

UNIVERSIDADE ESTADUAL DE CAMPINAS Faculdade de Ciências Aplicadas



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INNOVATION IN THE LEGAL SECTOR: A SYSTEMIC PERSPECTIVE

INOVAÇÃO NO SETOR JURÍDICO: UMA PERSPECTIVA SISTÊMICA

LIMEIRA 2021





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ABSTRACT

Introduction: this research starts from the perspective that the legal sector can be understood as an area of the service economy made up by public and private actors responsible for delivering legal services. Traditionally, legal services are referred as legal or law matters services typically provide by lawyers and/or by the judiciary, such as legal advice, claiming and defending of lawsuits, filing, contracts, conciliation, mediation, arbitration, and adjudication itself. However, mainly due technological changes and innovation in the context of the Fourth Industrial Revolution, the strategic and operational rationale of these typical actors has been changing, and other agents are somehow taking place in the legal services provision, affecting the way how legal services are produced and delivered in society. Nevertheless, literature is incipient on understanding the innovation dynamics in the sector. Purpose: analyse the innovation dynamics in the legal sector through the Sectoral Innovation System (SIS) framework. The research questions that guide this study are: "how does the process of development, use, and diffusion of innovations happen in the legal sector?", "who are the main actors involved?" and "how do they interact with each other to innovate?". Methods: this is an empirical qualitative study, specifically a case study based on interviews and documents analysis. We performed semi structured interviews with 38 actors involved in the legal sector innovation environment in two different contexts: Brazil and Germany; analysing their content based on cross-case analysis and data triangulation. Findings: our results show the main actors involved in the legal sector innovation system are the traditional public and private legal services providers, the legaltech companies, the universities, the supporting organizations, and the final consumers of legal services. There is a common rationale on how the process of development, use, and diffusion of innovations happens in the sector - despite we also show some important differences between the countries' contexts, as they have different cultural, social, and economic environments. We concluded the legal sector innovation system exists but still presents weak interactions among actors. It is a sector dealing with an emergent technology, where institutions have an outstanding role and reflect diverse tensions among actors. On one hand, the growing presence of KIE and KIBs indicates the rising of entrepreneurial experimentation, market formation, and knowledge and technology exchange among actors. On the other hand, the lack of structured policies on the field, as well the weak participation of universities and supporting organizations, imply a low level of technology/innovation legitimation and of resource mobilization. We summarize the main obstacles for the legal sector innovation system consolidation in four key issues: Legal Certainty, Responsibility, Legitimation and Funding; indicating some possible solutions to mitigate these obstacles. Contributions: this research is an original study that explores innovation in the legal sector through a systemic perspective. We believe our findings present theoretical and practical contributions to all actors involved in the legal sector innovation system, as they may help entrepreneurs, lawyers, government, and academics to better understand and manage the innovation process in the sector.

Keywords: Innovation; Justice; Legal Services; Legal Technology; Startups.

RESUMO

Introdução: este estudo parte da perspectiva de que o setor jurídico pode ser entendido como uma área de economia de serviços composta por atores de natureza pública e privada responsáveis por prover serviços jurídicos. Tradicionalmente, tais serviços são aqueles tipicamente entregues por advogados e pelo judiciário, tais como o aconselhamento em matérias legais, a representação em ações, contratos, conciliações, mediações, arbitragens e a prestação jurisdicional em si mesma. Contudo, principalmente em razão da inovação e das mudanças tecnológicas no contexto da Quarta Revolução Industrial, a estratégia e a lógica operacional desses atores têm mudado e outros agentes têm se inserido na provisão dos serviços jurídicos, afetando a forma como eles são produzidos e entregues na sociedade. Contudo, apesar da relevância dessas mudanças, a literatura sobre a dinâmica do processo de inovação no setor ainda é incipiente. Objetivos: este trabalho analisa a dinâmica da inovação no setor jurídico por meio do referencial teórico em Sistema Setoriais de Inovação (SSI). As perguntas que guiam esta pesquisa são: "como o processo de desenvolvimento, uso e difusão da inovação ocorre no setor jurídico?", "quem são os principais atores envolvidos?" e "como esses atores interagem uns com os outros a fim de inovar?". Métodos: trata-se de um estudo empírico e qualitativo, especificamente um estudo de caso baseado em entrevistas e na análise de documentos. Realizaram-se 38 entrevistas semiestruturas com atores envolvidos no ambiente de inovação do setor jurídico em dois contextos: Brasil e Alemanha. Resultados: os achados mostram que os principais atores envolvidos do sistema de inovação do setor jurídico são os tradicionais prestadores de serviço, as empresas legaltech, as universidades, as organizações de suporte, e os consumidores finais dos serviços jurídicos. Além disso, indicam uma lógica comum sobre como o processo de desenvolvimento, uso e difusão da inovação ocorre no setor - apesar de também expor algumas diferenças importantes entre os contextos, uma vez que eles apresentam diferentes características econômicas e sociais. Conclui-se que o sistema de inovação do setor existe, mas apresenta fracas interações entre os atores. Trata-se de um setor que lida com uma tecnologia emergente e em que as instituições têm um papel destacado, refletindo diversas tensões entre os atores. Por um lado, a presença crescente de KIE e KIBs indica a ascensão da experimentação empresarial, a formação de mercado, e o intercâmbio de conhecimentos e tecnologias entre os atores. Por outro, a falta de políticas específicas, bem como a fraca participação das universidades e das organizações de suporte implicam em um baixo nível de mobilização de recursos e de legitimação da tecnologia e da inovação. Os principais pontos para consolidação do sistema de inovação no setor são sumarizados em quatro elementos-chave: Segurança Jurídica; Responsabilidade, Legitimação e Investimentos. Contribuições: este é um estudo original que explora a inovação no setor jurídico sob uma perspectiva sistêmica. Seus resultados apresentam contribuições teóricas e empíricas para os atores envolvidos no sistema de inovação do setor, podendo auxiliar empreendedores, advogados, organizações públicas e acadêmicos a melhor entender e gerir o processo de inovação nesse ambiente.

Palavras-chave: Inovação; Justiça; Serviços Jurídicos; Legal Technology; Startups.

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INTRODUCTION

This research starts from the perspective that the legal sector can be understood as an area of the service economy made up by public and private actors responsible for delivering legal services. Traditionally, legal services are referred as legal or law matters services typically provide by lawyers and/or by the judiciary, such as legal advice, claiming and defending of lawsuits, filing, contracts, conciliation, mediation, arbitration, and adjudication itself. However, mainly due technological changes and innovation in the context of the Fourth Industrial Revolution, the strategic and operational rationale of these typical actors has been changing, and other agents are somehow taking place in the legal services provision, affecting the way how legal services are produced and delivered in society (SUSSKIND, 2008 and 2013; HARTUNG *et al.*, 2018; CUNHA *et al.*, 2018; NADIMPALLI, 2017; FABRI & CONTINI, 2001).

Legal services are "an essential input to the economy as a whole and an important foundation of a well-functioning society" (CMA, 2016, p. 25). Because of its importance, literature have put effort in understanding the legal sector changes, exploring cases of innovation, types of technologies, newcomers, among many other aspects. However, as the legal sector transformation is a recent on-going phenomenon, literature is still incipient, with an especial lack of studies about the dynamics of the innovation process. Some studies that indicate the relevance and the gap on this topic are Bernal & Hagan (2020), Hiil (2019), Henderson (2018), and Sheppard (2015).

In the last decades, literature have shown that movements of technological change are associated to the emergence of Innovation Systems (IS) (HEKKERT & NEGRO, 2008), which are a set of agents interconnected by knowledge and technological flows and immersed in an institutional structure that reasonably supports the development, use, and diffusion of innovations between them (LUNDVALL, 1992; ALBUQUERQUE, 1996). As all systems are characterised by a basic function, the IS main purpose is to enable new technologies, new knowledge, and innovations in a certain environment (BOTTA *et al.*, 2015). In addition, IS can also be understood as an analytical construct used to better illustrate and understand innovation dynamics (BERGEK et al., 2008).

Currently, IS is a well-established framework that presents key factors for describing, analysing, and understanding the process of innovation in diverse environments (SCHREMPF *et al.*, 2013). The way these key factors are explored depends on how studies

define the relevant level of analysis (e.g., global, national, regional, or sectoral), how they deal with structural components of the system (e.g., technology, knowledge, actors, networks, and institutions) and with their interactions and evolution along the time. The combination of these specificities characterizes the different approaches of the Innovation System theory (BOTTA *et al.*, 2015; COENEN & LÓPEZ, 2010).

We believe the legal sector transformation phenomenon can be analysed through the IS framework, contributing to the better understanding of the innovation dynamics in the sector, and helping to fill in the literature gap. In that sense, our research aims to characterize the legal sector innovation system, focusing on agents' configuration and on their dynamics of interaction. The research questions that guide this study are: "how does the process of development, use, and diffusion of innovations happen in the legal sector?", "who are the main actors involved?", and "how do they interact with each other to innovate?".

According to Botta (2015), to analyse an Innovation Systems is a complex task that requires three macro steps: to select a specific IS approach; to map the innovation system according to the selected approach; and to discuss the functionality of the system. However, the first step depends on a previous knowledge of the economic environment explored, to analyse which approach fits to their structure; and the second and third steps depend on a source of data and on methods for its collection and analysis, which can largely vary in the IS literature.

Considering these aspects, and to pursue our general objective, we set seven specific objectives to be achieved by each one of our chapters (Figure 1). Chapter one seeks to understand the legal sector structure through an economic perspective, describing its traditional and new actors, and the role of technology in the sector transformation.

Chapter two is dived in two parts. The first one describes the meaning of innovation in the general literature and in the literature specialized in the legal sector, showing compatibilities, divergences, and gaps. It gives us important insights about the legal sector innovation environment and about research opportunities.

The second part of chapter two explores how the Innovation Systems (IS) theory can be helpful to analyse the innovation dynamics in the legal sector. We briefly explore the basic premises on IS traditions, choosing the Sectoral Innovation System (SIS) approach to analyse the legal sector innovation environment. Accordingly, we explain the main analytical dimensions of SIS, how its concepts can be adapted for sectors of services, and how the theories on Knowledge-intensive Entrepreneurship (KIE) and Knowledge-intensive Business Services (KIBS) are good complements for the legal sector analysis. We demonstrated that, complemented with the theories on innovation in services, and with the theories on KIE and KIBS, SIS is a good framework to understanding the legal sector innovation environment, also showing some initial insights about the existence of a sectorial innovation system around legal services and its possible composition.

	GENERAL OBJECT	ΓIVE	
То	characterize the legal sector innovation system and on their dynamics of	n, focusing on age interaction.	ents' configuration
CH.	SPECIFIC OBJECTIVES	METHODS	
1	To outline the legal sector structure, its actors, and technologies.	Literature	Understanding the legal sector
	To analyse the meaning and types of innovation in the legal sector.	review	Innovation in the
2	To select the IS approach that best fits the analysis of the legal sector innovation environment.		legal sector and Innovation Systems
	To describe relevant concepts and theories.		
3	To describe and justify our research methods.		Methods
4	To analyse the system features in two different empirical contexts.	Case studies	Collecting and analysing empirical evidence on IS features in the legal sector
5	To discuss structural components, the dynamics and functionalities of the legal sector innovation system.	Data triangulation	Analysing the legal sector Innovation system.

Figure 1. Research objectives, methods, and structure.

Source: elaborated by the authors

Sequentially, chapter 3 shows and justifies our research methods for performing an empirical qualitative study. It is a case study based on interviews. Basically, we interviewed a

set of actors involved in the legal sector innovation environment in two different contexts: Brazil and Germany; also analysing documents relevant for the contexts.

Interviews took place in Germany from January to June 2020, and in Brazil from August to December of the same year. Participants were selected through SnowBall Sampling methodology. Both in Germany and in Brazil we have 19 participants, totalizing 38 interviews. The interviews were conducted by means of semi-structured questionnaires. Based on literature, we elaborated some basic open questions to guide us during the conversations and that also could allow participants to feel free to speak and address topics that he or she considered relevant about the research object. As part of the case study, we also analysed the content of some laws, Court decisions, Court strategic plans and Government policies/letters, both in Brazil and Germany, as they are relevant to understand the institutional scenario. The documents were selected based on respondents mentions and analysed by reading.

The analysis started from a within-case approach, which consisted in the interview's transcriptions. After that, we went thought a cross-case analysis and data triangulation, that is, we describe important elements of both of our cases, exploring similarities and differences, and, at the same time, complemented and confronted these elements with documents and theory.

Chapter 4 and 5 show the findings and conclusions.

CHAPTER 1 THE LEGAL SECTOR TRANSFORMATION

As we saw in the introduction, this chapter seeks to outline the legal sector structure through an economic perspective, describing its traditional and new actors, and the role of technology in the sector transformation. It is organized in four sections. Section one defines the legal sector basic structure and its traditional service providers; section two and three describe how new actors are taking part in the legal services provision through technology, giving examples; and section four reports a wide spectrum of elements that drive the sector transformation coupled with technology.

1.1 The legal sector basic structure

The legal sector can be defined as an area of the service economy made up by public and private actors responsible for delivering legal services. This understanding makes a parallel to the definition of economic sector¹ and is based on the literature related to legal services, as there is no clear previous definition of what the sector is regarding an economic perspective.

Based on this point of view, we can say the legal sector main structure primarily reflects each country's justice system, which strictly defines bodies and individuals responsible for delivering legal services in their territories. Despite justice systems are complex structures that rely on legal, political, and historical bases (FRIEDMAN *et al.*, 2019; SADEK, 2010), it is possible to find two essential components in most countries, from a services perspective: the judiciary, which is responsible for adjudication²; and lawyers, which are responsible for the practice of law.

Accordingly, literature generally defines legal services as both adjudication (e.g., Ware, 2012; Migliavacca, 2015; Almeida, 2010; Hines, 2010) and the practice of law (e.g., Dzienkowski, 2000; Knake, 2012; Eagly, 1997; ABA, 2002), sometimes also including notarial activities (e.g., Malavet, 1997; Griffiths, 1997; Stephen & Burns, 2007). In any case, the basis for legal services is the legal knowledge, monopolized by the so-called legal profession, what

¹ A sector can be defined as a set of activities that are unified by some linked group of products or services that attend a demand and that share some basic knowledge (MALERBA, 2005. p. 35).

² A Prestação Jurisdicional (pt).

suggest a sector guided by education in law and professional trajectories (SOMMERLAD, 2015; FEFERBAUM, 2019; SUSSKIND, 2013).

Basically, the judiciary is a public body that exercises adjudication by interpreting and applying law to the facts of each case, also being a public mechanism for dispute resolution. It is composed of a court system usually organized in branches by themes, territories, and decision levels; judges are a crucial working force in judiciary core activities (BARROS, 2004).

Lawyers (also called attorneys), on the other hand, practice law inside and outside courts, in contentious and non-contentious matters. They typically represent one of the parties in trials by presenting evidence and arguing in court to support their client; counsel their clients about their rights and legal obligations, suggesting particular courses of action in business and personal matters; and help their clients to set legally valid agreements. So, what they basically do is to research the content of laws and judicial decisions and to apply them to the specific circumstances faced by their clients. In a general sense, lawyers can exercise the practice of law at various levels of the legal sector public sphere, working as State attorneys, prosecutors, and public defenders³; and, at the private sphere, they usually work solo, in law firms, and at inhouse legal departments. Terms as law/legal industry and law/legal market are consolidated since 1970's to refer to private legal services, which is basically the business of delivering legal services (e.g., York & Hale, 1973; Katz, 2012; Mcevily *et al.*, 2012, among others).

Therefore, traditional legal services are referred as legal or law matters services typically provided by lawyers and/or by the judiciary, such as legal advice, claiming and defending of lawsuits, filing, contracts, conciliation, mediation, arbitration, and adjudication itself. These activities and actors are the legal sector core, and their specificities and nomenclatures may vary among countries, depending on the institutional framework involved. Figure 2 illustrates the core legal sector structure.

Legal services are of public importance, it is "an essential input to the economy as a whole and an important foundation of a well-functioning society". A legal advice, for instance, can impact consumers life in many ways, "an individual may face deportation as a result of receiving poor-quality advice in relation to an immigration law issue", and "if a business fails to obtain a patent for a new product as a result of receiving poor-quality advice, the income that the business can generate from that product will be drastically reduced" (CMA, 2016, p. 25).

³ Procuradores (Procuradorias), Promotores (Ministério Público) e Defensores Públicos (Defensoria Pública) (pt).



Figure 2. The legal sector general core structure.

Source: elaborated by authors.

However, particularly due technology absorption and innovation, the way how traditional legal services providers produce and deliver legal services has been changing, and other actors are somehow taking part in the legal services provision, especially when it comes to the private sphere (HARTUNG *et al.*, 2018; CUNHA *et al.*, 2018; PETZOLD, 2009; NADIMPALLI, 2017; HINES *at al.*, 2008; USA, 2002; FABRI & CONTINI, 2001).

1.2 Technology absorption and new actors

Historically, technology has been understood as a relevant element for economic transformation. For instance, technology was protagonist in all Industrial Revolutions, which are large economic transformations that occur when conglomerates of innovations culminate in big waves of economic changes (FREEMAN & SOETE, 2008). In the case of the legal sector, many authors have been reporting its (late) entry in the Fourth Industrial Revolution, which is a movement based on Information and Communication Technologies (ICTs) absorption, and especially disruptive for services sectors. So, worldwide, it is expected that the legal sector undergoes the same transformation the financial sector went through in the last years (SUSSKIND, 2008; 2013).

As we saw in the last section, judiciary and lawyers are the traditional actors responsible for delivering legal services around the world, usually monopolizing legal services provision. It is a highly regulated sector where law usually determine who can deliver legal services and how it can be done.

However, when technology is somehow incorporated in the process of legal services production, it typically involves a third actor who possess technological know-how, usually ICT professionals and companies. These traditional and third actors interact with each other in what we called as the legal sector value chain, which comprehends all activities of value creation/addition that contribute to transforming inputs into finished products/services (LEE et al., 2018) in the legal sector.

As the process of technology absorption increases in the sector, relationships between these third actors and traditional legal services providers became more complex, especially as it depends on the level of integration between technological and legal knowledge, and on the level of aggregation between traditional and third actors.

In most countries, until around early 2000's, the legal sector was starting to absorb very basic technology. Traditional players were acquiring computers, digitizing documents, implementing data room solutions, document sharing, and encrypted emails (COSACK, 2019). These technologies usually had a low level of customisation - supporting back office/administrative work mostly - and were usually hired from large international ICT companies, such as Microsoft, IBM and Siemens. So, until this point, the boundaries that separated legal services providers (legal sector) from providers of technological solutions (technology sector) were clear. Legal services providers were, basically, clients of ICT companies.

Few years later, however, technological solutions appliable to legal services were more developed. Specialized ICT companies and other professionals⁴ started coming up with customized solutions that incorporated legal knowledge and, at some level, performed legal activities (such as Document Automation, eDiscovery, and Online Disruptive Resolution) (HALBLEIB, 2018; BUES, 2018; BRAEGELMANN, 2018). These solutions were specifically named as Legal Technologies (Legal Techs). The nomenclature was extended to start-ups responsible for these technologies, frequently referred as Lawtechs or Legaltechs, in analogy to start-ups in the financial sector (Fintechs). Currently, any type of enterprise based on

⁴ Such as eDiscovery Professionals, Litigation Support Professionals, Paralegals, and Trial Consultants. They usually have multidisciplinary functions linked to technology management. For instance, E-Discovery Professionals "(...) collect, process, and preserve in electronic form every scrap of evidence and supporting documentation generated by a lawsuit or criminal proceeding. They help to identify and manage electronically-stored information (ESI) in litigation"; and Trial Consultants "(...) give attorneys an advantage in the courtroom, drawing on the fields of psychology, sociology, and the law. They employ legal technology to help a jury understand complex concepts, and they can help attorneys communicate important themes" (Kane, 2019).

technology and that contributes substantially to the legal sector value chain is called as Lawtech or Legaltech company. Digitalisation and Digital Transformation are also common terms referring to technology absorption in the sector (e.g., Hartung *at al.*, 2018; Leeb, 2019; Andreae, 2016; Curle, 2016; Corrales *et al.*, 2019; Gyuranecz *et al.*, 2019, among others).

Due to geographical peculiarities in law, Legaltech companies started working locally, and, as their businesses grew up, some of them became regional and even global. This expansion is linked to the capacity of these enterprises of understanding and dealing with the work rationale of traditional legal services providers in different areas of law and territories.

