago Arpagaus de Souza. Direitos morais autorais da pessoa jurídica: possibilidade de aplicação. In: A PROPRIEDADE intelectual no novo milênio: ASPI 30 anos (Legal entity's copyright: possibility of application. In: Intellectual property in the new millennium: ASPI 30 Years). 1. ed. São Paulo: ASPI, 2013. p. 149-160.

STANFORD UNIVERSITY. *Artificial intelligence and life in 2030*. One hundred year study on artificial intelligence. Report of The 2015 Study Panel. Sept. 2016. Available at: <https://ai100.stanford.edu/sites/default/files/ai100report10032016fnl_singles.pdf>. Access on: 23 July 2018.

STEMPEL, Jonathan. *Google, Viacom settle landmark YouTube lawsuit*. Available at: <<http://www.reuters.com/article/us-google-viacom-lawsuit-idUSBREA2H11220140318>>. Access on: 9 July 2017.

STERN, Robert M. *Issues and options for U.S.- Japan trade policies*. Ann Arbor, Michigan: The University of Michigan Press, 2005.

STIGLITZ, Joseph E. Economic foundations of Intellectual Property Rights. *Duke Law Journal*, v. 57, p. 1699-1700, 2008.

STOTT, Juliet. Black box car insurance: a young driver's new best friend behind the dashboard. *The Guardian*, England, March 26, 2016. Available at:

<<https://www.theguardian.com/money/2016/mar/26/black-box-car-insurance-cuts-young-drivers-premiums>>. Access on: 30 June 2017.

SYMANTEC. Internet Security Threat Report 2018. *Symantec*, v. 23, 2018. Available at: <http://images.mktgassets.symantec.com/Web/Symantec/%7B3a70beb8-c55d-4516-98ed-1d0818a42661%7D_ISTR23_Main-FINAL-APR10.pdf?aid=elq>. Access on: June 2018.

TAPSCOTT, Don; TICOLL, David; LOWY, Alex. *Digital capital: harnessing the power of business web*. Harvard Business School Press, 2000.

TATEOKI, Victor Augusto. A proteção de dados pessoais e a publicidade comportamental (Protection of personal data and behavioural advertising). *Revista Juris UniToledo*, v. 2, n. 1, p. 65-75, Jan/March, 2017.

TURING, Alan M. Computing Machinery and Intelligence. *Mind*, v. 49, p. 433, 1950.

U.S. PATENT AND TRADEMARK OFFICE. *U. S. Patent Classification System –*

Classification definitions: Class 706. U.S. Patent and Trademark Office, 2000. Available at: <<https://www.uspto.gov/web/offices/ac/ido/oeip/taf/def/706.htm>>. Access on: July 2018.

UBERTAZZI, Benedetta. *Exclusive jurisdiction in intellectual property*. Heidelberg, DE: Mohr Siebeck, 2012.

UNIÃO INTERNACIONAL DE TELECOMUNICAÇÕES. 'Internet das coisas' pode levar países emergentes a superar desafios de desenvolvimento, aponta ONU. *Nações Unidas do Brasil*, jan. 2016. (INTERNATIONAL TELECOMMUNICATIONS UNION 'Internet of Things' could lead emerging countries to overcome development challenges, points out UN. *United Nations of Brazil*, Jan. 2016) Available at: <<https://nacoesunidas.org/internet-das-coisas-pode-levar-paises-emergentes-a-superar-desafios-de-desenvolvimento-aponta-onu/>>. Access on: July 2018.

UNITED KINGDOM. *Consumer Rights Act 2015*. Parliament: 24th Mar. 2015. Available at: <http://www.legislation.gov.uk/ukpga/2015/15/pdfs/ukpga_20150015_en.pdf>. Access in: April 2018.

UNITED STATES OF AMERICA. *The national artificial intelligence research and development strategic plan*. National Science and Technology Council. Networking and Information Technology Research and Development Subcommittee. Oct. 2016. Available at: <https://www.nitrd.gov/PUBS/national_ai_rd_strategic_plan.pdf>. Access on: 24 July 2018.

VAZ, Isabel. *Direito econômico da concorrência (Economic competition law)*. Rio de Janeiro: Forense, 1993.

VICENTE, Dário Moura. *A tutela internacional da propriedade intelectual (The international protection of intellectual property)*. Coimbra: Almedina, 2008.

_____; VIEIRA, José; PEREIRA, Alexandre; CASIMIRO, Sofia; SILVA, Ana (Coords.). *Estudos de direito intelectual em homenagem ao Prof. Doutor José de Oliveira Ascensão. (Studies of intellectual law in honour of Prof. Doutor José de Oliveira Ascensão)* Coimbra: Almedina, 2016.

WACHOWICZ, Marcos. *A proteção jurídica das bases de dados em face da revolução da tecnologia da informação (The legal protection of databases in the face of the information technology Revolution)*. 2005. Available at:

<<http://www.gedai.com.br/sites/default/files/arquivos/artigo-base-dados-marcos-wachowicz.pdf>>. Access on: 13 June 2017.

WEBER, Rolf H. Governance of the Internet of Things – from infancy to first attempts of implementation? *Laws*, v. 5, n. 3, p. 5, June 2016. Available at:

<<http://www.mdpi.com/2075-471X/5/3/28/htm>>. Access in: April 2018.

WEBER, Rolf H. Internet of Things – new security and privacy challenges. *Computer Law & Security Review*, v. 26, p. 27, 2010.

_____. Proliferation of 'Internet Governance' (September 1, 2014). GigaNet: Global Internet Governance Academic Network, Annual Symposium 2014. p. 3-4. *Social Science Research Network (SSRN)*. Available at:

<https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2809874>. Access in: April 2018.

WORLD BANK GROUP. *World Development Flagship Report 2016: Digital Dividends*. Washington DC, 2016. Available at:

<<http://documents.worldbankorg/curated/pt/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf>>. Access on: 10 June 2017.

WORLD INTELLECTUAL PROPERTY ORGANIZATION - WIPO. *Alternative Dispute Resolution*. Available at: <<http://www.wipo.int/amc/en/>>. Access on: 07 July 2017.

_____. *Summary of the WIPO Copyright Treaty (WCT) (1996)*. Available at: <http://www.wipo.int/treaties/en/ip/wct/summary_wct.html>.

WORLD TRADE ORGANIZATION – WTO. *Essential Medicines and Health Products Information Portal*. A World Health Organization resource. Available at: <<http://apps.who.int/medicinedocs/en/d/Jh3009ae/>>.

YUAN, Li. China gears up in artificial-intelligence race. *Wall Street Journal*, Aug. 24, 2016. Available at:

<<https://www.wsj.com/articles/china-gears-up-in-artificial-intelligence-race-1472054254>>. Access on: 23 July 2018.

ZECH, Herbert. Data as a tradeable commodity. In: DE FRANCESCHI, Alberto (Ed.). *European contract law and the digital single market: the implications of the digital revolution*. Cambridge: Intersentia, 2016.

ZHAO, Ning. *Choice-of-law in cross-border copyright and related rights disputes: comparative inspiration for the PRC*. Ulrik Huber Institute for Private International Law, 2012. (Doctoral Series 14).

ANNEX

ANNEX A – Case Law Analysis involving Databases (Brazil)

Case 1 – Webmotors

Superior Tribunal de Justiça

Conteúdo Exclusivo WEB | Maio / 2012 | JRP\2012\31259

STJ - [ApCiv](#) 20030110899943 - j. 30/5/2012 - julgado por Flávio Rostirola.

DIREITO CIVIL. OBRIGAÇÃO DE NÃO FAZER. SITE DE VENDA DE AUTOMÓVEIS. ACESSO E UTILIZAÇÃO DE INFORMAÇÕES SIGILOSAS DE CLIENTES PELA CONCORRENTE. DESLEALDADE CONFIGURADA.

Ementa Oficial:

EMENTA

DIREITO CIVIL. OBRIGAÇÃO DE NÃO FAZER. SITE DE VENDA DE AUTOMÓVEIS. ACESSO E UTILIZAÇÃO DE INFORMAÇÕES SIGILOSAS DE CLIENTES PELA CONCORRENTE. DESLEALDADE CONFIGURADA.

1. Se a dinâmica dos fatos denota o desvio de finalidade praticado pela demandada, no que tange a obtenção de informações ocultas dos clientes do site de venda de automóveis concorrente e a sua antiética utilização, forçoso reconhecer a prática de concorrência desleal, nos termos do art. 195, da Lei nº 9.279/96, o que torna lícita a tutela inibitória determinada na origem.

2. Apelação não provida. Sentença mantida.

Órgão 1ª Turma Cível

Processo N. Apelação Cível 20030110899943APC

Apelante(s) TECNOWORLD TECNOLOGIA E INFORMÁTICA LTDA E OUTROS

Apelado(s) WEBMOTORS S/A

Relator Desembargador FLAVIO ROSTIROLA

Revisora Desembargadora ANA CANTARINO

Acórdão N° 590.967

ACÓRDÃO

Acordam os Senhores Desembargadores da 1ª Turma Cível do Tribunal de Justiça do Distrito Federal e dos Territórios, FLAVIO ROSTIROLA - Relator, ANA CANTARINO - Revisora, LECIR MANOEL DA LUZ - Vogal, sob a Presidência do Senhor Desembargador LÉCIO RESENDE, em proferir a seguinte decisão: **CONHECER DA APELAÇÃO, NÃO CONHECER DO AGRAVO RETIDO E NEGAR PROVIMENTO À APELAÇÃO, UNÂNIME**, de acordo com a ata do julgamento e notas taquigráficas.

Brasília (DF), 30 de maio de 2012

Certificado nº: 4F81896F000500000FAE

30/05/2012 - 19:31

Desembargador FLAVIO ROSTIROLA

Relator

RELATÓRIO

Cuida-se de **apelação** interposta pelos Requeridos, **TECNOWORLD TECNOLOGIA E INFORMÁTICA LTDA.** e **CRISTIANO CABRAL** contra a r. sentença de fls.546/550, que tramitou perante a Décima Sexta Vara Cível da Circunscrição Judiciária de Brasília/DF.

Transcrevo o relatório judicial:

"Trata-se de ação de conhecimento, sob o rito ordinário, ajuizada por WEBMOTORS S/A em desfavor de WEBSIS TECNOLOGIA LTDA e CRISTIANO CABRAL, estando as partes devidamente qualificadas. Esclarece a autora que mantém um site cujo principal atrativo são os anúncios de compra e venda de veículos disponibilizados em suas páginas eletrônicas, além de outros anúncios de interesse do mercado automobilístico. Registra que os anúncios são precedidos da elaboração de cadastros, nos quais são inseridos os dados pessoais de seus clientes, bem como o veículo a ser comercializado ou pretendido. Acerca dos dados pessoais de seus clientes a autora garante aos interessados absoluta privacidade. Contudo, afirma que seus clientes começaram a reclamar que outro site lhes oferecia serviços idênticos, dias após anunciarem na autora. Narra que os réus navegaram no seu site de anúncios de veículos e acessaram indevidamente os dados pessoais privados de seus clientes, a despeito do zelo na elaboração dos cadastros daqueles, fato constatado mediante a inclusão de anúncios fictícios de veículos em seu site, utilizando dados pessoais de seus próprios funcionários. Objetiva a autora a condenação dos réus na obrigação de se abster de invadir os cadastros de clientes armazenados em seus bancos de dados, uma vez que a suposta prática abusiva dos réus estaria afetando a política de privacidade dos bancos cadastrais da autora, prejudicando a sua imagem comercial e financeira, com o aliciamento de clientes. Apresenta pedido de concessão de tutela antecipada (fls. 02/10, 38/40 e 47/48). Procuração, documentos e comprovante de recolhimento das custas processuais, às fls. 14/34 e 41/42. A decisão de fls.50/51 concedeu a antecipação dos efeitos da tutela para determinar que os réus se abstivessem de invadir os cadastros de clientes da autora, sob pena de multa de R\$1.000,00. Às fls.59/67 os requeridos apresentam pedido de revogação da tutela antecipada, acompanhado de documentos de fls.68/100. Consta às fls. 131/141 cópia da petição do agravo de instrumento ajuizada pelos requeridos, face o deferimento da tutela antecipada. Em contestação de fls. 144/154, os réus negam a ocorrência do acesso ilegal à base de dados cadastrais dos clientes da autora e admitem a coleta das informações por meio de navegação regular na internet. Réplica de fls. 156/157. Termo de realização de audiência de conciliação à fl. 211. A decisão de fls. 262/263 afastou a preliminar de ilegitimidade passiva, evidenciou a presença das condições da ação e os pressupostos processuais, deferiu a expedição de ofício à Quarta Delegacia - Meios Eletrônicos/SP, com vistas ao envio de cópia do inquérito policial envolvendo as partes, bem assim a realização de prova pericial.

O laudo pericial do perito do Juízo foi juntado às fls. 320/336. Foi anexado, ainda, aos autos, laudo pericial destinado a instruir ação penal que tramitava na 10ª Vara Criminal de Vitória/ES (fls.351/355). Foram apresentados questionamentos sobre as conclusões da perícia, os quais foram respondidos pelo expert às fls. 455/456. Na petição de fls. 487/488,

a autora pugnou pela produção de prova oral, o que foi deferida às fls. 489.

Por ocasião da realização da audiência de instrução e julgamento (fl. 522), a autora reiterou o pedido de oitiva de testemunhas. O réu contestou a produção de prova oral, alegando serem eles empregados da autora. A decisão de fls. 527/529, indeferiu a produção de prova oral. Desta decisão, a autora interpôs agravo retido (fls. 532/535):

Ao analisar o caso, a MM. Juíza Substituta em exercício na citada Vara houve por bem julgar procedente o pedido inicial, nos seguintes termos do dispositivo sentencial, *in verbis* (fl.550):

"Por todo o exposto, julgo PROCEDENTE o pedido para determinar que os réus se abstenham de acessar/invadir os cadastros de clientes da autora, sob pena de multa de R\$1.000,00 por cada acesso indevido. Confirmo a tutela antecipada concedida à fl. 50. Extingo a ação, com julgamento do mérito, nos termos do artigo 269, inciso I, do Código de Processo Civil (LGL\1973\5). Condeno o requerido ao pagamento das custas processuais e despesas processuais (honorários periciais) e dos honorários advocatícios, estes que fixo em R\$ 1.000,00 (mil reais), nos termos do artigo 20, § 4º do CPC (LGL\1973\5). Transitado em julgado e, não havendo requerimentos formulados pelos interessados, dê-se baixa e arquivem-se os presentes. Sentença prolatada na Unidade de Apoio Judicial".

As **razões de apelação dos Requeridos foram apresentadas às fls.556/568**, com o respectivo preparo à fl.569. Repisa que as provas produzidas demonstrariam que a própria Autora, Web Motors, estaria divulgando os e-mails de seus clientes, razão pela qual não haveria que se falar na responsabilidade das Demandadas pela divulgação de informações supostamente sigilosas.

Afirmam que a prova pericial produzida teria comprovado a ausência da alegada invasão ao sítio eletrônico da Apelada, que *"na época do fato alegado não havia como garantir tal privacidade uma vez que os dados: nome, email, telefone, cidade e estado do anunciante estavam disponíveis no site da apelada de forma pública, ou seja, para qualquer usuário entrar em contato conforme apontado pelo perito."* (fl.564)

Refuta a tese de concorrência desleal, uma vez que não teria sido demonstrada a redução do faturamento da empresa Autora, sendo que a utilização das informações contidas no anúncio do site teria sido normal e regular.

Destarte, requer o provimento da apelação e, em consequência, a improcedência do pedido inicial.

Contrarrazões da parte Autora às fls.575/578.

É o relatório.

VOTOS

O Senhor Desembargador FLAVIO ROSTIROLA - Relator

(I) Do Agravo Retido de fls.532/535

De início, não conheço do agravo retido de fls.532/535, pois não cumpridos os seus requisitos, nos termos do art.523, §1º, do CPC (LGL\1973\5).

(II) Apelação

CONHEÇO da apelação, pois satisfeitos os seus pressupostos extrínsecos e intrínsecos de admissibilidade.

Conforme exposto no relatório, a Autora/Apelada, ~~Webmotors~~ S/A, ajuizou ação ordinária objetivando a condenação dos réus na obrigação de se abster de invadir os cadastros de clientes armazenados em seus bancos de dados, uma vez que a suposta prática abusiva dos Réus estaria afetando a sua política de privacidade, prejudicando a sua imagem comercial e financeira, com o aliciamento de clientes.

Ao analisar o caso, Sua Excelência a quo entendeu configurada a prática de concorrência desleal, vindo a conceder a tutela inibitória requerida.

Em suas razões recursais, os Recorrentes/Demandados reforçam que as provas produzidas demonstrariam que a própria Autora, Web Motors, estaria divulgando os e-mails de seus clientes, razão pela qual não haveria que se falar na responsabilidade das Demandadas pela divulgação de informações supostamente sigilosas.

Afirmam que a prova pericial produzida teria comprovado a ausência da alegada invasão ao sítio eletrônico da Apelada, que *"na época do fato alegado não havia como garantir tal privacidade uma vez que os dados: nome, ~~email~~, telefone, cidade e estado do anunciante estavam disponíveis no site da apelada de forma pública, ou seja, para qualquer usuário entrar em contato conforme apontado pelo ~~perito~~"* (fl. 564)

Refuta a tese de concorrência desleal, uma vez que não teria sido demonstrada a redução do faturamento da empresa Autora, sendo que a utilização das informações contidas no anúncio do site teria sido normal e regular.

A princípio, impõe o registro que a r. sentenciante concedeu a tutela requerida na inicial não com base no acesso ao sítio eletrônico que, como demonstrado, de livre conexão a qualquer pessoa que tivesse acesso à internet, mas em razão da utilização indevida de informações pessoais dos clientes ali cadastrados, por meio ardil, com o intuito de obter o desvio de clientela.

Tais fatos ocorreram no **ano de 2003**.

Após a averiguação perante a Delegacia Civil de São Paulo/SP, apurou-se que os clientes da Autora estavam recebendo diversas mensagens indesejadas de procedência dos Recorrentes/Requeridos (fls.26/29).

Chegou-se a se instaurar o competente processo criminal para apuração dos fatos, sobretudo porque as mensagens teriam sido encaminhadas de computador vinculado ao Ministério da Saúde (setor de Assessoria de Informática do PROFAE), pelo 2º Requerido.

Igualmente, fora determinada perícia para se comprovar a existência de evidências na máquina IP 200.176.216.132 com origem dos ~~emails~~ enviados em nome do site www.bancodeveiculos.com.br, de responsabilidade dos Demandados.

Uma das máquinas restou prejudicada a análise, porque teve o seu disco formatado, o que atrai o forte indício de que o intuito seria o de eliminar quaisquer vestígios que pudessem

desembocar na autoria e na materialidade do delito.

A outra máquina, denominada de máquina 1, apresentava defeito, inviabilizando a coleta de novas evidências, o que veio a prejudicar na resposta de diversos outros quesitos (fls.326/327).

Em sede de cognição sumária, ao julgar o Agravo de Instrumento nº 2003.00.2.010447-4, sob a relatoria do Desembargador Fernando ~~Ubu~~ ~~Ubu~~, essa e. Turma concluiu (fls.482/484):

"Logo, o que se conclui, ao menos nesta sede, é que as informações não estão disponíveis à maioria dos internautas. Trata-se, antes, de informações ocultas à maioria, às quais só têm acesso quem disponha de conhecimentos mais ou menos avançados em informática. Pretendesse a agravada divulgá-las, as deixaria expostas no site para qualquer um que o visitasse. Portanto, o simples fato das informações cadastrais não estarem aparentes quando da visualização da página de internet revela, em princípio, a clandestinidade do modo como foram obtidos pelos agravantes. Acrescento que o prestígio e confiança conquistados pela agravada em anos de veiculação de anúncios, corroborados pela alta quantia pela qual foi vendida, demonstram que a conduta dos agravantes pode abalar sua relação com os clientes. Este fato restou demonstrado pela indignação e desconfiança de clientes que se sentiram ameaçados pela inesperada comunicação dos réus (41). Tais razões são suficientemente convincentes quanto a verossimilhança das alegações da autora e a possibilidade de danos de difícil reparação, cumprindo os requisitos autorizadores da medida previstos no CPC (LGL\1973\5) 273, traduzida, no caso, na ordem de não invadir o castro de clientes mantido pela agravada, sob pena de multa de R\$1.000,00 por cada acesso indevido".

A par de toda essa constatação e da dinâmica dos fatos, a r. sentenciante chegou à ilação do desvio de finalidade, o que, no meu entender, revelou-se acertada, sobretudo pela obtenção de informações ocultas e a sua antiética utilização – ou no mínimo imprudente –, o que, inclusive, veio a ocasionar confusão e dúvidas entre os consumidores, hipótese configuradora da concorrência desleal, nos termos do art. 195, da Lei nº 9.279/96.

A esse respeito, o seguinte aresto desse e. Tribunal:

"A concorrência desleal é ilícito civil em que o concorrente tanto pode agir com a consciência de que está praticando um ato contrário à concorrência correta, como pode agir de forma imprudente, sem adoção dos cuidados esperados de um comerciante normal.". (Acórdão n. 365969, 20060110983260APC, Relator LEILA ARLANCH, 4ª Turma Cível, julgado em 01/04/2009, DJ 15/07/2009 p. 19)

Logo, nada a reparar na r. sentença, cujos fundamentos integro à presente decisão, *in verbis* (fls.548/550):

"Como é sabido, na atualidade, um cadastro de consumidores é de muita valia, sobretudo para quem comercializa pela internet.

A cópia do inquérito policial instaurado pela requerente contra os réus (fl.26) junto à 4ª Delegacia contra crimes eletrônicos/SP, demonstra que as mensagens indesejadas enviadas aos clientes da autora eram provenientes de computadores manejados pelos réus. Os próprios requeridos afirmam que acessaram regularmente à página da autora,

sem que tivesse havido quebra de senha, alegam, pois, não haver que se falar em invasão.

Questionam os réus que se qualquer interessado em comprar o automóvel anunciado pela requerente ou auxiliar na venda, pode acessar os dados da página eletrônica da autora porque não poderia outro fornecedor de serviço semelhante fazer o mesmo.

Entendo que o comportamento reprovável neste feito é a utilização indevida pelos réus das informações conseguidas sobre os clientes da autora, ou seja, o oferecimento pelos requeridos àqueles clientes dos mesmos serviços prestados pela requerente. Trata-se, pois, de prática abusiva que prejudica os negócios da autora. É um caso de concorrência desleal, vedada pela legislação brasileira. Nesse sentido segue o escólio de FÁBIO ULHOA COELHO: "A repressão à concorrência desleal, por sua vez, é feita em dois níveis pelo direito. Na área do direito penal, a lei tipifica como crime de concorrência desleal os comportamentos elencados no artigo 195 da LPI. São exemplos desses crimes: publicar falsamente afirmação em detrimento de concorrente, com o objetivo de obter vantagem; empregar meio fraudulento para desviar, em seu proveito ou de terceiro, a clientela de um certo comerciante; dar ou prometer dinheiro a empregado de corrente para que este proporcione vantagem, faltando o dever do emprego etc." (Manual de Direito Comercial, fl. 30). Cumpre-me salientar que a Carta Magna (LGL\1988\3), ao contrário de proibir a concorrência empresarial, eleva-a à condição de princípio constitucional, protegendo-a e estimulando-a. O que a legislação nacional veda é a concorrência feita de forma desleal, sem atender aos princípios da honestidade e correção comercial.

É certo que não existe na legislação pátria uma definição para o termo "concorrência desleal". Contudo, é de comum sabença que o ato de concorrência desleal importa numa apreciação de fato, sujeita ao exame do caso concreto que se coloca à frente do julgador, quando afrontados os conceitos abertos de lealdade, bons costumes, usos e costumes honestos no comércio.

A meu sentir, na hipótese vertente estão presentes todos os elementos aptos a configurar a prática pelos réus de concorrência desleal, mediante captação indevida de clientela, o que provoca dano patrimonial à requerente. In casu, portanto, a irresignação da autora merece prosperar para que os réus se abstenham de invadir/acessar os cadastros de clientes armazenados em seus bancos de dados".

Ante o exposto, não conheço do agravo retido e **NEGO PROVIMENTO à apelação** dos Requeridos, mantendo-se indene a r. sentença hostilizada.

É o meu voto.

A Senhora Desembargadora ANA CANTARINO - Revisora

Com o relator.

O Senhor Desembargador LECIR MANOEL DA LUZ - Vogal

Com o Relator.