In the last years, three main effects of Legal Techs on the legal sector have been reported by literature: (i) they assist traditional public and private actors in their typical activities; (ii) they replace traditional legal services providers in some of their tasks through automatization; and (iii) they enable companies to compete with lawyers on private unregulated matters.

As assistants, Legal Techs are largely explored by empirical literature, probably being the most common experience. It implies Legaltech companies handling traditional legal services providers as costumers, trying to meet their needs. In the public legal sector, it means a variety of ICTs applications to pursue public administration goals, such as transparency, efficiency, and accesses to justice. In the private legal sector, it means ICTs applications that help lawyers to reach their own client's needs and to increase profits, for example, delivering legal services in a faster, cheaper, and more accurate way. These supporting Legal Technologies usually involve more incremental changes (including low levels of automatization), and a cooperative relationship between Legaltech companies and traditional legal services providers.

On the other hand, Legal Techs with the second and third effects are rarely reported by empirical literature, despite abundant theorical studies discuss them as possible futures (e.g., Pfeiffer; 2020; Markovic, 2019; Rostain, 2017). They are described as more disruptive and imply Legaltech companies that, somehow, displace the traditional order of legal services provision.

Smart Contracts are one example of core legal tasks automatization that we can find on empirical literature. It is an application of blockchain technology to automatize contracts enforcement (among other functions), usually operating if-then logic (BRAEGELMANN & KAULARTZ, 2018). Let us suppose you have a contract that stablish a penalty for delay in delivering certain goods. In this case a system can automatically discount the penalty amount from provider's bank account once the delay is perceived in the tracking system. So, basically, Smart Contracts result in the exclusion of traditional legal providers in transactions (e.g., contract enforcement). Probably due to institutional barriers, Smart Contracts have been limited to financial transactions in the universe of digital currencies, such as Bitcoin (MACRINICI *et al.*, 2018).

Regarding Legaltech companies competing with lawyers, some examples are FlightRight and AirHelp, companies that intermediate compensation claims from consumers against airlines in cases of flight cancellation, flight delay or denied boarding due to over sales. FlightRight and other similar enterprises started working about 10 years ago, especially in the US, EU, and Australia. In general, that happened because of five factors: the standardization of the financial compensation amount by consumer protection rules; a gap or an expressed permission that allows certain non-lawyers professionals (usually certified debt collectors) to pursue compensations for consumers (ICAO, 2020); the possibility of advertising and interacting to the client by internet, which is highly restrictive for lawyers; the availability of technologies to process these cases massively at low costs and in a more affordable, accessible and convenient manner (online) to costumers; and the fact that this activity have been not profitable for lawyers, that were usually not interested in this cases, letting an unmet market need.

However, once these enterprises operate in a loophole in law, and some lawyers can be still interested in the demands, their activities are frequently judicialized in many countries. In Germany, for instance, the Federal Court decided about the destine of these companies in November of 2019 (GERMANY, 2019), allowing their continuity based on the desegregation between the legal practice (monopolized by lawyers) and the delivery of legal services.

This movement of allowing new actors in the legal services provision is called liberalization, a phenomenon only observed in the private legal sector, as the judiciary is characterized by the exercise of a state power, not susceptible to competition relations. The globalization of law firms, which occur since 1980's, is also reported by literature as a form of liberalization, as it implies cross-border integration and the enlargement of competition among lawyers (PERLMAN, 2015; STEPHEN & BURNS, 2007; KOK & BURNS, 2007; ALTINAY *et al.;* 2007; SOKOL, 2007).

The way how all these actors organize themselves in the legal sector value chain is complex and incipient in the literature, being difficult to tell when Legaltech companies whether make part or not of the legal sector. For instance, Fairplane (a company similar to Flightright) work in cooperation to law firms in Austria, not representing competition to them (MARTINETZ, 2018, p.303); in the US, law firms are launching/incorporating Legaltechs in form of subsidiaries or affiliates, trying to expand their business models to embrace internal Research and Development (R&D) and to better reach global market (PERSKY, 2019); in Brasil, the Legaltech company Softplan offers part of the e-Justice System, specifically through the so called SAJ⁵ (GRILO, 2016), coexisting with Legal Techs developed by courts' internal staff, such as the PJe⁶; and, internationally, large companies in the field of technology and finance are getting in the Legal Tech market, sometimes incorporating local and regional Legaltech enterprises (e.g., MICROSOFT, 2021; DELLOITTE, 2021; and THOMSON REUTERS, 2021).

Based on these preliminary elements, Figure 3 shows a general view of the legal sector technology flows, which the main sources are ICT companies.

⁵ Sistema de Automação da Justiça (SAJ), SAJ ADV, SAJ Ministérios Públicos, SAJ Tribunais e SAJ Procuradorias (pt).

⁶ Processo Judicial Eletrônico (PJe) (pt).



Figure 3. General view of technology flows.

Source: elaborated by the authors.

The timing and the way how these technological flows occur, as well as how they impact the sector are influenced by institutions in a peculiar manner in the legal sector. Firstly, regulatory influence operates distinctly in the private and in the public sphere of the legal sector. At the public legal sector, the implementation of changes relies on previous regulation that authorizes them. At the private legal sector, on the other hand, changes can occur freely when related to non-regulated matters (non-reserved legal activities), which opens some space for free market economics mechanisms (CMA, 2016).

Secondly, due the nature of legal services in societies, judiciary and lawyers act as both legal service providers and rule makers/interpreters. As rule makers/ rule interpreters, they perform institutional functions that reach their own sector regulation, historically tending to use this role to protect their *status quo* (LANCTOT, 2002). Basically, it means there is a resistance of traditional ideas in law and associated models of legal services provision, which in part explain the sector as a late technology adopter (SUSSKIND, 2008). For instance, in the private sphere, lawyers use unauthorized practices "to protect against perceived incursions by real estate agents, bankers, insurance adjusters, and other groups that seemed to be providing legal services" (LANCTOT, 2002). These "self-regulatory" mechanisms usually occur thought the Bar Associations, entities that represent lawyers and are responsible for regulating their activities; and thought judicialization itself.

Thirdly, it is difficult to understand the intersection between legal services itself (as a product) and its results/functions (as the socio-political phenomenon of law, and rules that compose the pool of institutions in which all actors of a sector are embedded). This particular aspect also affects how literature addresses innovation in the sector, what we will explore in chapter two. For now, let's see the main types of Legal Technologies.

1.3 Legal Technologies and Legaltech companies

As we saw in the last section, Legal Tech companies are essential sources of technology for legal services and participate in the legal sector value chain in many ways. Because of it, several authors and organizations have been interested in understanding the Legal Tech market. What they do is trying to map patters of Legal Technology functions, creating categories, and organizing Legaltech companies or their solutions into them. Table 1 shows some examples of Legal Techs categorization around the world.

	SOURCE		CATEGORIES		
AL	Thomson Reuters (CURLE, 2016) (Annexe 1)		eDiscovery; Legal Research; Analytics; Practice Management; Business development and Marketplace; Litigation Funding; Legal Education; Case Management; Document Automation; Contract management/analysis; Consumer Legal Advice; and Online Dispute Resolution (ODR).		
JLOB	Wilson (2016) (Annexe 2)		eDiscovery; Marketplace; Document Services; Legal Research; Practice Management; Industrial Propriety (IP) Management; Contract Management; and Contract Review.		
	SCLI (2019)		eDiscovery; Marketplace; Document Automation; Legal Research; Practice Management; Analytics; Compliance; Legal Education; and Online Disruptive Resolution (ODR).		
Germany Brazil Africa Switzerland China	Germany	Tobschall (2019) (Annexe 3)	e-Discovery; Automation Tools; Contract Assembly and tools; Legal Practice Management (LPM); Legal Data Base; Legal Process Outsourcing (LPO); Standardized legal advice products; Consumer Legal Advice; Academic initiative and education; HR, Directories, Ratings and content, and Artificial Intelligence (AI).		
		LTD (2019) (Annexe 4)	Automated Legal Advice; Expert Portals; Law Education and Research; Job Markets and Lawyers Directories; Document Analysis and Creation; Legal tools; Legal Databases; and Legal Process Outsourcing (LPO).		
	Brazil	AB2L (2021) (Annexe 5)	 Analytics and jurimetrics; Document Automation and Document Management; Compliance; Legal Content, Education and Consulting; Extraction and monitoring of public data; xe 5) Management; Artificial Intelligence for the Public Sector; Networks of Professionals; Regulatory Technologies; Online Dispute Resolution (ODR); Taxation Technologies; and Real Estate Tech. 		
	Africa	Baobab Insights (2020) (Annexe 6)	Case Management; Online Legal Services; Citizen Action & Media Services; Landlord & property management; Lawyers marketplace; Legal claims; Legal contracts and documentation; Legal database; Legal advisory services & consultancy; Legal Education; and On-demand legal services.		
	Switzerland	witzerland SLA (2020) (Annexe 7) Cryptography; Legal E-Discovery; Trademarks servi Artificial Intelligence; Data Analytics; Legal Research; I Practice Management software; Online Legal Services; L Tech Software; Lawyer search/marketplace; Online publicat Legal Process Management/Flexible resource; E-nc solutions; Standardized legal products; Legal tech advis Archiving and datarooms; Academia; Compliance; Predic Legal Analytics: and Blockchain technology			
	China	86INSIDER (2020) (Annexe 8)	Virtual Courts; E-contracts; Digital legal databases; Virtual legal services; legal education; Artificia inteligence.		
	Nordic countries	NLTH (2020) (Annexe 9)	Marketplace; Document automation; Compliance; Practice Management; Education; Research; Online Disruptive Resolution.		
	Asia Pacific	Thomson Reuters (Kim, 2018) (Annexe 10)	Contract/Case analysis; Contract automation and generation; lawyer search; Legal search; Workflow/Practice Management; Legal Tech consulting; and Online legal services.		

Table 1.	Examples	of Legal Te	echs categorizat	tion, by geo	graphic scope.
I abit I	LAumpies	of Legul IX	cins categorizat	1011, 0y 500	Suprice scope.

Source: elaborated by the authors

As we can see, authors present a variety of Legal Tech categories, some of them similar and other divergent in terms of meanings and nomenclatures. Differences happen because categories have been developed at the same time as the Legal Techs itself show up, and because authors have different geographic scopes - which usually are not smaller than a country. In addition, Legaltech companies frequently present integrated solutions that span many categories, so their classification depends on how authors understand Legaltech companies' main function.

However, in general, classifications present a common set of Legaltech companies or solutions. To better outline the Legal Tech scenario, illustrating to our readers what kind of enterprises and solutions we are exactly talking about, we summarized categories described in table 1 in 12 main groups, trying to bring together similar definitions and show some examples. Our categories' descriptions are brief, once classifications are in an early stage of development.

1.3.1 Legal Practice/Process/Project Management (LPM)

LPM refers to technological solutions that help in the practice of administration in the legal context, such as workflows, time-tracking, billing, invoicing etc. It usually embodies methods of process and project management from the business area and adapt them to the process of legal services provision. Figure 4 shows some examples of LPM Legal Techs.



Figure 4. Examples of LPM Legal Techs.

Source: AB2L (2021); SCLI (2019); Wilson (2016); Tobschall (2019); and Thomson Reuters (CURLE, 2016).

1.3.2 Legal Documents Management and Automation

Legal Documents Management and Automation refers to technological solutions that give some level of automatization to legal documents creation, legal documents review/analysis, and contract lifecycle management. It is usually integrated to LPM solutions. Figure 5 shows some examples.

Figure 5. Examples of Legal documents Management and Automation Legal Techs.



Source: AB2L (2021); SCLI (2019); Wilson (2016); Tobschall (2019); Thomson Reuters (CURLE, 2016); and LTD (2019).

1.3.3 Legal Process Outsourcing (LPO)

LPO refers to the execution of routine legal tasks by companies or professionals external to the traditional legal services providers, and that use technological solutions to deal with these tasks. It is a subcategory of Legal Tech that focus on outsourcing as a feature for classification. Figure 6 shows some examples.

Figure 6. Examples of LPO Legal Techs.



Source: Tobschall (2019); and LTD (2019).

1.3.4 Online Dispute Resolution (ODR)

Historically, courts are the main mechanism for dispute resolution. However, with the overflow of cases in the judiciary, alternative forms of dispute resolution stated being encouraged, especially for civil claims of low economic expression. The most well-known forms of Alternative Dispute Resolution (ADR) are mediation, arbitration, and negotiation. Basically, the Online Dispute Resolution (ODR) refers to alternative forms of solving disputes that happen through the internet (BENYEKHLEF & GÉLINAS, 2005). Figure 7 shows some examples of ODR Legal Techs.





Source: AB2L (2021); SCLI (2019); and Thomson Reuters (CURLE, 2016).

ODR platforms usually operate in 2 ways: they can take lawyers, law firms, and inhouse departments as clients, offering technological solutions to their ADR activities; and they can be itself an ADR organization, which usually implies hiring lawyers habilitated to conduct ADR activities.

1.3.5 Electronic Discovery (eDiscovery or e-Discovery)

In litigation, parties can be required to produce/present documents and information that are relevant to the issues and facts of the case, which is part of the process called Discovery. Depending on the complexity of the case, the Discovery processes can demand lawyers to analyse large volume of documents. In the US, for instance, the Philip Morris case "involved over 1,726 requests from the tobacco companies and more than 32 million Clinton-era records that needed to be evaluated" (ROITBLAT *et al.*, 2010).

The Electronic Discovery (eDiscovery or e-Discovery) is a technological solution that basically helps to manage diverse files and information specific to the Discovery process. It focuses on ways to reduce the time and expense, and to increase accuracy, comparatively to manual Discovery. It is a well-established Legal Tech that implies automated procedures using information retrieval and machine categorization (ROITBLAT *et al.*, 2010; DAVIS, 2020). Figure 8 shows some examples of eDiscovery Legal Techs.



Source: SCLI (2019); Thomson Reuters (CURLE, 2016); and NLTH (2020).

1.3.6 Jurimetrics

Jurimetrics are technological solutions that provide sophisticated legal information based on data extracted from court's data bases. It is basically the application of quantitative methods, especially statistics, to understand a certain scenario and tendences in courts decisions. Despite it can be used to attend diverse legal services provider's needs, Jurimetrics Legal Tech is mostly focused on lawyers. For instance, it can help lawyers to understand the quantity and the rate of successes of a specific demand in courts, patters of decision by judges, and other cases' specificities (COLOMBO *et al.*, 2017; ZABALA & SILVEIRA, 2019). Figure 9 shows some examples of Jurimetrics Legal Techs.



Figure 9. Examples of Jurimetrics Legal Techs.

Source: Thomson Reuters (CURLE, 2016); and NLTH (2020).

Despite quantitative-driven analysis has been mentioned in law literature since 1940, only recently, with a significant digitization of documents in courts, it was possible "to identify patterns and outliers, making it possible to forecast the outcome of a court decision and thus making the law more predictable" (COLOMBO *et al.*, 2017, p. 1). In general, companies operating Jurimetrics solutions have a national or regional scope, as court's databases have legal and language specificities that vary across jurisdictions.

1.3.7 Legal Content and Education

This category of Legal Tech refers to technological solutions that provide information on legal matters in general, such as legal literature, legislation, court decisions, and news. It can be rather integrated with jurimetrics, but usually implies a low level of statistical sophistication. In addition, this category meets a large demand for legal information, serving diverse social segments beyond traditional legal services providers. Legal Content and Education Legal Techs can be publisher's and experts' portals, and platforms of legal training and education, including automated legal answers search. Figure 10 shows some examples.



Figure 10. Examples of Legal Content, Education and Consulting Legal Techs.

Source: Thomson Reuters (CURLE, 2016); Wilson (2016); Tobschall (2019); and AB2L (2021).

1.3.8 Marketplace, Networks, and Online Consulting

This category of Legal Tech refers to technological solutions that help people and companies to find lawyers, such as portals of legal job markets/ job offers, lawyers' professional medias, and platforms for online consulting. Figure 11 shows some examples.

Figure 11. Examples of Marketplace, Networks, and Online Consulting Legal Techs.



Source: Thomson Reuters (CURLE, 2016); Wilson (2016); BAOBAB INSIGHTS (2020) SLA (2020); and Thomson Reuters (KIM, 2018).

1.3.9 Intellectual Property (IP) Management

Intellectual Property (IP) is a category of property owned by a company or person and legally protected from outside use or implementation without consent, such as copyrights, patents, trademarks, and trade secrets. The IP legal services seek to help clients to identify, protect and exploit Intellectual Property rights, including or not litigation. Despite IP management activities are multidisciplinary and not exclusive to lawyers (excepting litigation), specialized lawyers represent the main working force on Intellectual Property management, delivering IP legal services as a branch of the corporate law. Large international law firms are protagonist in IP legal services provision (VAULT, 2021).

The IP management Legal Tech is a category of technological solutions that help tracking and analysing trademarks, copyrights, patents, trade secrets, and other Intellectual Property assets (WILSON, 2016). It usually involves tools that support lawyers on docketing, task management, and prosecution on IP matters (LETTS, 2017). Figure 12 shows some examples of IP management Legal Techs.





Source: Wilson (2016).

As it is a non-reserved and unregulated area, and there is a pressure of consumers to have integrated IP Management services (legal and strategic consultancy together), it is possible to find non-lawyer professionals working with IP legal matters, as well Legal Tech companies assuming replacement and competition roles against lawyers. As a response to this context, large law firms tend to change their business models to embrace technology development (R&D) and to offer multidisciplinary services (WIPR, 2019; PRISM LEGAL, 2018).

1.3.10 Regulatory Technology (Regtech), Compliance, and Taxation Technology (Taxtech)

Regtech refers to technological solutions that help to enforce the legal and political standards established for the activities of an organization, also helping to solve problems generated by regulatory requirements. It is especially developed at organizations in the financial sector, helping both regulated and regulatory entities to verify completeness, consistency, and compliance with the financial regulatory requirements; for instance, helping to identify risks

linked to regulatory issues, and to analyse the asset profile of a bank for capital requirement (MICHELER & WHALEY, 2020).

Regtech is especially understood as a type of Legal Tech when it comes to compliance activities that require substantial legal knowledge, typically executed by in-house legal departments or lawyers. For instance, compliance activities can help organizations to avoid lawsuits in general; to be compliant with labour rights; to fulfil taxation requirements and to set related strategies; to be compliant with privacy law; and to be compliant with many other regulation matters, such as consumer rights and COVID-19 mitigation measures.

Therefore, all technological solutions that refers to compliance legal activities can be understood as Legal Tech. In general, authors name it as Regtech and/or Compliance Legal Tech; or, when specific to taxation issues, as Taxtech. Figure 13 shows some examples.

Figure 13. Examples of Regulatory and Compliance Legal Techs.



Source: AB2L (2021), and NLTH (2020).

Solutions and companies in this category are usually multidisciplinary, offering products that are helpful to a large set of organization' activities. As a non-reserved and unregulated area, the effects of this Legal Tech solutions in the legal sector are similar to what happens with IP management Legal Tech - which seems to be typical of corporative and business law affairs.

1.3.11 E-notary

E-notary Legal Techs refers to technological solutions focused on notarial legal services (secure electronic notarization). It can allow people or business to legally get or notarize documents online, providing tools for proving identity, for signing documents, and to get online contact with notaries agents; help to set legally binding agreements online, to set real estate transactions through the internet, beyond many other functions linked to notarial activities. Figure 14 shows some examples.



Figure 14. Examples of E-notary Legal Techs.

Source: SCLI (2019), and NLTH (2020).

1.3.12 Case Management System and e-Justice

This category of Legal Tech refers to technologic solutions specific for judiciary activities, which involve complex interactions among lawyers, judges, administrative court staff, among others. Depending on the level of development, these solutions can be called as E-Justice or Case Management Systems. Usually, e-Justice includes more sophisticated functions than Case Management Systems, tending to integrate diverse tools, such as e-filing, electronic data interchange, buzz-word search mechanisms, tools for proving identity and signing documents, jurimetrics, Document Creation solutions, among others (FABRI, 2001). Figure 15 shows some examples.

Figure 15. Examples of Legal Techs for Courts



Source: SCLI (2019), and AB2L (2021).

Most developed and developing countries have Case Management System or e-Justice of some kind (FABRI, 2001). For instance, in Brazil, the Electronic Lawsuits System⁷ was implemented to make all lawsuits digital in the country. The System was design and implemented by the National Council of Justice⁸ in 2013 (CNJ, 2013), in partnership with courts and the Federal Bar Association⁹ and allows lawyers, judges, courts administrative staff and other people involved to practice digitally almost all acts that they before did in paper form.

Basically, lawyers, judges and administrative staff access the system using a digital encrypted certificate, and other people can visualise lawsuits, depending on the degree of transparency established. The System automates some simple procedural tasks accordingly to the respective procedural laws applied to the cases, and offers research tools by lawsuit numbers, people names and decision content/jurisprudence (buzz-word search based) to internal and external public, among other functions.

Despite the adoption of the Electronic Lawsuits System is mandatory in Brazil, some segments of the Brazilian justice system that had some previous similar system already implemented were able to maintain it (CNJ, 2013). This happened to all segments served by the legaltech company Softplan, responsible for the System SAJ¹⁰, that operate in the country parallelly to PJe and others. Using data generated by all Systems operating in the country, the National Council of Justice publishes annual reports about jurisprudence, justice speed, accesses to justice etc, and create several performance and computerization indicators (CNJ, 2019).

⁷ Processo Judicial Eletrônico (PJe) (pt).

⁸ Conselho Nacional de Justiça (CNJ) (pt).

⁹ Ordem dos Advogados do Brasil (OAB) (pt).

¹⁰ Sistema de Automação da Justiça (SAJ), SAJ ADV, SAJ Ministérios Públicos, SAJ Tribunais e SAJ Procuradorias (pt).

1.4 Other drivers of change

There is a consensus in literature that technology is a central element in the legal sector recent changes. However, literature also report a wide spectrum of elements that drive the sector transformation coupled with it. According to literature review made by the International Bar Association - IBA (2017)¹¹, the whole process of change in the legal sector can be summarized in 6 main categories of drivers: Legal Technology development; emergence of new forms of value creation; globalization and shift of economic power; changings demographics and values; skills mismatch and legal education reform; and regulatory changes and gaps. Table 2 shows the main literature topics in each one of these categories.

CATEGORY	LITERATURE TOPICS	
Legal Technology development	 Acceleration of Legal Tech development. The process of digitalization in the judiciary. Limits/challenges of Legal Techs. Legal Tech categorizations 	
Emergence of new forms of value creation	 Unmet clients' needs and expectations. Increasing buying power of corporate clients, which demand for sophisticated solutions at an accelerate rate. Forms to enlarge access to justice. The "do it yourself" trend. Increased pressure on traditional models of service provision. Lawyers' loss of market power. Pressure for transparency in lawyer's work. Pressure on the business mix. Increasing size and scope of global law firms and in-house legal departments. Increasing complexity of the legal system. Increasing blurring together of traditional categories of knowledge and organizations. Uncertainty about the future of global economy. Legal services reconfiguration. Employee led market. New ways of working. Trends toward shared value creation. 	

 Table 2. Literature topics on the legal sector transformation.

¹¹ This literature review was based on 10 population terms (Legal profession, Lawyer, Legal services, General Counsel, Law firm, Law school, Bar Association, Law Society, Court, and Professional Service Firms) and 7 impact terms (Future, Change, Trend, Progress, Innovation, Disruption, and Quality). The databases used were Google, Taylor & Francis Online, Wiley Online Library, Emerald, HeinOnline, SSRN HLS CLP Research Paper Series, Stanford LS Legal Design reading list, SLS Codex publications, and SpringerLink. They found 280 documents (academic and professional papers, reports and others) published between 2010 and 2017, and analysed them using data text mining methods (IBA, 2017).
	 Increasing competition. Attractiveness for external investments in the legal market. Emergence of Multi-Disciplinary Practices (MDPs). New entrants.
Regulatory changes and gaps	 Regulatory global trends. Categorizations of regulatory trends. Increasing critical voices on the regulatory status quo. Regulatory innovation. Expansion of non-lawyers licensing in hight need areas. Consumer focus. Alternative business structures including MDPs. New roles of regulated and unregulated legal services. providers. Managed based regulation. Co-regulation and self-regulation.
Globalization and shift of economic power	 Expansion of Western law firms in the XXI century. The role of law firms in creating the structure of global markets. Global weakening of the Anglo-American of large law firms and inhouse counselling. Complex social process at the local-global boundaries. Slow expansion of elite UK law firms into Africa and Central & South America. Gap between financial results and need for global expansion. Challenges to providing seamless global legal advice. Geographical explanation of MDPs, especially in Asia-Pacific, Africa, and Central & South America. Shift of economic power to emerging economies.
Changing's demographics and values	 Changes in generational distribution. Incorporation of Millennials. Baby Boomers retirement. Decrease in the attractiveness of a career in law. Hight level of stress and mental disorder in the legal profession. Job dissatisfaction in general. Changes in gender and race distribution. Increasing gender and race diversity in law schools and law firms, despite low levels of inclusion persist in law firms. Client-led diversity and inclusion initiatives in law firms.
Skills mismatch and legal education reform	 New challenges in legal education. New economic and political context for law schools. Professional development gap. Professional identity gap. Legal education reform and the influence of regulations. New skill's demand. Interpersonal and interdisciplinary skills. Business and entrepreneurship skills + knowledge on accounting and finances. Lawyers expected to be interdisciplinary problem-solvers. Competitive advantage of skills in science and technology. Multi-jurisdictional skills. Commercial and social awareness etc.

0	Focus on employability and on the digital world.
0	International approaches.
0	Different paths for different legal jobs.
0	Increased complexity of legal knowledge.
0	Emergence of innovative courses and programs.
0	Globalization of the legal education etc.

Source: based on IBA (2017).

The main authors in this literature are from UK, USA, Australia, and Canada (Annex 11), all of them in the field of law and with focus on the private legal sphere. Literature as a whole, however, is spread around the globe, including many other developed and developing countries, such as Brazil, Russia, China, Germany, France, Italy, Japan, and Singapore (IBA, 2017). Therefore, we need to stress that the legal sector transformation involves interdependent technological, demand, regulatory, demographical, economic, and educational aspects; and embrace diverse countries.

However, Legal Technology is a key element to explain the innovation phenomenon in the sector, being a central connector among all drivers. This understanding is corroborated by two factors: most studies explored by IBA mentioned technology as an important element (see IBA, 2016, Appendix I); and many acknowledge studies explore the centrality of technology in the legal sector transformation, such as Susskind (2013), Fabri & Contini (2001), and Hartung *et al.* (2018). Because of it, for the purposes of this work, we choose technology as the central dimension to explaining the innovation phenomenon in the legal sector.

In the next chapter, seeking to better understand the innovation phenomenon in legal services, we explore how the term "innovation" has been addressed by the specialized literature in the legal sector, as well as how it can dialogue with the consolidated knowledge on innovation in general.

CHAPTER 2 TOWARD A SYSTEMIC APPROACH

Once the big picture of the legal sector transformation process was outlined in Chapter 1, and considering our goal is to understand the innovation dynamics in the sector, we naturally want to know how exactly the term "innovation" has been addressed by the specialized literature in the legal sector, as well as what it has in common with the consolidated knowledge on innovation in general. So, that is what we do in this Chapter.

To establish a dialogue between the consolidated knowledge on innovation and the emergent literature on innovation in the legal sector is important because we can incorporate compatible elements that took time to be built by the scientific community, allowing a better understanding of innovation phenomenon in legal services.

This chapter is dived in three sections: section one describes the meaning of innovation in the general literature; section two explores the meaning of innovation for the literature specialized in legal services, showing compatibilities, divergences, and gaps; and section three explores how the Innovation Systems theory can be helpful to analyse the innovation dynamics in the legal sector.

2.1 What is innovation?

Innovation is a phenomenon widely treated by scientific literature and has a wellknown and established conceptualization. It started been defined and typified by literature since late XIX century, at economics, and spread to other research fields over time.

The most acknowledge concept of innovation was proposed by Schumpeter. He defined an invention as an idea, sketch, or model for a new or better artefact, product, process, or system; and innovation as the application of inventions in a business transaction to obtain extraordinary profits (SCHUMPETER, 1983 [1912]). He explained innovation as an internal mechanism of economic development, and his concepts are one of the most important bases of the innovation field. However, innovation literature has been constantly refining his ideas to suit a large picture of innovation events that emerged through the time, especially embracing non-business activities, and the creation of value as the innovation goal.

A good way to understanding the construction of the innovation approaches is looking at the Organisation for Economic Co-operation and Development (OECD) publications, that plays a crucial think tank role in the conceptualization of innovation and related terms (GODIN, 2006). Between 1991 and 2018, the OECD published four editions of a document called Oslo Manual, an essential reference for the identification, collection, and interpretation of data on innovation. The documents provided, among other information, definitions that can be used to standardize research parameters on innovation, illustrating literature evolution through the editions.

According to the first Oslo Manual edition, innovation was defined as "an interactive process indicated by the perception of a new market and/or new service opportunity for a technology-based invention which leads to development, production, and marketing talks striving for the commercial success of the invention" (OECD, 1991 apud GARCIA & CALANTONE, 2002, p. 112). This first definition, therefore, placed technology as a crucial element for innovation identification itself, and the commercial success as the goal of innovation (SCHILLING & SHANKAR, 2019; GARCIA & CALANTONE, 2002). This rationale fitted very well the major economic changes that happened until middle 20th century, marked by the economic exploration of specific technologic artefacts, such as steamboats and steamships, electric generators and electric motors, the incandescent lamp, the telegraph and telephone, the internal-combustion engine and automobile, beyond the beginning of electronics and computers (FREEMAN & SOETE, 2008).

However, this first definition and related literature, what we will call here as technological innovation approach, was focused on innovation categories related to technology and material products, being a limited framework for understanding innovation phenomena in services and in non-commercial activities. So, in late 20th century, as services started playing a protagonist role in developed economies (FAGERBERG, MOWERY & NELSON, 2005), a new approach flourish (the services innovation approach), especially redefining innovation to embrace immaterial products, which fitted the rising of ICTs and non-technological perspectives, such as marketing and organizational innovation (DELGADO & MILLS, 2020; MORRAR, 2014; SNYDER *at al.*, 2016).

In this context, seeking to understand the innovation dynamics in different activities, academic studies were responsible for creating a variety of innovations categories in the literature, such as technological innovation; non-technological innovation; innovation in goods; services innovation; process innovation; organizational innovation; marketing and sales innovation; public services innovation, among many others. These categories could be understood as types or subtypes of innovation, depending on the features of classifications, such as the level of technology absorption, and the nature of the activity. All these categories were largely reported in the Oslo Manual third edition (OECD, 2005).

In the fourth edition of the Manual, however, the tendence was to reduce and to integrate innovation types and approaches, resulting in a wider definition: "An innovation is a new or improved product or process (or combination thereof) that differs significantly from the units previous product or process and that has been available to potential users (product) or brought into use by the unit (process)", creating value for the stakeholders (OECD, 2018, p.20). The term "unit" refers to the actor responsible for innovation, that can be anyone (organizations or individuals), of any nature (private or public); and technology was incorporated as an element that permeates the whole innovation process to a greater or lesser degree.

Currently, literature understands innovation as a process, which necessarily involves activities and outcomes. As an activity, innovation can involve Research and Development (R&D) efforts, engineering and design, intellectual property, employee training, development of software and databases, and any other "developmental, financial, or commercial activities undertaken by an organization and that are intended to result in an innovation". As an outcome, on the other hand, it can assume typologies categorized by object (summarized in product and process innovation), by level of novelty (radical and incremental), and by level of impact (disruptive and sustaining). Product innovation involves new or significantly improved goods or services, and process innovation the implementation of a new or significantly improved production or delivery methods, including new techniques, equipment, and software (OECD, 2018).

The last version of the Manual also brings some terms recently seated by literature, such as digitalisation and digital-based innovations. Digitalisation means the application or increase in use of digital technologies by an organization, sector, or country, in a way that affect the economy and society; and digital-based innovations relies to a significant degree on ICTs for their development or implementation. Digitalisation is different from the word digitisation, which means the conversion of an analogue signal conveying information (e.g., sound, image, printed text) to binary bits - although digitisation can be one of the technologies into the digitalisation processes (OECD, 2018).

It is important to stress that the innovation definitions and categories are linked to how literature sets analytical traditions of the phenomenon. Since 1990', academic studies are shifting to a systemic understanding of innovation, as a complex process that comprehend activities and outcomes, and that emerge upon dynamic interactions among diverse actors embedded in an institutional context.

2.2 Meanings of innovation in the legal sector literature

As we saw in chapter 1, Legal Technologies, Legaltech companies, Digitalisation, and Digital transformation are important terminologies referring to the legal sector transformation, which essentially concerns to the absorption of new technologies and to changes in the role and configuration of players, usually in an associated manner. Some other terms can also be found in the literature referring to similar phenomena, such as Court Innovation, Justice Innovation, Law Innovation and Legal Innovation.

Therefore, to better examine the meaning attributed to the word "innovation" in the legal sector, we analysed, based on the previous keywords, about 3.200 scientific reports published in the last 20 years. This scientific production assumes the form of papers, books, theses, and dissertations. Our sources were Web of Science, Portal de Periódicos Capes, LMU open access repositories, and Google Scholar. We present the Boolean search operations applied to literature generation below.

Title = (((Tech* OR Digitalization) AND (Law OR Legal OR Justice OR Court OR Judic*)) OR (Innov* AND (Law OR Legal OR Justice OR Court OR Judic*)))

The first step of the analysis was to see the literature landscape, such as total and date of publications, areas of expertise, countries of origin etc. We initially exported the data from Web of Science, as it had the larger set of publications, and analysed it in the Microsoft Excel (Figure 16 shows some features). After that, we use the VOSviewer software to select the most cited publications and to add literature from other sources avoiding duplications. This gave us a smaller sample of about 190 papers, which were analysed by reading. Beyond that, we gave special attention to literature published in the last 5 years.

Our findings show that literature on innovation in the legal sector is not homogenous, presenting divergent definitions of innovation. However, two important perspectives about innovation can be identified in the literature: (a) innovation as new ways to provide, improve or expand legal services; and (b) innovation as new laws or new law applications/interpretations. The central difference between these two perspectives is that perspective "a" understands legal services as an economic production similar to what happen in other sectors of services; and perspective "b" understands legal services as part of the whole socio-political phenomenon of law, including rules that compose the pool of institutions in which all actors of a sector are embedded.

Both perspectives experienced an increase of relevance over the past 5 years, mainly represented by scientific production of United States, England, China and Germany (Figure 16). About 50% of the literature are from the area of law, followed by economics, computer science, sociology, management, and public administration.

When compared to the study performed by IBA (2017), our literature outputs present a lower number of cross-citation connections, being composed by studies of diverse natures, inserted in diverse knowledge areas and that cover both public and private dimensions of the legal sector.





Source: Web of Science (Web of Science Core Collection, SciELO Citation Index; Derwent Innovations Index; Korean Journal Database; and Russian Science Citation Index). Date of data extraction: January 2020.

2.2.1 Perspective "a": innovation as new ways to provide, improve or expand legal services

In the public legal sphere, the term innovation is faced by literature since early 1990's as new ways to improve the administration of justice, focusing on the judiciary activities. Around the world, especially in Europe, US and Australia, literature started discussing innovation coupled with the New Public Management (NPM), a movement that refers to the modernization of the whole public sector using business-alike approaches, such as customer orientation and performance (MARK, 2008; MCLAUGHLIN *et al.*, 2001; SPIGELMAN, 2001).

As in the public legal sector the implementation of changes relies on previous regulations that authorizes them, literature addressing innovation in the public sphere is usually triggered by the existence of public policies of some kind that promote justice modernization. For instance, in Brazil, papers reporting innovation in the judiciary started being published just after the promulgation of the new Federal Constitution (BRAZIL, 1988) and increase after the Constitutional Amendment number 85 of 2015 (BRAZIL, 2015), which pushed the development of federal and regional management innovation programs to improve judiciary efficiency (OLIVEIRA, 2015; CNJ, 2014).

Basically, the central examples of innovation in the public legal sector literature are related to the adoption of new ICTs and new management techniques/models based on strategic planning in order to achieve the goals of the administration of justice, such as access, inclusion, user satisfaction, transparency, efficiency, speed, resource rationalization etc – creating value that meets the public interest (e.g., Coelho *et al.*, 2019; Reiling, 2016; Gyuranecz *et al.*, 2019; Deligiannis & Anagnostopoulos, 2017; Jain & Kesswani, 2019; Sousa & Guimaraes, 2017 and 2018; Prescott, 2017; and Teixeira *et al.*, 2020; Teixeira & Rêgo, 2017; Jorge *et al.*, 2015; Oliveira, 2013; Lamim, 2015; Gomes, 2019; Baptista & Costa, 2019; Sousa, 2015; Fabri, 2001; Guimarães *et al.*, 2010; and Jackson *et al.*, 2016).

When it comes to the private legal sector, on the other hand, the use of the term innovation started between 2000 and 2005, focused on the activities of lawyers, especially law firms. This literature considers innovation in the sector as the adoption of new technologies and methods in lawyer's traditional activities, creating value for lawyers and/or for end consumers of legal services. However, for part of this literature,

innovation should be understood in a strict sense, which means it needs to significantly affect the core functions and the self-understanding of the legal profession. For the other part, innovation can be understood in a general sense, which means innovation in the sector can also concern to wider changes related to back-office work and any kind of activities that directly or indirectly affects the legal services production.

Studies on innovation in the private legal sector are concerned about what types of legal technologies law firms/lawyers are using or will use and why; if and how law firms are investing in legal technologies; how the business models of law firms weather affect legal technology adoption, R&D investments, profits and consumer satisfaction; what are the drivers and impacts of adopting legal technologies in law firms; the impact of innovation on competition relations between lawyers and other professionals; and, more recently, who are supplying/developing technological solutions in the sector and what are their categorization (e.g., Veith et al., 2016; Kerikmäe et al., 2018; Curle, 2016; Andreae, 2016; Silva & Aquino, 2018; Hartung et al., 2018; West, 2017; Cohen, 2017 and 2019; Sherer, 2002; Smith, 2019; Goodman & Harder, 2014).

In addition, the application of new techniques and methods to plan, build and test better ways of delivering legal services were recently named as Legal Design and Visual Law, both present in the public and private legal sector literature (e.g., Corrales *et al.*, 2019; Frug, 2019; Silveira, 2020; and Neves Junior, 2018).

2.2.2 Perspective "b": innovation as new laws or new law applications/interpretations

The second meaning of innovation found in the literature is "innovation as new laws or new law applications/interpretations". This perspective is divided in two subtypes:

(i) innovation as significant changes in laws, jurisprudence, or regulations about any subject, for instance a shift in jurisprudence on biodiversity conservation or on abortion (e.g., Mouro & Castro, 2012; Hamilton, 2010; Daly & Marchetti, 2012; Sahu, 2008; Silva, 2012; Tonche; 2016; Levinson, 2002; and Glick, 1992); and

(ii) innovation as significant changes in laws, jurisprudence, or regulations on themes linked to technological innovation in any sector (including or not the legal sector), for instance about data protection and responsibility in face of artificial intelligence, blockchain and smart contracts applications; intellectual property regulations; how changes in the procedural laws support technology adoption in courts; how courts decide about legal technologies applications; how law and courts deal with liberalization movements etc (e.g., Farmer, 2014; Lehavi & Levine-Schnur, 2020; and Gomes, 2019).

The point here is that perspective "b" can approach law itself as a legal service or focus on the impact of technological changes on the legislative production, law content and law enforcement – and vice versa (e.g., Eckardt & Okruch, 2018; Möslein *et al.*, 2012; and Möslein, 2010). It has its roots in the Law & Economics¹² and/or in some institutional innovation approaches¹³.

2.2.3 Gaps and opportunities for development

Sousa & Guimarães (2014) somehow went through both perspectives of innovation ("a" and "b") to classify innovation from the judiciary point of view, stablishing three dimensions: technological (ICTs related), organizational-managerial (related to new management models, methods, techniques, and organizational structures), and political-legal (related to changes in law, jurisprudence, and regulations). These authors give us some indicatives about the necessity of dealing with these dimensions in a unified manner to better understand the innovation phenomenon in legal services, such as suggested by the systemic approach.

However, to understand the intersection between legal services itself (as a product or service) and its results/functions (as the socio-political phenomenon of law, and rules that compose the pool of institutions in which all actors of a sector are embedded) is a complex task, mainly because of the extremely regulated environment and the nature of legal services.