DECISÃO

CONHECER DA APELAÇÃO, NÃO CONHECER DO AGRAVO RETIDO E NEGAR PROVIMENTO À APELAÇÃO, UNÂNIME

Case 2 – All Match



TRIBUNAL DE JUSTIÇA
PODER JUDICIÁRIO
São Paulo



Registro: 2014.0000438799

ACÓRDÃO

Vistos, relatados e discutidos estes autos de Apelação nº 0219056-85.2007.8.26.0100, da Comarca de São Paulo, em que são apelantes ALL MATCH PROCESSAMENTO DE DADOS LTDA e RICARDO MALAGUTI REIS e é apelada DATA SOLUTIONS SERVIÇOS DE INFORMATICA LTDA.

ACORDAM, em 1ª Câmara de Direito Privado do Tribunal de Justiça de São Paulo, proferir a seguinte decisão: "Negaram provimento ao recurso. V. U.", de conformidade com o voto do Relator, que integra este acórdão.

O julgamento teve a participação dos Exmos. Desembargadores CHRISTINE SÁNTINI (Presidente sem voto), PAULO EDUARDO RAZUK E RUI CASCALDI.

São Paulo, 29 de julho de 2014.

Luiz Antonio de Godoy
Relator
Assinatura Eletrônica



TRIBUNAL DE JUSTIÇA
PODER JUDICIÁRIO
 São Paulo

VOTO Nº 29842

APELAÇÃO Nº 0219056-85.2007.8.26.0100 – São Paulo

APELANTE All Match Processamento de Dados Ltda. e Ricardo Malaguti Reis

APELADA Data Solutions Serviços de Informática Ltda.

JUÍZA Lúcia Caninéo Campanhã

RESPONSABILIDADE CIVIL - Concorrência desleal - Alegação de utilização de informações confidenciais pelos réus - Titularidade dos programas da autora e seu acesso indevido por parte dos réus verificados - Corréu que deixou de prestar os serviços para a autora e tornou-se sócio da empresa requerida, passando a desenvolver atividade semelhante - Existência de alto grau de similaridade nas bases de dados das empresas, indicando que os réus utilizavam informações trazidas da autora e as atualizavam - Réus que desenvolveram seu banco de dados utilizando como base o banco de dados da autora - Multa devida, conforme estabelecido no termo de confidencialidade - Danos materiais constatados - Violação a propriedade intelectual de programa de computador - Honorários advocatícios - Redução indevida - Observância dos comandos pertinentes da lei processual - Sentença mantida - Art. 252 do RITJSP/2009 - Recurso desprovido.

Trata-se de apelação da sentença de fls. 331/337 (objeto de embargos de declaração rejeitados a fls. 378), em que, em hipótese de "ação de indenização por violação de direito autoral e concorrência desleal" (fls. 2) ajuizada por Data Solutions Serviços de Informática Ltda. contra All Match Processamento de Dados Ltda., Ricardo Malaguti Reis e Maya Segers, foi julgada procedente em parte a demanda



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"para condenar o requerido Ricardo Malaguti dos Reis no pagamento de multa de R\$ 100.000,00 (cem mil reais), com correção monetária desde março de 2007 (fls. 40) e juros de 1% ao mês a partir da citação, para condenar a requerida All Match Processamento de Dados Ltda. no pagamento de indenização por danos materiais, com valor a ser fixado por arbitramento, conforme exposto no parágrafo anterior" (fls. 337) e improcedente em relação a Maya Segers. Já a medida cautelar (autos em apenso) envolvendo as mesmas partes foi julgada procedente, confirmando-se a liminar. Foram carreados aos réus All Match Processamento de Dados Ltda. e Ricardo Malaguti Reis os ônus da sucumbência. Inconformados, apelaram estes, sustentando que "o trabalho desenvolvido por Ricardo Malaguti dos Reis no âmbito das atividades da empresa Apelante All Match - Processamento de Dados Ltda. não tem qualquer correlação com o software e sistema de captura de informações noticiados pela Apelada" (fls. 349). Aduziram que o termo de confidencialidade firmado pelo réu Ricardo não teria o condão de impedir que desenvolvesse outro sistema de banco de dados. Afirmaram ausência de violação de direitos autorais. Alegaram, ainda, que não fora demonstrado nos autos a titularidade da autora quanto aos "softwares" em questão. Sustentaram inoccorrência dos alegados danos materiais. Pleitearam, por fim, eventual redução do valor da multa fixado na sentença. Foi providenciado o recolhimento do preparo. Oferecidas contrarrazões, foram os autos remetidos a este Tribunal.

É o relatório, adotado, quanto ao restante, o da sentença apelada.

Ajuizou a autora a presente demanda, pretendendo o ressarcimento das perdas e danos decorrentes da prática pelos réus de atos que configurassem concorrência desleal, em razão de suposta utilização de informações confidenciais.

Examinados os autos, é certo que a sentença combatida trouxe adequada solução à questão em debate, merecendo ser integralmente confirmada.

Como observado na sentença, "As pessoas físicas incluídas no polo passivo prestaram serviços para a autora e quando se desligaram da empresa, nos meses de fevereiro e março de 2007, firmaram compromisso declarando que



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receberam informações confidenciais relativas aos projetos, banco de dados, equipamentos, hardwares, softwares, consistentes em segredo comercial, de propriedade exclusiva da autora. Comprometeram-se a tomar as medidas necessárias para impedir que as informações confidenciais sejam copiadas, transferidas, divulgadas ou utilizadas sem a autorização da autora, tudo sob pena de multa de R\$ 100.000,00 (fls.39/40 e 46/47)./Ocorre que tão logo o requerido Sr. Ricardo deixou de prestar os serviços para a autora tornou-se sócio da empresa requerida e passou a desenvolver atividade semelhante. A empresa requerida iniciou suas atividades em 27 de abril de 2007, com data de constituição em 8 de maio de 2007 (fls.48). (...) Quando do cumprimento do mandado de busca e apreensão, os peritos constataram a violação e lacraram as CPUs para que fossem abertas posteriormente na presença dos assistentes técnicos para elaboração do laudo (fls.71 do apenso)./Constatou do laudo pericial o alto grau de similaridade nos dados constantes da base de dados indicando que os réus utilizavam informações trazidas da autora e as atualizavam. Acrescentou que a grande similaridade entre os layouts das tabelas reforça tal conclusão (fls.187 do apenso)./Depois de comparar os programas, o perito concluiu que foram encontrados nos computadores dos réus cópias dos softwares "Data Setting", "Manager", "Pesquisa Receita PF/PJ" e "MQEXEC", desenvolvidos pela autora./Também verificou indícios de que os réus procediam o desenvolvimento de seu banco de dados utilizando como base o banco de dados da autora (fls.194 do apenso)./O perito esclareceu que mesmo não sendo possível executar o programa "Data Setting" com os cinco arquivos encontrados não afasta a conclusão de que localizados softwares protegidos legalmente nos computadores periciados (fls.183)./ Ressaltou o perito que a autora entregou a lista de arquivos antes do início dos trabalhos e esses arquivos foram encontrados nos computadores dos réus (fls.183), o que confirma a titularidade dos programas da autora e seu acesso indevido por parte da ré" (fls. 334/335).

É certo, também, que "é de se estranhar que uma empresa recém constituída tivesse tempo hábil para desenvolver todos os seus programas e base de



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dados em tão pouco tempo. O mais plausível é que o sócio oriundo da empresa concorrente tenha aproveitado a base de dados e os programas da empresa autora, não obstante o termo de confidencialidade firmado. Tal conclusão coaduna-se com o laudo pericial" (fls. 336).

Diante disso, constata-se ter sido corretamente condenado o corréu Ricardo Malaguti Reis no pagamento de multa no valor de R\$ 100.000,00, conforme estabelecido na "Declaração e Compromisso" (fls. 39), firmado entre ele e a autora.

Ademais, como anotado pela Juíza de Direito, "demonstrada a violação à propriedade intelectual de programa de computador de titularidade da autora, impõe-se a condenação da pessoa jurídica em perdas e danos, visto que consiste na beneficiária direta dessa violação./O valor será apurado em liquidação por arbitramento e corresponderá ao lucro líquido obtido pela ré nos serviços prestados que tenham qualquer relação com a base de dados da autora ou os programas "Data Setting" ou "Manager" ou "Pesquisa Receita PF/PJ" ou "MQEXEC" (fls. 337).

Por fim, quanto aos honorários advocatícios, não há razão para sua redução. Foram eles fixados com estrita observância dos comandos pertinentes da lei processual, tendo sido considerada a sucumbência em maior proporção dos réus. Ademais, foram levados em conta o zelo profissional, o lugar da prestação do serviço, a natureza e a importância da causa, bem como o trabalho realizado e o tempo exigido para tanto.

Assim, nos termos do art. 252, do Regimento Interno do Tribunal de Justiça do Estado de São Paulo, ratificam-se os fundamentos da sentença recorrida, ora mantida por revelar-se suficientemente motivada.

É essa, inclusive, a orientação do Superior Tribunal de Justiça:

"PROCESSUAL CIVIL. ACÓRDÃO PROFERIDO EM EMBARGOS DECLARATÓRIOS. RATIFICAÇÃO DA SENTENÇA. VIABILIDADE. OMISSÃO INEXISTENTE. ART. 535, II, DO CPC. AUSÊNCIA DE VIOLAÇÃO. 1 Revela-se improcedente suposta ofensa ao art. 535 do CPC quando o Tribunal de origem, ainda que não aprecie todos os argumentos expendidos pela parte recorrente, atém-se aos contornos da lide e fundamenta



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sua decisão em base jurídica adequada e suficiente ao desate da questão controvertida. 2.É predominante a jurisprudência do Superior Tribunal de Justiça em reconhecer a viabilidade de o órgão julgador adotar ou ratificar o juízo de valor firmado na sentença, inclusive transcrevendo-o no acórdão, sem que tal medida encerre omissão ou ausência de fundamentação no decisum. 3.Recurso especial não-provido" (REsp. nº 662.272 – RS, 2ª Turma do Superior Tribunal de Justiça, v. un., Rel. Min. João Otávio Noronha, em 4/9/07, DJ de 27/9/07, pág. 248).

"CIVIL. PROCESSUAL CIVIL. ACORDÃO. FUNDAMENTAÇÃO. INSPIRAÇÃO. DECISÃO. ANTERIOR. POSSIBILIDADE. OMISSÃO. 1. A Corte a quo manifestou-se pela confirmação integral da sentença monocrática, ratificando todos os seus fundamentos, de modo que restou absorvido pelo aresto o fundamento de que a anterioridade deve ser observada a partir da Medida Provisória 368/93. 2. Não se configura desprovido de fundamentação, tampouco omissivo, o julgado que repete fundamentos adotados pela sentença, com sua transcrição no corpo do acórdão. Precedentes. 3. Recurso especial improvido" (REsp. nº 641.963 – ES, 2ª Turma do Superior Tribunal de Justiça, v. un., Rel. Min. Castro Meira, em 8/11/05, DJ de 21/11/05, pág. 182).

Nessas circunstâncias, nega-se provimento ao recurso.

LUIZ ANTONIO DE GODOY
 Relator

Case 3 – JR



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Registro: 2017.0000079904

ACÓRDÃO

Vistos, relatados e discutidos estes autos de Apelação nº 0029835-79.2013.8.26.0001, da Comarca de São Paulo, em que é apelante JR DO BRASIL COMERCIO DE FERRAMENTAS LTDA - EPP, é apelado SILVA & LOPES DO BRASIL COMERCIO DE FERRAGENS E FERRAMENTAS LTDA - EPP.

ACORDAM, em 2ª Câmara Reservada de Direito Empresarial do Tribunal de Justiça de São Paulo, proferir a seguinte decisão: "**Negaram provimento ao recurso. V. U.**", de conformidade com o voto do Relator, que integra este acórdão.

O julgamento teve a participação dos Exmos. Desembargadores CARLOS ALBERTO GARBI (Presidente), CLAUDIO GODOY E ALEXANDRE MARCONDES.

São Paulo, 13 de fevereiro de 2017.

CARLOS ALBERTO GARBI
- RELATOR -



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Apelação nº 0029835-79.2013.8.26.0001 – São Paulo (3ª Vara Cível do Foro Regional de Santana)

Apelante: Jr. do Brasil Comércio de Ferramentas Ltda - Epp

Apelada: Silva & Lopes do Brasil Comércio de Ferragens e Ferramentas Ltda - Epp

[VOTO Nº 24.959]

INDENIZAÇÃO. CONCORRÊNCIA DESLEAL. DESVIO DE CLIENTELA E FURTO DE BASE DE DADOS DE CLIENTES. NÃO COMPROVAÇÃO. IMPROCEDÊNCIA MANTIDA. RECURSO NÃO PROVIDO.

Indenização. Alegação de concorrência desleal. Desvio de clientela e furto de base de dados de clientes da autora por sócio da ré, que foi seu funcionário. Não comprovação. Ônus da prova da autora. Provas oral e documental que não comprovaram a alegação da inicial. Improcedência mantida. Recurso não provido.

A sentença proferida pelo **Doutor Jorge Alberto Quadros de Carvalho Silva** julgou improcedente o pedido e condenou a autora ao pagamento das custas e das despesas processuais, bem como na verba honorária advocatícia sucumbencial fixada 10% sobre o valor da causa, atualizado.

A autora recorreu da sentença e alegou, sem síntese, que a empresa-ré foi constituída enquanto o seu sócio ainda era seu funcionário; que o sócio foi surpreendido abordando clientes; que a ré praticou espionagem e concorrência desleal; que houve captura não autorizada de sua base de



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dados de clientes; que a ré copiou seus dados; que restou caracterizada a concorrência desleal; e que procede seu pedido.

A ré apresentou resposta na qual pediu a manutenção da sentença.

É o relatório.

A autora alegou que seu ex-funcionário *Sivaldo de Lima Lopes* constituiu empresa na mesma área que trabalha e que praticou atos de concorrência desleal. Afirmou que a ré, que tem "*como objeto social, firma de trabalho e público alvo os mesmos clientes da requerente*" (fls. 03), desviou clientes e furtou dados internos através do sócio que até então era seu funcionário, de modo que pediu sua condenação em indenização pelos danos causados, estimada em 100 salários mínimos.

A ré negou os fatos, tendo sustentando que o ex-funcionário da autora tem demanda trabalhista contra a autora, com resultado favorável em Segunda Instância.

A autora pediu, assim, a expedição de ofício ao SENAI – Serviço Nacional de Aprendizagem Industrial e a produção da prova oral que, contudo, não comprovaram as alegações constantes na inicial.

A única testemunha ouvida na audiência de instrução e julgamento "*Não soube dizer se Sivaldo desviou clientela da autora para a empresa que montou*" (fls. 94) e da resposta ao ofício do SENAI extrai-se apenas que a ré foi constituída em data próxima à demissão do referido ex-funcionário.

A autora alegou que a ré, por meio de seu sócio, desviou clientela e



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furtou sua base de clientes. Essa era a comprovação que deveria ter produzido nos autos, vez que o ônus da prova lhe recaía, nos termos do art. 333, inc. I, do CPC/73, aplicável à causa. Todavia, a simples circunstância de a ré ter sido constituída em data próxima à demissão do sócio não é indicativa de que referidos atos graves e que podem, inclusive, caracterizar crime, tenham ocorrido.

A sentença acertadamente entendeu que:

“Os documentos exibidos não são suficientes para corroborar as alegações da autora, a quem cabia provar o fato constitutivo de seu direito, nos termos do artigo 373 do Código de Processo Civil.

É certo que o sócio na ré, Sivaldo, manteve vínculo empregatício com autora, de quem recebeu aviso prévio em 02.05.2011 (fls. 21). A relação de emprego entre as partes faz presumir que ele tivesse tido acesso a informações privilegiadas.

Incontestável que no mesmo mês em que foi demitido constituiu empresa com o mesmo objeto social da autora (fls. 13/14).

Porém, o simples fato da abertura dessa empresa não é suficiente para caracterizar a prática ilícita.

Com efeito, não ficou demonstrado que tivesse feito uso indevido de informações privilegiadas, denegrido a concorrente e gerado dano à autora.

O e-mail de fls. 16, de 25.05.2011, remetido à Fertools, suposta cliente da autora, bem como os documentos exibidos pelo SENAI (fls. 137/152), evidenciam tão-somente a apresentação e cadastro da ré no mercado, mas não caracterizam a concorrência desleal.

Ademais, a testemunha arrolada pela autora nada pode confirmar quanto à prática de captação ilícita de clientela (fls. 94)”



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Assim, não comprovado qualquer ato de concorrência desleal praticado pela ré contra a autora, não havia outra solução à lide senão a improcedência do pedido, como acertadamente a sentença julgou o pedido.

Pelo exposto, **NEGO PROVIMENTO** ao recurso, e majoro a verba honorária advocatícia sucumbencial para 15% sobre o valor da causa (art. 85, §11, NCPC).

CARLOS ALBERTO GARBI
—relator—

ANNEX B –Case Law Analysis involving Databases (Europe)

Case 1 – Lion Laboratories

LION LABORATORIES LTD V EVANS: CA 1985

April 14, 2016 @ Intellectual Property.

References: [1985] QB 526

Coram: Stephenson LJ, Griffiths LJ

Ratio Lion Laboratories manufactured and marketed the Lion Intoximeter which was used by the police for measuring blood alcohol levels of motorists. Two ex-employees approached the Press with four documents taken from Lion. The documents indicated that the Lion Intoximeter had faults which could have resulted in a significant number of motorists being wrongly convicted. Lion started proceedings against their ex-employees and Express Newspapers Limited to restrain disclosure of the information as to the faults. They obtained an interlocutory injunction restraining breach of confidence and infringement of copyright. The defendants appealed.

Held: The Court of Appeal allowed the appeal. The documents contained confidential information it would have been a breach of confidence to publish the information in them and an infringement of copyright to publish the documents themselves unless there were defences which permitted that in the public interest.

Ratio Stephenson LJ The judge was ‘right to make no difference between confidence and copyright for the purposes of this case’ and ‘The problem before the judge and before this court is how best to resolve, before trial, a conflict of two competing public interests. The first public interest is the preservation of the right of organisations, as of individuals, to keep secret confidential information. The courts will restrain breaches of confidence, and breaches of copyright, unless there is just cause or excuse for breaking confidence or infringing copyright. The just cause or excuse with which this case is concerned is the public interest in admittedly confidential information. There is confidential information which the public may have a right to receive and others, in particular the press, now extended to the media, may have a right, and even a duty to publish, even if the information has been unlawfully obtained in flagrant breach of confidence and irrespective of the motive of the informer. The duty of confidence, the public interest in maintaining it, is a restriction on the freedom of the press which is recognised by our law, as well as by article 10(2) of the Convention for the Protection of Human Rights and Fundamental Freedoms (1953) (Cmd. 8969); the duty to publish, the countervailing interest of the public in being kept informed of matters which are of real public concern, is an inroad on the privacy of confidential matters.’ There were four considerations. ‘. . .The public are interested in many private matters which are no real concern of theirs and which the public have no pressing need to know. Secondly, the media have a private interest of their own in publishing what appeals to the public and may increase their circulation or the numbers of their viewers or listeners; . . . Thirdly, there are cases in which the public interest is best served by an informer giving the confidential information, not to the press but to the police or some other responsible body. . . . Fourthly . . . ‘there is no confidence as to the disclosure of iniquity’: and in 1984 extends to serious misdeeds or grave misconduct, he submits that misconduct of that kind is necessary to destroy the duty of confidence or excuse the breach of it, and nothing of that sort is alleged against the plaintiffs in the evidence now before the court.’ and ‘What makes this case so special is that the plaintiffs’ right to keep inviolate the secrecy of the information which the defendants wish to publish is undisputed, and the only

question for interlocutory decision is whether that right is outweighed by the public interest, not in exposing persons who may be guilty of offences for which they have not been punished, but in disclosing the risk of the plaintiffs being instrumental in punishing other people for offences which they may not have committed.’ ‘The issue raised by the defendants is a serious question concerning a matter which affects the life, and even the liberty of an unascertainable number of Her Majesty’s subjects and though there is no proof that any of them has been wrongly convicted on the evidence of the plaintiffs’ Intoximeter, and we certainly cannot decide that any has, we must not restrain the defendants from putting before the public this further information as to how the Lion Intoximeter 3000 has worked, and how the plaintiffs regard and discharge their responsibility for it, although the information is confidential and was unlawfully taken in breach of confidence.’

Ratio Griffiths LJ: ‘The first question to be determined is whether there exists a defence of public interest to actions for breach of confidentiality and copyright, and if so, whether it is limited to situations in which there has been serious wrongdoing by the plaintiffs – the so-called ‘iniquity’ rule.

I am quite satisfied that the defence of public interest is now well established in actions for breach of confidence and, although there is less authority on the point, that it also extends to breach of copyright: see by way of example *Fraser v Evans* [1969] 1 QB 349; *Hubbard v Vosper* [1972] 2 QB 84; *Woodward v Hutchins* [1977] 1 WLR 760 and *British Steel Corporation v Granada Television Ltd* [1981] AC 1096.

I can see no sensible reason why this defence should be limited to cases in which there has been wrongdoing on the part of the plaintiffs. I believe that the so-called iniquity rule evolved because in most cases where the facts justified a publication in breach of confidence, it was because the plaintiff had behaved so disgracefully or criminally that it was judged in the public interest that his behaviour should be exposed. No doubt it is in such circumstances that the defence will usually arise, but it is not difficult to think of instances where, although there has been no wrongdoing on the part of the plaintiff, it may be vital in the public interest to publish a part of his confidential information. Stephenson LJ has given such an example in the course of his judgment.

I therefore agree with Leonard J that it is not an essential ingredient of this defence that the plaintiffs should have been guilty of iniquitous conduct’.

This case cites:

- Cited – *Initial Services Ltd -v- Putterill* CA ([1967] 3 All ER 145, [1968] 1 QB 396)
The plaintiff’s sales manager resigned, but took with him confidential documents which he gave to a newspaper. The defendant sought to justify this, saying that the company had failed to register agreements it should have done under the Act.
- Cited – *Fraser -v- Evans* CA ([1969] 1 QB 349)
The law of confidence is based on the moral principles of loyalty and fair dealing. An injunction was sought to restrain an intended publication: ‘The court will not restrain the publication of an article, even though it is defamatory, when the . .
- Cited – *Woodward -v- Hutchins* CA ([1977] 2 All ER 751, [1977] 1 WLR 760)
An injunction was sought to restrain publication of confidential information about a well-known pop group, starring Tom Jones and Engelbert Humperdinck. As the group’s press agent, the defendant’s role had been to see that the group received . .
- Cited – *Hubbard -v- Vosper* CA ([1972] 2 WLR 389, [1971] 1 All ER 1023 CA, [1972] 2 QB 84)
Claims of infringement were made as to copyright works being various works about Scientology. Extracts had appeared in the defendant’s book which was critical of the cult. It was submitted by the plaintiff that the fair dealing section applied only . .

- Cited – Schering Chemicals Ltd -v- Falkman Ltd CA ([1982] QB 1, [1981] 2 All ER 321, [1981] 2 WLR 848)
Confidentiality is a relative concept
Shaw LJ said: ‘ . . the communication in a commercial context of information which at the time is regarded by the giver and recognised by the recipient as confidential and the nature of which has a . .
- Cited – British Steel Corporation -v- Granada Television Ltd HL ([1981] AC 1096, [1981] 1 All ER 452, [1980] 3 WLR 774)
The defendant had broadcast a TV programme using material confidential to the plaintiff, who now sought disclosure of the identity of the presumed thief.
Held: (Lord Salmon dissenting) The courts have never recognised a public interest right . .
- Cited – Francome -v- Mirror Group Newspapers Ltd CA ([1984] 1 WLR 892)
The defendant had acquired illegal tapes of telephone conversations which it said implicated the plaintiff. He sought to restrain publication of the material pending forthcoming disciplinary charges at the Jockey Club.
Held: The court had to . .
- Cited – Gartside -v- Outram ((1856) 26 LJ Ch113)
An employee was told by his master ‘I am going to falsify these sales notes and deceive the customers. You are not to say anything about it to anyone.’ He thereafter falsified the sale notes.
Held: The servant was entitled to say: ‘I am not . .
- Cited – Beloff -v- Pressdram Ltd QBD ([1973] RPC 765, [1973] 1 All ER 241)
A journalist on The Observer sued the publishers of Private Eye for having published a memorandum of the plaintiff about a politician, Mr Maudling, which had been circulated amongst the employees of The Observer.
Held: The defences to a claim . .

(This list may be incomplete)

This case is cited by:

- Cited – Hyde Park Residence Ltd -v- Yelland, News Group Newspapers Ltd, News International Ltd, Murrell CA (Times 16-Feb-00, Gazette 24-Feb-00, Bailii, [2000] EWCA Civ 37, [2001] Ch 143)
The court considered a dispute about ownership and confidence in and copyright of of video tapes taken by Princess Diana before her death.
Held: The courts have an inherent discretion to refuse to enforce of copyright. When assessing whether . .
- Considered – Express Newspapers -v- News (UK) plc ([1990] 1 WLR 1320, Times 01-Jan-90, [1990] FSR 359, [1990] Ch D 1320)
If summary judgment is given to one party on his claim, it must also be given on a counterclaim made on the same basis by the defendant. The principle that a party to litigation cannot ‘approve and reprobate’ (or ‘blow hot and cold’) can curtail a . .
- Approved – Attorney-General -v- Guardian Newspapers Ltd (No 2) (‘Spycatcher’) HL ([1990] 1 AC 109, Bailii, [1988] UKHL 6, [1987] 1 WLR 776, [1988] 3 All ER 545)
A retired secret service employee sought to publish his memoirs from Australia. The British government sought to restrain publication there, and the defendants sought to report those proceedings, which would involve publication of the allegations . .
- Cited – Mersey Care NHS Trust -v- Ackroyd QBD (Bailii, [2006] EWHC 107 (QB), Times 09-Feb-06)
The trust, operators of Ashworth Secure Hospital sought from the defendant journalist disclosure of the name of their employee who had revealed to the defendant matters about the holding of Ian Brady, the Moors Murderer, and in particular medical . .
- Cited – McKennitt and others -v- Ash and Another QBD (Bailii, [2005] EWHC 3003 (QB), [2006] EMLR 10)
The claimant sought to restrain publication by the defendant of a book recounting very personal events in her life. She claimed privacy and a right of confidence. The defendant argued that

there was a public interest in the disclosures.
Held: . .

(This list may be incomplete)

Last Update: 14-Apr-16

Ref: 223824

<http://swarb.co.uk/lion-laboratories-ltd-v-evans-ca-1985/>

Case 2 – Football



Coletânea da Jurisprudência

CONCLUSÕES DO ADVOGADO-GERAL
PAOLO MENGOLZI
apresentadas em 15 de dezembro de 2011¹

Processo C-604/10

Football Dataco Ltd
Football Association Premier League Ltd
Football League Limited
Scottish Premier League Ltd
Scottish Football League
PA Sport UK Ltd
contra
Yahoo! UK Limited
Stan James (Abingdon) Limited
Stan James PLC
Enetpulse APS

[pedido de decisão prejudicial apresentado pela Court of Appeal (England & Wales) (Civil Division), Reino Unido]

«Diretiva 96/9/CE — Proteção jurídica das bases de dados — Calendário dos campeonatos de futebol — Direito de autor»

1. No presente processo, o Tribunal de Justiça é chamado a completar a sua própria jurisprudência relativamente à possibilidade de proteger os calendários de um campeonato de futebol com base na Diretiva 96/9/CE, relativa à proteção jurídica das bases de dados (a seguir «Diretiva»)². Em 2004, o Tribunal de Justiça esclareceu que esses calendários não podem, em princípio, gozar da proteção com base no chamado direito «sui generis» previsto pela diretiva. O que se deverá agora verificar, para completar o quadro, é se é aplicável, e em que condições, a proteção fornecida pelo direito de autor.

I – Quadro jurídico

2. A Diretiva 96/9/CE prevê que uma base de dados pode beneficiar de dois tipos distintos de proteção. Em primeiro lugar, a proteção assegurada pelo direito de autor definida nos termos seguintes no artigo 3.º:

«1. Nos termos da presente diretiva, as bases de dados que, devido à seleção ou disposição das matérias, constituam uma criação intelectual específica do respetivo autor, serão protegidas nessa qualidade pelo direito de autor. Não serão aplicáveis quaisquer outros critérios para determinar se estas podem beneficiar dessa proteção.

1 — Língua original: italiano.

2 — Diretiva 96/9/CE do Parlamento Europeu e do Conselho, de 11 de março de 1996, relativa à proteção jurídica das bases de dados (JO L 77, p. 20).

2. A proteção das bases de dados pelo direito de autor prevista na presente diretiva não abrange o seu conteúdo e em nada prejudica eventuais direitos que subsistam sobre o referido conteúdo».

3. O artigo 7.º da diretiva prevê, assim, um outro tipo de proteção, chamado «sui generis», para as bases de dados cuja elaboração tenha requerido «um investimento substancial»:

«1. Os Estados-Membros instituirão o direito de o fabricante de uma base de dados proibir a extração e/ou a reutilização da totalidade ou de uma parte substancial, avaliada qualitativa ou quantitativamente, do conteúdo desta, quando a obtenção, verificação ou apresentação desse conteúdo representem um investimento substancial do ponto de vista qualitativo ou quantitativo.

[...]

4. O direito previsto no n.º 1 é aplicável independentemente de a base de dados poder ser protegida pelo direito de autor ou por outros direitos. Além disso, esse direito será igualmente aplicável independentemente de o conteúdo da base de dados poder ser protegido pelo direito de autor ou por outros direitos. A proteção das bases de dados pelo direito previsto no n.º 1 não prejudica os direitos existentes sobre o seu conteúdo».

4. O artigo 14.º da diretiva ocupa-se da sua aplicação no tempo. O mesmo indica, em particular, no n.º 2, a regra a aplicar no caso de uma base de dados que estivesse protegida pelo direito de autor antes da entrada em vigor da diretiva, mas não possuísse os requisitos para essa proteção com base na própria diretiva:

«[...] sempre que uma base de dados protegida por um regime de direitos de autor num Estado-Membro à data de publicação da presente diretiva não corresponda aos critérios de elegibilidade para a proteção a título de direito de autor previsto no n.º 1 do artigo 3.º, a presente diretiva não terá por efeito a redução, nesse Estado-Membro, do prazo de proteção concedido a título do regime acima referido ainda por decorrer».

II – Matéria de facto, processo principal e questões prejudiciais

5. A sociedade Football Dataco Ltd e o. (a seguir «Football Dataco e o.») organizam os campeonatos de futebol ingleses e escoceses. Neste contexto elaboram e tornam público o elenco de todos os encontros que serão jogados, todos os anos, em tais campeonatos. As contrapartes, Yahoo! UK Limited e o. (a seguir «Yahoo e o.») utilizam os calendários de futebol em questão para fornecer notícias e informações e/ou para organizar atividades de apostas.

6. A Football Dataco e o. pedem, em síntese, à Yahoo e o. o pagamento de direitos pela utilização dos calendários de futebol que elaboraram. As mesmas reivindicam para tais calendários a proteção decorrente da diretiva, seja com base no direito de autor seja com base no direito «sui generis».

7. Os juízes nacionais excluíram a proteção com base no direito «sui generis», uma vez que o Tribunal de Justiça já se pronunciou sobre este ponto recentemente e de modo muito claro, em quatro acórdãos proferidos pela Grande Secção em novembro de 2004³. Considerando, no entanto, ainda em aberto a problemática relativa à possível proteção com base no direito de autor, que não tinha sido suscitada no âmbito das causas decididas em 2004, o órgão jurisdicional de reenvio suspendeu o processo e colocou as seguintes questões prejudiciais:

«1) No artigo 3.º, n.º 1, da Diretiva 96/9/CE relativa à proteção jurídica das bases de dados, o que se deve entende[r] por 'bases de dados que, devido à seleção ou disposição das matérias, constituam uma criação intelectual específica do respetivo autor' e, em especial,

3 — Acórdãos de 9 de novembro de 2004, *Pitzaro Marketing* (C-46/02, Col.ª, p. 1-10365); *The British Horseracing Board e o.* (C-203/02, Col.ª, p. 1-10412); *Pitzaro Marketing* (C-338/02, Col.ª, p. 1-10487), e *Pitzaro Marketing* (C-444/02, Col.ª, p. 1-10546).

- a) devem o esforço intelectual e a perícia na criação de dados ser excluídos?
 - b) a expressão 'seleção ou [a] disposição' inclui o aditamento de um significado importante a um dado pr[e]existente (como a fixação da data de um jogo de futebol);
 - c) a expressão 'criação intelectual específica do respetivo autor' exige mais do que uma quantidade considerável de trabalho e perícia do autor? Em caso de resposta afirmativa, o quê?
- 2) A diretiva opõe-se à existência de direitos nacionais sob a forma de direitos de autor sobre bases de dados diferentes dos previstos na diretiva?*

III – Quanto à primeira questão prejudicial:

8. Na sua primeira questão prejudicial o órgão jurisdicional de reenvio pede, em síntese, ao Tribunal de Justiça para precisar em que condições uma base de dados na aceção da Diretiva 96/9/CE pode ser protegida pelo direito de autor. A fim de poder responder de modo adequado é necessário, antes de mais, recapitular a jurisprudência do Tribunal de Justiça relativa aos calendários de futebol, e verificar depois quais são as relações entre os dois tipos de proteção possíveis com base na diretiva: o direito de autor, por um lado, e o direito «sui generis», por outro.

A – Jurisprudência do Tribunal de Justiça nesta matéria

9. A jurisprudência do Tribunal de Justiça relativa à proteção das bases de dados, e refiro-me em particular aos já citados acórdãos de novembro de 2004, esclareceu dois pontos fundamentais que devem estar presentes no exame das presentes questões prejudiciais.

10. Em primeiro lugar um calendário de futebol, ainda que constituído por uma simples lista de encontros, deve ser considerado uma base de dados na aceção da diretiva⁴. Tal ponto é dado como assente quer pelo órgão jurisdicional de reenvio quer por todos os interessados que apresentaram observações, e não deve, portanto, ser objeto de análise adicional.

11. Em segundo lugar, um calendário de futebol não satisfaz os requisitos que são necessários, na aceção do artigo 7.^º da diretiva, para proteger uma base de dados através do direito «sui generis». Isto na medida em que a redação do calendário, isto é, a inserção de uma lista ordenada de uma série de elementos preexistentes (os dados relativos a cada encontro), não exige qualquer investimento substancial para a obtenção, a verificação ou a apresentação dos dados⁵. Também este aspeto, como indiquei, é dado como assente pelo órgão jurisdicional de reenvio (embora algumas das partes na causa principal tivessem tentado obter que fossem também colocadas ao Tribunal de Justiça algumas questões relativamente ao direito «sui generis»), o qual limitou, portanto, as suas questões à proteção com base no direito de autor.

B – Relação entre a proteção baseada no direito de autor e a proteção «sui generis»

12. Um outro ponto, que deve ser necessariamente esclarecido antes de se proceder ao exame da primeira questão, diz respeito à relação entre os dois tipos de proteção previstos pela diretiva. Poder-se-ia de facto perguntar, lendo o texto das disposições aplicáveis, se não existe uma disposição hierárquica entre a proteção com base no direito de autor e a proteção «sui generis». Semelhante

4 — Acórdão no processo *Finare Marketing* (C-444/02, n.º 25 a 36), já referido na nota 3.

5 — Acórdão no processo *Finare Marketing* (C-46/02, n.º 44 a 47), já referido na nota 3.

interpretação, que pode contar com o apoio de opiniões abalizadas⁶ e também foi invocada indiretamente em algumas observações desenvolvidas na audiência, considera a proteção «sui generis» como uma proteção de segundo nível, que pode ser reconhecida quando uma base de dados não possua a originalidade que é necessária para ser protegida pelo direito de autor. Neste caso, o facto de que o Tribunal de Justiça tenha excluído, nos seus acórdãos de novembro de 2004, a proteção «sui generis» (por assim dizer «menor») para os campeonatos de futebol, implicaria automaticamente excluir também a proteção (por assim dizer «maior») fundada sobre o direito de autor.

13. O exame atento da diretiva mostra, todavia, que semelhante leitura não é correta, e que os dois tipos de proteção devem ser considerados completamente autónomos um do outro, como, de facto, parecem ter aceite, também, todos os interessados que apresentaram observações no presente processo, incluindo-se aí a Comissão.

14. Deve, com efeito, observar-se que, na diretiva, o próprio objeto das duas proteções é distinto. Por um lado, a proteção baseada no direito de autor concentra-se essencialmente na *estrutura* da base de dados, isto é, no modo como esta foi concretamente criada pelo seu autor, através da escolha dos materiais a incluir ou as modalidades da sua apresentação. O n.º 2 do artigo 3.º precisa, de resto, claramente que o direito de autor previsto em tal artigo «não abrange o [...] conteúdo» da base de dados, que pode ser protegido pelo direito de autor de forma autónoma, mas não o é devido ao facto de estar inserido numa base de dados protegida. O décimo quinto considerando observa que a proteção do direito de autor «incide sobre a estrutura da base». Pelo contrário, a proteção «sui generis» é simplesmente um direito de proibir operações de extração e/ou de reutilização *nos dados contidos nas bases de dados*. Este direito é reconhecido para proteger não a originalidade da base de dados em si, mas para compensar o esforço desenvolvido para reunir, verificar e/ou apresentar os dados contidos na mesma⁷.

15. Por outros termos, uma base de dados pode, portanto, conforme os casos, ser protegida apenas pelo direito de autor, apenas pelo direito «sui generis», por ambos ou, também, por nenhum dos dois.

C — Noção de base de dados na aceção da diretiva

16. O facto de, como acabámos de ver, os dois tipos de proteção possíveis da base de dados serem de todo independentes um do outro, não significa todavia que a noção de base de dados, tal como foi desenvolvida pelo Tribunal de Justiça nos seus acórdãos de novembro de 2004, deva ser diferente em relação aos dois tipos de direito. Pelo contrário, é minha convicção que tal noção deve ser necessariamente idêntica. Não faz qualquer sentido que um conceito chave da diretiva, definido no seu artigo 1.º possa ter um alcance diferente, sem algum argumento textual nesse sentido, para interpretar dois artigos distintos do texto normativo, que conservam de resto todo o seu valor interpretados à luz de uma noção unitária do conceito de base de dados. O direito de autor pode proteger a estrutura da base de dados, enquanto o direito «sui generis» protege o conteúdo: mas isto não exige de modo algum que existam duas noções diferentes de «base de dados».

17. Neste contexto, o Tribunal de Justiça clarificou que o âmbito de proteção oferecido pela diretiva *não compreende a fase da criação dos dados, mas apenas a fase da recolha, verificação e apresentação*

6 — Neste sentido *v.*, em particular, o *working paper* da DG Mercado Interno 12 de dezembro de 2005, *First evaluation of Directive 96/9/EC on the legal protection of databases*, disponível no sítio Web da Comissão.

7 — Acórdão no processo *Pitarus Marketing* (C-46/02, n.º 39), já referido na nota 3. Deve notar-se incidentalmente que a versão italiana do artigo 7.º da diretiva parece exigir que se tenha verificado um investimento substancial na obtenção, na verificação e na apresentação dos dados. Em contrapartida, as outras versões linguísticas utilizam a conjunção *ou*, e com isto é coerente a interpretação fornecida pelo Tribunal de Justiça: o investimento substancial pode merecer proteção também se diz respeito apenas à obtenção, apenas à verificação ou apenas à apresentação dos dados.

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*dos mesmos*⁸. Por outras palavras, o intérprete deve individualizar a «base de dados», tendo a atenção de traçar com clareza uma linha que distinga o momento da criação dos dados, que não interessa à diretiva, do momento em que tais dados são recolhidos ou elaborados, o qual por sua vez releva para determinar se tal base de dados merece pelo menos uma proteção.

18. O Tribunal de Justiça efetuou esta distinção, entre criação dos dados e a sua inserção, no âmbito de um discurso sobre a proteção «sui generis». Em meu entender, todavia, trata-se de considerações que dizem respeito, de modo mais geral, à própria noção de base de dados na aceção da diretiva. Essa precisão esclarece além disso de modo definitivo que a diretiva protege a *criação de bases de dados* — sobre os dois perfis da estrutura desses e da recolha dos dados — *mas não se ocupa da proteção dos dados enquanto tais*. De resto, o objetivo da diretiva é o de favorecer a criação dos sistemas de recolha e consulta de informações⁹, não a criação dos dados. Na sua discussão relativa à noção de base de dados o Tribunal de Justiça insistiu, por outro lado, repetidamente sobre o valor informativo independente dos dados inseridos na base¹⁰.

19. O facto de se deixar de tomar em consideração, para efeitos da diretiva, a atividade de criação dos dados, é, de resto, perfeitamente lógico, também, com referência ao direito de autor, a partir do momento em que, como sublinha a diretiva, os dados *podem de qualquer modo ser protegidos, enquanto tais, pelo direito de autor*, se se verificarem os requisitos para tanto, independentemente da existência de um direito de autor sobre a base de dados.

20. Devo por outro lado observar que, no caso presente, a própria ideia de utilizar a proteção do direito de autor para proteger os calendários de futebol parece pelo menos singular. Como já salientei antes, de facto o direito de autor protege essencialmente, no caso de uma base de dados, a parte «exterior», da sua estrutura. Tanto quanto se pode compreender, a Yahoo utiliza os *dados* elaborados pelas sociedades organizadoras dos campeonatos, e não as eventuais modalidades em que essas sociedades tornam os dados públicos. Muito razoavelmente, antes que os acórdãos do Tribunal de Justiça de 2004 excluíssem a sua aplicabilidade, o único tipo de proteção considerado pelas sociedades organizadoras era a proteção «sui generis», que tutela, como se viu, mais o conteúdo de uma base de dados (ou, melhor dizendo, o esforço necessário para os recolher e apresentar) do que a sua estrutura. A utilização do direito de autor aparece aqui como uma solução de recurso, resultante da exclusão da proteção «sui generis» por parte do Tribunal de Justiça. Por outro lado, não é de modo nenhum certo que a eventual existência de uma proteção baseada sobre o direito de autor para os calendários de futebol impedisse a atividade atualmente desenvolvida pela Yahoo, que, tanto quanto nos é dado compreender das peças do processo, parece limitar-se ao uso dos dados em bruto (datas, horários e equipas dos vários encontros), e não da estrutura da base de dados.

21. Tudo isto ponderado, é agora possível passar ao exame das três subquestões colocadas pelo órgão jurisdicional de reenvio. A apreciação destas permitirá, como veremos, apresentar uma resposta de conjunto à primeira questão prejudicial.

D — Quanto à primeira questão prejudicial, alínea a)

22. Na primeira das três subquestões o órgão jurisdicional de reenvio pergunta ao Tribunal de Justiça se a atividade desenvolvida para a criação dos dados que são inseridos na base de dados deve ser tomada em consideração para determinar se essa base de dados merece, pelo menos, a proteção com base no direito de autor.

8 — Acórdãos no processo *Fiturum Marketing* (C-444/02, n.º 29 a 40), já referido na nota 3, e no processo *Fiturum Marketing* (C-355/02, n.º 25), já referido na nota 3.

9 — Acórdão no processo *Fiturum Marketing* (C-444/02, n.º 30), já referido na nota 3.

10 — *Ibidem*, n.º 29 e 33 a 35.

23. A resposta a esta interrogação deriva diretamente de quanto observei antes, no que respeita à noção necessariamente unitária de «base de dados» da diretiva. Os esforços desenvolvidos para a criação dos dados não podem entrar em linha de conta para avaliar o direito à proteção com base no direito de autor, exatamente como esses não podem entrar em linha de conta, segundo o ensinamento do Tribunal de Justiça, para avaliar o direito à proteção «sui generis». A criação dos dados é uma atividade que se coloca fora do campo de aplicação da diretiva.

24. De resto, já se observou que a atividade desenvolvida para a criação dos dados não pode ser, como o Tribunal de Justiça afirmou, tomada em consideração para a proteção «sui generis», que é aquela mais estreitamente ligada aos dados e à sua obtenção, por maioria de razão tais atividades deverão ser ignoradas no que respeita à proteção mediante o direito de autor, a qual apresenta uma ligação mais ténue com a recolha dos dados e é, antes, focalizada na sua apresentação.

E — Quanto à primeira questão prejudicial, alínea b)

25. Na segunda subquestão, o órgão jurisdicional de reenvio pede ao Tribunal de Justiça que esclareça se a «seleção ou a disposição» dos conteúdos da base de dados, cujo exame permite verificar se existem os pressupostos para a proteção segundo o direito de autor, podem consistir, também, num aumento de importância relevante de dados preexistentes.

26. Em síntese, aquilo que se pergunta é se constitui uma operação de «seleção ou [...] disposição» suficiente para garantir a proteção com base no artigo 3.º o facto de, por exemplo, se atribuir características específicas posteriores a um elemento inserido na base de dados. O órgão jurisdicional de reenvio menciona, a título de exemplo, o facto de se fixar a data de um determinado encontro entre duas equipas de futebol.

27. Considero que a subquestão agora indicada parte de um pressuposto errado. De facto, todas as indicações referentes a cada jogo de um determinado campeonato *devem considerar-se definidas antes da introdução dos dados na base de dados*. Conforme o Tribunal de Justiça já esclareceu, no caso de um calendário de futebol, os dados de partida que são inseridos na base de dados não são todas as equipas e todas as datas possíveis, *mas as circunstâncias específicas de todos e cada um dos encontros que deverá ser disputado* (data, equipa, lugar, etc.)¹¹. Por outras palavras, a determinação de todas as características de todos os encontros coloca-se na fase da criação dos dados — excluída, como se viu, da proteção com base na diretiva — e não pode ser considerada como um resultado ou uma consequência da organização dos dados na base de dados.

28. O órgão jurisdicional de reenvio, no entanto, parece partir do pressuposto de que, na base de dados, estão inseridas, na prática, algumas listas simples: todas as equipas do campeonato, todas as datas e todos os horários possíveis para os encontros. Deste ponto de vista, a determinação das características específicas de cada encontro (equipas envolvidas, dia e hora) ocorreria *depois* da introdução dos dados de partida na base de dados. Tal determinação seria um *produto* da base de dados.

29. Em meu entender, semelhante interpretação dos factos é errada. O que se insere na base de dados não são as composições genéricas das equipas, das datas e dos horários possíveis. O que se insere na base de dados são já, pelo contrário, todos os encontros individualizados que deverão ser disputados, *cada um com as suas características completas*: hora, data, equipas. A passagem da lista genérica (por exemplo a equipa A, B, C, D, etc., as datas x, y, z, etc.) à definição dos encontros específicos (por exemplo, equipa A contra a equipa B na data x) *coloca-se na fase da criação dos dados*, anterior à inserção destes na base de dados.

¹¹ — Acrescidos no processo *Fitnarex Marketing* (C-46/02, n.º 41 e 42), já referido na nota 3; no processo *Fitnarex Marketing* (C-338/02, n.º 31), já referido na nota 3, e no processo *Fitnarex Marketing* (C-444/02, n.º 47), já referido na nota 3.

30. Por consequência, são irrelevantes as observações, bastante detalhadas, desenvolvidas pelas partes recorrentes no processo principal para demonstrar que o trabalho de determinação das características de cada partida individual não é puramente automático e exige, pelo contrário, considerável perícia e competência. Esta atividade é, de facto, em todos os aspetos preliminar e distinta em relação à da criação da base de dados.

31. A interpretação que acabo de referir é confirmada pela própria jurisprudência do Tribunal de Justiça, em particular nas passagens em que é sublinhada a necessidade de que os componentes específicos de uma base de dados possuam um valor informativo autónomo¹². Não podem, de facto, ser consideradas como autenticamente «informativas», em meu entender, listas genéricas de equipas, datas e horários. Apenas o conjunto das características de cada um dos encontros individuais pode ter semelhante valor.

32. Dito isto, considero que a subquestão, quando posta em termos abstratos e fora das circunstâncias do presente processo, deveria receber uma resposta positiva. Por outros termos, a atribuição de uma relevância significativa a elementos dos dados preexistentes — realizada mediante a inserção de tais dados numa base de dados — pode representar uma «disposição das matérias» merecedora de ser considerada para efeitos da proteção com base no direito de autor. Não existem de facto, em meu entender, dúvidas que no espírito da diretiva, o facto de que a inserção dos dados numa base de dados acrescenta aos mesmos um valor adicional ou significado que pode ser relevante, no âmbito de uma avaliação de conjunto, para reconhecer a proteção do direito de autor à própria base de dados. Isto é, de resto, precisamente o objetivo da disposição, que visa proteger aquilo que uma base de dados «acrescenta», de qualquer modo, em relação aos dados de partida que são inseridos na mesma. No entanto, no caso dos elementos que caracterizam os encontros de um campeonato de futebol, *todos* eles são parte dos dados de partida, e não um produto da inserção destes últimos na base de dados.