In this work, we focus on an economic perspective of the legal sector, understanding legal services as an economic production similar to what happen in other sectors of services, whether they are private or public activities. Especially based on the OECD publications, we argue that the concept of innovation in the legal sector in perspective "a" is compatible with the traditional concepts on technological and services

¹² Análise Econômica do Direito (AED) (pt).

¹³ "Institutional innovation can be defined as a novel, useful and legitimate change that disrupts, to varying degrees, the cognitive, normative, or regulative mainstays of an organizational field. Institutional innovation, like all innovation, is both novel and useful, but differs in that it is also legitimate, credible and appropriate". Some examples are innovation in the institution of marriage, and innovation in the institution of employment contract (RAFFAELLI & GLYNN, 2015, p.2).

innovation. The concept of innovation in perspective "b" is not adopted by us, however, the content of these studies is important for understanding institutional aspects of the innovation process in the sector. It is interesting to observe that literature on innovation in the private legal sector in perspective "a", and literature on innovation in perspective "b.ii" converge with works analysed by IBA (2017), despite IBA was looking for drivers of transformation and we are looking for innovation meanings.

Therefore, we can affirm literature has put effort in understanding the legal sector changes, however, it is still atomic and segmented. In addition, as the legal sector transformation is a recent on-going phenomenon, literature is incipient, with an especial lack of studies about the dynamics of the innovation process. In the next section, we will explain how the Innovation System (IS) theory is a rich framework to help to fill in this literature gap.

2.3 Innovation Systems

Historically, innovations are important elements for changes in work and labour relations; as well for driven economy development, creating economic value and attending unmet demands. The greatest precursors of this understanding are firstly Marx (1996 [1867]) and secondly Schumpeter (1983 [1912]).

From 1980's, based on this literature legacy, the Evolutionary Economics continued exploring innovation as a dynamic process that transform economy for firms, industries, employment, sectors, and others. Making an analogy between Darwin's natural selection theory and the competition in the economic environment, the Evolutionary theory proposes that innovation and market structure evolve together, which means economic environments are in constant change and, to survive, organisations and individuals inserted in a certain economic environment need to adapt. These adaptations occur in ways that actors believe to be adequate, which are influenced or induced by institutions, resulting in a general change of organisations behaviour (NELSON & WINTER, 2005 [1982]).

Institutions are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights). Throughout history, institutions have been devised by human beings to create order and reduce uncertainty in exchange. Together with the standard constraints of economics they define the choice set and therefore determine transaction and production costs and hence the profitability and feasibility of engaging in economic activity (NORTH, 1991, p.1).

In that perspective, innovation is understood as a collective game where diverse players (such as firms, government, financiers, research institutes, users/consumers, and universities) interact by the rules of institutions. Therefore, the innovation phenomenon "do not take place in a vacuum but are shaped by laws, policies and social norms", relying on a set of players that develop, use and diffuse new and useful knowledge and technologies (BOTTA *et al.*, 2015, p. 3; ALBUQUERQUE, 1996).

To study the collective game of innovation as a system inaugurate a new research line, named Innovation Systems (IS) (FREEMAN, 1987), which is "the ensemble of actors and conditions that enable the creation and flow of knowledge and technology into the economy" (BOTTA *et al.*, 2015, p. 3). It is a well-established framework that presents key factors for describing, analysing, and understanding the process of innovation; stressing its systemic, interactive, non-linear, and evolutionary character (SCHREMPF *et al.*, 2013; BOTTA *et al.*, 2015).

The way that an Innovation System is analysed depends on how studies define the relevant level of analysis (e.g., global, national, regional, or sectoral), determining the system boundaries, and how they deal with structural components of the system (e.g., technology, knowledge, actors, networks, and institutions). The combination of these elements and the analytical tendencies adopted by the studies characterize the different approaches of the IS theory (BOTTA *et al.*, 2015; COENEN & LÓPEZ, 2010; KASHANI & ROSHANI, 2019).

It is possible to find four majors IS approaches in the literature: National Innovation Systems (NIS), Regional Innovation Systems (RIS), Local Innovation System (LIS), Technological Innovation Systems (TIS), and Sectoral Innovation Systems (SIS).

Briefly, the basic difference among them is that NIS and RIS literature adopt a territorial focused perspective, taking geographic boundaries as given in the innovation process, as it mainly depends on a certain history, language, culture, social and political institutions. The LIS tradition, in the same sense, also takes a geographic rationale, however, it is particularly focused on the concentration of actors in specific spatial areas. In general, the IS literature agrees about the importance of distinctive geography features for the creation and development of innovation systems, however, scholars in the SIS tradition criticized the spatial fetishism establish by NIS, RIS and LIS, arguing that taking *a priori* geographic boundaries consist in a limitation for understanding a globalized world, which implies supranational activities and/or other distinct geographical rationales (BINZ & TRUFFER, 2017; ASHEIM & GERTLER, 2005).

Therefore, SIS came up with complementary concepts to understand the innovation process, focusing on sector characteristics and technological aspects than on a spatial organization of innovation (MALERBA, 2005; BINZ & TRUFFER, 2017; MALERBA & BRESCHI, 1997). This literature is responsible for exploring innovation patterns based on specific sectoral trajectories and related technological regimes (CASTELLACCI, 2008), and has shown consistent similarities between the same sectors in different geographic areas (MALERBA & NELSON, 2011; EVANGELISTA, 2000). However, empirical work in SIS is criticized because of its focus on manufacturing traditional sectors (such as pharmaceuticals, cars, machine tools, and telecommunications) and the lack of exploration of emergent sectors and technologies (BINZ & TRUFFER, 2017; TETHER & METCALFE, 2003).

The TIS tradition, by its turn, focused mostly on industries based on emerging clean technologies and, despite it has been trying to embrace supranational activities, also usually settle a *priori* system boundaries at a national level, attracting criticism for geographic fetishism and for neglecting differences among sectorial contexts (BINZ & TRUFFER, 2017).

As we could see in the last sections, the legal sector is characterized as a sector of services and its transformation is related to emergent ICTs (Legal Techs), which are key factors in the legal sector innovation process in the XXI century. Despite the sector organization strongly relies on national formal institutions, technological and knowledge flows picture a value chain that clearly span national boundaries and tend to stretch them even more. In addition, literature suggests that the sector may have similar trajectories and patterns for innovation around the world, sharing certain types of technologies, knowledges, actors, drivers, and limitations for innovation.

Indeed, ICT-based technological paradigm consists in the increasingly interdependence and vertical linkages among actors, tying them together in the same value chain and eventually reshaping the sector' organization (CASTELLACCI, 2008). Figure 17 shows some initial insights about these value chain interdependence and vertical linkages in the legal sector context, focusing on companies' role.



Figure 17. Initial insights about value chain interdependence and vertical linkages in

Source: elaborated by the authors

Considering this scenario, we believe the most adequate framework to analyse the innovation process in the legal sector is based on the SIS tradition, as it focusses on sector characteristics and technological regimes, and presents tools for looking at the sector' innovation process through its value chain exploration. In the next sections we will explore basic concepts about the SIS theory and how they fit for analysing the legal sector context once some adaptations are taken.

2.3.1 Sectoral Innovation Systems (SIS)

As we saw in the last section, the SIS tradition emphasis technological elements and the specific conditions of each sector to analyse the innovation process. The tradition doesn't take geographic boundaries as given - as sectors "may have different competitive, interactive, and organizational boundaries" - and is adequate to understand organizations and institutions that take part of the system, stressing the role of firms in the development of new technologies in a sector (MALERBA & BRESCHI, 1997, p.131; TETHER & METCALFE, 2003).

Accordingly, some studies have shown a tendency to analyse Innovation Systems through its value chain, revealing the crucial impact of international knowledge and technology exchange on local creation, use and diffusion of innovations (LEE *et al.*, 2018; PIETROBELLI & RABELLOTTI, 2011). Some firms in a sector, for instance, can compete at the international level but have a local organization; others may operate at the national or regional level but rely on technology and knowledge supplied by foreign firms (MALERBA & BRESCHI, 1997). The boundaries of knowledge in the innovation context, as well the contours of sectors' value chain composition, have greatly expanded, often going far beyond the legal boundaries of traditional players and the conventional understanding of an industry (ADAMS *et al.*, 2011).

In the SIS tradition, the exploration of Innovation Systems is based on 3 main features: (i) knowledge and technologies; (ii) actors and networks and (iii) institutions. The first one refers to ways of absorbing or developing new knowledge and technologies, such as R&D and education/training activities; the second one refers to entities, groups, or individuals that interact in the professional context of the sector, involved in competition, command, cooperation, exchange, and communication relationships; and the third one refers to formal and informal rules that affect actors' actions and interactions in the system. So, basically, SIS explore the sector structure, innovation barriers, innovations incentives, and knowledge/technological interactions (MALERBA, 2005).

The way how the SIS dimensions are specifically mapped depends on each author way of organization and on each sector specificities, but usually result in structures alike the Helix model, which involve from three to five main elements: Higher Education Institutes (HEIs) and Research Institutes (RI), among other Academic, Science and Technology Institutions (University/Academy element); Firms providing goods and services (Industry/Business element); Public Policies strategies (Government/State element) [Triple Helix model]; and Supporting Organizations, Demand/Users, Media, Culture, and others (Civil Society and Environmental elements) [Quadruple and Quintuple Helix models]. These elements need to be centred in the production, use or diffusion of new and useful knowledge and technology in the sector; working for their legitimacy and adaptability around the sector needs; establishing funding and incentives for innovation; and setting/enabling networks and political lobbying around innovation in a sectoral context (BOTTA *et al.*, 2015; CARAYANNIS *et al.*, 2018; LEYDESDORFF & ZAWDIE, 2010).

However, as empirical work in SIS is criticized because of its focus on manufacturing traditional sectors, neglecting emergent sectors and technologies, some considerations about innovation dynamics in sectors of services need to be taken in the next section.

2.3.2 SIS in service sectors: patterns and trajectories of innovation

Before the emergence of the services innovation approach, literature understood the dynamics of innovation in sectors of services as supplier-dominated, which means services providers as passive innovation adopters - as they supposably only absorbed innovation from suppliers of manufactured goods (PAVITT, 1984). This view, which predominated until around late 1990's, was probably responsible for the bias of SIS' empirical literature.

However, Gallouj & Westein (1997), protagonists in the services innovation approach, indicated that the old bases on manufacturing activities required a reformulation, as services started playing a protagonist role in developed economies (FAGERBERG, MOWERY & NELSON, 2005). In that sense, Miozzo & Soete (2001) reviewed the services innovation pattern proposed by Pavitt (1984), classifying innovation dynamics in services in three categories: Supplier-Dominated; Scale-Intensive Informational Networks; and Specialized/ Science-Based Suppliers.

Supplier-Dominated firms refers to services providers less technological dependent, implying innovations coming mostly from suppliers, which receive few contributions and have minor interactions with the firms they serve. These providers are generally small, have week in-house R&D, engineering capability, and in-house software expertise. They appropriate less on technological advantage than on professional skills, aesthetic design, trademarks, and advertising. Therefore, Supplier-Dominated taxonomy refers mainly to personal services (e.g., restaurants, hotels, laundry, repair services, barber, and beauty services) and to public/collective services (e.g., education, healthcare and public administration) (MIOZZO & SOETE, 2001).

The Scale-Intensive Informational Networks, on the other hand, refers to firms highly dependent on ICTs (e.g., finance, insurance, communications, and distribution services). It means services providers intensively involved in the technological process, and highly cooperating with their suppliers by offering specialized knowledge. They are generally large, have high in-house R&D, engineering capability, and in-house software expertise (MIOZZO & SOETE, 2001).

Finally, the Specialized/Science-Based Suppliers category refers to services providers directly linked to R&D, software, and the development and application of ICTs. They are the main sources of technology by conducting research, development, and software activities by themselves (MIOZZO & SOETE, 2001).

In addition, costumers have a major importance in innovation dynamics in sectors of services, which is the reason why customer satisfaction has been in the core of services literature in the last decades. Competitors are also important because imitative innovation strategies are more common in services than offensive ones, so starting an innovation activity often depends on competitors first move (SUNDBO & GALLOUJ, 2000).

Accordingly, Sundbo & Gallouj (2000) also explain innovation in services can assume many patterns and technological trajectories, classifying them in six main types: Classic R&D pattern, Service Professional Pattern, Organized Strategic Pattern, Entrepreneurial Pattern, Artisanal Pattern, and Network Pattern. The Classic R&D pattern evolves large size firms specialised in the production of standardised operational services dealing with material or information. The Service Professional Pattern refers to medium size consultancy and engineering firms selling competencies and abilities to solve problems in different expertise areas. The Organized Strategic Pattern refers to large service firms with well-structured policies and strategy, and with permanent R&D internal activities. The Entrepreneurial Pattern refers to young service firms based on radical innovation, and that usually don't have R&D departments and are set up by university researchers. The Artisanal Pattern refers to small firms involved in operational services that are conservative, trajectory oriented and have no innovation strategy - so when innovation happens it comes from external actors and brings low renewals. And the Network Pattern refers to firms that interact specially to induce innovation (SUNDBO & GALLOUJ, 2000).

The existence of many patterns shows that there is not only one innovation dynamic for all sectors based on services. However, innovation in services is usually transmitted through Loosely Coupled Systems, which are characterised by less R&D, more corporate entrepreneurship, strategic guidance, and service professional trajectories (SUNDBO & GALLOUJ, 2000). Figure 18 shows Sundbo and Gallouj's illustration of essential elements that drive innovation in services.



Figure 18. Driving forces behind services innovation.

Source: Sundbo and Gallouj (2000)

This context means we need to keep some particularities in mind when SIS comes to sector of services. Firstly, techniques and procedures are usually more significant in services than in manufacturing, which has been neglected by SIS literature. Secondly, services provision is usually fragmented, including small firms and independent providers at a local basis, and an increasingly role of actors in a global context. Thirdly, institutions have a central role in high regulated services, and the process of institutionalization need to be observed as much as institutions itself. Fourthly, the relationship between client and provider requires especial attention, especially regarding "how wants and needs are formed, and then expressed in term of demand" (TETHER & METCALFE, 2003).

According to Tether & Metcalfe's model, because of these peculiarities, the basic elements of an innovation system in sectors of services should focus on the interactions and interdependencies of players, which charactered what they called problem/opportunity-centred and contingent system (Figure 19).



Figure 19. Basic elements of innovation systems in services sectors.

Source: Tether & Metcalfe (2003, p. 28).

As service economy is composed by a wide spectrum of activities, there is a consensus about the necessity of empirical studies that take specificities into account to explain innovation dynamics in different services sectoral contexts (EVANGELISTA, 2000; CASTELLACCI, 2008).

2.3.3 Knowledge-intensive Entrepreneurship (KIE) and Knowledgeintensive Business Services (KIBS)

As the SIS tradition focus on the role of firms in technological and knowledge flows, some complementary concepts emerged to explain their rationale in the innovation process, mainly represented by the theories of Knowledge-intensive Entrepreneurship (KIE) and Knowledge-intensive Business Services (KIBS).

KIE refers to firms that play a major role in the transformation of sectors by generating, absorbing, and using new knowledge, introducing new products, processes, and technologies in a sector. They differ from other firms because their activities involve significant knowledge intensity and are important elements in the innovation dynamic. Therefore, KIE are more active in innovation systems than other firms. Their existence in a sector may give indicatives about the level of maturity of the related Innovation System (MALERBA, 2010; MALERBA & MCKELVEY, 2020).

KIE can be characterised by four dimensions: (i) they are independent ventures (not subsidiaries or part of an existing organization) and concentrated in an early stage of development; (ii) they are innovative, introducing new products, processes, and technologies in the sector; (iii) they are knowledge intensive, operating existing and new knowledge for systematic problem solving; and (iv) they exploit innovative opportunity, "driven by the rapid development of (potential) markets and of technology or by the combination of creative knowledge and design" (MALERBA & MCKELVEY, 2020, p. 511).

In general, KIE are focus on disruptive activities, and interact with other actors in the creation, diffusion and use of knowledge. They are affected by education, knowledge, and experience bias in the environment they work in, highly depending upon the co-evolution of sector structure and institutions - such as knowledge infrastructure, supporting actors and the institutional adaptation (MALERBA & MCKELVEY, 2020). Therefore, KIE are usually dependent of other actors, with who they establish collaboration relations, and of the formal and informal institutional setting. In general, their activities are customer oriented, a two-way street of changes in the technological and knowledge scenario, and "relies upon existing and new networks and channels through which knowledge is communicated" (MALERBA, 2010; MALERBA & MCKELVEY, 2020, p. 507). Because of it, KIE are linked to the IS theory.

The KIBs theory, on the other hand, is more specific. Such as KIE, KIBS ventures are innovative, knowledge intensive and exploit innovative opportunity. However, they are characterized by offering specialised services demanded by firms and public organisations and that are not produced for private consumption, undertaking complex activities of intellectual nature where human capital is a crucial factor (MULLER & DOLOREUX, 2009, p. 65; STRAMBACH, 2001, p. 53).

Therefore, KIBS refers to ventures providing knowledge-based intangible services as inputs for processes of other organisations, which can be private or public. They rely heavily on professional knowledge and can be primary sources of information and knowledge or actors that use knowledge to produce intermediate services for their clients (MULLER & DOLOREUX, 2009, p. 65).

In addition, KIBS activities implies a high level of communication and interaction between suppliers and users, as their services are mainly solving problems that require their knowledge expertise adapted to meet clients' needs. KIES activities differ from standardised products or services, as "the exchange of knowledge products is associated with uncertainties and with information asymmetries in the quality evaluation stemming from the special features of the factor/commodity 'knowledge' " (STRAMBACH, 2001, p. 55).

KIBS ventures are one of the most important actors in the innovation dynamics in sectors of services. Their existence in a sector cannot be reduced to outscoring and indicates changes in the rationale of production and organisational structures, showing the "increasing linkages and networks between economic activities" (STRAMBACH, 2001, p. 53). Therefore, they have a strategic significance in Innovation Systems (Figure 20).



Figure 20. Contributions of KIBS firms in Innovation Systems

Source: Strambach (2001, p. 60)

The role of KIBS in Innovation Systems "is closely tied to the "products" these services supply to the market. Specialised expert knowledge, research and

development ability, and problem-solving know-how are the real products of KIBS". Their main function in the Innovation System context is to transfer knowledge in the form of management know-how and expert technological knowledge, increasing the complexity of a certain value-chain by enlarging coordination (STRAMBACH, 2001, p. 62).

In terms of size, KIBS theory tends to embrace diverse ventures, but giving different roles to them:

The big multinational KIBS, which mainly work for big internationally operating companies and have more recently also tapped the area of the large medium-sized firms, are now developing into what can be called a knowledge industry. Growing competitive pressure from internationalisation of both the customer and the service markets have led to extremely large concentration and expansion trends for multinational KIBS. The firm size will become more and more important for survival in global markets. The importance of the large multinational firms in innovation systems stems primarily from the fact that they develop new consulting products in the form of methods, instruments, and models based their own know-how and experience. Unlike the smaller national or local suppliers, in many cases they have now formally set up internal R&D functions which further the creation of new expertise and codification processes of tacit knowledge. Transforming consulting product innovations into standard products occurs more quickly when it is carried out within an formal organisation. In this way, the large international firms hasten the standardisation process in the areas of management and technology (STRAMBACH, 2001, p. 65).

If we look to the context of the legal sector, we realize Legaltech companies have much in common with KIES and KIBS characteristics. Therefore, these concepts are useful for exploring Legaltechs's roles in the Legal Sector Innovation Systems. Accordingly, considering the theories on SIS, Services Innovation, and KIE/KIBS, we can picture some other insights about the Legal Sectoral Innovation System (Figure 21).





Source: elaborated by the authors

These elements show that the supply side of the legal sector may have a major role on the innovation dynamics in the sector. More than that, considering what we saw in chapter 1, they are an essential part in the set of actors responsible for the legal sector transformation. Firstly, because they can deliver legal services itself, being an intrinsic part of the sector. Secondly, because they are key organizations in the knowledge and technology flows among actors evolved.

2.3.4 Innovation System's functionality and emergent technologies

Along this chapter, we saw the IS theory is a heuristic approach "developed to analyse all societal subsystems, actors, and institutions contributing in one way or the other, directly or indirectly, intentionally or not, to the emergence or production of innovation" in a certain environment (HEKKERT *et al.*, 2007, p. 414). However, although the Innovation System concept suggests a significantly collective and coordinated action among actors around innovation, it is primarily an analytical construct, that is, "a tool we use to better illustrate and understand system dynamics and performance" (BERGEK *et al.*, 2008, p. 3-4).