F – Quanto à primeira questão prejudicial, alínea c)

33. Na terceira subquestão, o órgão jurisdicional de reenvio interroga o Tribunal de Justiça sobre a noção de «criação intelectual» do autor de uma base de dados. Isto está, evidentemente, em relação com o facto de o artigo 3.º da diretiva subordinar a proteção com base no direito de autor precisamente ao facto de a base de dados, devido à seleção ou disposição das matérias, constituir uma criação intelectual específica do respetivo autor. Em particular, o órgão jurisdicional de reenvio pergunta se, para haver uma criação intelectual, é suficiente, pelo menos, uma contribuição significativa de trabalho e perícia («significant labour and skills»).

34. Também esta terceira subquestão, com toda a probabilidade, parte como a precedente da premissa, em meu entender errada, de que os esforços desenvolvidos pelas sociedades organizadoras para determinar as equipas, as datas e os horários dos vários encontros do campeonato, esforços que, indubitavelmente, exigem uma determinada quantidade de trabalho e de experiência organizativa, estariam ligados à realização da base de dados. Na realidade, como salientei acima, esses esforços devem, pelo contrário, ser colocados na fase precedente, a da criação dos dados, a qual não pode ser tomada em consideração para avaliar o direito da proteção da base de dados.

35. Em qualquer caso, ainda que abandonando essas considerações e examinando o pedido do órgão jurisdicional nacional em termos abstratos, a resposta é, em meu entender, obrigatória: a proteção do direito de autor está subordinada ao facto de a base de dados ser caracterizada por um elemento «criador», e não é suficiente que a criação da base de dados tenha exigido trabalho e perícia.

¹² — V., *supra*, nota 10.

36. É sabido que, no interior da União, existem parâmetros diferentes no que respeita ao nível de originalidade exigido, em geral, para reconhecer a proteção do direito de autor¹³. Em particular, em alguns países da União, os que se caracterizam por uma tradição de *common law*, o critério de referência é tradicionalmente o contributo de «trabalho, perícia ou esforço» (labour skills or effort). Por exemplo, no Reino Unido, por esta razão, as bases de dados gozavam, em geral, antes da entrada em vigor da diretiva, da proteção do direito de autor. Uma base de dados era protegida pelo direito de autor se o seu criador tinha necessitado, para a realizar, de efetuar um esforço ou utilizar uma certa perícia. Pelo contrário, nos países de tradição continental é, em geral, exigido, para reconhecer uma proteção com base no direito de autor, que a obra possua um elemento de criatividade, ou exprima, de qualquer modo, a personalidade do seu autor, embora esteja sempre excluída qualquer apreciação relativa à qualidade ou à natureza «artística» da obra.

37. Ora, a este propósito não existem dúvidas quanto ao facto de que a diretiva acolheu, no que respeita à proteção com base no direito de autor, uma noção de originalidade que vai para além do simples esforço «mecânico» necessário para recolher os dados e inseri-los na base. Para estar protegida pelo direito de autor, a base de dados deve, como indica explicitamente o artigo 3.º da diretiva, ser uma «criação intelectual» do seu autor. Tal expressão não deixa lugar a dúvidas e retoma uma fórmula típica da tradição continental do direito de autor.

38. É claro que não é possível definir de uma vez por todas, em termos gerais, quando se está em presença de uma «criação intelectual». Trata-se de uma avaliação que, como referi, não é necessária no caso presente. De qualquer modo, quando essa avaliação se impuser, a mesma compete ao juiz nacional, com base nas circunstâncias de cada caso concreto.

39. O Tribunal de Justiça teve ocasião de fornecer a este propósito algumas indicações e, em particular, sublinhou que a proteção do direito de autor, reconhecida pelo artigo 3.º da diretiva, às bases de dados, bem como pelo artigo 1.º, n.º 3, da Diretiva 91/250¹⁴ aos programas para computador e pelo artigo 6.º da Diretiva 2006/116¹⁵ às fotografias, pressupõe que se trate de obras «originais, na aceção de que são criação intelectual do próprio autor»¹⁶.

40. A este propósito, o Tribunal de Justiça também teve oportunidade de indicar que se está em presença de uma criação intelectual do autor quando a obra reflete a sua personalidade, isto é, se verifica que o autor pôde efetuar, a esse propósito, escolhas livres e criativas¹⁷. Além disso, especificou que, em geral, não se está em presença da necessária originalidade quando as características de uma obra são impostas pela função técnica desta última¹⁸.

41. O que o legislador da diretiva procurou realizar, em síntese, é uma espécie de compromisso/conciliação das orientações existentes nos vários Estados da União na data da aprovação da diretiva. Para a proteção segundo o direito de autor foi escolhido o paradigma mais «rigoroso» dos países de tradição continental, enquanto para a proteção «sui generis» foi utilizado um critério de referência que é mais próximo, na prática, daquele da tradição de *common law*¹⁹.

13 — Já na proposta inicial da diretiva da Comissão, datada de 13 de maio de 1992 [COM (92)24 final], as divergências nacionais relativamente à originalidade eram indicadas em três casos que militavam para uma harmonização da proteção das bases de dados (v. ponto 2.2.5).

14 — Diretiva 91/250/CEE do Conselho, de 14 de maio de 1991, relativa à proteção jurídica dos programas para computador (JO L 122, p. 42).

15 — Diretiva 2006/116/CE do Parlamento Europeu e do Conselho, de 12 de dezembro de 2006, relativa à duração da proteção do direito de autor e de alguns direitos conexos (versão codificada) (JO L 372, p. 12).

16 — Acórdão de 16 de julho de 2009, Infopaq Intercontinental (C-5/08, Colêt., p. I-6569, n.º 35). Devo-se, no entanto, observar que as três diretivas agora citadas utilizam uma terminologia que, em algumas línguas, é idêntica, enquanto noutras (como, por exemplo, no italiano), embora apresentando ligeiras diferenças, mostra claramente a intenção do legislador de se referir à mesma noção.

17 — Acórdão de 1 de dezembro de 2011, Patser (C-145/10, Colêt., p. I-12333, n.º 88-89).

18 — Acórdão de 22 de dezembro de 2010, Bupacromisti subbesovci asociacio (C-393/09, Colêt., p. I-13971, n.º 46).

19 — V., sobre este ponto, também o Working Paper da Comissão, já referido na nota 6 (ponto 1.1).

42. Trata-se, como se vê, de indicações sobretudo gerais, que no entanto não é necessário aqui aprofundar ulteriormente uma vez que, como indiquei antes, no caso de um calendário de futebol confluem na base de dados informações autónomas e já completas *que não adquirem qualquer significado adicional através da sua inserção na própria base de dados*.

43. O facto de a protecção do direito de autor para as bases de dados estar sujeita a um requisito de originalidade mais exigente não significa, naturalmente, que os esforços «mecânicos» para a recolha dos dados sejam irrelevantes para efeitos da diretiva. Pelo contrário, o escopo essencial do seu artigo 7.º, relativo à protecção «sui generis», é precisamente o de proteger tais atividades. O facto de o Tribunal de Justiça de Justiça ter excluído a aplicação, no caso dos calendários de futebol, não lhes reduz a importância em termos mais gerais.

44. Resta, no entanto, o facto de, em princípio, também um calendário de futebol poder, em algumas condições, ser protegido pelo direito de autor, se na sua realização prática o autor introduz elementos com suficiente originalidade. Por exemplo, um calendário caracterizado por uma particular modalidade de representação dos encontros, com a utilização de cores e outros elementos gráficos, poderia, sem dúvida, merecer a protecção do direito de autor com base na diretiva. Esta protecção, todavia, limitar-se-ia a cobrir a *modalidade* da representação, e não os dados nesta contidos. Não se verifica que, no caso em exame, o calendário de futebol produzido pelas sociedades organizadoras dos campeonatos se caracterize por uma, seja qual for, modalidade original de apresentação dos dados: compete todavia ao juiz nacional verificar essa circunstância, tendo para esse fim também em conta as suprarreferidas indicações fornecidas pelo Tribunal de Justiça.

G – Conclusão sobre a primeira questão prejudicial

45. O exame das três subquestões permitiu esclarecer alguns aspetos essenciais da protecção das bases de dados pelo direito de autor, com base na diretiva. Esclareceu-se, em particular, que o esforço desenvolvido para a criação dos dados não pode ser tomado em consideração para avaliar o direito à protecção da base de dados enquanto tal (primeira subquestão). Em segundo lugar, viu-se que embora o acrescento de novos elementos aos dados pré-existentes, como consequência da sua inserção na base de dados, possa ser significativo para avaliar se existe direito à protecção, no caso de uma série de encontros de futebol inseridos numa base de dados não se verifica «enriquecimento» algum dos dados pré-existentes (segunda subquestão). Verificou-se, finalmente, que o simples desenvolvimento de esforços ou perícia não basta para fazer que uma base de dados constitua uma criação intelectual protegida pelo direito de autor (terceira subquestão). Com base nestas observações, é agora possível formular uma resposta à primeira questão prejudicial.

46. Proponho, pois, ao Tribunal de Justiça que decida a primeira questão prejudicial declarando que uma base de dados pode ser protegida pelo direito de autor, na aceção do artigo 3.º da Diretiva 96/9/CE, apenas quando a mesma constitua uma criação intelectual original do respetivo autor. Para esse efeito, não podem ser tomadas em consideração as atividades desenvolvidas para a criação dos dados. No caso de um calendário de futebol, constitui atividade de criação dos dados a determinação de todos os elementos relativos a cada encontro individual.

IV – Quanto à segunda questão prejudicial

47. Na segunda questão prejudicial, o órgão jurisdicional de reenvio pede ao Tribunal de Justiça que indique se a protecção com base no direito de autor, referida na diretiva, é a única deste tipo possível para uma base de dados ou se, no entanto, o direito nacional, pelo contrário, pode reconhecer a mesma protecção também às bases de dados que, na aceção da diretiva, não possuem os necessários requisitos.

48. O mesmo órgão jurisdicional nacional indica claramente, no seu despacho, ter apenas dúvidas bastante ténues sobre a resposta à questão, e, com efeito, a mesma presta-se a ser decidida rapidamente. É evidente, de facto, que a diretiva realizou, em matéria de proteção das bases de dados pelo direito de autor, uma harmonização exaustiva que não admite direitos adicionais reconhecidos a nível nacional.

49. Desde logo, a leitura dos considerandos da diretiva mostra, sem ambiguidade, que tal é a vontade do legislador. Por exemplo, no terceiro considerando observa-se o seguinte:

«Considerando que é necessário eliminar as diferenças existentes que têm um efeito de distorção no funcionamento de mercado interno e evitar que surjam novas diferenças, ao passo que as diferenças que presentemente não afetam negativamente o funcionamento do mercado interno ou o desenvolvimento de um mercado da informação na Comunidade podem não ser suprimidas ou impedidas».

50. O décimo segundo considerando alinha na mesma ordem de ideias:

«Considerando que um investimento desta natureza em sistemas modernos de armazenamento e tratamento da informação não poderá ser realizado na Comunidade sem um regime jurídico estável e homogéneo de proteção dos direitos de fabricantes das bases de dados».

51. O argumento que encerra definitivamente a questão é, no entanto, em meu entender, o artigo 14.º da diretiva. Essa norma prevê um regime transitório especial para as bases de dados que, anteriormente protegidas pelo direito de autor com base nas normas nacionais, não satisfazem os requisitos para a proteção com base no direito de autor na aceção da diretiva. Essas bases de dados conservam, para o restante período de proteção concedido com base no regime nacional anterior à diretiva, a proteção do direito de autor. É evidente que a norma não teria qualquer sentido se, depois da entrada em vigor da diretiva, um direito nacional pudesse continuar a reconhecer, sem limite de tempo, a proteção a uma base de dados que não possuísse os requisitos na aceção da diretiva. Se assim fosse, de facto, o direito de autor «nacional» continuaria a ser aplicável de forma autónoma e não haveria necessidade alguma de prever uma norma transitória para as bases de dados que, na aceção da diretiva, não são suficientemente originais para merecer essa proteção.

52. A segunda questão prejudicial deve, portanto, ser decidida declarando que a diretiva se opõe a que um direito nacional reconheça a proteção do direito de autor a uma base de dados que não possui os requisitos indicados no artigo 3.º dessa diretiva.

V – Conclusões

53. Com base nas considerações antes desenvolvidas, proponho ao Tribunal de Justiça que responda nos termos seguintes às questões prejudiciais colocadas pela Court of Appeal:

- «1. Uma base de dados pode ser protegida pelo direito de autor, na aceção do artigo 3.º da Diretiva 96/9/CE, apenas quando a mesma constitua uma criação intelectual original do respetivo autor. Para esse efeito, não podem ser tomadas em consideração as atividades desenvolvidas para a criação dos dados. No caso de um calendário de futebol, constitui atividade de criação dos dados a determinação de todos os elementos relativos a cada encontro individual.
2. A referida diretiva opõe-se a que um direito nacional reconheça a proteção do direito de autor a uma base de dados que não possui os requisitos indicados no artigo 3.º dessa diretiva».

Case 3 - Ryanair



Coletânea da Jurisprudência

ACÓRDÃO DO TRIBUNAL DE JUSTIÇA (Segunda Secção)

15 de janeiro de 2015*

«Reenvio prejudicial — Diretiva 96/9/CE — Proteção jurídica das bases de dados — Base de dados que não está protegida pelo direito de autor nem pelo direito sui generis — Limitação contratual dos direitos dos utilizadores da base de dados»

No processo C-30/14,

que tem por objeto um pedido de decisão prejudicial apresentado, nos termos do artigo 267.º TFUE, pelo Hoge Raad der Nederlanden (Países Baixos), por decisão de 17 de janeiro de 2014, que deu entrada no Tribunal de Justiça em 22 de janeiro de 2014, no processo

Ryanair Ltd

contra

PR Aviation BV,

O TRIBUNAL DE JUSTIÇA (Segunda Secção),

composto por: R. Silva de Lapuerta, presidente de secção, K. Lenaerts (relator), vice-presidente do Tribunal de Justiça, J.-C. Bonichot, A. Arabadjiev e J. L. da Cruz Vilaça, juizes,

advogado-geral: Y. Bot,

secretário: C. Strömholm,

vistos os autos e após a audiência de 12 de novembro de 2014,

vistas as observações apresentadas:

- em representação da Ryanair Ltd, inicialmente, por M. van Heezik, A. van Aerde e R. Le Poole e, em seguida, por A. van Aerde e R. Le Poole, advocaten,
 - em representação da PR Aviation BV, por A. Groen, advocaat,
 - em representação da Comissão Europeia, por J. Samnadda e F. Wilman, na qualidade de agentes,
- vista a decisão tomada, ouvido o advogado-geral, de julgar a causa sem apresentação de conclusões, profere o presente

* Língua do processo: neerlandês.

Acórdão

- 1 O pedido de decisão prejudicial tem por objeto a interpretação da Diretiva 96/9/CE do Parlamento Europeu e do Conselho, de 11 de março de 1996, relativa à proteção jurídica das bases de dados (JO L 77, p. 20).
- 2 Este pedido foi apresentado no âmbito de um litígio que opõe a Ryanair Ltd (a seguir «Ryanair») à PR Aviation BV (a seguir «PR Aviation»), a respeito da utilização, por esta última, de dados provenientes do sítio Internet da Ryanair.

Quadro jurídico*Direito da União*

- 3 A Diretiva 96/9 tem quatro capítulos.
- 4 No capítulo I da Diretiva 96/9, intitulado «Âmbito de aplicação», o seu artigo 1.º, sob a mesma epígrafe, dispõe, nos seus n.ºs 1 e 2:

«1. A presente diretiva diz respeito à proteção jurídica das bases de dados, seja qual for a forma de que estas se revistam.

2. Para efeitos da presente diretiva, entende-se por 'base de dados', uma coletânea de obras, dados ou outros elementos independentes, dispostos de modo sistemático ou metódico e suscetíveis de acesso individual por meios eletrónicos ou outros.»
- 5 No capítulo II da diretiva, intitulado «Direito de autor», figura o artigo 3.º, sob a epígrafe «Objeto da proteção», cujo n.º 1 prevê:

«Nos termos da presente diretiva, as bases de dados que, devido à seleção ou disposição das matérias, constituam uma criação intelectual específica do respetivo autor, serão protegidas nessa qualidade pelo direito de autor. Não serão aplicáveis quaisquer outros critérios para determinar se estas podem beneficiar dessa proteção.»
- 6 No capítulo II, o artigo 5.º da referida diretiva, sob a epígrafe «Atos sujeitos a restrições», tem a seguinte redação:

«O autor de uma base de dados beneficia do direito exclusivo de efetuar ou autorizar os seguintes atos relativos à forma de expressão protegida pelo direito de autor:

 - a) Reprodução permanente ou provisória, total ou parcial, por quaisquer meios e sob qualquer forma;
 - b) Tradução, adaptação, transformação ou qualquer outra modificação;
 - c) Qualquer forma de distribuição da base ou de uma cópia ao público. [...]
 - d) Qualquer comunicação, exposição ou representação pública;
 - e) Qualquer reprodução, distribuição, comunicação, exposição ou representação pública dos resultados dos atos citados na alínea b).»

- 7 No mesmo capítulo II, o artigo 6.º, n.º 1, da mesma diretiva, sob a epígrafe «Exceções aos atos sujeitos a restrições», dispõe:

«O utilizador legítimo de uma base de dados ou das suas cópias pode efetuar todos os atos enumerados no artigo 5.º, necessários para aceder ao conteúdo da base de dados e para a utilizar em condições normais sem autorização do autor da base. Se o utilizador legítimo estiver autorizado a utilizar apenas uma parte da base de dados, o presente número é aplicável unicamente a essa parte.»

- 8 No capítulo III da Diretiva 96/9, intitulado «Direito *sui generis*», figura o artigo 7.º, sob a epígrafe «Objeto da proteção», que dispõe, nos seus n.ºs 1 e 5:

«1. Os Estados-Membros instituirão o direito de o fabricante de uma base de dados proibir a extração e/ou a reutilização da totalidade ou de uma parte substancial, avaliada qualitativa ou quantitativamente, do conteúdo desta, quando a obtenção, verificação ou apresentação desse conteúdo representem um investimento substancial do ponto de vista qualitativo ou quantitativo.

[...]

5. Não serão permitidas a extração e/ou reutilização [repetidas] e sistemáticas de partes não substanciais do conteúdo da base de dados que pressuponham atos contrários à exploração normal dessa base, ou que possam causar um prejuízo injustificado aos legítimos interesses do fabricante da base.»

- 9 No mesmo capítulo III figura o artigo 8.º da mesma diretiva, sob a epígrafe «Direitos e obrigações do utilizador legítimo», que dispõe:

«1. O fabricante de uma base de dados posta à disposição do público, seja por que meio for, não pode impedir o utilizador legítimo dessa base de extrair e/ou reutilizar partes não substanciais do respetivo conteúdo, avaliadas qualitativa ou quantitativamente, para qualquer efeito. Se o utilizador legítimo estiver autorizado a extrair e/ou a reutilizar apenas uma parte da base de dados, o presente número é aplicável unicamente a essa parte.

2. O utilizador legítimo de uma base de dados posta à disposição do público, seja por que meio for, não pode praticar quaisquer atos que colidam com a exploração normal dessa base, ou lesem injustificadamente os legítimos interesses do fabricante da base.

3. O utilizador legítimo de uma base de dados posta à disposição do público, seja por que meio for, não pode prejudicar o titular de um direito de autor ou de um direito conexo sobre obras ou prestações contidas nessa base.»

- 10 No capítulo IV da Diretiva 96/9, intitulado «Disposições comuns», o artigo 15.º, sob a epígrafe «Caráter imperativo de certas disposições», enuncia:

«É nula qualquer disposição contratual contrária ao n.º 1 do artigo 6.º e ao artigo 8.º.»

Direito neerlandês

- 11 A Diretiva 96/9 foi transposta para o direito neerlandês pela Lei de adaptação da legislação neerlandesa à Diretiva 96/9/CE, do Parlamento Europeu e do Conselho, de 11 de março de 1996, relativa à proteção jurídica das bases de dados (*Wet houdende aanpassing van de Nederlandse wetgeving aan richtlijn 96/9/EG van het Europees Parlement en de Raad van 11 maart 1996 betreffende de rechtsbescherming van databanken*), de 8 de julho de 1999 (*Stb. 1999, p. 303; a seguir «lei sobre as bases de dados»*).

- 12 A Lei dos direitos de autor (Auteurswet, a seguir «Aw») dispõe, no seu artigo 1.º:
- «O direito de autor é o direito exclusivo do autor de uma obra literária, científica ou artística, ou dos seus sucessores, de a divulgar e reproduzir, sob reserva das limitações previstas pela lei.»
- 13 O artigo 10.º da Aw dispõe:
- «1. Para efeitos da presente lei, entende-se por obra literária, científica ou artística:
- 1º os livros, folhetos, jornais, revistas e todos os outros escritos;
- [...]
3. As coletâneas de obras, de dados ou de outros elementos independentes, dispostos de modo sistemático ou metódico e individualmente acessíveis por meios eletrónicos ou por outra forma, são, sem prejuízo de outros direitos sobre a coletânea e sem prejuízo do direito de autor ou de outros direitos sobre as obras, dados ou outros elementos contidos na coletânea, protegidos como obras independentes.
- [...]»
- 14 Nos termos do artigo 24.ºa da Aw:
- «1. Não é considerada uma infração do direito de autor sobre uma coletânea, na aceção do artigo 10.º, n.º 3, a reprodução feita pelo utilizador legítimo da coletânea, que é necessária para obter o acesso à coletânea de dados e fazer uma utilização normal.
- [...]
3. Os n.ºs 1 e 2 não podem ser derogados por contrato em prejuízo do utilizador legítimo.»

Litígio no processo principal e questão prejudicial

- 15 A PR Aviation explora um sítio Internet onde os consumidores podem fazer buscas nos dados de voo das companhias aéreas de baixo custo, comparar os preços e, mediante o pagamento de uma comissão, reservar um voo. A PR Aviation obtém os dados necessários para responder a uma busca individual, por via automatizada, designadamente, a partir de uma coletânea de dados ligada ao sítio Internet da Ryanair, igualmente acessível aos consumidores.
- 16 O acesso ao referido sítio Internet pressupõe que o visitante aceita a aplicação das condições gerais da Ryanair, preenchendo uma quadrícula para esse efeito. Na data dos factos do processo principal, essas condições continham as seguintes cláusulas:
- «2. Distribuição exclusiva. Este sítio Internet e o centro de chamadas telefónicas da Ryanair são os distribuidores exclusivos dos serviços da Ryanair. A Ryanair.com é o único sítio Internet autorizado a vender voos da Ryanair. A Ryanair não autoriza outros sítios a vender os seus voos, quer para reservas de voos simples quer para reservas fixas e estadas (package). [...]
3. Utilizações permitidas. A utilização deste sítio Internet só é permitida para os seguintes fins privados e não comerciais: (i) consultar este sítio Internet; (ii) efetuar reservas; (iii) verificar/alterar reservas; (iv) consultar informações sobre chegadas/partidas; (v) efetuar *check-in* em linha; (vi) consultar outros sítios Internet através de ligações fornecidas neste sítio Internet; (vii) utilizar outras funcionalidades eventualmente disponibilizadas neste sítio Internet.

ACÓRDÃO DE 15. 1. 2015 — PROCESSO C-30/14
 RYANAIR

É proibida a utilização de sistemas automatizados ou de *software* para extrair dados desse sítio Internet ou do sítio Internet www.bookryanair.com, para fins comerciais (captura de dados no ecrã) ('screen scraping'), exceto se os terceiros tiverem celebrado um contrato de licença por escrito com a Ryanair, nos termos do qual é autorizado o acesso à parte em questão, unicamente com o objetivo de comparação de preços, às informações da Ryanair sobre os preços, voos e horários.»

- 17 Invocando a Diretiva 96/9, a lei sobre as bases de dados e a Aw, a Ryanair alega que a PR Aviation violou os seus direitos sobre a sua coletânea de dados e agiu sem observar as condições gerais de utilização do seu sítio Internet, contudo aceites pela PR Aviation. A Ryanair pediu que a PR Aviation fosse condenada a abster-se de qualquer infração aos seus direitos, sob pena do pagamento de uma sanção pecuniária compulsória, bem como de lhe pagar uma indemnização.
- 18 Por sentença de 28 de julho de 2010, o Rechtbank Utrecht (tribunal d'Utrecht) negou provimento ao pedido da Ryanair na medida em que era baseado na violação da Diretiva 96/9 e da lei sobre as bases de dados. Em contrapartida, deu provimento ao pedido enquanto baseado na Aw e condenou a PR Aviation a abster-se de qualquer violação dos direitos de autor da Ryanair sobre os seus dados de voos, bem como a indemnizá-la pelo prejuízo sofrido.
- 19 A PR Aviation interpôs recurso desta sentença. A Ryanair interpôs um recurso subordinado com o objetivo de contestar a apreciação do Rechtbank Utrecht segundo a qual ela não pode beneficiar da proteção prevista na Diretiva 96/9 e na lei sobre as bases de dados.
- 20 Por acórdão de 13 de março de 2012, o Gerechtshof te Amsterdam (Tribunal de Recurso de Amesterdão) anulou a sentença do Rechtbank Utrecht e negou provimento ao recurso subordinado interposto pela Ryanair.
- 21 Em substância, decidiu, no que diz respeito ao direito de autor, que, mesmo partindo do princípio de que as informações digitais tornadas públicas pela Ryanair estão abrangidas pela proteção dos escritos («geschriftenbescherming»), no sentido do artigo 10.º, n.º 1, 1º, da Aw, a PR Aviation não tinha infringido os direitos da Ryanair, dado que o seu comportamento correspondia a uma utilização normal, no sentido do artigo 24.ºa, n.º 1, da Aw, e, portanto, legítima, do sítio Internet da Ryanair. Acrescentou que a proibição, contida nas condições gerais da Ryanair, de utilizar o seu sítio Internet para fins comerciais não era suscetível de infirmar a conclusão anterior, tendo em conta, especialmente, o artigo 24.ºa, n.º 3, da Aw, que corresponde ao artigo 15.º da Diretiva 96/9.
- 22 No que diz respeito ao direito *sui generis*, o Gerechtshof te Amsterdam considerou que a Ryanair não tinha provado a existência de um «investimento substancial» na criação da sua coletânea de dados, no sentido da Diretiva 96/9 e da lei sobre as bases de dados.
- 23 A Ryanair interpôs recurso do acórdão do Gerechtshof te Amsterdam para o Hoge Raad der Nederlanden (Tribunal Supremo dos Países Baixos). Em apoio do seu recurso, invoca um único fundamento que está dividido em duas partes.
- 24 Na primeira parte do fundamento, a Ryanair critica a apreciação do Gerechtshof segundo a qual ela não pode beneficiar da proteção dos escritos, no sentido do artigo 10.º, n.º 1, 1º, da Aw.
- 25 A este respeito, o órgão jurisdicional de reenvio considera, todavia, que nenhum outro critério, a não ser o da originalidade, pode intervir para efeitos da proteção do direito de autor. Sublinhando que decorre do acórdão do Gerechtshof te Amsterdam que a coletânea de dados da Ryanair não cumpre este critério, concluiu que essa parte do fundamento suscitado pela Ryanair não pode levar à anulação desse acórdão.

- 26 Na segunda parte do seu fundamento de recurso, invocada a título subsidiário, a Ryanair alega, em substância, que foi sem razão que o Gerechtshof te Amsterdam considerou que o facto de a PR Aviation ter desobedecido à proibição contratual que lhe foi imposta, de extrair dados da base da Ryanair para fins comerciais sem ter celebrado um contrato de licença escrito com esta última sociedade, não era constitutivo de um incumprimento da PR Aviation.
- 27 A este respeito, o órgão jurisdicional de reenvio tem dúvidas quanto à questão de saber se o âmbito de aplicação da Diretiva 96/9 engloba as bases de dados que não são protegidas nem pelo direito de autor, ao abrigo do capítulo II da diretiva, nem pelo direito *sui generis*, ao abrigo do capítulo III da referida diretiva, e se, portanto, os limites à liberdade contratual que decorrem dos artigos 6.º, n.º 1, 8.º e 15.º da mesma diretiva são também válidos para essas bases de dados.
- 28 Nestas circunstâncias, o Hoge Raad der Nederlanden decidiu suspender a instância e submeter ao Tribunal de Justiça a seguinte questão prejudicial:

«O âmbito de aplicação da [Diretiva 96/9] inclui as bases de dados *on-line* que não são protegidas nem pelo direito de autor, ao abrigo do capítulo II [desta] diretiva, nem pelo direito *sui generis*, ao abrigo do capítulo III [da mesma diretiva], no sentido de que a liberdade de utilizar essas bases de dados, *ex vi* (ou mediante aplicação analógica) [dos] artigo[s] 6.º, n.º 1, e 8.º, em conjugação com o artigo 15.º [da Diretiva 96/9], não pode ser contratualmente limitada?»

Quanto à questão prejudicial

- 29 Através da sua questão, que assenta na premissa segundo a qual a coletânea de dados da Ryanair, em causa no processo principal, constitui uma base de dados na aceção do artigo 1.º, n.º 2, da Diretiva 96/9, que não é, contudo, protegida pelo direito de autor, ao abrigo do capítulo II desta diretiva, nem pelo direito *sui generis*, ao abrigo do capítulo III da mesma diretiva, o que compete ao órgão jurisdicional de reenvio verificar, este órgão pergunta, no essencial, se a Diretiva 96/9 deve ser interpretada no sentido de que, tendo em conta a aplicação conjugada dos seus artigos 6.º, n.º 1, 8.º e 15.º, a liberdade de utilizar essa base de dados não pode ser contratualmente limitada.
- 30 A título liminar, convém recordar que, em conformidade com jurisprudência constante, uma diretiva não pode, por si mesma, criar obrigações a um particular, nem, por conseguinte, ser invocada, enquanto tal, contra ele (v., designadamente, acórdãos Faccini Dori, C-91/92, EU:C:1994:292, n.º 20; Küçükdeveci, C-555/07, EU:C:2010:21, n.º 46; e Dominguez, C-282/10, EU:C:2012:33, n.º 37).
- 31 É igualmente jurisprudência constante que, ao aplicar o direito interno, os órgãos jurisdicionais nacionais são obrigados a interpretá-lo, na medida do possível, à luz do texto e da finalidade da diretiva em causa (v., designadamente, acórdãos Pfeiffer e o., C-397/01 a C-403/01, EU:C:2004:584, n.º 114; Küçükdeveci, EU:C:2010:21, n.º 48, e Dominguez, EU:C:2012:33, n.º 24).
- 32 Feitas estas precisões preliminares, convém salientar que, no capítulo I da Diretiva 96/9, o artigo 1.º, n.º 2, define o conceito de «base de dados».
- 33 Embora, como salienta a PR Aviation, a referida disposição confira a esse conceito um vasto âmbito, sem considerações de ordem formal, técnica ou material (v., neste sentido, acórdão Fixtures Marketing, C-444/02, EU:C:2004:697, n.º 20 à 32), também é um facto que a definição contida no artigo 1.º, n.º 2, da Diretiva 96/9 deve ser interpretada, segundo os seus próprios termos, «[p]ara efeitos da presente diretiva».
- 34 Ora, nos termos do artigo 1.º, n.º 1, da Diretiva 96/9, esta tem por objeto a «proteção jurídica das bases de dados». A este propósito, a diretiva institui duas formas de proteção jurídica destas bases. A primeira forma, regida pelos artigos 3.º a 6.º da referida diretiva, que fazem parte do seu capítulo II,

consiste na proteção pelo direito de autor e é aplicável, nos termos do artigo 3.º, n.º 1, da mesma diretiva, às bases de dados que, pela seleção ou disposição das matérias, constituam uma criação intelectual específica do respetivo autor. A segunda forma, regida pelos artigos 7.º a 11.º da Diretiva 96/9, que fazem parte do seu capítulo III, consiste na proteção por um direito *sui generis* e é aplicável, nos termos do artigo 7.º, n.º 1, da mesma diretiva, às bases de dados cuja obtenção, verificação ou apresentação do conteúdo representem um investimento substancial do ponto de vista qualitativo ou quantitativo. Estas duas formas de proteção jurídica são objeto de disposições comuns nos artigos 12.º a 16.º da referida diretiva, que fazem parte do seu capítulo IV.

- 35 Por conseguinte, a circunstância de uma base de dados corresponder aos elementos da definição contida no artigo 1.º, n.º 2, da Diretiva 96/9 não permite considerar, contrariamente ao que sustenta a PR Aviation, que lhe sejam aplicáveis as disposições dessa diretiva que regulam o direito de autor e/ou o direito *sui generis*, se ela não cumprir o requisito de aplicação da proteção pelo direito de autor previsto no artigo 3.º, n.º 1, da dita diretiva nem o requisito de aplicação da proteção pelo direito *sui generis* previsto no artigo 7.º, n.º 1, da mesma diretiva.
- 36 Quanto às disposições da Diretiva 96/9 especificamente referidas pelo órgão jurisdicional de reenvio na sua questão, convém acrescentar que o artigo 6.º, n.º 1, desta diretiva, que, sob determinadas condições, autoriza o utilizador legítimo de uma base de dados a efetuar, sem autorização do autor dessa base, os atos enumerados no artigo 5.º da dita diretiva, faz parte, como este último artigo, do capítulo da diretiva consagrado ao direito de autor e não é, por conseguinte, aplicável às bases de dados que não são protegidas por este direito.
- 37 O artigo 8.º da Diretiva 96/9, que prevê, designadamente, os direitos do utilizador legítimo de uma base de dados, figura, por seu turno, no capítulo da diretiva consagrado ao direito *sui generis* e não é, por conseguinte, aplicável às bases de dados que não são protegidas por este direito.
- 38 Quanto ao artigo 15.º da Diretiva 96/9, que consagra o caráter imperativo de certas disposições da mesma diretiva ao declarar nula qualquer disposição contratual contrária a estas, visa expressamente apenas os artigos 6.º, n.º 1, e 8.º da referida diretiva.
- 39 Resulta assim do objeto e da estrutura da Diretiva 96/9 que os seus artigos 6.º, n.º 1, 8.º e 15.º, que instituem direitos de caráter imperativo a favor dos utilizadores legítimos de uma base de dados, não são aplicáveis a uma base de dados que não é protegida pelo direito de autor nem pelo direito *sui generis*, previstos na diretiva, de modo que esta não se opõe à adoção de cláusulas contratuais que tenham por objeto as condições de utilização dessa base de dados.
- 40 Esta análise é corroborada pela economia geral da Diretiva 96/9. Como sublinharam a Ryanair e a Comissão Europeia, esta diretiva assenta num equilíbrio entre, por um lado, os direitos da pessoa que criou uma base de dados e, por outro, os direitos dos utilizadores legítimos dessa base de dados, concretamente, os terceiros autorizados por essa pessoa a utilizar a referida base. Neste contexto, a aplicação dos artigos 6.º, n.º 1, 8.º e 15.º da Diretiva 96/9, que conferem direitos a esses utilizadores legítimos e, dessa maneira, limitam os direitos da pessoa que criou a base de dados, só é possível com uma base de dados sobre a qual o seu criador dispõe de direitos ao abrigo do direito de autor reconhecido no artigo 5.º da mesma diretiva, ou do direito *sui generis* reconhecido no seu artigo 7.º Em contrapartida, não são aplicáveis se se tratar de uma base de dados cujo criador não usufrui, ao abrigo da Diretiva 96/9, de nenhum dos direitos anteriormente mencionados.
- 41 Contrariamente ao alegado pela PR Aviation, esta interpretação da Diretiva 96/9 não pode reduzir o interesse de reivindicar a proteção jurídica instituída pela referida diretiva, na medida em que o criador de uma base de dados protegida pela mesma diretiva não dispõe, diferentemente do criador de uma base de dados não protegida pela diretiva, da liberdade contratual de limitar os direitos dos utilizadores da sua base.

- 42 Com efeito, essa argumentação não tem em consideração o interesse jurídico e económico que o regime de proteção automática, harmonizado nos Estados-Membros, representa para a pessoa que investiu na criação de uma base de dados, que está ligado ao direito exclusivo, ao abrigo dos direitos de autor, de reservar para si os diferentes atos referidos no artigo 5.º da Diretiva 96/9, bem como ao direito de proibir, ao abrigo do direito *sui generis*, os atos previstos nos artigos 7.º, n.º 1 e 5, e 8.º, n.º 2, desta diretiva. Como a Comissão sublinhou na audiência, o benefício desta proteção não pressupõe o cumprimento de qualquer formalidade administrativa e não impõe nenhum compromisso convencional prévio.
- 43 Assim sendo, se o criador de uma base de dados protegida pela Diretiva 96/9 decidir autorizar a utilização da sua base de dados ou de uma cópia desta, poderá, como confirma o considerando 34 da diretiva, limitar essa utilização através de um contrato de licença celebrado com o utilizador legítimo, que precise, respeitando as disposições da dita diretiva, os «fins e [a] forma» de utilizar a referida base de dados ou a sua cópia.
- 44 Em contrapartida, tratando-se de uma base de dados à qual a Diretiva 96/9 não é aplicável, o seu criador não beneficia do regime de proteção jurídica instituído pela diretiva, de modo que apenas pode invocar uma proteção da sua base de dados com fundamento no direito nacional aplicável.
- 45 Tendo em conta todas as considerações precedentes, deve responder-se à questão colocada que a Diretiva 96/9 deve ser interpretada no sentido de que não é aplicável a uma base de dados que não é protegida pelo direito de autor nem pelo direito *sui generis* nos termos da diretiva, de modo que os artigos 6.º, n.º 1, 8.º e 15.º da diretiva não impedem o criador dessa base de dados de estabelecer limites contratuais à sua utilização por terceiros, sem prejuízo do direito nacional aplicável.

Quanto às despesas

- 46 Revestindo o processo, quanto às partes na causa principal, a natureza de incidente suscitado perante o órgão jurisdicional de reenvio, compete a este decidir quanto às despesas. As despesas efetuadas pelas outras partes para a apresentação de observações ao Tribunal de Justiça não são reembolsáveis.

Pelos fundamentos expostos, o Tribunal de Justiça (Segunda Secção) declara:

A Diretiva 96/9/CE do Parlamento Europeu e do Conselho, de 11 de março de 1996, relativa à proteção jurídica das bases de dados, deve ser interpretada no sentido de que não é aplicável a uma base de dados que não é protegida pelo direito de autor nem pelo direito *sui generis* nos termos da diretiva, de modo que os artigos 6.º, n.º 1, 8.º e 15.º da diretiva não impedem o criador dessa base de dados de estabelecer limites contratuais à sua utilização por terceiros, sem prejuízo do direito nacional aplicável.

Assinaturas

ANNEX C – Analysis of Case Law Involving Databases (USA)

Case 1– Pharmatrak

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

In re PHARMATRAK, INC.
PRIVACY LITIGATION

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Civil Action No. 00-11672-JLT
MDL Docket No. 1400

MEMORANDUM

August 13, 2002

TAURO, J.,

Plaintiffs Rob Barring, Noah Blumofe, Jim Darby, Karen Gassman, Robin McClary, Harris Perlman, and Marcus Schroers (“Plaintiffs”) bring this consolidated action against Pharmatrak, Inc. (“Defendant Pharmatrak”)¹ and several pharmaceutical companies: Pfizer, Inc., Pharmacia Corporation, SmithKline Beecham Corporation, Glaxo Welcome, Inc., and American Home Products Corporation (the “Pharmaceutical Defendants”). The Consolidated Amended Class Action Complaint alleges that Defendants secretly intercepted and accessed Plaintiffs’ personal information and Web browsing habits through the use of “cookies” and other devices, in violation of state and federal law.

The Parties’ cross-motions for summary judgment are now before the court.

PROCEDURAL BACKGROUND

Plaintiffs Blumofe and Gassman filed suit in this court on August 18, 2000. The remaining Plaintiffs filed complaints in the Southern District of New York. On April 18, 2001,

¹Following the practice of the Parties, the court will refer solely to Pharmatrak in reference to the activities of both Pharmatrak and Glocal Communications, Ltd. (“Glocal”), the parent company of Pharmatrak.

the Judicial Panel on Multi-District Litigation issued an order transferring the six New York actions to the District of Massachusetts.

Plaintiffs filed the Amended Consolidated Class Action Complaint (“Complaint”) on June 28, 2001. In December 2001, the court held a scheduling conference and authorized the Plaintiffs to examine Defendant Pharmatrak’s computer servers. This limited discovery took place during December 2001 and January 2002 at Pharmatrak’s former corporate headquarters in Boston, Massachusetts.

Pursuant to the court’s March 26, 2002 Order, the Parties refiled motions for summary judgment. The court held a hearing on Defendants’ and Plaintiffs’ motions for summary judgment on July 24, 2002.

FACTUAL BACKGROUND

Plaintiffs allege that Defendants “secretly intercepted and accessed Internet users’ electronic communications with various health-related and medical-related Internet Web sites and secretly accessed their computer hard drives in order to collect private information about their Web browsing habits [and] confidential health information without their knowledge, authorization, or consent.”² Plaintiffs contend that the Pharmaceutical Defendants conspired with Plaintiff Pharmatrak to “collect and share this wrongfully obtained personal and sensitive information.”³ This activity was allegedly accomplished through the use of “web bugs,” “persistent cookies,” and other devices.⁴

²Compl. ¶ 1.

³Id.

⁴Compl. ¶ 25.

The general principles of computers, the Internet, and the Web have been detailed elsewhere,⁵ and because such facts are undisputed in this case, further elaboration is unnecessary. Analysis of the Parties' relationships in this case, however, requires a brief discussion of the specific methods by which the Parties communicated with each other, and the manner in which Defendants allegedly accessed and intercepted private information.

As stated in the Complaint, the Plaintiffs "access the Internet and communicate with other computers through use of commercial ISPs . . . or through computers known as 'servers' that are operated by the entity which provides their computer access, such as their employer. In each case, the ISP or the server provides the electronic communication service that allows the user's computer to connect with other computers on the Internet."⁶ Plaintiffs assert that personal computers "can and sometimes do act as servers,"⁷ but do not allege that any of the named Plaintiffs' computers were used in such a capacity.

The Pharmaceutical Defendants hired Defendant Pharmatrak to monitor their corporate web sites and provide monthly analysis of web site traffic.⁸ Pharmatrak offered its clients two relevant products: NETcompare, which was designed to monitor activity across clients' web pages, and DRUGcompare, which was designed to monitor activity across disease categories and

⁵See Reno v. ACLU, 512 U.S. 844 (1997) (discussing the Internet); In re DoubleClick Inc. Privacy Litigation, 154 F.Supp.2d 497, 500-505 (S.D.N.Y. 2001) (discussing the Internet, the Web, cookies, and data collection).

⁶Compl. ¶ 40. "Servers" are computers which store documents and make them available over the Internet. See DoubleClick, 154 F.Supp.2d at 501. "ISPs" are Internet Service Providers.

⁷Pls.' Mem. of Law in Supp. of Mot. for Summ. J. 5.

⁸Compl. ¶ 47.

drug product pages.⁹ All of the Pharmaceutical Defendants purchased NETcompare, and Defendant Pharmacia may have licensed DRUGcompare during testing phases.¹⁰ Pharmatrak specifically represented to the Pharmaceutical Defendants that these products did not collect “personally identifiable information.”¹¹ Even though the Pharmaceutical Defendants may not have known precisely how Pharmatrak’s software worked, Plaintiffs readily admit that “the Pharmaceutical Defendants did authorize Pharmatrak’s presence upon their Web sites”¹²

Pharmatrak’s system operated through the use of HTML programming,¹³ JavaScript programming,¹⁴ cookies,¹⁵ and “web bugs.”¹⁶ Each of the Pharmaceutical Defendants’ web pages were programmed with Pharmatrak code, which allowed Pharmatrak to monitor web site activity.¹⁷ When a computer browser requested information from a Pharmaceutical Defendant’s web page, the web page would send the requested information to the user, and the site’s programming code would instruct the user’s browser to contact Pharmatrak’s web server and

⁹Compl. ¶ 46.

¹⁰See Michael Sonnenreich Dep. (“M. Sonn. Dep.”) at 76:4, 84:4-8.

¹¹See M. Sonn. Dep. at 93-95.

¹²Pls.’ Mem. of Law. in Opp. to Defs.’ Mot. for Summ. J. 6.

¹³“HTML” is “HyperText Markup Language.” As discussed in the Declaration of Matthew Curtin, HTML is “electronic document definition format typically used on the web. Web browsers read HTML to determine how to render an electronic document for presentation to the user.” Curtin Decl. ¶ 51.

¹⁴As discussed below, JavaScript is an Internet programming language.

¹⁵“Cookies” are electronic files, and are more fully discussed below.

¹⁶Compl. ¶ 49.

¹⁷Compl. ¶ 50.

retrieve a “clear GIF” from it.¹⁸ A clear GIF is a one pixel-by-one pixel or two pixels-by-two pixels graphic image, and is sometimes called a web bug or a “pixel tag.”¹⁹ The purpose of a clear GIF was to cause the user’s computer browser to communicate directly with Pharmatrak’s web server.²⁰ Some communications may have also included code referencing JavaApplet, a software program that runs in a user’s browser, or JavaScript, an Internet programming language.²¹

Having caused the user’s Internet browser to contact Pharmatrak, Pharmatrak then sent a cookie back to the browser.²² A cookie is an electronic file “attached” to a user’s computer by a computer server. Plaintiffs concede that “[c]ookies generally perform many convenient and innocuous functions.”²³ Commonly, cookies are used to store users’ preferences and other information, which allows users to easily access and utilize personalized services on the web or to maintain an online “shopping cart.”²⁴ Cookies also allow web sites to differentiate between users as they visit by assigning each individual browser a unique, randomly generated numeric or alphanumeric identifier.²⁵ If an individual browser had already visited the “Pharmatrak-enabled” website, Pharmatrak would recognize the previously placed cookie and could therefore

¹⁸See *id.*

¹⁹Compl. ¶ 51.

²⁰See *id.*

²¹See Pls.’ Mem. of Law in Supp. of Mot. for Summ. J. 12.

²²Compl. ¶ 55.

²³Compl. ¶ 56. See Declaration of C. Matthew Curtin (“Curtin Decl.”) ¶ 56.

²⁴Compl. ¶ 56.

²⁵Compl. ¶ 58.

differentiate between a repeat visit and an initial visit.²⁶ Pharmatrak programmed its cookies to expire after 90 days.²⁷ It is possible that many individual users were unaware that, in addition to their browser communicating with a Pharmaceutical Defendant's web site, it was also communicating with Pharmatrak.²⁸

Plaintiffs allege that the JavaApplet used by Pharmatrak allowed Pharmatrak to monitor the length of time that a particular user viewed one of the Pharmaceutical Defendants' web pages.²⁹ Plaintiffs also allege that the JavaScript programming allowed Pharmatrak to "intercept the full URL³⁰ of the tracked Web page visited by the user," as well as "the full URL of the Web page visited by the Internet user *immediately prior* to the user's visit to the Pharmatrak-coded Web page. This prior Web page address is know as a 'referrer URL.'³¹ According to Plaintiffs, Pharmatrak used JavaScript "to extract referring URLs from the client's history, thereby bypassing any security or privacy mechanisms put in place to control the flow of potentially sensitive data."³² The JavaScript and JavaApplet, therefore, also caused users' computer browsers to communicate with Pharmatrak's server while they intentionally communicated with the Pharmaceutical Defendants' servers.

²⁶Compl. ¶ 55.

²⁷See Pts.' Mem. of Law in Supp. of Mot. for Summ. J. 13 n.8.

²⁸Compl. ¶ 60.

²⁹See Pts.' Mem. of Law in Supp. of Mot. for Summ. J. 13.

³⁰A "URL" is a Uniform Resource Locator, which indicates the specific location of web documents on a server. Compl. ¶ 39.

³¹*Id.* at 14 (emphasis in original).

³²Curtin Decl. ¶ 60.

In a subheading on page 21 of the Complaint, Plaintiffs also assert that Pharmatrak was able to “Capture [] Personal Information Submitted by Internet Users to the Pharmaceutical Defendants’ Web Sites.”⁴⁸ Users submitted this information in two ways. First, an individual could use the “POST” method, and voluntarily fill out an online form in order to register with the site, or to receive mailings, a rebate, or other information. For example, an individual wishing to view the full text of articles on nytimes.com must first register with the site, a process which requires the individual to volunteer certain information.

Second, an individual using the “GET” method could perform an online search, resulting in a URL with search terms appended to it. The appended information is known as the “query string.”⁴⁹ For example, a person interested in Cornell Law School could perform a search resulting in the following URL: <http://search.yahoo.com/bin/search?p=cornell+law+school>.⁵⁰ All of the material following the question mark (i.e. [p=cornell+law+school](http://search.yahoo.com/bin/search?p=cornell+law+school)) is known as the query string, and is “rich in useful content.”⁵¹ Plaintiffs allege that Pharmatrak was able to intercept and collect detailed, specific information about individual users from the full URLs, and place the information into relational databases.⁵²

Plaintiffs’ computer scientist, C. Matthew Curtin, and his company, Interhack, examined Pharmatrak’s servers between December 17, 2001 and January 18, 2002, pursuant to the court’s

⁴⁸Compl. at 21.