Therefore, a certain system "does not have to exist in reality as fully-fledged. Instead, it may be emerging with very weak interaction between components". It is possible that, even in developed systems, interactions among actors are not planned or intentional, which means "actors do not necessary share the same goal, and even if they do, they do not have to be working together consciously towards it (although some may be)". So, we need to be aware that tensions and conflicts are intrinsic to the IS dynamics (BERGEK *et al.*, 2008, p. 3-4).

The IS theory converge that the nature of actors involved, their artefacts and capabilities can obstruct the IS development, as well institutions and networks (socio-technical elements of IS) may induce or block innovation. Based on that, there is some agreement in literature about key processes, also called systems functions, that directly influence the performance of the innovation system, that is, the level of development, use and diffusion of innovation in an environment, or the tendency to do so (BERGEK *et al.*, 2008).

According to Bergek *et al.* (2005; 2007), empirical studies have shown seven important functions patterns of Innovation Systems: the knowledge and development; the entrepreneurial experimentation; market formation; development of external economies; legitimation; resource mobilization; and influence on the direction of search.

Sectors dealing with emergent technologies, such as the legal sector, may not present a developed marketplace to embrace it, which means the performance of existing technology can be poor and uncertainties may prevail. Because of it, institutional shift is often a condition for IS to evolve in diverse aspects regarding sectors handling emergent technologies. On the other way around, however, market can also evolve through a learning space based on entrepreneurial experimentation, which may open up some room for IS to form. The IS formation may also depend to other circumstances related to entrepreneurial experimentation, such as KIE and KIBS, skilled labour, university expertise, competence in related industries (especially the technology industry), and advantageous geographic location. With these "triggering factors" entrepreneurs can delve "into uncertain markets and technologies and challenging institutions" (BERGEK *et al.*, 2005, p. 11; BERGEK *et al.*, 2007).

The management of risk and uncertainty is fundamental on early phases of IS, "but is a characteristic of later phases as well" as risks and uncertainties are intrinsic of the innovation process. Therefore, Innovation Systems without strong experimentation will not be formed or developed. In addition, the entrepreneurial activity requires more than creating knowledge or learning, it also involves "the ability to finance investments, to create efficient production systems and to recruit appropriately trained staff". An Innovation Systems, therefore, need human and financial capital mobilization, sometimes also involving building a physical infrastructure required for implementing a new technology (BERGEK *et al.*, 2007).

Also, the formation of a marketplace at IS thought entrepreneurial experimentation or/and institutional shift often generate external economies, that is: the knowledge 'spill-over' the focal sector; pooled labour markets and specialized intermediate providers of goods and service emerge; costs are reduced; and labour division is unfolded. However, this structural change depends on a shift in the form of entry of firms; at least some of the initial uncertainties with respect to technologies and markets need to be solved; and the IS needs to be minimally legitimated (BERGEK *et al.*, 2005; BERGEK *et al.*, 2007).

On the other hand, the legitimation has a direct effect on other functions. Basically, to the well function of an IS, innovation and technology, as well their proponents, need to be considered appropriate and desirable in order to get resources mobilization, demand formation, to guide search, and for IS actors to acquire political strength. It is about social acceptance, institutional alignment, and compliance (BERGEK *et al.*, 2005; BERGEK *et al.*, 2007).

CHAPTER 3 RESEARCH METHODOLOGY

Until this point of our work, we could outline the diversity of actors, technologies and drivers involved in the recent legal sector transformation (Chapter 1). We also explored how the specialized literature has been approaching the innovation phenomenon in the sector, identifying gaps and opportunities of development in direction of integrative approaches under an economic point of view (Chapter 2).

Considering this context, we explored how the Sectoral Innovation System (SIS) tradition could be helpful for analysing the legal sector innovation environment. We demonstrated that, complemented with the theories on innovation in services, and with the theories on KIE and KIBS, SIS is a good framework to understanding innovation dynamics in the legal sector. We gave indicatives of the existence of an innovation system in the sector and insights about its possible composition (Chapter 2).

Most studies in the SIS tradition adopt quantitative methods based on the extraction of information from existing data bases. However, while data bases about traditional manufacturing sectors are significative, previous organized data about the legal sector environment are inexistent so far. Indeed, the lack of exploration of emergent sectors and technologies in the SIS tradition is probably related to the (non) availability of organized data.

Therefore, as we proposed to explore an emergent sector, methods that handle primary data collection are more appropriate to face our research questions. Accordingly, to reach our research objective (to characterize the legal sector innovation system, focusing on agents' configuration and on their dynamics of interaction), we decide to go forward collecting and analysing empirical evidence on SIS features in the legal sector.

In this section, we seek to show and justify our research methods for performing this empirical and qualitative study. Basically, our choice was to perform case studies, composed by interviews and document analysis, and based on two different empirical contexts: Brazil and Germany. We believe that, in addition to the literature, our empirical investigation is a rich source of information to understand the legal sector innovation system.

3.1 The Case Study

The case study is a research strategy adequate when the researcher has little control over events and when the focus is on contemporary phenomena in a real-life context of empirical inquiry. It is based on an in-depth investigation of an individual or group, to explore certain research object (YIN, 2017). Comparably to other strategies, case studies have a strong advantage in the exploration of complex phenomena in research areas in early stage of development, as it allows a heuristic identification of qualitative variables and hypothesis that are new in literature. The strategy "focuses on understanding the dynamics present within single settings" (EISENHARDT, 2011, p. 4) and usually precede statistical research (BENNETT, 2004).

However, case studies inherent limitations involve researchers bias in the selection of cases, and the contingent aspect of findings, which means results are not statistically representative of the whole population. Therefore, researchers dealing with case studies strategies need to be aware and avoid selection bias - when it is possible, and "do not aspire to select cases that are representative of large and diverse populations". So, because of these limitations, it is recommended that case study results are confronted with existing theory and other empirical findings, always discussing congruences and inconsistencies between them (BENNETT, 2004, p. 42).

More than that, observations from case studies are a two-way street: they are one of the most important sources for building theories about a phenomenon, helping to fill in gaps in literature, and for providing validity and reliability to existing theories. The strategy usually "combine data collection methods such as archives, interviews, questionnaires, and observations", which can be qualitative, quantitative, or both. Accordingly, case studies typically interact with existing knowledge as hypothesis-testers or hypothesis-proposers, comparing how case evidence and the previous framework fit to each other (EISENHARDT, 2011; BENNETT, 2004). Hypothesis can be also represented as propositions, variables, dimensions, or central elements.

> The central idea is that researchers constantly compare theory and data iterating toward a theory which closely fits the data. A close fit is important to building good theory because it takes advantage of the new insights possible from the data and yields an empirically valid theory" (EISENHARDT, 2011, p. 12).

For the purposes of this work, we believe the case study strategy can give us further and detailed information about the innovation system features, especially on the configuration and dynamics of interaction of actors in the legal sector context.

We choose to focus on two different contexts: Brazil and Germany. Brazil was chosen because it is the country of residence and main research interest of authors; and Germany because it is the fifth country in terms of scientific production on innovation in the legal sector, its literature describes innovations implemented at similar moments in the sector (about 10-5 years ago), and because it presents a more developed economic environment. In addition, Germany was the foreign country more accessible to the authors. For the purpose of this work, the countries don't represent geographic areas to be analysed, but contexts of exploration.

As we saw in the last sections, literature suggests that the legal sector may have similar trajectories and patterns for innovation around the world, sharing certain types of technologies, knowledges, actors, drivers, and limitations for innovation; and strongly relying on national formal institutions, technological and knowledge flows that picture a value chain that may span national boundaries. That means, on one hand, we need to look at the innovation dynamic in the sector from a broad perspective, not taking geographic boundaries as protagonists. On the other hand, however, we also need to consider that the SIS may have different levels of consolidation in different contexts, especially when it comes to developed and developing economic contexts. In another words, not taking geographic boundaries as given doesn't mean that they can't exist and influence the innovation process.

Basically, we interviewed a set of actors involved in the legal sector innovation environment in Brazil and in Germany, also analysing documents relevant to the cases.

3.1.1 Interviews

3.1.1.1 Place and Time

Interviews took place in Germany from January to June 2020, and in Brazil from August to December of the same year. In Brazil, activities were carried out at the Faculty of Applied Sciences of the University of Campinas; and, in Germany, at the Munich Center for Governance, Communication, Public Policy and Law (MCG), headquartered at Ludwig-Maximilians University (LMU).

In Brazil, the execution of the interviews was authorized by the Brazilian Ethics Committee¹⁴. The Informed Consent Form (ICF)¹⁵ was applied verbally and informally, in the beginning of the interviews, as approved by the Committee in July 2020 (Annex 12 and 13).

In Germany, the Ethics Committees are autonomous and decentralized entities. Generally, there is a committee by department, by university or a committee for a group of universities (consortium model). The LMU adopts the departmental model. These committees apply national and supranational rules and have decision-making and regulatory autonomy. The supranational and national rules are elaborated, respectively, by the European Network of Research Ethics Committees and the Deutscher Ethikrat, former publishes rules in form of regulations¹⁶, latter in form of Journals by theme and year¹⁷. In both cases, rules are general and refer mostly to research in the field of Medical and Biological Sciences. The MGC formally belongs to the Department of Political and Social Sciences of the LMU, which has its own Ethics Committee and rules¹⁸. The Committee has an advisory and voluntary character, depending on the researchers' request (Geschäfts- und Verfahrensordnung, 2018, paragraph 1 (4)). We chose not to consult the Ethics Committee in Germany.

3.1.1.2 Participants

Participants were selected through SnowBall Sampling methodology. This method is "a technique for finding research subjects. One subject gives the researcher the name of another subject, who in turn provides the name of a third, and so on" (VOGT & JOHNSON, 1999, p. 437). Our starting point in Germany were the Munich Legal Tech Student Association (MLTech) and the European Legaltech Association (ELTA). In Brazil, the interactions started with the Brazilian Association of LawTechs & Legaltechs (AB2L).

¹⁴ CAAE: 33392920.5.0000.5404. CEP/CONEP. Plataforma Brasil.

¹⁵ Termo de Consentimento Livre e Esclarecido (TCLE) (pt).

¹⁶ http://www.eurecnet.org/legislation/eu.html, access in 15 Dec. 2019.

¹⁷ https://www.ethikrat.org/en/publications/, access in 15 Dec. 2019.

¹⁸ https://www.sozialwissenschaften.uni-muenchen.de/fakultaet/ethikkommission/index.html, access in 15 Dec. 2019.

Participants were invited by e-mail, phone, or personally. Interviews were conducted in English in Germany, and in Portuguese in Brazil. We asked for permission for recording the conversations, which were later transcribed to facilitate the content analysis. Due COVID-19 pandemic, all interviews after March 2020 were realized at a distance.

We focused our invitations on 5 groups of participants (Table 3), based on literature previous insights (see figures 16,17 and 19) and looking for participants somehow engaged in the innovation process in the sector.

Category	Description				
Lawyers	Solo practitioners, Law Firms, and In-house legal				
	departments.				
Judiciary	Judges, Prosecutors and Administrative Staff of courts.				
LegalTech companies	Representants of Legal Tech companies.				
Academy	Professors, lecturers, and students.				
Others	Any other people or organization involved in the innovation				
	process in the Legal Sector.				

Table 3. Groups of participants by category.

Source: elaborated by the authors.

It was supposed that we would have a proportional number of participants in each category by country, however, as we relied on the availability and willing of guests for participating in the research, the distribution didn't occur evenly. In addition, we focused on the quality of our interviews rather than on the quantity of them. Especially in the Judiciary category, we experienced more resistance to obtain participants (both in Brazil and Germany).

We have 19 participants in each context, totalizing 38 semi structured interviews. Table 4, 5 and 6 present some details about the interviews, showing respondents by category; their identification for citations; general information about who they are; date, and hour of interviews, and recording duration.

As we are dealing with a considerably small community of professionals that have narrow relationships, we could not describe much about them, to preserve their privacy.

	Table 4. List of participants in Germany.						
N°	Category	Identification	tion Description How		Date and hour	Recording	
-							
1		LegalTech 1	Co-Founder and CEO.	In person meeting.	21/02/2020	00:49:09	
					16h:30m		
2		LegalTech 2	Company CEO.	At a distance meeting.	20/05/2020	00:30:02	
	LegalTech				15h:00m		
3	company	LegalTech 3	Co-Founder and Managing Partner.	At a distance meeting.	25/05/2020.	00:45:06	
					15h:00m		
4		LegalTech 4	Company CEO.	At a distance meeting.	26/05/2020.	00:50:00	
					11h:00m		
5		Judiciary 1	Prosecutor.	In person meeting.	20/02/2020	00:39:38	
					10h:00m		
6	Judiciary	Judiciary 2	Member of the administrative staff.	Written answer	Between 19/05 and	-	
				(interactions by e-mail)	04/08/2020		
7		Academy 1	Lecturer. Lawyer by training.	In person meeting.	17/02/2020	00:42:23	
		-			09h:15m		
8		Academy 2	Lecturer. Lawyer by training.	In person meeting.	27/02/2020	00:38:26	
	Academy	-			14h:00m		
9		Academy 3	Professor. Lawyer by training.	At a distance meeting.	07/04/2020	00:33:57	
		-			17h:00m		
10		Academy 4	Law students. Participants of Legal	At a distance meeting.	15/05/2020	00:52:02	
11		Academy 5	Tech organization.		19h:00m		
12		Lawyer 1	Head of Legal Innovation at Law firm.	In person meeting.	03/02/2020	00:45:37	
					18h:00m		
13		Lawyer 2	Legal Tech specialist at Law firm.	In person meeting.	06/02/2020	00:32:13	
	Lawyer				18h:00m		
14		Lawyer 3	Head of Legal Innovation at Law firm.	At a distance meeting.	24/04/2020	00:45:11	
					17h:00m		
15		Lawyer 4	Head of Legal Innovation at Law firm.	At a distance meeting.	30/04/2020	00:48:10	
					19h:00m		
16		Lawyer 5	Legal Tech specialist at Law firm.	At a distance meeting.	12/05/2020	00:55:36	

Table 4. List of participants in Germany.

					17h:00m	
17		Other 1	Lawyer at Association.	In person meeting.	13/02/2020	00:40:54
					10h:00m	
18	Other	Other 2	Director of third sector organisation	At a distance meeting.	19/05/2020	00:37:07
			liked to innovation in the sector. Non-		11h:00m	
			lawyer.			
19		Other 3	Manager of third sector organisation	At a distance meeting.	19/05/2020	00:20:23
			liked to innovation in the sector. Non-		15h:00m	
			lawyer.			

Source: elaborated by the authors.

N°	Category	Identification	Description How		Date and hour	Recording
1		LegalTech 5	Founder and CEO.	At a distance meeting.	14/09/2020. 16h:30m	00:45:08
2		LegalTech 6	Co-Founder and CEO.	At a distance meeting.	22/09/2020. 18h:00m	01:03:54
3	LegalTech LegalTech 7 company		Partner.	At a distance meeting.	25/09/2020. 09h:00m	00:58:45
4		LegalTech 8	Founder and CEO.	At a distance meeting.	07/10/2020. 18h:00m	00:52:23
5		LegalTech 9	Head of Innovation.	At a distance meeting.	15/10/2020. 14h:00m	00:57:19
6		LegalTech 10	Co-Founder.	At a distance meeting.	19/10/2020. 14h:00m	01:04:00
7	Judiciary	Judiciary 3	Ex-President of the State Court of Justice.	At a distance meeting.	19/10/2020. 14h:00m	00:54:07
8	3 Judiciary 4		Judge.	At a distance meeting.	28/09/2020. 11h:00m	00:46:14
9	Academy	Academy 6	Professor. Lawyer by training.	At a distance meeting.	23/11/2020 15h:00m	00:50:50

Table 5. List of participants in Brazil.

10		Academy 7	Law student.	At a distance meeting.	12/11/2020 16h:00m	00:47:15
11		Lawyer 6	Specialist in digitalization at law firm.	At a distance meeting.	08/09/2020. 17h00m	00:38:22
12		Lawyer 7	Partner of law firm focused on legal departments outsourcing.	At a distance meeting.	28/09/2020. 18h00m	00:39:17
13		Lawyer 8	Head of innovation at law firm.	At a distance meeting.	14/10/2020. 16h00m	00:48:00
14	Lawyer	Lawyer 9	Head of Innovation at law firm.	At a distance meeting.	16/10/2020. 15h:00m	00:47:27
15		Lawyer 10	Head of Innovation at law firm.	At a distance meeting.	16/10/2020. 17h:00m	01:00:24
16		Lawyer 11	Head of Innovation at law firm.	At a distance meeting.	19/10/2020. 19h:00m	00:36:20
17		Lawyer 12	Specialist in Technology and Data Protection.	At a distance meeting.	11/11/2020. 15h:00m	00:30:00
18	Other	Other 4	Legal Technology consultant.	At a distance meeting.	21/09/2020. 11h00m	00:50:60
19		Other 5	Director of third sector organisation liked to innovation in the sector. Lawyer.	At a distance meeting.	28/09/2020. 17h00m	00:55:07

Source: elaborated by the authors

Table 6. Total of participants.

	LegalTech company	Judiciary	Academy	Lawyers	Other	Total
Germany	4	2	5	5	3	19
Brazil	6	2	2	7	2	19
Total	10	4	7	12	5	38
Total of hours recorded and transcribed: ≈ 27						

Source: elaborated by the authors

3.1.1.3 Guiding questions

The interviews were conducted by means of semi-structured questionnaires. We elaborated some basic open questions to guide us during the conversations and that could allow participants to feel free to speak and address topics that he or she considered relevant about the research object.

On one hand, we tried to minimize the bias that questions could imprint on participants answers, as investigators preconceptions can frequently limit or imprint bias to respondent's rationale. On the other, we needed to expose basic directions adopted by researchers, and questions should be able to approach our research problematic (EISENHARDT, 2011, p.18).

Figure 20 illustrates our questions. It is not a rigid representation of how interviews were performed, but guidelines used by the researchers. So, depending on each respondent profile and experience, the natural direction of the conversations and time limitation, interviews followed different paths.

As we focus on an economic perspective of the legal sector, understanding legal services as an economic production similar to what happen in other sectors of services, innovation was analysed as new ways to provide, improve, or expand legal services, focusing on technology. Because of this, the understanding of participants about the concept of innovation was not relevant to us, particularly when considered that legal professionals tend to talk about novelty in law, even when its content is not related to changes in the legal services provision itself (see chapter 2). Therefore, we chose to approach participants mainly using the word "Legal Tech", contextualizing our interest in innovation as new ways to provide, improve, or expand legal services based on technology.



Figure 22. Questionary structure, by group of respondents.

Obs.: The category "Other" is not represented at the figure because its guiding questions depended on their specific characteristics. Source: elaborated by authors - based on Malerba (2005), Sundbo & Gallouj (2000), and Tether & Metcalfe (2003).
These questions were elaborated to approach 10 essential issues (Figure 23), based on initial directions given by literature, and centred on our research questions, that is, what actors are involved in activities of development, use and diffusion of innovations in the legal sector, and how they interact among each other.

Figure 23. 10 central issues approached by interviews.



Source: based on Malerba (2005), Sundbo & Gallouj (2000), and Tether & Metcalfe (2003).

3.1.2 Documents

As part of the interviews, we also analysed the content of some laws, Court decisions, Court strategic plans and Government policies/letters, both in Brazil and Germany, as they are relevant to understanding the institutional scenario. They were selected based on respondents mentions and analysed by reading. Table 7 describes documents analysed.