⁴⁹Compl. ¶ 70.

⁵⁰*See id.*

⁵¹Pls.’ Mem. of Law in Supp. of Mot. for Summ. J. 6.

⁵²*See id.* at 7.

Order. The examination of Pharmatrak's logs "identified hundreds of people by name."⁴⁸ Based on Curtin's analysis, Plaintiffs claim that Pharmatrak collected information which included: names, addresses, telephone numbers, dates of birth, sex, insurance status, medical conditions, education levels, and occupations.⁴⁹ Pharmatrak also collected data about email communications, including user names, email addresses, and subject lines from emails.⁵⁰ Although Plaintiffs submit no evidence that Pharmatrak collected, sorted, or assembled this information into detailed "profiles," other than the aggregate information it submitted to the Pharmaceutical Defendants, Curtin did build such profiles.⁵¹ Curtin also asserts that it would be possible to build detailed profiles of individuals using the data collected by Pharmatrak and matching it to "another data source, such as a telephone book."⁵² Again, however, there is no evidence that Pharmatrak ever attempted to do so.

In sum, Plaintiffs argue that "Pharmatrak's technology permits defendants to collect extensive, detailed information about plaintiffs and Class members."⁵³ In addition to the personal information discussed above, the information collected allegedly included "Web sites the Internet users were at prior to the time they went to the Pharmaceutical Defendants' Web sites, questions they asked and typed in at those prior sites, information they entered while at the Pharmaceutical

⁴⁸Curtin Decl. ¶ 53.

⁴⁹See Curtin Decl. ¶ 18.

⁵⁰See Curtin Decl. ¶ 90.

⁵¹See Curtin Decl. ¶ 19.

⁵²See Curtin Decl. ¶ 19.

⁵³Compl. ¶ 74.

Defendants' web sites, and the types of computers they were using."⁴⁴

DISCUSSION

Under Federal Rule of Civil Procedure 56, summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law."⁴⁵ Rule 56 mandates summary judgment "after adequate time for discovery and upon motion, against a party who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial."⁴⁶

The "party seeking summary judgment [must] make a preliminary showing that no genuine issue of material fact exists. Once the movant has made this showing, the nonmovant must contradict the showing by pointing to specific facts demonstrating that there is, instead, a trialworthy issue."⁴⁷ The party opposing summary judgment must produce specific evidence of a material factual dispute. The First Circuit has noted that "[a] genuine issue of material fact does not spring into being simply because a litigant claims that one exists. Neither wishful thinking nor 'mere promise[s] to produce admissible evidence at trial' . . . nor conclusory responses unsupported by evidence . . . will serve to defeat a properly focused Rule 56 motion."⁴⁸

⁴⁴Pls.' Mem. of Law. in Opp. to Defs.' Mot. for Summ. J. 4.

⁴⁵Fed. R. Civ. P. 56(c).

⁴⁶*Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986).

⁴⁷*Blackie v. State of ME*, 75 F.3d 716, 721 (1st Cir. 1996) (quotations omitted).

⁴⁸*Griggs-Ryan v. Smith*, 904 F.2d 112, 115 (1st Cir. 1990) (citations omitted).

The Parties file cross-motions for summary judgment. “The happenstance that all parties seek summary judgment neither alters the yardstick nor empowers the trial court to resolve authentic disputes about material facts.”⁴⁹ A court considering cross-motions for summary judgment must consider “each motion separately, being careful to draw inferences against each movant in turn.”⁵⁰

Plaintiffs seek summary judgment against Defendants Pharmatrak and Global, and Defendants each seek summary judgment against Plaintiffs.

A. Count I- The Wiretap Act⁵¹

Title I of the Electronic Communication Privacy Act of 1986 (“ECPA”), Interception of Electronic Communications (“The Wiretap Act”), provides that:

Except as otherwise specifically provided in this chapter[,] any person who – (a) intentionally intercepts, endeavors to intercept, or procures any other person to intercept, any wire, oral, or electronic communication . . . shall be punished as provided in subsection (4) or shall be subject to suit as provided in subsection (5).⁵²

This criminal statute provides for a private right of action, and is subject the following statutory exception:

(d) It shall not be unlawful under this chapter for a person not acting under color of law to intercept a wire, oral, or electronic communication where such person is a party to the communication or where one of the parties to the communication has given prior consent to such interception unless such communication is intercepted for the purpose of

⁴⁹Id.

⁵⁰Id.

⁵¹18 U.S.C. § 2510, *et seq.*

⁵²18 U.S.C. § 2511(1)(a).

committing any criminal or tortious act⁴³

Plaintiffs argue that Defendants intentionally “intercepted plaintiffs’ or Class members’ electronic communications with the Web sites they visited without plaintiffs’ or the Class’ [sic] knowledge, authorization, or consent. . . .”⁴⁴

1. Pharmaceutical Defendants

After Defendants had fully briefed the issue, Plaintiffs’ counsel orally informed the court at the summary judgment hearing that Plaintiffs would withdraw the Wiretap Act claim as it relates to the Pharmaceutical Defendants.⁴⁵ Count I is therefore DISMISSED with regard to these defendants.

2. Pharmatrak

Plaintiffs claim that “Pharmatrak intercepted plaintiffs’ transmission of their personal information to the Pharmaceutical Defendants’ Web sites without the express or implied consent of either plaintiffs or the Pharmaceutical Defendants.”⁴⁶ Despite the fact that the Pharmaceutical Defendants may have consented to Pharmatrak’s assembly of anonymous, aggregate information, Plaintiffs insist that the web sites never consented to Pharmatrak’s collection of personally identifiable information.⁴⁷ Absent this specific consent, Plaintiffs argue, the Wiretap Act’s

⁴³18 U.S.C. § 2511(2)(d).

⁴⁴Compl. ¶ 95.

⁴⁵Plaintiffs’ counsel stated that “I don’t think the plaintiffs have a claim under the wiretap statute against the pharmaceutical defendants,” and indicated that Plaintiffs would withdraw the claim. Hearing Tr. 66:20-22 (July 24, 2002).

⁴⁶Pls.’ Mem. of Law in Supp. of Mot. for Summ. J. 20.

⁴⁷See *id.*

statutory exception simply does not apply.

Pharmatrak concedes that the Pharmaceutical Defendants did not consent to the collection of personally identifiable information.⁸⁹ According to Pharmatrak, however, the relevant inquiry is whether the Pharmaceutical Defendants consented to Pharmatrak's NETcompare service, i.e. the collection of data from the Pharmaceutical Defendants' web sites, regardless of how the service eventually operated.⁹⁰ It is undisputed that the Pharmaceutical Defendants contracted with Defendant Pharmatrak to obtain data regarding their web sites, and that they proceeded to have the Pharmatrak code placed on the web sites. Pharmatrak, therefore, asserts that the statutory exception for consent has been met, and that it is entitled to summary judgment on the Wiretap Act claim.

In *In re DoubleClick Inc. Privacy Litigation* ("DoubleClick"),⁹¹ the Southern District of New York disposed of a multidistrict consolidated class action case pursuant to Rule 12(b)(6). There, the plaintiffs alleged that DoubleClick, an Internet advertising firm, placed cookies on their computers, thereby collecting "information that Web users, including plaintiffs and the Class, consider to be personal and private, such as names, e-mail addresses, home and business addresses, telephone numbers, searches performed on the Internet, Web pages or sites visited on the Internet, and other communications and information that users would not ordinarily expect advertisers to be able to collect."⁹²

⁸⁹See Pharmatrak's Substitute Reply Mem. of Law in Supp. of Mot. for Summ. J. 8.

⁹⁰See *id.* at 8-9.

⁹¹154 F.Supp.2d 497 (S.D.N.Y. 2001).

⁹²*Id.* at 503.

The DoubleClick court found that the web sites affiliated with DoubleClick were “parties to the communication[s]” from plaintiffs and have given sufficient consent to DoubleClick to intercept them,⁶² despite the possibility that the plaintiffs may not have known that their computers were communicating with DoubleClick, and that the affiliated Web sites may not have fully understood the mechanisms of the DoubleClick service.

Having found consent, the DoubleClick court proceeded to analyze Section 2511(2)(d)’s “criminal” or “tortious” purpose requirement, which “is to be construed narrowly.”⁶³ The court noted that the evidence in the case suggested that DoubleClick’s actions were motivated by legitimate business goals, and found an “utter lack of evidence that [DoubleClick’s] intent was tortious”⁶⁴ Because it found that DoubleClick acted with consent and without a tortious or criminal purpose, the court dismissed the plaintiffs’ Wiretap Act claim.⁶⁵

In Chance v. Avenue A, Inc.,⁶⁶ the plaintiffs alleged that Avenue A had placed cookies on their computers, thus permitting the company to surreptitiously monitor plaintiffs’ electronic communications. First, addressing consent, the court held that “[i]t is implicit in the web pages’ code instructing the user’s computer to contact Avenue A, either directly or via DoubleClick’s server, that the web pages have consented to Avenue A’s interception of the communication

⁶²Id. at 514, quoting 18 U.S.C. 2511(2)(d).

⁶³See id. at 515-19.

⁶⁴Id. at 519.

⁶⁵See id.

⁶⁶165 F.Supp.2d 1153 (W.D. Wash. 2001).

between them and the individual user.⁴⁶⁷ The court also found that the plaintiffs had presented no evidence that the defendants acted with a tortious or illegal purpose and, therefore, granted summary judgment on the claim to Avenue A.⁴⁶⁸

In the present case, Plaintiffs concede that the Pharmaceutical Defendants consented to the placement of code for Pharmatrak's NETcompare service on their web sites.⁴⁶⁹ As was the case in DoubleClick and Avenue A, the web site Defendants (here, the Pharmaceutical Defendants) consented to the service of a web-monitoring company (Pharmatrak), and such consent precludes a claim under the Wiretap Act. The Pharmaceutical companies contracted with Pharmatrak, and authorized Pharmatrak to communicate with any users who contacted the Pharmaceutical Web sites. Despite Plaintiffs' valiant attempts to shift the inquiry, it is irrelevant for the purposes of the Wiretap Act whether the Pharmaceutical Defendants knew the precise mechanisms of Pharmatrak's service or not. It is sufficient that the Pharmaceutical Defendants were parties to communications with Plaintiffs and consented to the monitoring service provided by Defendant Pharmatrak.

Plaintiffs are also unable to demonstrate that Defendants acted with a tortious purpose. Plaintiffs have produced no evidence "either (1) that the primary motivation, or (2) that a determinative factor in the actor [Pharmatrak's] motivation for intercepting the conversation was

⁴⁶⁷Id. at 1162.

⁴⁶⁸See id. at 1163.

⁴⁶⁹See Compl. ¶¶ 1-3.

to commit a criminal [or] tortious . . . act.”⁷⁰ Without a showing of the requisite *mens rea*, Plaintiffs cannot succeed on their claim under the Wiretap Act.

Because the Pharmaceutical Defendants consented to Pharmatrak’s NETcompare service, and because Plaintiffs are unable to present any evidence whatsoever of a tortious intent, Defendants are entitled to summary judgment on Count I of the Complaint.

B. Count II - Stored Communications Act⁷¹

Title II of the ECPA, also known as the “Stored Wire and Electronic Communications and Transactional Records Act,” “aims to prevent hackers from obtaining, altering, or destroying certain stored electronic communications.”⁷² The statute provides:

[W]hoever – (1) intentionally accesses without authorization a facility through which an electronic communication service is provided; or (2) intentionally exceeds an authorization to access that facility; and thereby obtains, alters, or prevents authorized access to a wire or electronic communication while it is in electronic storage in such system shall be punished as provided by subsection (b) of this section.⁷³

Plaintiffs acknowledge that § 2701 was primarily designed to provide a cause of action against computer hackers,⁷⁴ and argue that “Defendants’ conduct of accessing data in plaintiffs’ computers, including the content of plaintiffs’ e-mails, constitutes electronic trespassing and falls

⁷⁰DoubleClick, 154 F.Supp.2d at 514-15, quoting United States v. Dale, 991 F.2d 819, 841-42 (D.C. Cir. 1993).

⁷¹18 U.S.C. § 2701, *et seq.*

⁷²DoubleClick, 154 F.Supp.2d at 507.

⁷³18 U.S.C. § 2701(a).

⁷⁴See Pls.’ Mem. of Law in Opp’n to Defs.’ Mots. for Summ. J. 27.

squarely within the ambit of Section 2701.”²⁵

Defendants disagree, and claim that they are entitled to summary judgment on at least two separate grounds: (1) Plaintiffs’ computers are not facilities which provide electronic communications services, an essential element of § 2701; and (2) any alleged access to “communications” was authorized.²⁶

Defendants are correct that an individual Plaintiff’s personal computer is not a “facility through which an electronic communication service is provided” for the purposes of § 2701. Plaintiffs find it noteworthy that “[p]ersonal computers provide consumers with the opportunity to access the Internet and send or receive electronic communications,” and that “[w]ithout personal computers, most consumers would not be able to access the Internet or electronic communications.” Fair enough, but without a telephone, most consumers would not be able to access telephone lines, and without televisions, most consumers would not be able to access cable television. Just as telephones and televisions are necessary devices by which consumers access particular services, personal computers are necessary devices by which consumers connect to the Internet. While it is possible for modern computers to perform server-like functions, there is no evidence that any of the Plaintiffs used their computers in this way. While computers and telephones certainly provide services in the general sense of the word, that is not enough for the purposes of the ECPA. The relevant *service* is Internet access, and the service is provided through

²⁵*Id.* at 28.

²⁶*See* Mem. of Law in Supp. of Def. AHP’s Mot. for Summ. J. 21.

ISPs or other servers, not though Plaintiffs' PCs.⁷⁷

Even if the court were to assume that Plaintiffs' computers are "facilities" under § 2701,⁷⁸ any access to stored communications was authorized and, thus, Defendants' conduct falls under the exception from liability created by § 2701(c)(2). As was the case in DoubleClick and Avenue A, the Pharmaceutical Defendants are "users" under the ECPA.⁷⁹ The DoubleClick court noted that, "in a practical sense, Web sites are among the most active 'users' of Internet access."⁸⁰ As users, the Pharmaceutical Defendants could consent to Pharmatrak's interception of Plaintiffs' communications, and Plaintiffs cannot survive the motions for summary judgment "based solely on the naked allegation that defendant[s'] access was 'unauthorized.'"⁸¹

Plaintiffs argue that this case is factually different from DoubleClick, because the Pharmaceutical Defendants did not know that Pharmatrak would collect the type and amount of personally identifiable information that it did. Even viewing this factual distinction in the light most favorable to Plaintiffs, the Pharmaceutical Defendants nonetheless authorized Pharmatrak to

⁷⁷See DoubleClick, 154 F.Supp.2d at 508 ("Therefore, the 'service which provides to users thereof the ability to send or receive wire or electronic communications' is 'Internet access.'")

⁷⁸The court in Avenue A found it "possible to conclude that modern computers, which serve as a conduit for the web server's communication to Avenue A, are facilities under the Act." Avenue A, 165 F.Supp.2d at 1161.

⁷⁹See DoubleClick, 154 F.Supp.2d at 509 ("Therefore, we find as a matter of law that the DoubleClick-affiliated Web sites are 'users' of Internet access under the ECPA."); Avenue A, 165 F.Supp.2d at 1161 (finding that "at minimum the web site is a 'user' of that communication service").

⁸⁰DoubleClick, 154 F.Supp.2d at 509.

⁸¹Id.

monitor electronic communications between the web sites and Plaintiffs. As discussed above in Part A.2, the Pharmaceutical Defendants consented to the monitoring service provided by Defendant Pharmatrak in NETcompare, even if they were unaware that the program was able to identify personal information.

In addition, the ECPA does not prohibit Pharmatrak's actions with regard to the placing of cookies on Plaintiffs' computers. Section § 2701 seeks to target communications which are in "electronic storage" incident to their transmission. This court agrees with the DoubleClick court that "Title II only protects electronic communications stored 'for a limited time' in the 'middle' of a transmission, i.e. when an electronic communication service temporarily stores a communication while waiting to store it."⁸² Even if such cookies were covered by the ECPA, Pharmatrak created and sent the cookies, and thus any accessing of the cookies by Pharmatrak at a later date would certainly be "authorized." Because Pharmatrak's cookies fall outside the scope of § 2701, Plaintiffs' claim under that section must fail.

Finally, Plaintiffs persistently argue that the Pharmaceutical Defendants did not consent to the allegedly improper interception of personal information. If the Pharmaceutical Defendants did not consent to the alleged interception of personally identifiable information, then they could not have "intentionally access[ed] without authorization" any electronic communications. Without the necessary intent under this punitive statute, the Pharmaceutical Defendants cannot be held liable and are entitled to summary judgment.

Accordingly, all Defendants are entitled to summary judgment on Count II.

⁸²DoubleClick, 154 F.Supp.2d at 512.

C. Count III - Computer Fraud and Abuse Act⁵³

The Computer Fraud and Abuse Act (CFAA) creates a claim against:

(a) Whoever – . . . (2) intentionally accesses a computer without authorization or exceeds authorized access, and thereby obtains . . . (c) information from any protected computer if the conduct involved an interstate or foreign communication . . .⁵⁴

The CFAA limits recovery to those persons who suffer “damage or loss by reason of a violation” of the Act. Section 1030(e)(8) defines damage as “any impairment to the integrity or availability of data, a program, a system, or information, that – (A) causes loss aggregating at least \$5,000 in value during any 1-year period to one or more individuals. . . .”⁵⁵

Plaintiffs do not allege that their computers were physically damaged in any way, or that they suffered any damage resulting from the repair or replacement of their computer systems. Instead, Plaintiffs argue that their “sensible interpretation” of the CFAA allows recovery for a “cognizable ‘loss,’” as distinct from economic damage, for the invasion of their privacy and the “concomitant loss of control over the dissemination of their private information.”⁵⁶ Plaintiffs stress that they allege both loss and damages, and that the damage threshold of \$5,000 may be met by aggregating claims among individuals and over a one year period.

The CFAA does not define “loss,” and the First Circuit noted in EF Cultural Travel BV, et. al. v. Explorica⁵⁷ that “[f]ew courts have endeavored to resolve the contours of damage and

⁵³18 U.S.C. § 1030.

⁵⁴18 U.S.C. § 1030(a)(2).

⁵⁵18 U.S.C. 1030(e)(8).

⁵⁶Pls.’ Mem. of Law in Opp’n to Defs.’ Mot. for Summ. J. 38.

⁵⁷274 F.3d 577 (1st Cir. 2001).

loss under the CFAA.⁴⁸⁸ In that case, the First Circuit explicitly agreed with the DoubleClick court, and concluded that the statute's use of "damage or loss" indicated a Congressional desire to allow recovery for more than purely physical damage.⁴⁸⁹ The First Circuit was careful to note, however, that it did not hold that any loss is compensable, and that "Congress could not have intended other types of loss to support recovery unless [the \$5,000] threshold were met."⁴⁹⁰

Plaintiffs have not shown any evidence whatsoever that Defendants have caused them at least \$5,000 of damage or loss. Even accepting Mr. Curtin's bald assertion that "[d]ata about people are valuable, marketable assets,"⁴⁹¹ Plaintiffs are unable to meet the statutory threshold. Any damage or loss under the CFAA may be aggregated across victims and across time, but only for a single act.⁴⁹² Because Plaintiffs have not shown any facts that demonstrate damage or loss of over \$5,000 for any single act of the Defendants, Defendants are entitled to summary judgment on Count III.⁴⁹³

CONCLUSION

For the foregoing reasons, Defendants' Motions for Summary Judgment [Docket #'s 139,

⁴⁸⁸Id. at 584.

⁴⁸⁹See id. at 585.

⁴⁹⁰Id.

⁴⁹¹Curtin Decl. ¶ 13.

⁴⁹²See DoubleClick, 154 F.Supp.2d at 523; Avenue A, 165 F.Supp.2d at 1158. But see In re America Online, Inc., 168 F.Supp.2d 1359, 1374-75 (S.D. Fla. 2001).

⁴⁹³Even if Plaintiffs were able to establish damage or loss greater than the \$5,000 statutory threshold, Plaintiffs have produced no evidence that the Pharmaceutical Defendants possessed the requisite *mens rea* to be held liable under the CFAA.

143, 218, and 224] are ALLOWED as to Counts I, II, and III of the Consolidated Amended Class Action Complaint, and Plaintiffs' Motion for Summary Judgment [Docket # 237] is DENIED. Defendant Pharmatrak's Motion to Dismiss [Docket # 269] is DENIED.

Having granted summary judgment on Counts I, II, and III, this court declines to retain jurisdiction over Counts IV-IX, and those counts are DISMISSED, without prejudice.

AN ORDER WILL ISSUE.

United States District Judge

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U.S. District Court - Massachusetts (Boston)

CIVIL DOCKET FOR CASE #: 00-CV-11672

Blumofe, et al v. Pharamtrak, Inc., et al Filed: 08/18/00
Assigned to: Judge Joseph L. Tauro Jury demand: Both
Demand: \$0,000 Nature of Suit: 800
Lead Docket: 00-CV-11664 Jurisdiction: Federal Question
Dkt # in MDL Docket : is :00- -01400

NOAH BLUMOFE, on behalf of Seth R. Lesser
themselves and all others
similarly situated, Bernstein, Litowitz, Berger &
Plaintiff Grossman
1285 Avenue of the Americas
New York, NY 10019
212-554-1400

Dennis Stewart

Alan M. Mansfield

Case 2– Viacom

VIACOM INTERNATIONAL, INC. v. YOUTUBE, INC.

676 F.3d 19

United States Court of Appeals, Second Circuit.

Decided: April 5, 2012.

7 JOSÉ A. CABRANES, Circuit Judge:

8 This appeal requires us to clarify the contours of the “safe harbor” provision of the Digital Millennium Copyright Act (DMCA) that limits the liability of online service providers for copyright infringement that occurs “by reason of the storage at the direction of a user of material that resides on a system or network controlled or operated by or for the service provider.” 17 U.S.C. § 512(c).[1]

9 The plaintiffs-appellants in these related actions—Viacom International, Inc. (“Viacom”), The Football Association Premier League Ltd. (“Premier League”), and various film studios, television networks, music publishers, and sports leagues (jointly, [676 F.3d 26] the “plaintiffs”)[2] —appeal from an August 10, 2010 judgment of the United States District Court for the Southern District of New York (Louis L. Stanton, Judge), which granted summary judgment to defendants-appellees YouTube, Inc., YouTube, LLC, and Google Inc. (jointly, “YouTube” or the “defendants”). The plaintiffs alleged direct and secondary copyright infringement based on the public performance, display, and reproduction of approximately 79,000 audiovisual “clips” that appeared on the YouTube website between 2005 and 2008. They demanded, *inter alia*, statutory damages pursuant to 17 U.S.C. § 504(c) or, in the alternative, actual damages from the alleged infringement, as well as declaratory and injunctive relief.[3]

10 In a June 23, 2010 Opinion and Order (the “June 23 Opinion”), the District Court held that the defendants were entitled to DMCA safe harbor protection primarily because they had insufficient notice of the particular infringements in suit. *Viacom Int’l, Inc. v. YouTube, Inc.*, 718 F.Supp.2d 514, 529 (S.D.N.Y.2010). In construing the statutory safe harbor, the District Court concluded that the “actual knowledge” or “aware[ness] of facts or circumstances” that would disqualify an online service provider from safe harbor protection under § 512(c)(1)(A) refer to “knowledge of specific and identifiable infringements.” [...] The District Court further held that item-specific knowledge of infringing activity is required for a service provider to have the “right and ability to control” infringing activity under § 512(c)(1)(B). [...] Finally, the District Court held that the replication, transmittal, and display of videos on YouTube constituted activity “by reason of the storage at the direction of a user” within the meaning of § 512(c)(1). [...]

11 These related cases present a series of significant questions of statutory construction. We conclude that the District Court correctly held that the § 512(c) safe harbor requires knowledge or awareness of specific infringing activity, but we vacate the order granting summary judgment because a reasonable jury could find that YouTube had actual knowledge or awareness of specific infringing activity on its website. We further hold that the District Court erred by interpreting the “right and ability to control” provision to require “item-specific” knowledge. Finally, we affirm the District Court’s holding that three of the challenged YouTube software functions fall within the safe harbor for

infringement that occurs “by reason of” user storage, we remand for further fact-finding with respect to a fourth software function.

BACKGROUND

A. The DMCA Safe Harbors

- 14 “The DMCA was enacted in 1998 to implement the World Intellectual Property Organization Copyright Treaty,” *Universal City Studios, Inc. v. Corley*, 273 F.3d 429, 440 (2d Cir.2001), and to update domestic copyright law for the digital age, [676 F.3d 27] [...]. Title II of the DMCA, separately titled the “Online Copyright Infringement Liability Limitation Act” (OCILLA), was designed to “clarify] the liability faced by service providers who transmit potentially infringing material over their networks.” [...] But “[r]ather than embarking upon a wholesale clarification” of various copyright doctrines, Congress elected “to leave current law in its evolving state and, instead, to create a series of ‘safe harbors[.]’ for certain common activities of service providers.” [...] To that end, OCILLA established a series of four “safe harbors” that allow qualifying service providers to limit their liability for claims of copyright infringement based on (a) “transitory digital network communications,” (b) “system caching,” (c) “information residing on systems or networks at [the] direction of users,” and (d) “information location tools.” 17 U.S.C. § 512(a)-(d).
- 15 To qualify for protection under any of the safe harbors, a party must meet a set of threshold criteria. First, the party must in fact be a “service provider,” defined, in pertinent part, as “a provider of online services or network access, or the operator of facilities therefor.” 17 U.S.C. § 512(k)(1)(B). A party that qualifies as a service provider must also satisfy certain “conditions of eligibility,” including the adoption and reasonable implementation of a “repeat infringer” policy that “provides for the termination in appropriate circumstances of subscribers and account holders of the service provider’s system or network.” *Id.* § 512(i)(1)(A). In addition, a qualifying service provider must accommodate “standard technical measures” that are “used by copyright owners to identify or protect copyrighted works.” *Id.* § 512(i)(1)(B), (i)(2).
- 16 Beyond the threshold criteria, a service provider must satisfy the requirements of a particular safe harbor. In this case, the safe harbor at issue is § 512(c), which covers infringement claims that arise “by reason of the storage at the direction of a user of material that resides on a system or network controlled or operated by or for the service provider.” *Id.* § 512(c)(1). The § 512(c) safe harbor will apply only if the service provider:
- 17 (A) (i) does not have actual knowledge that the material or an activity using the material on the system or network is infringing;
- (ii) in the absence of such actual knowledge, is not aware of facts or circumstances from which infringing activity is apparent; or
- (iii) upon obtaining such knowledge or awareness, acts expeditiously to remove, or disable access to, the material;
- (B) does not receive a financial benefit directly attributable to the infringing activity,

in a case in which the service provider has the right and ability to control such activity; and

(C) upon notification of claimed infringement as described in paragraph (3), responds expeditiously to remove, or disable access to, the material that is claimed to be infringing or to be the subject of infringing activity.

18 *Id.* § 512(c)(1)(A)-(C). Section 512(c) also sets forth a detailed notification scheme that requires service providers to “designate[] an agent to receive notifications of claimed infringement,” *id.* § 512(c)(2), and specifies the components of a proper notification, commonly known as a “takedown notice,” to that agent, see *id.* § 512(c)(3). Thus, actual knowledge of infringing material, awareness of facts or circumstances that make infringing activity apparent, or [676 F.3d 28] receipt of a takedown notice will each trigger an obligation to expeditiously remove the infringing material.

19 With the statutory context in mind, we now turn to the facts of this case.

B. Factual Background

21 YouTube was founded in February 2005 by Chad Hurley (“Hurley”), Steve Chen (“Chen”), and Jawed Karim (“Karim”), three former employees of the internet company PayPal. When YouTube announced the “official launch” of the website in December 2005, a press release described YouTube as a “consumer media company” that “allows people to watch, upload, and share personal video clips at www.YouTube.com.” Under the slogan “Broadcast yourself,” YouTube achieved rapid prominence and profitability, eclipsing competitors such as Google Video and Yahoo Video by wide margins. In November 2006, Google acquired YouTube in a stock-for-stock transaction valued at \$1.65 billion. By March 2010, at the time of summary judgment briefing in this litigation, site traffic on YouTube had soared to more than 1 billion daily video views, with more than 24 hours of new video uploaded to the site every minute.

22 The basic function of the YouTube website permits users to “upload” and view video clips free of charge. Before uploading a video to YouTube, a user must register and create an account with the website. The registration process requires the user to accept YouTube’s Terms of Use agreement, which provides, *inter alia*, that the user “will not submit material that is copyrighted ... unless [he is] the owner of such rights or ha[s] permission from their rightful owner to post the material and to grant YouTube all of the license rights granted herein.” When the registration process is complete, the user can sign in to his account, select a video to upload from the user’s personal computer, mobile phone, or other device, and instruct the YouTube system to upload the video by clicking on a virtual upload “button.”

23 Uploading a video to the YouTube website triggers a series of automated software functions. During the upload process, YouTube makes one or more exact copies of the video in its original file format. YouTube also makes one or more additional copies of the video in “Flash” format,[4] a process known as “transcoding.” The transcoding process ensures that YouTube videos are available for viewing by most users at their request. The YouTube system allows users to gain access to video content by “streaming” the video to

the user's computer in response to a playback request. YouTube uses a computer algorithm to identify clips that are "related" to a video the user watches and display links to the "related" clips.

C. Procedural History

- 25 Plaintiff Viacom, an American media conglomerate, and various Viacom affiliates filed suit against YouTube on March 13, 2007, alleging direct and secondary copyright infringement^[5] based on the public performance, display, and reproduction of their audiovisual works on the YouTube website. Plaintiff Premier League, an English soccer league, and Plaintiff Bourne Co. filed a putative class action against ^[676 F.3d 29] YouTube on May 4, 2007, alleging direct and secondary copyright infringement on behalf of all copyright owners whose material was copied, stored, displayed, or performed on YouTube without authorization. Specifically at issue were some 63,497 video clips identified by Viacom, as well as 13,500 additional clips (jointly, the "clips-in-suit") identified by the putative class plaintiffs.
- 26 The plaintiffs in both actions principally demanded statutory damages pursuant to 17 U.S.C. § 504(c) or, in the alternative, actual damages plus the defendants' profits from the alleged infringement, as well as declaratory and injunctive relief.^[6] Judge Stanton, to whom the Viacom action was assigned, accepted the Premier League class action as related. At the close of discovery, the parties in both actions cross-moved for partial summary judgment with respect to the applicability of the DMCA safe harbor defense.^[7]
- 27 In the dual-captioned June 23 Opinion, the District Court denied the plaintiffs' motions and granted summary judgment to the defendants, finding that YouTube qualified for DMCA safe harbor protection with respect to all claims of direct and secondary copyright infringement. [...] The District Court prefaced its analysis of the DMCA safe harbor by holding that, based on the plaintiffs' summary judgment submissions, "a jury could find that the defendants not only were generally aware of, but welcomed, copyright-infringing material being placed on their website." [...] However, the District Court also noted that the defendants had properly designated an agent pursuant to § 512(c)(2), and "when they received specific notice that a particular item infringed a copyright, they swiftly removed it." [...] Accordingly, the District Court identified the crux of the inquiry with respect to YouTube's copyright liability as follows:
- 28 [T]he critical question is whether the statutory phrases "actual knowledge that the material or an activity using the material on the system or network is infringing," and "facts or circumstances from which infringing activity is apparent" in § 512(c)(1)(A)(i) and (ii) mean a general awareness that there are infringements (here, claimed to be widespread and common), or rather mean actual or constructive knowledge of specific and identifiable infringements of individual items.
- 29 [...] After quoting at length from the legislative history of the DMCA, the District Court held that "the phrases 'actual knowledge that the material or an activity' is infringing, and 'facts or circumstances' indicating infringing activity, describe knowledge of specific and identifiable infringements of particular individual items." [...] "Mere knowledge of [the] prevalence of such activity in general," the District Court concluded, "is not enough." [...]

- 30 In a final section labeled “Other Points,” the District Court rejected two additional claims. First, it rejected the plaintiffs’ argument that the replication, transmittal and display of YouTube videos are functions that fall outside the protection § 512(c)(1) affords for “infringement of copyright by reason of ... storage at the direction of the user.” [...] Second, it rejected the plaintiffs’ argument [676 F.3d 30] that YouTube was ineligible for safe harbor protection under the control provision, holding that the “right and ability to control” infringing activity under § 512(c)(1)(B) requires “item-specific” knowledge thereof, because “the provider must know of the particular case before he can control it.” [...]
- 31 Following the June 23 Opinion, final judgment in favor of YouTube was entered on August 10, 2010. These appeals followed.

DISCUSSION

- 33 We review an order granting summary judgment de novo, drawing all factual inferences in favor of the non-moving party. [...] “Summary judgment is proper only when, construing the evidence in the light most favorable to the non-movant, ‘there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.’” [...]

A. Actual and “Red Flag” Knowledge: § 512(c)(1)(A)

- 35 The first and most important question on appeal is whether the DMCA safe harbor at issue requires “actual knowledge” or “aware[ness]” of facts or circumstances indicating “specific and identifiable infringements,” [...]. We consider first the scope of the statutory provision and then its application to the record in this case.

36 1. The Specificity Requirement

- 37 “As in all statutory construction cases, we begin with the language of the statute,” [...] Under § 512(c)(1)(A), safe harbor protection is available only if the service provider:

- 38 (i) does not have actual knowledge that the material or an activity using the material on the system or network is infringing;
- (ii) in the absence of such actual knowledge, is not aware of facts or circumstances from which infringing activity is apparent; or
- (iii) upon obtaining such knowledge or awareness, acts expeditiously to remove, or disable access to, the material....

- 39 17 U.S.C. § 512(c)(1)(A). As previously noted, the District Court held that the statutory phrases “actual knowledge that the material ... is infringing” and “facts or circumstances from which infringing activity is apparent” refer to “knowledge of specific and identifiable infringements.” [...] For the reasons that follow, we substantially affirm that holding.

- 40 Although the parties marshal a battery of other arguments on appeal, it is the text of the statute that compels our conclusion. In particular, we are persuaded that the basic operation of § 512(c) requires knowledge or awareness of specific infringing activity. Under § 512(c)(1)(A), knowledge or awareness alone does not disqualify the service provider; rather, the provider that gains knowledge or awareness of infringing activity retains safe-harbor protection if it “acts expeditiously to remove, or disable access to, the material.” 17 U.S.C. § 512(c)(1)(A)(iii). Thus, the nature of the removal obligation itself contemplates knowledge or awareness of specific infringing material, because expeditious removal is possible only if the service provider knows with particularity which items to remove. Indeed, to require expeditious removal in the absence of specific knowledge [676 F.3d 31] or awareness would be to mandate an amorphous obligation to “take commercially reasonable steps” in response to a generalized awareness of infringement. [...] Such a view cannot be reconciled with the language of the statute, which requires “expeditious[]” action to remove or disable “ the material ” at issue. 17 U.S.C. § 512(c)(1)(A)(iii) (emphasis added).
- 41 On appeal, the plaintiffs dispute this conclusion by drawing our attention to § 512(c)(1)(A)(ii), the so-called “red flag” knowledge provision. See *id.* § 512(c)(1)(A)(ii) (limiting liability where, “in the absence of such actual knowledge, [the service provider] is not aware of facts or circumstances from which infringing activity is apparent”). In their view, the use of the phrase “facts or circumstances” demonstrates that Congress did not intend to limit the red flag provision to a particular type of knowledge. The plaintiffs contend that requiring awareness of specific infringements in order to establish “aware[ne]ss of facts or circumstances from which infringing activity is apparent,” 17 U.S.C. § 512(c)(1)(A)(ii), renders the red flag provision superfluous, because that provision would be satisfied only when the “actual knowledge” provision is also satisfied. For that reason, the plaintiffs urge the Court to hold that the red flag provision “requires less specificity” than the actual knowledge provision. [...]
- 42 This argument misconstrues the relationship between “actual” knowledge and “red flag” knowledge. It is true that “we are required to ‘disfavor interpretations of statutes that render language superfluous.’” [...] But contrary to the plaintiffs’ assertions, construing § 512(c)(1)(A) to require actual knowledge or awareness of specific instances of infringement does not render the red flag provision superfluous. The phrase “actual knowledge,” which appears in § 512(c)(1)(A)(i), is frequently used to denote subjective belief. [...] By contrast, courts often invoke the language of “facts or circumstances,” which appears in § 512(c)(1)(A)(ii), in discussing an objective reasonableness standard. [...]
- 43 The difference between actual and red flag knowledge is thus not between specific and generalized knowledge, but instead between a subjective and an objective standard. In other words, the actual knowledge provision turns on whether the provider actually or “subjectively” knew of specific infringement, while the red flag provision turns on whether the provider was subjectively aware of facts that would have made the specific infringement “objectively” obvious to a reasonable person. The red flag provision, because it incorporates an objective standard, is not swallowed up by the actual knowledge provision under our construction of the § 512(c) safe harbor. Both provisions do independent work, and both apply only to specific instances of infringement.

- 44 The limited body of case law interpreting the knowledge provisions of the § 512(c) safe harbor comports with our view of the specificity requirement. Most [676 F.3d 32] recently, a panel of the Ninth Circuit addressed the scope of § 512(c) in *UMG Recordings, Inc. v. Shelter Capital Partners LLC*, 667 F.3d 1022 (9th Cir.2011), a copyright infringement case against Veoh Networks, a video-hosting service similar to YouTube.[8] As in this case, various music publishers brought suit against the service provider, claiming direct and secondary copyright infringement based on the presence of unauthorized content on the website, and the website operator sought refuge in the § 512(c) safe harbor. The Court of Appeals affirmed the district court's determination on summary judgment that the website operator was entitled to safe harbor protection. With respect to the actual knowledge provision, the panel declined to "adopt[] a broad conception of the knowledge requirement," [...] holding instead that the safe harbor "[r]equir[es] specific knowledge of particular infringing activity,"[...]. The Court of Appeals "reach[ed] the same conclusion" with respect to the red flag provision, noting that "[w]e do not place the burden of determining whether [materials] are actually illegal on a service provider." [...].
- 45 Although *Shelter Capital* contains the most explicit discussion of the § 512(c) knowledge provisions, other cases are generally in accord. [...]
- 46 Based on the text of § 512(c)(1)(A), as well as the limited case law on point, we affirm the District Court's holding that actual knowledge or awareness of facts or circumstances that indicate specific and identifiable instances of infringement will disqualify a service provider from the safe harbor.
- 47 **2. The Grant of Summary Judgment**
- 48 The corollary question on appeal is whether, under the foregoing construction of § 512(c)(1)(A), the District Court erred in granting summary judgment to YouTube on the record presented. For the reasons that follow, we hold that although the District Court correctly interpreted § 512(c)(1)(A), summary judgment for the defendants was premature.
- 49 **i. Specific Knowledge or Awareness**
- 50 The plaintiffs argue that, even under the District Court's construction of the safe harbor, the record raises material issues of fact regarding YouTube's actual knowledge or "red flag" awareness of specific instances of infringement. To that end, the plaintiffs draw our attention to various estimates regarding the percentage of infringing content on the YouTube website. For example, Viacom cites evidence [676 F.3d 33] that YouTube employees conducted website surveys and estimated that 75–80% of all YouTube streams contained copyrighted material. The class plaintiffs similarly claim that Credit Suisse, acting as financial advisor to Google, estimated that more than 60% of YouTube's content was "premium" copyrighted content—and that only 10% of the premium content was authorized. These approximations suggest that the defendants were conscious that significant quantities of material on the YouTube website were infringing. [...] But such estimates are insufficient, standing alone, to create a triable issue of fact as to whether YouTube actually knew, or was aware of facts or circumstances that would indicate, the existence of particular instances of infringement.

- 51 Beyond the survey results, the plaintiffs rely upon internal YouTube communications that do refer to particular clips or groups of clips. The class plaintiffs argue that YouTube was aware of specific infringing material because, *inter alia*, YouTube attempted to search for specific Premier League videos on the site in order to gauge their “value based on video usage.” In particular, the class plaintiffs cite a February 7, 2007 e-mail from Patrick Walker, director of video partnerships for Google and YouTube, requesting that his colleagues calculate the number of daily searches for the terms “soccer,” “football,” and “Premier League” in preparation for a bid on the global rights to Premier League content. On another occasion, Walker requested that any “clearly infringing, official broadcast footage” from a list of top Premier League clubs—including Liverpool Football Club, Chelsea Football Club, Manchester United Football Club, and Arsenal Football Club—be taken down in advance of a meeting with the heads of “several major sports teams and leagues.” YouTube ultimately decided not to make a bid for the Premier League rights—but the infringing content allegedly remained on the website.
- 52 The record in the Viacom action includes additional examples. For instance, YouTube founder Jawed Karim prepared a report in March 2006 which stated that, “[a]: of today[.] episodes and clips of the following well-known shows can still be found [on YouTube]: Family Guy, South Park, MTV Cribs, Daily Show, Reno 911, [and] Dave Chapelle [sic].” Karim further opined that, “although YouTube is not legally required to monitor content ... and complies with DMCA takedown requests, we would benefit from preemptively removing content that is blatantly illegal and likely to attract criticism.” He also noted that “a more thorough analysis” of the issue would be required. At least some of the TV shows to which Karim referred are owned by Viacom. A reasonable juror could conclude from the March 2006 report that Karim knew of the presence of Viacom-owned material on YouTube, since he presumably located specific clips of the shows in question before he could announce that YouTube hosted the content “[a]: of today.” A reasonable juror could also conclude that Karim believed the clips he located to be infringing (since he refers to them as “blatantly illegal”), and that YouTube did not remove the content from the website until conducting “a more thorough analysis,” thus exposing the company to liability in the interim.
- 53 Furthermore, in a July 4, 2005 e-mail exchange, YouTube founder Chad Hurley sent an e-mail to his co-founders with the subject line “budlight commercials,” and stated, “we need to reject these too.” Steve Chen responded, “can we please [676 F.3d 34] leave these in a bit longer? another week or two can't hurt.” Karim also replied, indicating that he “added back in all 28 bud videos.” Similarly, in an August 9, 2005 e-mail exchange, Hurley urged his colleagues “to start being diligent about rejecting copyrighted / inappropriate content,” noting that “there is a can clip of the shuttle clip on the site today, if the boys from Turner would come to the site, they might be pissed?” Again, Chen resisted:
- 54 but we should just keep that stuff on the site. i really don't see what will happen. what? someone from cnn sees it? he happens to be someone with power? he happens to want to take it down right away. he gets in touch with cnn legal. 2 weeks later, we get a cease & desist letter. we take the video down.

And again, Karim agreed, indicating that “the CNN space shuttle clip, I like. we can remove it once we’re bigger and better known, but for now that clip is fine.”

- 55 Upon a review of the record, we are persuaded that the plaintiffs may have raised a material issue of fact regarding YouTube’s knowledge or awareness of specific instances of infringement. The foregoing Premier League e-mails request the identification and removal of “clearly infringing, official broadcast footage.” The March 2006 report indicates Karim’s awareness of specific clips that he perceived to be “blatantly illegal.” Similarly, the Bud Light and space shuttle e-mails refer to particular clips in the context of correspondence about whether to remove infringing material from the website. On these facts, a reasonable juror could conclude that YouTube had actual knowledge of specific infringing activity, or was at least aware of facts or circumstances from which specific infringing activity was apparent. See § 512(c)(1)(A)(i)-(ii). Accordingly, we hold that summary judgment to YouTube on all clips-in-suit, especially in the absence of any detailed examination of the extensive record on summary judgment, was premature.^[9]
- 56 We hasten to note, however, that although the foregoing e-mails were annexed as exhibits to the summary judgment papers, it is unclear whether the clips referenced therein are among the current clips-in-suit. By definition, only the current clips-in-suit are at issue in this litigation. Accordingly, we vacate the order granting summary judgment and instruct the District Court to determine on remand whether any specific infringements of which YouTube had knowledge or awareness correspond to the clips-in-suit in these actions.
- 57 ii. “Willful Blindness”
- 58 The plaintiffs further argue that the District Court erred in granting summary judgment to the defendants despite evidence that YouTube was “willfully blind” to specific infringing activity. On this issue of first impression, we consider the application of the common law willful blindness doctrine in the DMCA context.
- 59 “The principle that willful blindness is tantamount to knowledge is hardly novel.” *Tiffany (NJ) Inc. v. eBay, Inc.*, 600 F.3d 93, 110 n. 16 (2d Cir.2010) (collecting [676 F.3d 35] cases); see *In re Aimster Copyright Litig.*, 33,4 F.3d 643 (7th Cir.2003) (“Willful blindness is knowledge, in copyright law ... as it is in the law generally.”). A person is “willfully blind” or engages in “conscious avoidance” amounting to knowledge where the person “‘was aware of a high probability of the fact in dispute and consciously avoided confirming that fact.’” [...] Writing in the trademark infringement context, we have held that “[a] service provider is not ... permitted willful blindness. When it has reason to suspect that users of its service are infringing a protected mark, it may not shield itself from learning of the particular infringing transactions by looking the other way.” *Tiffany*, 600 F.3d at 109.
- 60 The DMCA does not mention willful blindness. As a general matter, we interpret a statute to abrogate a common law principle only if the statute “speak[s] directly to the question addressed by the common law.” [...] The relevant question, therefore, is whether the DMCA “speak[s] directly” to the principle of willful blindness. [...] The DMCA provision most relevant to the abrogation inquiry is § 512(m), which provides that safe harbor protection shall not be conditioned on “a service provider monitoring its service

or affirmatively seeking facts indicating infringing activity, except to the extent consistent with a standard technical measure complying with the provisions of subsection (i).” 17 U.S.C. § 512(m)(1). Section 512(m) is explicit: DMCA safe harbor protection cannot be conditioned on affirmative monitoring by a service provider. For that reason, § 512(m) is incompatible with a broad common law duty to monitor or otherwise seek out infringing activity based on general awareness that infringement may be occurring. That fact does not, however, dispose of the abrogation inquiry, as previously noted, willful blindness cannot be defined as an affirmative duty to monitor. See *Aina-Marshall*, 336 F.3d at 170 (holding that a person is “willfully blind” where he “was aware of a high probability of the fact in dispute and consciously avoided confirming that fact”). Because the statute does not “speak[] directly” to the willful blindness doctrine, § 512(m) limits—but does not abrogate—the doctrine. Accordingly, we hold that the willful blindness doctrine may be applied, in appropriate circumstances, to demonstrate knowledge or awareness of specific instances of infringement under the DMCA.

- 61 The District Court cited § 512(m) for the proposition that safe harbor protection does not require affirmative monitoring, [...] but did not expressly address the principle of willful blindness or its relationship to the DMCA safe harbors. As a result, whether the defendants made a “deliberate effort to avoid guilty knowledge,” [...] remains a fact question for the District Court to consider in the first instance on remand.[10]

B. Control and Benefit: § 512(c)(1)(B)

- 63 Apart from the foregoing knowledge provisions, the § 512(c) safe harbor provides that an eligible service provider must “not receive a financial benefit directly attributable to the infringing activity, in a case in which the service provider has the right and ability to control such activity.” 17 U.S.C. § 512(c)(1)(B). The District Court addressed this issue in a single paragraph, quoting from § 512(c)(1)(B), the so-called “control and benefit” provision, and concluding that “[t]he ‘right and ability to control’ the activity requires knowledge of it, which must be item-specific.” [...] For the reasons that follow, we hold that the District Court erred by importing a specific knowledge requirement into the control and benefit provision, and we therefore remand for further fact-finding on the issue of control.

64 1. “Right and Ability to Control” Infringing Activity

- 65 On appeal, the parties advocate two competing constructions of the “right and ability to control” infringing activity. 17 U.S.C. § 512(c)(1)(B). Because each is fatally flawed, we reject both proposed constructions in favor of a fact-based inquiry to be conducted in the first instance by the District Court.

- 66 The first construction, pressed by the defendants, is the one adopted by the District Court, which held that “the provider must know of the particular case before he can control it.” [...] The Ninth Circuit recently agreed, holding that “until [the service provider] becomes aware of specific unauthorized material, it cannot exercise its ‘power or authority’ over the specific infringing item. In practical terms, it does not have the kind of ability to control infringing activity the statute contemplates.” [...] The trouble with this construction is that importing a specific knowledge requirement into § 512(c)(1)(B)

renders the control provision duplicative of § 512(c)(1)(A). Any service provider that has item-specific knowledge of infringing activity and thereby obtains financial benefit would already be excluded from the safe harbor under § 512(c)(1)(A) for having specific knowledge of infringing material and failing to effect expeditious removal. No additional service provider would be excluded by § 512(c)(1)(B) that was not already excluded by § 512(c)(1)(A). Because statutory interpretations that render language superfluous are disfavored, [...] we reject the District Court's interpretation of the control provision.