GERMANY		
Description	Туре	References
Judicial decision that allowed services like Flightright	Court decision	Germany. (2019a). Bundesgerichtshof. AG Berlin-Lichtenberg, Entscheidung vom 07.11.2017, 6 C 194/17.
Cornerstones for a new regulation of the legal profession. Federal Ministry of Justice and Consumer Protection.	Government policies/letters	Germany. (2019b). Eckpunkte für eine Neuregelung des Berufsrechts der anwaltlichen Berufsausübungsgesellschaften. Bundesministerium der Justiz und für Verbraucherschutz. 27.08.2019.
Dept collection regulation	Law	Regulation (EU) nº 655/2014 of the European Parliament and of the Council of 15 May 2014. Establish a European Account Preservation Order Procedure to facilitate cross- border debt recovery in civil and commercial matters.
EU Law of data protection	Law	Regulation (EU) 679/2016 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).
German Legal profession Ethics Code	Law	Federal Lawyers' Act (Bundesrechtsanwaltsordnung).
German Law of Civil Procedure	Law	Code of Civil Procedure. 5 Dec. 2005 (Bundesgesetzblatt - BGBl., Federal Law Gazette - I page 3202; 2006 I page 431; 2007 I page 1781; I page 3786).
BRAZIL		
LGPD	Law	Brasil. (2018). Lei Geral de Proteção de Dados Pessoais (LGPD). Lei nº 13.709, de 14 de agosto de 2018.
Strategic Plan of the National Council of Justice (2015-2020)	Court strategic plans	Conselho Nacional de Justiça (CNJ). (2015). Estratégia Nacional do Poder Judiciário 2015– 2020. Conselho Nacional de Justiça (CNJ). (2014). Resolução n. 198/2014, de 1º de julho de 2014.
Strategic Plan of the Federal Justice (2015-2020)	Court strategic plans	Conselho da Justiça Federal (CJF). (2014). Resolução nº 313 de 22 de outubro de 2014.
Brazilian Law of Civil Procedure	Law	Brasil. (2015). Lei nº 13.105, de 16 de março de 2015.
Brazilian Legal profession Ethics Code	Law	Conselho Federal da Ordem dos Advogados do Brasil. (2020). Estatuto da Advocacia e da OAB e Legislação Complementar.
Federal Brazilian Bar <i>versus</i> Maranhão Court of Justice. Conflict resolution through public digital platform.	Court decision	Conselho Nacional de Justiça (CNJ). (2020). Decisão terminativa. Procedimento de Controle Administrativo 0007010-27.2020.2.00 .0000.

 Table 7. Documents analysed.

Source: elaborated by the authors

3.2 Data analysis

Strategies for analysing case studies' data are fundamental as they typically provide a significantly large among of detailed information and researchers can easily "get lost" among it. Usually, the first key step is a within-case analysis, which means describing each case in detail, even if it is a "staggering volume of data" (EISENHARDT, 2011).

These write-ups are often simply pure descriptions, but they are central to the generation of insight (Gersick, 1988; Pettigrew, 1988) because they help researchers to cope early in the analysis process with the often enormous volume of data. However, there is no standard format for such analysis (EISENHARDT, 2011, p. 10).

After that, it is recommended that researchers perform some kind of crosscase analysis "to go beyond initial impressions", which implies exploring similarities and differences between cases. Finally, on the base of the cross-case analysis, researchers can use the data triangulation method, which refers to the use of multiple data sources in qualitative research to help researchers to understand a certain phenomenon (CARTER, 2014). The data triangulation enhances "the probability that the investigators will capture the novel findings which may exist in the data" and improves the accuracy and reliability of findings (EISENHARDT, 2011, p. 11).

Accordingly, in the case of this work, we initiate our analysis from a withincase analysis, which consisted in the interview's transcriptions (not exposed in this manuscript). After that, in chapter 4, we performed a cross-case analysis and data triangulation, that is, we describe important elements of both of our cases, exploring similarities and differences, and, at the same time, we complement and confront these elements with documents and theory. Figure 24 illustrates our 5 steps of data extraction and analysis.

Briefly, (1) based on the literature review, we seated the guiding questions to performing interviews and the main analytical dimensions to their content analysis (see figure 20 and 22); (2) we performed the within-case analyses thought the interviews' transcriptions, and the cross-case analysis around the main analytical dimensions extracted from literature; (3) we analysed some documents mentioned as relevant by respondents, which was made by simple reading; (4) we complemented and confronted the content of interviews with the content of documents; and (5) we complemented and confronted the content of interviews with the specific literature.

Figure 24. 5 steps of data extraction and analysis.



Source: elaborated by the authors

CHAPTER 4

THE LEGAL SECTOR INNOVATION SYSTEM: ACTORS, INTERACTIONS, AND INSTITUTIONS

As we saw in the last chapter, we split the analysis in two moments. A withincase analysis, represented by interviews transcriptions; and a cross-case analysis plus data triangulation, described in this chapter. Here, we bring important elements of both of our cases to describe and analyse the main system features, also considering exiting literature and documents.

In terms of text structure, we chose to organize our analysis around three axes of actors: private legal services providers, public legal services providers, and Legaltech companies; also focusing on countries characterization, as actors may have different knowledge and technology flows and be inserted in different institutional settings. Universities, supporting organization and other actors don't have exclusive topics because information about them are intrinsically diffuse into the three axes.

4.1 Adoption of Legal Techs in the private legal sector

4.1.1 Germany

Until late 1980', German lawyers and law firms were limited to practice law in only one city. Because of it, the existence of big law firms was rare, and lawyers usually worked solo. However, this scenario changed in the beginning of the XXI century, when several changes in law firms' models in Germany (obviously accompanied by a new institutional background) released lawyers from strict geographically limitations, opening the market to globalization and for adopting more business-like structures (LUSCHIN, 2010).

Particularly, five different types of big law firms emerge: UK law firms (German law firms that merged with UK law firms around 2000); US law firms (German law firms that merged with US law firms around 2008); German international law firms (German law firms that did not merge with UK and US Firms, but that also reached the international sphere); German domestic law firms (German law firms located mostly in Germany, whose attorneys are usually German, and that advise mainly on German law);

and Multi-Disciplinary Partnerships (MDPs), which are German Law Firms that can employ non-lawyer professionals, such as tax experts or auditors (LUSCHIN, 2010).

Associated to these changes, the number of lawyers in the country tripled between 1990 and 2010, and it is "often growing at a rate of 4-6% per year" (LUSCHIN, 2010, p. 38). According to statistics from the Council of Bars and Law Societies of Europe (CCBE, 2018), about 165,406 active lawyers are member of the German BAR in 2017, which corresponds to about 2 lawyers per 1,000 inhabitants¹⁹. Until 2010, 55% of German Lawyers were solo practitioners, 35% local partnerships, and 10% were working at large law firms. The rest of the legal professionals became judges (21,000), public prosecutors (5,000), civil servants (20,000), and legal academics (1,000), also being reports about foreign attorneys registered in Germany²⁰ (500) and lawyers working at in-house legal departments (LUSCHIN, 2010, p.37-38).

Considerable studies discuss the role of historical economic changes in the process of institutional shift in private legal services in Germany. However, the main element described in these studies is the disconnection between existing institutions on the German legal profession and the emerging client demands, which gave advantage to countries with more globalized and flexible models, such as UK and US (FAULCONBRIDGE & MUZIO, 2015; MORGAN & QUACK, 2005; SOKOL, 2007). We are talking about a context where there was a growing demand for "new transactional legal work associated with financial operations such as initial public offerings, mergers and acquisitions and privatizations", as in late 1990s and early 2000s German firms globalized, international investors poured into Germany and, consequently, operations had an increasing international dimension (FAULCONBRIDGE & MUZIO, 2015, p. 1213).

In addition, the role of in-house legal departments in the legal market increased. Particularly after 2007/2008, mainly because of the financial crisis, German companies redefined the strategic position of their in-house legal departments, given them power to entirely command external law firms, to organize the amount of spend of the company in legal, and "to decide which tools are to be implemented in order to make use of legal technology and, above all, to avoid any legal and compliance risk for the company". They started being demanded as any other unit of the company, that is, as

¹⁹ Considering the German's population was about 82,8 million in 2017 (STATISTISCHES BUNDESAMT, 2021).

²⁰ Upon certain requirements, lawyers in the EU can move to Germany and practice German law.

business units capable of diminishing costs, increasing efficiency and to support the overall success of the company (SAKO, 2018, p. 1).

Therefore, according to literature, general economic changes were crucial for the shift on how lawyers delivered legal services, particularly regarding corporative matters. In the same sense, interviews indicate that is mainly the corporative demand that is driving innovation adoption in the market, particularly at law firms that serve companies and at in-house legal departments.

According to respondents, it is clear the existence of a pressure from companies on their legal departments to adopting Legal Techs capable of making legal processes faster, cheaper, clearer, and to avoid errors. Because of this pressure, legal departments become clients of Legaltech companies. In addition, legal departments are also clients of law firms, especially the large ones, which are somehow pressured to be more transparent, faster, cheaper, and modern as well. Therefore, pressures for innovation in large law firms are mostly related to external forces from the corporative demand and for catching up the international competition. Accordingly, respondents gave some examples of large and medium law firms engaged on several innovation activities, which involved significant redesign of processes and Legal Tech adoption.

However, respondents also report the existence of some fetichism around innovation and technology adoption. Firstly, because the pressure on law firms is still small when comparable to in-house legal departments, and there is a lot of merchandising of large law firms that doesn't necessarily corresponds to what they have implemented. Secondly, because most medium and small law firms and solo lawyers supplying to the domestic demand don't really use significant Legal Tech, adopting changes as minimum as possible to be aligned to a digital world. In addition, although domestic demand is also highly interested in more transparent, faster, cheaper, and modern legal services, their bargaining power is less expressive than corporative transnational demand.

> Law firms are a very different world because they are not really forced to change their business model much yet, because the pressure from the legal departments is not yet great enough. There are big law firms who have now legal tech labs, etc., but there are only a few who actually use legal tech daily or who don't use it as a marketing slogan for the cooperative legal departments. I would say that small law firms, like single lawyers and small law firms, they don't really use it at all. They may have practice management solutions, but they will not have anything that will automate task, etc. They are still very much behind; they have different threatens. (LegalTech 2)

> (...) There is also expected more quality in the answer we give to the client and how practical it is, how much you can put it into action. With us working

in the field of banking a lot, and this is a pressure environment worldwide, but especially in Germany, to deliver faster services in an effective way. Overall, I would also say that the legal services need to be fast, at least... the advice doesn't need only to be practical, but to understand an economic decision. There is an arising of expectation that people don't only want a small legal answer, it goes beyond that, it needs to fit to the organization, and it is very appreciated and demanded when the answer goes beyond legal thing. So, we need to know our client, we need to understand what fits, and that is not about "that is right, that is wrong", they also would like to know what we think about their contracts in an economic point of view, what we think that fits in what they are doing. (Other 1)

Change always comes when it is requested or doing from the outside. So, for instance, if law firms are changing, they only change because the clients pressured them to change. Law firms will never change by themselves (...) if you talk about law firms which are the providers for these legal departments, then you know, they have a certain chain there, of course, so there might be an incentive. What you see right now, the pressure from the legal department is not as big as it could be, so you don't see a lot of real changes. (...) Legal departments are clients of large law firms. So, big companies are also clients of big law firms. So, they put pressure on big law firms as well. Big companies expect law firms to be more transparent, faster, and modern, having different prices models. I think they are who drive innovation. Other industries start coming up with legal solutions that could be coming from legal industry, but they aren't. people are realizing that legal stuff are really big pain, that puts law firms in a lower position (...) I think there is a lot to come, which will put a lot of pressure on traditional law firms. (LegalTech 4)

Respondents also highlighted that the German law doesn't allow law firms to have non-lawyer partners, which is similar to what happens in most developed countries and affects the capacity of law firms, especially the small and medium-sized ones, to get investments, to do R&D, and to focus on long term results - which is done only by few large law firms (particularly US law firms that created legaltech subsidiaries). In the same sense, according to literature, the traditional rationale of medium and small law firms remains based on maximization of short-term profits, information asymmetry (between professional and client), and on opacity (lack of transparency of how to combine inputs to obtain certain outputs) (HARTUNG, 2016).

(...) another thing here is we have the so-called foreign capital prohibition, which means that you cannot be an investor in the law firm. An investor is what you need when you really want to make investments in technology (...) in the law firm you need to convince your partner that now we are going to spend a hundred thousand zeros in a new system and "I know you will be retired next year" but "I want to spend hundred thousand now because I might going to have a return of investment in 10 years". That is also something that doesn't work, which has to do with the partner model in a law firm. (Lawyer 4)

A lot of regulations are still inhibiting the potential of legal technology, I would say. There's a lot of scepticisms, a lot of fear and pessimism about why they would need technology and about trying to protect the practice of law. (LegalTech 2)

(...) If a law firm wants to finance their investments, they can ask their partners to do it, they can try to get money from the bank - probably possible for investments - or they don't do any investments. That means that big law firms are better than small firms, because big law firms, commercial law firms, can ask their partners for money and they normally do. The small law firms don't have these means to finance their innovative investments. (Academy 3)

The in-house development of software products made to measure for clients requires considerable investment and resources - especially in the area of programming - which medium-sized law firms regularly do not have at their disposal. Accordingly, (...) we will not pursue our own software development at this time. We leave this to the IT companies that have the resources. Provided that corresponding (standard) solutions have become established on the market, participation as a licensee is generally sensible for medium-sized law firms. In this way, further development costs can be divided by the number of licensees. An absolute prerequisite for this strategy is ongoing market observation and an intensive and regular internal exchange of information (WALDHAUSER & LEEB, 2019).

However, despite the less expressive bargaining power of domestic demand, some movements in the formal institutional dimension have been giving indicatives that some instances believe that the German law firms should have incentives to invest in innovation, and to face a higher level of competition, particularly to meet the public interest. One example is the *Eckpunktepapier* of the Federal Ministry of Justice in Consumer Protection (Germany, 2019b). This document is a type of executive summary where the Court states what crucial points they want to regulate in the future. So, the document gives some indicatives of their will of open up the band of non-lawyer partnerships in order to allow investments in Legal Tech applications thought external capital.

Consideration will also be given to the question of whether pure equity participation can be allowed with the aim of opening up alternative ways of financing through venture capital for those lawyers who, for example in the field of legal tech, have to make high initial investments in order to be able to provide new legal services (*Our translation*) (Germany, 2019b, point 7).

According to respondents, the *Eckpunktepapier* is aligned with the interests of the Federal Ministry of Justice in Consumer Protection, which is to meet the consumer public interests, as innovation and technology in the private legal market are acknowledge driven by a consumer-centric perspective, which means enlarging profits by satisfying consumer's needs. However, respondents also said that the German Bar Association are against these measures, especially because of the possibility of opening a "pandora box". external investments. Behind that argument, you know, as long as people don't have the chance to externally finance their investments, we keep competition on the low level. (Academy 3)

Among this tension, a decision of the German Federal Court (2019b) about the debt collection activities (e.g., FlightRight) settled the uncertainty about these activities, allowing them under the argumentation that they are not exactly a legal service (in order to justify the non-monopoly by lawyers). However, in 2018, in Cologne, courts discussed about a legal advice system that was spilled out by a big publishing house. Basically, the system allowed people to download legal documents in a website for something around one hundred Euros, such as contract for signing up a company, rental contracts, among others. In this case, the supreme court of Cologne decided that the publishing house could not provide this product as it is understood as legal services monopolized by lawyers.

> I would say that this movement (innovation/liberalization) is driven by entrepreneurs, not by lawyers, but by businesspeople outside the legal world who is trying to use technology to enter at the whole legal sphere in a chance to earn money that, so far, could be earn only by lawyers. So, what we see now is this competition. Way more competition in the legal advice than we have like five or ten years ago. There is this whole legal ethics that basically forbids every non-lawyer from providing legal advice, but this is slowly liberalizing. So, this entrepreneurial thinking started to get more used to lawyers. Maybe there are 10 lawyers in Germany that are super entrepreneurs, so they mix both ways of thinking. They have done the states exams, so they have the legal application and, at the same time, the entrepreneur spirit. Those lawyers are making the really big money right now, because they now know to acquire new mandates, new customers and clients online and, unlike the traditional lawyers, they don't have like one hundred clients at one time, but they have mass litigation, where you have like 100.000 consumers claiming. They can make the real big money, even bigger money than many proprietors or big offices make when they are trusted by big companies. (Academy 1)

> (\dots) there is a pretty strict law on what is allowed and what is not allowed (\dots) that is a big deal-breaker for innovation in the field. For the lawyers, for example, you are not allowed to have a successful base business model, so you cannot offer your client like: "hey, if I don't help you, if I don't win, you don't have to pay", this is not possible. That is like "no win, no fee", a very attractive business model for clients, because they don't have any risk, but you can't do this as a lawyer. However, you can do that as a debt collector, like FlightRight - this is a little bit unfair because lawyers can't and they can. At the same time, the business model of the debt collectors is also very fragile, because we have not properly determined what is allowed or not allowed within a debt collect certificate. These law that they are based on didn't really think of the situation like that, because debt collectors, as you know, are really big companies chasing small people, chasing consumers. Now, on the other way around, consumers are chasing big companies, like airlines. So, this whole law was not really made for this situation at all. That is one problem and maybe, at some point, is going to be decided by the highest German court. If they say "nope, you can't do that", all of these business models are going to be done, there is a lot of insecurity. That was just a very important judgment that happened this year actually, I think. Before that you need to have the bravery to build a

business that we don't know whether that is going to be ok or not (...) the legal insecurity that we have, and then the really strict regulation on lawyers, on what they are allowed to do or not allowed to do. (Lawyer 4)

Respondents are categoric saying that the public power has no specific incentive for innovative behaviour at law firms, and that the German Bar Association is, in general, discouraging. On the other hand, Germany has a very elaborated package of innovation incentives for companies in general (especially in the area of technology) which may affect in-house legal departments and Legaltech companies, but certainly doesn't apply to law firms' and lawyer's models of services provision.

Therefore, respondents converge that law firms and lawyers are mostly passive technology and innovation adopters, excepting some large international law firms, which means they just absorb solutions developed by the Legaltech companies. Basically, most law firms and lawyers wait for the response of market and institutions in face of a new technology or new practices before considering taking them. This passive and sometimes avoidant behaviour are explained by participants as mainly related to the investments limitations; the highly accountability required from lawyers; the traditional model of legal education; the highly regulated and reactive (protectionist) environment; and the need of lawyers for legal certainty.

Legal sector always means filing in a vacuum with new rules, making or allowing participants in the market to benefit with legal regime, providing them legal certainty. (...) We need to know what is allowed or not. (Lawyer 1)

I think they (university) are responsible for mindsets (...) When you study law in Germany you have a very excruciating system. You are constantly being told that you are not enough (...) we have the State exams that is making people going crazy (...) we are being told constantly that is wrong to make mistakes. It's dangerous to make mistakes because you are going to be accountable for that. Lawyers are being told that there is just one result that you should achieve. Innovation really means that you are approaching things with open results, you don't know what is going to happen, you don't know anything and sort of collect from others. We don't do that at university (...) (Lawyer 4)

At large international law firms, however, it is possible to find internal staffs rather focused on first level tech support, and on the identification (to buy) and development of solutions (in collaboration with Legaltech companies and in-house legal departments).

In addition, there is an important concern about the "commercialization" of the legal profession, which has always been somehow limited by restrictions on competition, advertising, private ownership, and wage, as well by professional principles. However, respondents report that the technological changes at law firms are somehow coupled with changes in its business model, or a pressure to do so, putting these matters on discussion.

I do not believe in the billable hour, I think it is one of our core issues with innovation because why would you make the processes more efficient when you are getting more paid for taking longer (?), because you are getting paid by the hour. This is just a problem in our system that, of course, people don't want to touch because this is how they make so much money. (...) but exists some changes on that, because a lot of people are already agreeing on hours capping, so there are something happening here and, at some point, you are going to a law firm and they will say "Hey, we don't have billable hours, so maybe you want to come to us". I think this probably what is going to happen at some point (...). (Lawyer 4)

Right now, there are a lot of law firms that have little projects for legal tech, because they know something is going on and they don't want to be left outside. But actually, we still have no idea how to implement it in our practice. We make some little insane box of something and see what happens. Then, of course, there will be effects, by a changing in legal landscape and that law firms have to respond to; maybe affecting their business model. (Academy 1)

There are firms that are on the B2C side that are providing services, but they are lawyers trying to make a business model out of it. (Other 1)

4.1.2 Brazil

In Brazil, we have about 210 million of inhabitants and more than one million of active lawyers in 2019, which corresponds to about 5 lawyers for 1000 inhabitants. Between 1980 and 2019, the number of lawyers increased about 750% in contrast to about 122% of Brazil's population enlargement (IBGE, 2021; PEREIRA, 2019).

According to Salama (2012), the increase of competition in the Brazilian legal market in the last decades is mostly related to this *boom* in the number of lawyers, which is particularly attributed to political and cultural changes related to the end of dictatorship in late 1980'; the opening of several law schools throughout the country; the seeking of people for income, particularly trough public jobs; an unmet domestic demand; and globalization.

Before the Brazilian Constitution of 1988, there was a small number of lawyers and law schools in Brazil, which kept competition at a low level within the legal profession. So, basically, the legal professional was dominated by a small elite (SALAMA, 2012). In addition, "during the military regime (1964–1985), the profession was somewhat marginalized as technocrats took over lawmaking and political repression limited lawyers' role in civil affairs" (CUNHA *et al.*, 2018). However, after 1988, with the redemocratization movement, there was a massification of the legal education, as the government was interested in educating the population; the population was interested in studying law, and the universities were interested in opening new and profitable law programs. Furthermore, the Brazilian population was enlarging, which represented a mass of potential new consumers that didn't had legal services available to them (SALAMA, 2012).

Initially, technology was central in the movement of massification of the legal profession in Brazil, as "laws are available online, it is no longer necessary to subscribe to the extremely expensive legislative collections of the past" (SALAMA, 2012). However, the real pressure for innovation in legal services came due the economic context, particularly related to the corporative demand. The several political and institutional changes that happened in Brazil between 1980' and 1990' "created whole new areas of law and generated new demands from corporate clients. Companies and governmental entities found themselves operating in a new, complex, transnationalized regulatory matrix." Brazilian lawyers were compelled to face a new corporate clients and unfamiliar transactions, such as mergers and acquisitions and overseas bond and stock issues. Therefore, apart from a boom of new practice areas, "there have been changes in the profile of clients, who became significantly more demanding in an increasingly competitive legal market" (CUNHA *et al.*, 2018).

In addition, "a certain legal elite of internationally-connected large firms was created. For them, the concept of the liberal professional makes less and less sense" as competition is increasingly global and survival depends more on a real business plan. "These large firms are real players in a business-focused market. They are managed professionally, compete for top talent and suffer (or profit), along with their clients, with the economic-cycles" (SALAMA, 2012).

According to Cunha *et al.* (2018), the institutional shifting contributed to rise of the corporate legal sector. New regulations accommodated large law firms that are highly specialized, usually hierarchical organized and profit-seeking (similar to corporate law firm models from the United States and other developed countries), allowing the corporate legal sector to grow substantially in the 1990s and early 2000s. Also, new forms of employment and of legal practices related to the corporative area were regulated; despite the constant concerns about the mercantilization of the legal practice and the guarantee of legal profession principles.

Therefore, according to literature, corporative demand/environment represents one the main pressures on law firms to innovate. Respondents confirm this

perspective; however, they also mark a division between two different groups of law firms.

In the beginning, people from law firms saw people at in-house legal departments as less technical, more managers. On the other way around, people at in-house legal departments saw lawyers as bureaucrats, legalists focused on black letter law (...) Today, this scenario changed. Law firms has to adapt to their clients and to a business reality. In-house legal departments are much more innovative because of the corporative environment they are in. Legal departments hire law firms for what they don't want to do: extremely specialized and technical work; or super repetitive and tiring tasks, such as due diligence with numerous documents (...) departments can also "blame" law firms in case of trouble, errors (...) Some in-house legal departments can have 100, 150 lawyers, they can be really big because external lawyers struggle to understand the company's business; law firms council only on the base of law, they don't have the know-how about the business. However, there is a budget issue, lawyers are expensive, and companies don't want to spend much on legal services. That is where technology fits. In the beginning, the legaltech companies served mostly companies, they expand for law firms and public legal services latter. (...) (Our translation) (LegalTech 8)

On one hand, large and medium law firms that serve the corporative demand, especially the transnational one, are mainly devoted to consultative legal services that are crucial to the clients' business strategy. So, the point here is that the service they deliver are significantly interconnected to the clients' business processes, therefore they are susceptible to the same pressures (and threats) in order to deliver something helpful to their clients. For these law firms serving the corporative branch, the most important arrange is partnership with foreign law firms and with Legaltech companies.

> For instance, we can do a legal analysis to advise companies on scenarios of places where they could open a new subsidiary, evolving tributary and labour matter for instance (...) so we have partners (law firms) at other countries, such as at Dusseldorf, New York, and Lisbon, which one with a specific area of expertise. (...) sometimes the client (company) hired technology from a company to construct new tolls that fit the technology they already use and that can incorporate legal matters, however it is incipient so far for us (...). These technology companies have a significant impact to lawyers. I have a friend (lawyer) who work at a company specialized in document management and that developed a software for analysing certain types of banks' contracts. That just eliminated the lawyer role. (...) I heard from other friends that a whole floor, a legal department floor, was fired from a bank because of the implementation of a similar software. What does the software do? It just automated all contracts generation, the receiving of intimations from courts, the tributary and labour legal analysis. Before it, there was one team for each one of these issues (...) For companies (legal departments) and law firms that deal with standardized legal services, this kind of software is the future. (Our *translation*) (Lawyer 6)

> In terms of pressure to innovate, well, our clients are pretty demanding. They want fast information; they want smooth and assertive orientations; they don't want to read pages and pages. Even at the judiciary, judges don't want to

receive claims with 50 pages. So, we need to be more strategic (...) Also, our clients have much more information about legal, sometimes they almost know what need to be done. To differentiate our services can be difficult. (*Our translation*) (Lawyer 8)

On the other hand, solo lawyers and small law firms focused on law traditional areas, such as family law and penal law, are much more focused on litigation and based on a traditional way of working. For them, the pressure to innovating came from the necessity of to be adequate to the technologies that are already in use by their clients and by the courts and other public entities. So, the e-government is described as a pushing mechanism to adopting technologies, as it introduced the digitalization of proceedings, requiring digital interaction for many actions before done by paper form - which was also pushed by the COVID-19 pandemic.

All the law firms I worked in my life, small to large, have digital files today. Everything is stored in a kind of internal system or internet-based cloud. We, particularly, use a cloud from a technology company. They keep a staff only for supporting us when it is necessary and this staff is coordinated by a person at our office, a lawyer that work here. (...) We also have an especial internal staff for some tasks, for instance, a group is responsible for officially sending all legal acts practice by our lawyers to the courts or other public entities. They deal with the different systems, handling configuration limitations, limitation of size and other requirements of each system for sending files. They are fully graduated lawyers that only deal with these systems; they digitally sign the documents, as they have access to the partners' digital certificates; they are responsible for meeting all digital parameters, to controlling receives, the archives and so on. They are very efficient. I worked at another law firm where I spent hours trying to send a document (...).

facilitated a lot for us. Now, especially with the pandemics, all oral sustentation's can be done through Zoom, Microsoft Teams or other similar platform. This new environment set a new way of working; the way how we deliver our services changed. Some entities just don't accept paper form anymore. (*Our translation*) (Lawyer 6)

When it comes to changes already adopted by public entities it is easier for lawyers, as changes relies on some institutional shifting that gives a base to it - usually mandatory. The point here is the necessity of legal certainty. For instance, when the Electronic Lawsuits system came up in Brazil, regulations already had set how the digital signature would work. So, there is a prefixed protocol for signing documents. However, when changes involve conflicts of interests, even when the matter is substantially regulated, lawyers tend to be reluctant on adopting them and claim different interpretations of rules. the use was regulated and ok. Now we have, for example, the Verifact, a company that provides registry for digital proof. So, let' suppose, instead of taking a notarial declaration - which is super expensive and slow - you just present the Verifact registry, only for proving a certain offence at Facebook really happened. However, a lot of people still say: "Can we really do that?" or "Awesome! But is it valid? I prefer the notarial service, courts always accept it". (...) There is something very complicated to change in relation to this...the Notaries. I mean, a Startup is born and provide an extremely more affordable price on a product that is legally accepted...Notaries are resistant, not because the new service is not reliable, but because they lose market. They have a lot of political power, but they are inefficient. I think the public interest should prevail, people want something reliable, fast, and cheap. So, we have this scenario, some courts accept Verifact and other don't. (*Our translation*) (LegalTech 5)

In the case of Verifact, its actuation is based on the article 369 of the new Brazilian Code of Civil Procedure²¹, which prescribes that the parties have the right to use all legal means, as well as the morally legitimate ones, even if not specified in the Code, to prove the truth of the facts on which the claim or defence is based and to effectively influence the judge's conviction.

Respondents also describe groups of lawyers as having different interests around innovation, regarding what they see as opportunities and threats. Small firms and solo lawyers usually are interested in technologies that can help them with their daily work, involving improvement of quality and speed, but without representing threats or risks - particularly regarding data security, privacy, competition, and wage. The large and medium ones, although equally concerned about data security and privacy, are somehow opened to technological changes that may affect the market share and the scalability of the services. This dichotomy can also be perceived at the Brazilian Bar Association, as it is possible to find commissions promoting events on Legal Technology and meetings between Legaltech companies and lawyers; and, at the same time, other commissions that are reactive to changes that somehow change the market.

The point is speed, it is very important in the global context we are in. Everyone is used to fast services, there are apps for many things. So, speed is essential for law firms to be able to compare themselves to other services that market offers. However, in the legal context, you can't go wrong, quality is essential. Everyone is concerned about models that are legally valid. (*Our translation*) (LegalTech 5)

Until the beginning of 2021 the Brazilian Bar Association (OAB) notificated 68 legaltech companies involved in claims against airlines in the country, and judicialized

²¹ Código de Processo Civil (CPC). Lei nº 13.105, de 16 de março de 2015.

at least two of the cases. The OAB accuses the legaltech companies of unfair competition with lawyers, illegal advertising, and illegal practice of law; also claiming at the Brazilian Nacional Congress to criminalize similar practices. The companies in the sector, however, claim only to be mediators between clients and companies. The most acknowledge case is against the Legaltech company LiberFly, born at the State of Espírito Santo. There is also a certain discomfort about the development of other platforms and websites, such as *Reclame Aqui (private)* and *Consumidor.gov (public)*, as they may intermediate extrajudicial conciliation without lawyer intermediation (FAVARO, 2021; MARTINS & GUARIENTO, 2020). At the same time, in a claim from OAB at the state of Maranhão, the Brazilian National Council for Justice signalized that the absence of a lawyer cannot obstruct alternative forms of dispute resolution, especially when realized through the internet (CNJ, 2020).

On the other way around, the São Paulo Lawyers Association (AASP), have been promoting several legaltech events, putting lawyers in contact with other professionals and companies interested in legal services. For instance, the AASP promoted immersions at the Silicon Valley, for lawyers²². The goal was to structure an agenda for law firms that served startups and for law firms served by startups - around the so-called 4.0 lawyering (having an especial commission for related matters). However, in general, respondents indicated that the mindset of most lawyers tends to be conservative and protectionist.

Some organizations, such as the AB2L, have been fundamental for interceding for technology companies, especially in face of OAB. OAB tends to throw shade on us (*torcer o bico*), they (OAB) are concerned about the illegal exercise of the legal profession, so AB2L helps mediating the situation (*Our translation*) (LegalTech 9)

I don't know real incentives for innovating. However, I think the problem is the lawyer mind set. Universities made us to think very strictly, we have a halter. When we were students, universities required us to be impeccable, it is something specific to the law education, we can't have a strand of hair out of place. So, despite all of the technology, I think lawyers tend to be not innovative. Lawyers have difficult to follow all these environment changes. (*Our translation*) (Lawyer 6)

Universities still provide an archaic education; I think that holds us back. I felt university educating everyone to be judges or prosecutors, however, most of us become lawyers. I think law schools focus too much on legal and forget other skills that are essential for a professional. Law is a very conservative field, status count so much in the profession. We have a formalist culture. The OAB reflects these aspects (...) But that is changing (...) maybe the OABSP

²² https://aaspnovale.aasp.org.br/

has been more open. The AB2L itself ended as a stimulus for innovation, because of the events, the connexions (...). (*Our translation*) (Lawyer 8)

I worked at a lot of places, but my real contact with substantial technology applied to legal was at an in-house legal department, at a bank. The doctrine in law school, at least in my point of view, is very dense and gives you a life vision for you to follow, but that doesn't involve technology. (*Our translation*) (LegalTech 5)

Regarding innovation incentives, respondents were not able to indicate specific measures for law firms or solo lawyers. What they see as incentives or pressures are more relate to the institutional shifting, such as the openness for some new competitors, and the

changes on rules for lawyers' publicity and advertising²³.

When it comes to universities and other agents, respondents indicate the academic area has been important for lawyer's mindset around technology and for a more multidisciplinary education. However, they attribute this only happens recently and in some few prestigious universities. Therefore, despite the existence of some collaboration between universities and law firms/OAB, especially to promote events, respondents indicate the inexistence of developed knowledge or technology flows. In general, respondents' express a strong criticism on lawyers' traditional behaviour around innovation, particularly when respondents are non-lawyers or have multidisciplinary education.

I am a member of the IT team (...) when I first tried to do something with technology here (large law firm), I asked for support to the senior management of the administrative part, and they said: "man, if you want to do it, do it by yourself". They didn't believe in technology. People called me crazy at that time (...) so we moved forward with some routines' automation (...) we started in 2018 analysing three tools: Luminance, Raven, and Kira (...) we went through a learning process over those years, not only a machine learning per se, but people learning how to use the tools and new methods (...) People thought it wouldn't work, but it did (!), we got a return of 3.000% percent on top of what was invested, so you have an idea (...) we gain so much in speed (...) at any project the leader is always one of the seniors' lawyers from some area, so we need a collaborative posture, but all goes forward with small steps. (*Our translation*) (Lawyer 9)

We are in a very conservative sector. Despite of the changes we see in the last five years, despite of people realizing we can't deliver legal services as we did in the past, it is still very conservative. I guess COVID is a mark of change for us, we were forced to adapt, some were better prepared, others not. Even some

²³ In 2021, the National OAB updated the advertising rules of the legal profession. Changes allow the use of technological tools, such as social media, for the promotion of legal services and advertising. However, the OAB maintain the prohibition on the mercantilization of the legal profession and advertising to customer acquisition (https://editorajc.com.br/advocacia-tem-novas-regras-de-publicidade/).

large law firms don't have a real vision for innovation. (Our translation) (Lawyer 10)

In terms of use and development of technology, most law firms are just clients of legaltech companies and focused on licence purchase. However, some few large and medium law firms also develop solutions internally. For this elite group, solutions develop internally are a tendency, but require substantial investments and strong internal R&D skills – which only now have been significantly supported by partners. Because of investments and R&D limitations, respondents also indicate that partnerships with legaltech companies are somehow inevitable and that internal solutions can be used as a strategic advantage or become spinoffs eventually. In addition, there is some movement among the elite small law firms, so called "boutique" law firms, which are merging to look for modernization and scale gain through legal technology adoption, trying to compete against the largest ones.

Small, medium, and large law firms have different rationales around technology. Usually, the small ones have a lower budget and prefer cheaper technologies; the medium ones are frequently more audacious, as they want to grow; and the larger ones can be both audacious or reticent (...) sometimes large and medium law firms both buy and develop solutions, but when they develop, they tend to keep it inside the organization, as a strategic advantage. Some of them have very well-structured innovation/IT departments. (...) Small ones usually didn't think exactly how much of results a certain solution would contribute to the business. So, when they buy Legal Technology, they tend to see it as a cost, not as an investment. (*Our translation*) (LegalTech 8)

(...) now we are initiating an artificial intelligence project (...) we do a lot of external benchmarking, and we see some spinoffs. It is not common in the Brazilian market but seems to be a tendency. For instance, a solution developed inside the (...) (law firm) gave birth to a company called BCS, which was sold to Totvs (...) However, our R&D is still week, we need external partners. We have Microsoft, SoftPlan, Oyster, Currier, JustLegal, Juit, among many other solutions in the house (...) we seek to collaborate with this ecosystem, open innovation is a "must". (...) our investments are mostly internal capital (...) The culture for innovation at law firms is still "difficult". Now it is a little bit more collaborative, after many actions, which were potentialized by COVID-19. (*Our translation*) (Lawyer 9)

Beyond that, for part of the responders, it is necessary to be careful about what law firms really have implemented, as many innovation initiatives exist only for marketing. They indicated that real innovative actions at law firms strongly depend on the redesign of law firms' governance structures and business models, which is controversial and still incipient in the Brazilian market.

At the (...) (Law Firm) there is an innovation Lab that I helped to build, which has a small area of R&D. We worked in two fronts: the technological

innovation, with the IT part; and the impact of new regulations and technological changes on the services we did, in term of content, such as intellectual property (...) There is the point of law firms' size, because budgets largely variate, the infrastructure for technology also variates (...) Just now we can see more disruptive law firms, but they were born this way, they have a different governance structure around innovation and technology. So, the time, the governance model, the budget, all influence on innovation in law firms (...) Law firms don't like to see themselves as a kind of company, because of OAB, because of their juridical nature, they have aversion to this idea. However, in terms of governance and dynamics in a daily basis, we are an organization as any other. (...) Now, at (...) (large law firm) innovation is side by side with technology. I work close to our CTO, to the IT team - It is impossible to dissociate. But technology is only a mean, we need to prepare people. That is not easy, culture doesn't change in a couple of days – you need to give room for people to think. Regarding our budget for innovation, it is for acquiring external technology mostly, because it is essential, and we can't do it by ourselves (...) for innovation matter, sometimes we use the budget for technology, sometimes the HR budget (...) we preferer hiring companies that are already consolidated in the market, but we use several tools available in the market, more than 15, I guess. (...) we need to map the sectors internal demands, to analyse the cost-benefit, to test the solution, see what really work for our team; we also need to consider data security, integration potentials...it is not easy. (...) I don't want to say exactly what we used, but colleagues at other lar firms are going with Oyster, Digesto, Juit, it depends on the focal area (...) Kira, an international one, is totally amazing; but very difficult to implement, you need to train the software, to adapt it to our documents, language, and know-how. In this case, we depend on the lawyer's expertise to train the solution, to help implementing (...) Many initiatives in the market are just for marketing. People think technology it is like a button you push, and then it is working, but is a really complex process. (...) the partners' profile influences innovation; the client's profile, especially companies, they want more value. The in-house legal departments have to deliver more with less people and budget, which eventually impacts law firms as well. Sometimes they adopt a specific system and ask us for adopting it too. (Our translation) (Lawyer 10)

We have our own IT team, they take care of organising the data. For instance, they prepared the room for solutions we buy. We mostly buy tools from specialized companies, despite the importance of our internal IT team. We have several suppliers, each one offer different specialized software (...) we usually do an initial interview with the company, to see if there are ready for us, because we eventually need some customization, and they need to be able to handle it. Sometimes we see statups that don't have "legs" for us, so we wait a couple of months to see again were they are, how they evolved. We kind of follow them (...) sometimes we change software because we think our supplier is outdated. Actually, we had a lot of software changing. We are exploring the solutions and there is a lot of early stage statups (...) we have a specific internal team for data security, that is an import matter to us (...) for basic technology we use mainly Microsoft, including for cloud storage (...) I think the technological changes at law firms came together with changes in the business models, you know, the billable hour, publicity (...). (Our translation) (Lawyer 8)

4.2 Adoption of Legal Techs in the public legal sector

4.2.1 Germany

According to the interviews, the German courts system adopts basic technologies since the 1990s, when they started using computers and basic management software. Later, they start using specifics software in order to build a Case Management System. However, the time of adoption and type of technology may variate among courts, especially at the ordinary courts (the structure of the German Court System is presented in Annex 14).

The German states joined largely to groups. Therefore, the used technologies are at least similar. The states aim at bringing together and standardising the used IT architectures over the next years as far as possible. (Judiciary 2)

Particularly in the Bavarian State Ministry of Justice (StMJ)²⁴, one of the most modern in the country, the workstation equipment with computers and Microsoft Office started in 1998. Until then, a UNIX-system and alphanumeric workstation systems were used, which were not adequate to exchange or communication with other departments and states. Specialised procedures started between 2000 to 2010.

Currently, beyond basic tools such as Microsoft Office applications (Word, Excel, Outlook, etc.) and an electronic administration file by Fabasoft (which perform digital worktime-recording and other basic functions); the StMJ operate with a Case Management System composed by 3 different software: the Case Management System itself, which are 15-20 years old; the Electronic Case File for civil proceedings (Electronic Integration Pointer- EIP), which are 3-4 years old and is still in development; and the Filing System for lawyers, which are 2-3 years old and allows lawyers to send and receive filings in digital form. The Case Management System was originally developed by Siemens and taken over by IBM, and the Electronic Case File was developed by IBM. For confidential electronic communication there are the *Elektronisches Gerichts- und Verwaltungspostfach [EGVP]* (electronic mailbox for courts and administration) and the DE-mail (electronic mailbox for externals), all encrypted.