- 67 The second construction, urged by the plaintiffs, is that the control provision codifies the common law doctrine of vicarious copyright liability. The common law imposes liability for vicarious copyright infringement “[w]hen the right and ability to supervise coalesce with an obvious and direct financial interest in the exploitation of copyrighted materials—even in the absence of actual knowledge that the copyright mono [poly] is being impaired.” *Shapiro, Bernstein & Co. v. H.L. Green Co.*, 316 F.2d 304, 307 (2d Cir.1963)[...]. To support their codification argument, the plaintiffs rely [676 F.3d 37] on a House Report relating to a preliminary version of the DMCA: “The ‘right and ability to control’ language ... codifies the second element of vicarious liability.... Subparagraph (B) is intended to preserve existing case law that examines all relevant aspects of the relationship between the primary and secondary infringer.” H.R.Rep. No. 105-551(I), at 26 (1998). In response, YouTube notes that the codification reference was omitted from the committee reports describing the final legislation, and that Congress ultimately abandoned any attempt to “embark[] upon a wholesale clarification” of vicarious liability, electing instead “to create a series of ‘safe harbors’ for certain common activities of service providers.” S.Rep. No. 105-190, at 19.
- 68 Happily, the future of digital copyright law does not turn on the confused legislative history of the control provision. The general rule with respect to common law codification is that when “Congress uses terms that have accumulated settled meaning under the common law, a court must infer, unless the statute otherwise dictates, that Congress means to incorporate the established meaning of those terms.” [...] Under the common law vicarious liability standard, “[t]he ability to block infringers’ access to a particular environment for any reason whatsoever is evidence of the right and ability to supervise.” *Anista Records LLC v. Usenet.com, Inc.*, 633 F.Supp.2d 124, 157 (S.D.N.Y.2009) (alteration in original) (quoting *A & M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1023 (9th Cir.2001)). To adopt that principle in the DMCA context, however, would render the statute internally inconsistent. Section 512(c) actually presumes that service providers have the ability to “block ... access” to infringing material. [...] Indeed, a service provider who has knowledge or awareness of infringing material or who receives a takedown notice from a copyright holder is required to “remove, or disable access to, the material” in order to claim the benefit of the safe harbor. 17 U.S.C. § 512(c)(1)(A)(iii) & (C). But in taking such action, the service provider would—in the plaintiffs’ analysis—be admitting the “right and ability to control” the infringing material. Thus, the prerequisite to safe harbor protection under § 512(c)(1)(A)(iii) & (C) would at the same time be a disqualifier under § 512(c)(1)(B).
- 69 Moreover, if Congress had intended § 512(c)(1)(B) to be coextensive with vicarious liability, “the statute could have accomplished that result in a more direct manner.” [...]

- 70 It is conceivable that Congress ... intended that [service providers] which receive a financial benefit directly attributable to the infringing activity would not, under any circumstances, be able to qualify for the subsection (c) safe harbor. But if that was indeed their intention, it would have been far simpler and much more straightforward to simply say as much. [...]
- 71 In any event, the foregoing tension—elsewhere described as a “predicament”^[11] and a “catch22”^[12]—is sufficient to establish that the control provision “dictates” [676 F.3d 38] a departure from the common law vicarious liability standard[...]. Accordingly, we conclude that the “right and ability to control” infringing activity under § 512(c)(1)(B) “requires something more than the ability to remove or block access to materials posted on a service provider’s website.” [...] The remaining—and more difficult—question is how to define the “something more” that is required.
- 72 To date, only one court has found that a service provider had the right and ability to control infringing activity under § 512(c)(1)(B).^[13] In *Perfect 10, Inc. v. Cybernet Ventures, Inc.*, 213 F.Supp.2d 1146 (C.D.Cal.2002), the court found control where the service provider instituted a monitoring program by which user websites received “detailed instructions regard[ing] issues of layout, appearance, and content.” [...] The service provider also forbade certain types of content and refused access to users who failed to comply with its instructions. [...] Similarly, inducement of copyright infringement under *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 125 S.Ct. 2764, 162 L.Ed.2d 781 (2005), which “premises liability on purposeful, culpable expression and conduct,” [...] might also rise to the level of control under § 512(c)(1)(B). Both of these examples involve a service provider exerting substantial influence on the activities of users, without necessarily—or even frequently—acquiring knowledge of specific infringing activity.
- 73 In light of our holding that § 512(c)(1)(B) does not include a specific knowledge requirement, we think it prudent to remand to the District Court to consider in the first instance whether the plaintiffs have adduced sufficient evidence to allow a reasonable jury to conclude that YouTube had the right and ability to control the infringing activity and received a financial benefit directly attributable to that activity.

C. “By Reason of” Storage: § 512(c)(1)

- 75 The § 512(c) safe harbor is only available when the infringement occurs “by reason of the storage at the direction of a user of material that resides on a system or network controlled or operated by or for the service provider.” 17 U.S.C. § 512(c)(1). In this case, the District Court held that YouTube’s software functions fell within the safe harbor for infringements that occur “by reason of” user storage. [...] For the reasons that follow, we affirm that holding [676 F.3d 39] with respect to three of the challenged software functions—the conversion (or “transcoding”) of videos into a standard display format, the playback of videos on “watch” pages, and the “related videos” function. We remand for further fact-finding with respect to a fourth software function, involving the third-party syndication of videos uploaded to YouTube.

- 76 As a preliminary matter, we note that “the structure and language of OCILLA indicate that service providers seeking safe harbor under [§] 512(c) are not limited to merely storing material” [...] The structure of the statute distinguishes between so-called “conduit only” functions under § 512(a) and the functions addressed by § 512(c) and the other subsections. See 17 U.S.C. § 512(a) (“Subsections (a), (b), (c), and (d) describe separate and distinct functions for purposes of applying this section.”). Most notably, OCILLA contains two definitions of “service provider.” 17 U.S.C. § 512(k)(1)(A)-(B). The narrower definition, which applies only to service providers falling under § 512(a), is limited to entities that “offer[] the transmission, routing or providing of connections for digital online communications, between or among points specified by a user, of material of the user’s choosing, without modification to the content of the material as sent or received.” Id. § 512(k)(1)(A) (emphasis added). No such limitation appears in the broader definition, which applies to service providers—including YouTube—falling under § 512(c). Under the broader definition, “the term ‘service provider’ means a provider of online services or network access, or the operator of facilities therefor, and includes an entity described in subparagraph (A).” Id. § 512(k)(1)(B). In the absence of a parallel limitation on the ability of a service provider to modify user-submitted material, we conclude that § 512(c) “is clearly meant to cover more than mere electronic storage lockers.” [...]
- 77 The relevant case law makes clear that the § 512(c) safe harbor extends to software functions performed “for the purpose of facilitating access to user-stored material.” [...] Two of the software functions challenged here—transcoding and playback—were expressly considered by our sister Circuit in *Shelter Capital*, which held that liability arising from these functions occurred “by reason of the storage at the direction of a user.” [...] Transcoding involves “[m]aking copies of a video in a different encoding scheme” in order to render the video “viewable over the Internet to most users.” [...] The playback process involves “deliver[ing] copies of YouTube videos to a user’s browser cache” in response to a user request. [...] The District Court correctly found that to exclude these automated functions from the safe harbor would eviscerate the protection afforded to service providers by § 512(c). [...]
- 78 A similar analysis applies to the “related videos” function, by which a YouTube computer algorithm identifies and displays “thumbnails” of clips that are “related” to the video selected by the user. The plaintiffs claim that this practice constitutes content promotion, not “access” to stored content, and therefore falls beyond the scope of the safe harbor. Citing similar language in the Racketeer Influenced and Corrupt Organizations Act (“RICO”), 18 U.S.C. §§ 1961–68, and the Clayton [676 F.3d 40] Act, 15 U.S.C. §§ 12 et seq., the plaintiffs argue that the statutory phrase “by reason of” requires a finding of proximate causation between the act of storage and the infringing activity. [...] But even if the plaintiffs are correct that § 512(c) incorporates a principle of proximate causation—a question we need not resolve here—the indexing and display of related videos retain a sufficient causal link to the prior storage of those videos. The record makes clear that the related videos algorithm “is fully automated and operates solely in response to user input without the active involvement of YouTube employees.” [...] Furthermore, the related videos function serves to help YouTube users locate and gain access to material stored at the direction of other users. Because the algorithm “is closely related to, and follows from, the storage itself,” and is “narrowly directed toward providing access to material stored at

the direction of users,” [...] we conclude that the related videos function is also protected by the § 512(c) safe harbor.

- 79 The final software function at issue here—third-party syndication—is the closest case. In or around March 2007, YouTube transcoded a select number of videos into a format compatible with mobile devices and “syndicated” or licensed the videos to Verizon Wireless and other companies. The plaintiffs argue—with some force—that business transactions do not occur at the “direction of a user” within the meaning of § 512(c)(1) when they involve the manual selection of copyrighted material for licensing to a third party. The parties do not dispute, however, that none of the clips-in-suit were among the approximately 2,000 videos provided to Verizon Wireless. In order to avoid rendering an advisory opinion on the outer boundaries of the storage provision, we remand for fact-finding on the question of whether any of the clips-in-suit were in fact syndicated to any other third party.

D. Other Arguments

81 1. Repeat Infringer Policy

- 82 The class plaintiffs briefly argue that YouTube failed to comply with the requirements of § 512(i), which conditions safe harbor eligibility on the service provider having “adopted and reasonably implemented ... a policy that provides for the termination in appropriate circumstances of subscribers and account holders of the service provider’s system or network who are repeat infringers.” 17 U.S.C. § 512(i)(1)(A). Specifically, the class plaintiffs allege that YouTube “deliberately set up its identification tools to try to avoid identifying infringements of class plaintiffs’ works.” This allegation rests primarily on the assertion that YouTube permitted only designated “partners” to gain access to content identification tools by which YouTube would conduct network searches and identify infringing material.[14]

- 83 Because the class plaintiffs challenge YouTube’s deployment of search technology, [676 F.3d 41] we must consider their § 512(i) argument in conjunction with § 512(m). As previously noted, § 512(m) provides that safe harbor protection cannot be conditioned on “a service provider monitoring its service or affirmatively seeking facts indicating infringing activity, except to the extent consistent with a standard technical measure complying with the provisions of subsection (i).” 17 U.S.C. § 512(m)(1) (emphasis added). In other words, the safe harbor expressly disclaims any affirmative monitoring requirement—except to the extent that such monitoring comprises a “standard technical measure” within the meaning of § 512(i). Refusing to accommodate or implement a “standard technical measure” exposes a service provider to liability; refusing to provide access to mechanisms by which a service provider affirmatively monitors its own network has no such result. In this case, the class plaintiffs make no argument that the content identification tools implemented by YouTube constitute “standard technical measures,” such that YouTube would be exposed to liability under § 512(i). For that reason, YouTube cannot be excluded from the safe harbor by dint of a decision to restrict access to its proprietary search mechanisms.

84 **2. Affirmative Claims**

85 Finally, the plaintiffs argue that the District Court erred in denying summary judgment to the plaintiffs on their claims of direct infringement, vicarious liability, and contributory liability under *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 125 S.Ct. 2764, 162 L.Ed.2d 781 (2005). In granting summary judgment to the defendants, the District Court held that YouTube “qualif[ie]d for the protection of ... § 512(c),” and therefore denied the plaintiffs’ cross-motion for summary judgment without comment. [...]

86 The District Court correctly determined that a finding of safe harbor application necessarily protects a defendant from all affirmative claims for monetary relief. 17 U.S.C. § 512(c)(1)[...]. For the reasons previously stated, further fact-finding is required to determine whether YouTube is ultimately entitled to safe harbor protection in this case. Accordingly, we vacate the order denying summary judgment to the plaintiffs and remand the cause without expressing a view on the merits of the plaintiffs’ affirmative claims.

CONCLUSION

88 To summarize, we hold that:

89 (1) The District Court correctly held that 17 U.S.C. § 512(c)(1)(A) requires knowledge or awareness of facts or circumstances that indicate specific and identifiable instances of infringement;

(2) However, the June 23, 2010 order granting summary judgment to YouTube is **VACATED** because a reasonable jury could conclude that YouTube had knowledge or awareness under § 512(c)(1)(A) at least with respect to a handful of specific clips; the cause is **REMANDED** for the District Court to determine whether YouTube had knowledge or awareness of any specific instances of infringement corresponding to the clips-in-suit;

(3) The willful blindness doctrine may be applied, in appropriate circumstances, to demonstrate knowledge or awareness of specific instances of infringement under § 512(c)(1)(A); the cause is **REMANDED** for the [676 F.3d 42] District Court to consider the application of the willful blindness doctrine in the first instance;

(4) The District Court erred by requiring “item-specific” knowledge of infringement in its interpretation of the “right and ability to control” infringing activity under 17 U.S.C. § 512(c)(1)(B), and the judgment is **REVERSED** insofar as it rests on that erroneous construction of the statute; the cause is **REMANDED** for further fact-finding by the District Court on the issues of control and financial benefit;

(5) The District Court correctly held that three of the challenged YouTube software functions—replication, playback, and the related videos feature—occur “by reason of the storage at the direction of a user” within the meaning of 17 U.S.C. § 512(c)(1), and the judgment is **AFFIRMED** insofar as it so held; the cause is **REMANDED** for further fact-finding regarding a fourth software function,

involving the syndication of YouTube videos to third parties.

On remand, the District Court shall allow the parties to brief the following issues, with a view to permitting renewed motions for summary judgment as soon as practicable:

- (A) Whether, on the current record, YouTube had knowledge or awareness of any specific infringements (including any clips-in-suit not expressly noted in this opinion);
- (B) Whether, on the current record, YouTube willfully blinded itself to specific infringements;
- (C) Whether YouTube had the “right and ability to control” infringing activity within the meaning of § 512(c)(1)(B); and
- (D) Whether any clips-in-suit were syndicated to a third party and, if so, whether such syndication occurred “by reason of the storage at the direction of the user” within the meaning of § 512(c)(1), so that YouTube may claim the protection of the § 512(c) safe harbor.

We leave to the sound discretion of the District Court the question of whether some additional, guided discovery is appropriate in order to resolve “(C)” (“[w]hether YouTube had ‘the right and ability to control’ infringing activity”), and “(D)” (“[w]hether any clips-in-suit were syndicated to a third party”). As noted above, for purposes of this case, the record with respect to “(A)” (“[w]hether ... YouTube had knowledge or awareness of any specific infringement”) and “(B)” (“[w]hether YouTube willfully blinded itself to specific infringement”) is now complete.

90 Each party shall bear its own costs.[...]

[Notes:]

97 [4] The “Flash” format “is a highly compressed streaming format that begins to play instantly. Unlike other delivery methods, it does not require the viewer to download the entire video file before viewing.” Joint App’x IV:73.

98 [5] Doctrines of secondary copyright infringement include contributory, vicarious, and inducement liability. See *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 930–31, 936–37, 125 S.Ct. 2764, 162 L.Ed.2d 781 (2005).[...]

100 [7] It is undisputed that all clips-in-suit had been removed from the YouTube website by the time of summary judgment, mostly in response to DMCA takedown notices. *Viacom Int’l*, 718 F.Supp.2d at 519.[...]

102 [9] We express no opinion as to whether the evidence discussed above will prove sufficient to withstand a renewed motion for summary judgment by YouTube on remand.

In particular, we note that there is at least some evidence that the search requested by Walker in his February 7, 2007 e-mail was never carried out. See Joint App'x III:256. We also note that the class plaintiffs have failed to identify evidence indicating that any infringing content discovered as a result of Walker's request in fact remained on the YouTube website. The class plaintiffs, drawing on the voluminous record in this case, may be able to remedy these deficiencies in their briefing to the District Court on remand.

- 103 [10] Our recent decision in *Tiffany (NJ) Inc. v. eBay Inc.*, 600 F.3d 93 (2d Cir.2010), lends support to this result. In *Tiffany*, we rejected a willful blindness challenge, holding that although eBay “knew as a general matter that counterfeit Tiffany products were listed and sold through its website,” such knowledge “is insufficient to trigger liability.” *Id.* at 110. In so holding, however, we rested on the extensive findings of the district court with respect to willful blindness. *Id.* (citing *Tiffany (NJ) Inc. v. eBay, Inc.*, 576 F.Supp.2d 463, 513 (S.D.N.Y.2008)). Thus, the *Tiffany* holding counsels in favor of explicit fact-finding on the issue of willful blindness.[...]
- 106 [13] Other courts have suggested that control may exist where the service provider is “actively involved in the listing, bidding, sale and delivery” of items offered for sale, *Hendrickson v. eBay, Inc.*, 165 F.Supp.2d 1082, 1094 (C.D.Cal.2001), or otherwise controls vendor sales by previewing products prior to their listing, editing product descriptions, or suggesting prices, *Corbis Corp.*, 351 F.Supp.2d at 1110. Because these cases held that control did not exist, however, it is not clear that the practices cited therein are individually sufficient to support a finding of control.[...]

Case 3– Waymo

(footnote n° 40)

ANNEX D – Research conducted (national and international)

Methodology

Application of empirical method, with application of 2 types of questionnaire: (1) face-to-face interview; (2) interview by email.

Questionnaire Model (1): verbal

1. What is your opinion about an international regulation for the Internet (referring to how to deal with the current topic of the digital databases collected through the web, IoT and IA)?
2. Could the intellectual property issue of digital databases be dealt with only by contracts?
3. How is the intellectual property protection of the companies' digital databases (in an Internet of Things context - IOT and Artificial Intelligence - IA)?
4. Can we call this institute "property"? Would be the appropriate term since with the protection of personal data would be revocable? Does it have to be deleted?

Questionnaire Model (2): by e-mail

1. Do you think that the current legislation on Intellectual Property on databases (in Brazil, Europe, USA) is sufficient to protect this asset in a complete scenario of digital databases collected through internet and industrial data collected through the Internet of Things (IoT)? For example, if a case that has IoT, whose black box can collect data from the car, and also the driver, who owns the property collected data? Do they naturally belong to the car manufacturer? To the owner of the vehicle? To the driver who is driving? Whose right is the data? What right would this be? Intellectual property, sui generis, privacy, other kind? And depends on what? Does it depend on the type of data collected? Depends on the type of contract established? And what can be done with the data collected (would it be unlimited or limited?).
2. Do you think that the globalized nature of the Internet requires that there be an international regulation on the Intellectual Property of the digital databases collected through the Internet and the databases collected through Internet of Things (IoT), in view of the growing need to harmonize these rights with the new regulations that have emerged on Privacy and Protection of Personal Data at National and Regional levels (in several countries)?
3. Do you think that Intellectual Property of digital databases collected via the Internet and digital databases collected via IoT should be governed only by contracts (without the need for specific national legislation or an international treaty)? Would that be enough? And these contracts could have any type of clause or should follow a model (such as Directive 97/7 / EC and 93/13 / EEC on unfair terms).

Professors interviewed (verbal interview):

List of Professors

- (1) Prof. Albert Gidari (Stanford University - Internet and Society Center - USA)
- (2) Prof. Dr. Alexandre Dias Pereira (Coimbra University – Portugal)
- (3) Prof. J.D. Ann Bartow (University of New Hampshire Law School - USA)
- (4) Prof. Dr. Antonio Carlos Morato (University of São Paulo - Brazil)
- (5) Prof. J. D. Chris Reed (Queen Mary University of London - England)
- (6) Prof. J.D. Daphne Keller (Stanford University - USA)
- (7) Prof. Dr. Dario Moura Vicente (University of Lisbon - Portugal)
- (8) Prof. Eike Hosemann (Max Planck Institute of Hamburg - Germany)
- (9) Prof. Dr. Gerald Spindler (University of Göttingen - Germany)
- (10) Prof. Dr. Gloria Gonzalez Fuster (University of Brussels - Belgium)
- (11) Prof. Jacqueline Lipton, PhD (University of Akron - USA)
- (12) Prof. Jan Lüttringhaus, PhD (Max Planck Institute Hamburg - Germany)
- (13) Prof. Dr. Jan Schmidt (Max Planck Institute Hamburg - Germany)
- (14) Prof. Jeremy Malcolm, PhD (Electronic Frontier Foundation - EFF - USA)
- (15) Prof. Dr. Josef Drexl, LL.M. (Max Planck Institute of Munich - Germany)
- (16) Prof. J.D. June Besek (University of Columbia - USA)
- (17) Prof. Dr. Luis Filipe Antunes (University of Porto - Portugal)
- (18) Prof. Dr. Nathália Mazonnetto (University of São Paulo - Brazil)
- (19) Prof. Nicholas Hernanz, Master (Member of The Greens Party - European Parliament - Belgium)
- (20) Prof. Rafael Ferraz Vazquez, Master (World Intellectual Property Organization - WIPO - Switzerland)
- (21) Prof. Dr. Dr. h.c. mult. Reinhard Zimmermann (Max Planck Institute Hamburg - Germany)
- (22) Prof. Dr. João Paulo Fernandes Remédio Marques (Coimbra University - Portugal)
- (23) Prof. Dr. Dr. h.c. Reto M. Hilty (Max Planck Institute of Munich - Germany)
- (24) Prof. Dr. Rolf Weber (University of Zurich - Switzerland)
- (25) Prof. Dr. Roya Ghafele (University of Oxford - England)
- (26) Prof. Dr. Valentina Moscon (Max Planck Institute of Munich - Germany)
- (27) Mr. Wolf Meier-Ewert (World Trade Organization - WTO - Switzerland)

Professors interviewed (personal interview by e-mail [1]):

Albert Gidari (Stanford University - Internet & Society Center - USA)

From: Albert Gidari
Sent: Thursday, June 15, 2017 6:40 PM
To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>
Subject: Re: invite to participate on PhD research - Patricia Peck from São Paulo University with Columbia University and Max Planck Institute - Intellectual Property and Privacy

Alexandre Dias Pereira (University of Coimbra - Portugal)

From: Alexandre Dias Pereira
Sent: Friday, July 7, 2017 11:22 AM
To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>
Subject: RE: contact Prof. Patricia Peck Pinheiro University of São Paulo - thesis research - invitation

Ann Bartow (University of New Hampshire Law School - USA)

From: Bartow, Ann
Sent: Monday, July 10, 2017 1:58 PM
To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>
Subject: RE: Virtual Introduction

Antonio Carlos Morato (University of São Paulo - Brazil)

From: Antonio Carlos Morato
Sent: Monday, June 26, 2017 9:11 AM
To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>
Subject: PhD thesis - questionnaire

Chris Reed (Queen Mary University of London - England)

From: Chris Reed
Sent: Monday, June 26, 2017 11:15 AM
To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>
Subject: Re: request to participate in the research - Patricia Peck - cyber law attorney from Brazil (Phd visiting researcher at Columbia University and Max Planck Institute)

Daphne Keller (Stanford University - USA)

From: Daphne Keller
Sent: Monday, June 12, 2017 2:59 PM
To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>
Subject: Re: invite to participate on PhD research - Patricia Peck from São Paulo University with Columbia University and Max Planck Institute - Intellectual Property and Privacy

Jeremy Malcolm (Electronic Frontier Foundation – EFF - USA)

From: Jeremy Malcolm

Sent: Thursday, June 22, 2017 8:04 PM

To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>

Subject: Re: invite to participate on PhD research - Patricia Peck from São Paulo University with Columbia University and Max Planck Institute - Intellectual Property and Privacy

Josef Drexl (Max Planck Institute of Munich - Germany)

From: Drexl Josef

Sent: Monday, June 12, 2017 5:14 PM

To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>

Subject: RE: Meeting request - Patricia Peck aus Brasilien. - my questions for the PhD research

Nathália Mazzonetto (University of São Paulo - Brazil)

From: Nathalia Mazzonetto | MommaLaw

Sent: Monday, June 19, 2017 11:10 AM

To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>

Subject: RES: contact with Prof. Natália Mazoneto - Patricia Peck (University of Sao Paulo, Columbia University and Max Planck Institute) - by appointment Prof. Remédio Marques University Coimbra

Rolf Weber (University of Zurich - Switzerland)

From: Weber Rolf

Sent: Saturday, June 17, 2017 8:46 AM

To: Patricia Pinheiro <patricia.peck@peckadvogados.com.br>

Subject: WG: request for a meeting - Patricia Peck - cyber law attorney from Brazil (Phd visiting researcher at Columbia University)