Generally, the software development and maintenance are done by external providers (licence purchase or specific order), despite courts normally have and internal IT support team. The main decisions about the IT architecture at courts are taken at

²⁴ Bayerisches Staatsministerium der Justiz (StMJ).

ministerial or at the interstate level and the implementation is done by the internal IT teams in interaction with the companies.

(...) a large variety of software products is used. These have been mainly purchased (license purchase). The software products which are used by courts and prosecution (specialised procedures) have been developed individually to a large extent. (...)

The license purchase took place through public tender. Contract partner is largely the Bavarian State Ministry of Justice. Normally there is a contractual relation between courts and prosecution on the one side and software developers and vendors on the other side. (Judiciary 2)

All the decisions involving IT architecture are based on previous regulations that authorizes them, such as the *Onlinezugangsgesetz (OZG)* (Online Access Act), which obliges fully electronical processing at public services until the end of 2022, focusing on online access and transparency (e-government); the Code of Civil Procedure as promulgated on 5 December 2005, which allowed digital documents, digital signatures etc.; and other acts at the Federal level, which establish any jurisdiction must be fully digitized until 2026 (presenting some type of Case Management System in operation). Therefore, judiciary is strictly bonded to law prescription, the first obstacle when it comes to innovation.

We usually implement changes when a command comes from the Federal Ministry - it's written in the law which we have to obey - and when it comes from a local Ministry it might be also written in the law, which we also have to obey, so it's the same value. (...) We do have a strategic plan, but the strategic plan is a result of that law. We don't have people really occupied with a global strategy or architecture principles, that's very underdeveloped. We lack a global strategic approach to innovation and IT innovation. (...) The private sector is a lot more innovative. They have lots of money and they have to be. Because they are talking to their clients and the client just demands it. The client wants to communicate by email or WhatsApp, or whatever, Skype, and they just demand it. The private sector, like lawyers, they just have to be able to make it. We don't, we create our rules, that's why we are so slow innovating. (Judiciary 1)

In Germany the changeover of every department to a fully electronical processing must be completed until December 31st, 2025. It is a challenge. (Judiciary 2)

We have some kind of sovereignty on the organization level if you want (...) But the laws, the procedures, they are all federal. (...) Now we are dealing with both electronic and paper at the same time. Starting from 2022 lawyers will be obliged to send briefs and filings electronic only. (...) January 1st 2026 is the very last date for any jurisdiction to become fully digitized. (Judiciary 1)

The second one is described as a low absorbing capacity (of technology) due the lack of enough financial and human resources, especially at small states (*Länders*). Bavaria is the biggest *Länders* among 16, in contrast with Bremen, which have only about 50.000 inhabitants, for instance. Even at large *Länders*, most part of the work and budget for IT is related to updating old systems and to data protection, so the specialists don't have the time and resources to work on another matters.

The town of Bremen, it is only 500.000 inhabitant, so how can they set a proper system (?), that makes much more sense if they do it at national level. (...) We talk about new software and real solutions, and they said: "so, that is something that we don't have a big budget for. The real big IT budget is for department B, we are department A. So, you have to go to department B". So, I asked "well, what do they do in department B?" and they answered: "Department B is basically the busiest department of the full Ministry. They are super busy updating the current system, so they would never have time, but they have a large budget that is strictly devoted to keep some speed on the IT infrastructure of the past". They would never have time to think about how the future could be. (...) Their Legal Tech team (...) probably 80% of all they do is data protection. (Academy 1)

Respondents also cited other limitations related to the regulatory boundness and low absorbing capacity, such as limitations related to the lack of "political will" from the courts (which are mainly described as passive around innovation); path dependence; courts' environment, and the mindset of judges.

Respondents describe that the Bavarian State Ministry of Justice, such as other courts, have been using the same software for more than 20 years, and these softwares were responsible for "bad experiences" across all Germany. Beyond that, the hardware infrastructure is still old in most Ministries, and some options of software made in the past conditioned the response of people to new tools.

(...) The first reason that initially is said is "bad experience". Every month, there was at least one day that the software was offline, and they couldn't work on their cases. So, they get used to work on paper basically, and use the software only when it was really necessary. If you talk to judges they say "yes, we need advance software, but we don't trust our Ministry to come along with it". (...). There is this kind of path dependency. I mean, they are stocked with the same old firm that started to provide these services 30 years ago or something. Of Couse this kind of very old fashion firm knows innovation would be expected to come. But they are stuck with what they hired in the past. They give no room for competition and newness.

(...) The largest German publishing house in the legal field, they design something like a sub assumption, a legal advice machine or something. (...) It is something specific to the field of family law, about child maintenance. (...) That is not formally implemented in courts, but judges use this machine because it's so much easier than calculating the maintenance themselves. Judges say the tool is good but could be improved and do more for them. Somehow this legal tool makes its way into the screen of the judges. (...) It tells you that are certain expected ways how innovation ends up to with the courts, but probably no one talks about it and many people don't know about it, it's nothing previously planned by anyone else in this publishing house. The Ministry of Justice is completely disinterested about it (...) that tells you how innovation is still somehow difficult. When it up to the Ministry we feel hopeless. (Academy 1)

Well, all the case management system itself is not user friendly and it's a very old piece of software. The case management system right now in place in the civil and criminal courts is about 15 years old, which in software terms are ages. In private (sphere) people use an Iphone with a new IOS on it often. So innovatively, in the user experience you have a difference, the software we are using is not ergonomic and the user experience is just worse than people are used to in private. (Judiciary 1)

One example of negative experience was the so called beA, an encrypted email box design for official communication between lawyers-lawyers and lawyers-courts. However, the e-mail presented various gaps and not every court accepted it, which made lawyers to refuse using it. Also, there is the so-called DE-mail, from Deutschland mail, introduced to create possibilities for every citizen to send secure and authenticated emails for public bodies (including courts), but to use it people need to pay a fee and go to a post office every time they want to do it, to verify their identity.

 (\ldots) beA was a total failure, every single lawyer disliked that system. (Academy 4)

What I heard when this new beA was introduced, which also allows you to send stuff to the courts, they started printing out everything, so the amount of paper actually increased by this. (LegalTech 2)

 (\ldots) it has been shifting more and more to be A. The courts are, to my knowledge, in a back lock. (Lawyer 1)

Problem is the DE-mail is not free, so no one uses it. Because everyone has a free email post-box, and no one wants to pay for the DE-mail secure. (Judiciary 1)

Respondents also explain that judges tend to confuse law issues on data protection in another sectors with innovation matters in-house. That is, there is a constant concern in courts about the necessity of regulations that avoid any type of immediate and mediate risks around innovation, which supplants basic measures on infrastructure. Also, judges mostly think about the influence of their decisions on innovation in other sectors, seeing the new regulations itself as innovation in the legal sector (see item 2.2 of this study).

If you are asking about new software, judges start talking about data protection, about the "Facebook law", that says that Facebook has to check their contents on what is insulting and so on, and we kind of have to fight to improve that situation, which is nothing about legal tech, it is something really different. (Academy 1)

We keep having discussions about these AI artificial judges, and, of course, that is problematic, but (...) we should be talking about how we can make use of technology in the courts to support the work of human lawyers and judges, and anyone else working there. (...) We can get lost in all these theoretical discussions about robots. We need untheoretical discussions about infrastructure. (...) To work in German courts is not attractive as it used to be, especially for the new generation, because the work environment hasn't changed in the past decades (...) every time we try to discuss legal tech in our justice system, lawyers start discussing a scenario in which judges are completely replaced by robots. (LegalTech 3)

In addition, part of respondents perceives the court system as sufficiently accessible and efficient to most citizens, existing no point in risking a well-functioning system to adopt new technology or follow trends. So, as courts need to deal with issues that technology causes in society, it wouldn't be congruent to be susceptible to the same unregulated problems. Beyond that, technology may change faster than courts are capable of absorbing it. To another part of respondents, however, there is a big room for improvement through the use of technology in terms of speed, economicity, citizen satisfaction and access to justice; and courts should not be displaced of the rest of society.

(...) lawyers and people in the justice system tend to be more conservative in respect to technological innovation. They think that it has worked for centuries, so why should we change it? We had some bad examples with innovation, innovation going wrong, because the state just doesn't have the adequate means to finance innovation like you would expect from a really innovative technological company like Google or Apple. If I buy a smartphone right now, I can be sure that it is working, that's brilliant and it has innovative apps and it is just a smooth user experience. We often failed to create that smooth experience because our limited means. (...) access to justice won't be improved rightly just by introducing electronic means, people still need a lawyer anyway. Actually, right now, access to justice for many people is very simple. (...) telefax is our main mean of communication. We have a huge problem because the youth, which we want to employ, don't know how it works. (...) Their (youth) way of life, their private life and our style of working is totally different and just goes separate even more day-by-day. We have to be innovative to close the gap. (...)

The reason why companies like Flightright exist is not that there is no access to justice, but because it is more convenient for people. If I fly to Brazil, and my flight has four hours of delay, I am entitled to a certain remedy by Lufthansa. However, It would be quite less convenient for me to sue Lufthansa, so I just pay my damage. It would be much more convenient to go to the website of some Flightright and say to them: "Lufthansa owes me 200 euros in damages". So, Flight Right would say: "ok, we pay you 150, and the rest we will take care of", so Flight Right pays me straight forward. It is quicker. Maybe I receive just 70% of what I really would get from Lufthansa, but it is just more convenient. (Judiciary 1)

If you look at the courts in Germany, it is a very traditional court system. It has operated this way for a century or for a hundred and fifty years. It is very old process. Of course, they have computers and IT systems and so on. But none of this is a recognise part in the code of civil procedure. It is changing now a bit (...) (Lawyer 1)

Germany is a country which was deeply rooted in the last century, it is not a digital country (...) if a lawyer or a judge from the year 1900 would be in a court room of today, he would be just fine (...) when it comes to how do you receive services, how do you go to courts, how do you visit your lawyer, how do you organize the home working, or the home office - which is not the same - you realize that Germany is based on people getting together and dealing with each other. You go to your administrator, you go to court, go to your lawyer, and all these are deeply rooted in the last century. It becomes clear if you don't have digital means to find your claims on an online court, or to visit your lawyer (...) to have the conversation as we have at the moment - which is of course not as charming as it would be when we sit together in the room - but as you are in (...) and I am in (...) we would have probably nowhere to come together, and now we talk with each other. So, that is something which the digital era allows us for, and Germany realizes that is basically not there. There is no law saying that the judiciary cannot be in the position to buy better hardware and facilities, or that judges can't make use of video conference systems, which are data protection compliment. No idea where Corona will take us, but everybody seems to realize that a digitized world would be in a better position to cope with the current restrictions. (Academy 3)

In general, the perception of respondents about innovation in the German public sector is negative. They see the German judiciary as a hesitant technology adopter. This is justified for 3 reasons: lack of budget and/or of a centralized management structure; previous negative experiences and path dependence; the belief that the system already fulfils its role efficiently; conservatism; the fear of risks that technology may bring to courts; and the necessity of existing regulations that allow changes.

4.2.2 Brazil

According to respondents, the Brazilian justice system started adopting basic technologies in middle 1990', such as computers equipped with Microsoft office, Linux or other similar systems. Initially, computers only replaced the traditional typewriters and people used very basic software, still handling paper form. In about middle 2000', customized software start appearing, and an e-justice system started being built. However, the time and the type of technology variated significantly among the Brazilian states (the structure of the Brazilian Court System is presented in Annex 15a and 15b).

Respondents indicate that, at that time, there was a strong resistance from judges on using computers and electronic filing. They describe there was scepticism about the benefits of technology for courts; and judges were conservative and very concern about the necessity of regulations. However, a small group of judges, mostly also academics or with interdisciplinary education, eventually occupied positions of leadership at courts administration and were responsible for the first significant changes in terms of mindset.

In 1990' there was the judgment about the computer's regulation (legislação de notebooks). At that time, people were very resistant to their use in courts, people needed to be "catechized" about technology. (...) In 2004, we judged our first habeas corpus online. This is a matter of extreme urgence, so we used all IT we had available to make it faster. The claims were received electronically to the judges and their results were also electronically sent. We could judge a habeas corpus in 24 hours (...) However, the prosecutors and public defenders (Ministério Público e Defensoria Pública) didn't have a good use of IT at that time. They still only received paper form, and some of them lived in Florianopolis and came to São Paulo once a month, bringing cases from 60 days ago. (...) The experience could be much better with their support at that time. (...) We also struggle around the rules of the Criminal Procedure Code of 1941, some of them just make the judgements slower, a remnant from the dictatorship. (...) To change the judge's routine was extremely difficult. The judiciary just absorb this rule of being inert, only working with provocation, so we also end inert at the administration. It is harder to convince conservative minds. In 2004 we already had very good IT professionals (...) at the end, we hired the SoftPlan, a company from Florianopolis. (...) In the decade of 1980 or 1990 we had a president (of the court) who wrote a book about legal informatics, which was very strange topic for people at that time. (...) He chose some judges to help him in an informatics commission, asked to all judges for reading about informatics applied to legal, and brought lectures to talk about technology in courts. We thought it was a very complicated thing at the beginning. When he left the presidency, we kept doing the events. (...) Somehow, he set room for what would come. (Our translation) (Judiciary 3)

Between 1990's and 2000' courts were slowly adopting very basic solutions, especially based on internal administrative decisions of courts (internal regulation), also somehow advocating for new regulation on the federal level. The first real institutional shift that allowed significant changes in courts came with the Law for Electronic Lawsuits²⁵, in 2006, which allowed digital processing of lawsuits (not mandatory). However, until late 2000', courts administration decisions about technology were very decentralized and the time and nature of solutions adopted largely varied according to the characteristics and needs of each court. Respondents describe that this scenario contributed to the existence of a stunning number of systems operating at courts, some of them hired from Legaltech companies and others internally developed by courts' IT teams.

In this context, lawyers complained about the disparity between technological solutions among courts. The number of solutions were overwhelming, usually not user friendly, and people were concerned about issues around the purchase and negotiation

²⁵ Brazilian Federal Law number 11.419 of 2006.

power of each court around solutions, as they have different budgets and internal staff. So, some courts had no real Case Management System, and other were acknowledge for the modernization (such as the São Paulo Ordinary Justice).

After 2010, partially because of these issues, another shifting in the regulatory scenario marked the relations between courts and legaltech companies. The Brazilian Nacional Council of Justice (CNJ), concerned with the necessity of unification and alignment between the systems, as well with the dependence of courts on the private sector, developed an entirely public system (the PJe), which was prescribed as the standard system in the country in 2013, and established as mandatory for courts that didn't have a previous similar system already in use until its implementation. Later, a political movement from courts and lawyers culminated in the Constitutional Amendment number 85 of 2015, which pushed the development of centralized federal and regional management innovation programs in order to improve judiciary efficiency. In addition, also in 2015, the new Brazilian Code of Civil Procedure²⁶ brought rules more adapted to digital; and, in 2021, the Digital Government Law²⁷ had an umbrella effect upon the digitalization of public legal services.

In terms of relationship with Legaltech companies, the legal community still disagrees about what model makes more sense for the judiciary. For part of them, all systems should be standardized and public, as this model would be cheaper, more stable, and present a lower risk in terms of private intervention and data protection. For another part, it is not realistic to expect technological expertise from courts. They argue that systems development and maintenance by courts often are responsible for the most "bad experiences" and for getting "stuck" in a certain way of work. In addition, Legaltech companies are subject to contract enforcement and competition, which would be much more interesting to courts in terms of technological supply; also, the purchase power of courts is very interesting to companies and may have an investor role on R&D. However, both groups agree that good in-house skills on technological governance and on non-technological innovation are necessary for courts.

At the public sector things are different. But everything depends on the sphere. The Federal sphere has much more money than others, and sometimes "pull" the state sphere. In some places the administration of the Federal Courts communicates with the administration of the local state court. With the evolution of the electronic procedures (law), legaltechs companies have a more assertive interaction with the public sector and their solutions interact with

²⁶ Federal Law number 13.105 of 2015.

²⁷ Federal Law number 14.129 of 2021.

public plataforms. (...) Some public agents, such as some *Defensorias Públicas* e *Procuradorias*, are very outdated (...) but companies of technology are starting to heddle to problem, they develop specific software for them. (...) The public sector has a specific characteristic because of the legislation, but it ends internalizing things after a while. The TJE started hiring a company, however, after they get the source code, they runed to a public solution – but still pay royalties and maintenance to the company. In 2018, we had a large improvement of the e-Proc in the national level. This system was totally developed by the IT team of the TRF4, with no involvement of third parts, and it is free, including the training. (...) All the Military Courts and the Electoral

Courts adopted the e-Proc in 100% of the territory. But the judiciary branches have some autonomy, they can choose; and the total in-house development is not common, I only know the e-Proc case. (*Our translation*) (Other 4)

Also, as the institutional framework and technological change in courts are significantly new, a certain tension about the dynamics between strategic plans of courts and the strategy of CNJ emerged, in terms of how the path of courts around technology should be constructed, and what would be the effects of previous choices and experiences. At the ordinary justice of the state of São Paulo (TJSP), for instance, when the PJe was launched (2011), the SAJ was already implemented:

(...) In 2011, we already had the SAJ fully implemented in 15% of the state. It was working very well, and we were expanding. The PJe was still a proof of concept, you know. People keep arguing PJe x SAJ, as it is a soccer game. Why São Paulo uses the SAJ? It is because we always did. We invested billions and work hard on this (...) About our choice for outsourcing, that came from a very lucid view of our mission. What is the mission of the judiciary? Is it to develop systems? Definitely no, it is to deliver justice (...). I will not develop something in-house that I was not born to do, I will hire some company that has this as its heart. (...) If we have a problem with the company, we say "look, there is a problem, according to the contract you need to solve it in two hours, otherwise there will be a penalty and I can cause you to go bust". That is a model that make sense to us. (...) We don't have enough people at the IT team, and our skills around IT are mostly for governance, not for development. (...) We had problems because we had 12 systems that did not communicate to each other, and four of them had no access to the Internet. So, we design and implemented a plan for Unification, Modernization and Alignment. Since 2013 we don't have nothing new on paper form. I believe in the interoperability of systems, a system ecosystem. (...) eventually we will also have to be integrated to the role e-gov (...) if every court developed good solutions that suits their necessities, we can put all together eventually. To make this happen we need to have technical competency. (...) The PJe has a lot of problems and are not adapted to some court's specificities (...)

The CNJ is in the top of courts governance, they are proactive, but their mission is to coordinate, which doesn't mean to administrate each court. They launched some very useful measures, such as the unification of files numbering, and the unification of terminologies for lawsuit movement (...) now there is the so called DataJud - the courts, independently of what system they use, need to send some raw data to the CNJ, for national statistics, that is amazing! (...) However, to impose a single system...we have our ouns strategic plan, that took a lot of effort, and we reached the impossible. Is now everything lost? That is way I advocate for an ecosystem of systems. We carefully chose the company that serve us, the products we order, we analysed the market and all

potential products, the technological capacity, the scalability, adaptability (...) The companies do R&D, they bring a vision and methods about technology that we don't have, they strongly invest (...). Now, because of pandemic, we prioritized some projects and also realize what were our previous right choices. (*Our translation*) (Judiciary 4)

Recently, some public bodies published open calls for legaltechs to propose solutions to their problems. One example is the Impacta MPRJ, a Program lunched by the *Ministério Público do Estado do Rio de Janeiro* in partnership with the *Semente Negócios*. The Program offers an incubation and acceleration support to legaltechs companies willing to develop specific solutions to their problems, which include the possibility to be hired for implementation²⁸. Other public organizations have been bet in developing solutions based on "internal startups", which are teams of services composed by experts specially hired by the Federal Government to entirely design and development solutions for public entities, based on e-government strategies²⁹.

The crucial pressure for innovation, according to respondents, come from the law, from the legal prescriptions to seek efficiency, transparency, economicity, access and inclusion etc. However, as much the law gives room for courts administration elaboration, more the environment and organizational culture have impacts on innovation.

Respondents affirm that, firstly, the younger generation is more propense to innovate, as they are more technology-savvy. Secondly, the educational background in law in the country is conservative, excepting few programs that are usually also described as elitist and vanguard. Thirdly, Brazil has very different realities in terms of infrastructure and accesses, demanding different solutions.

We had big issues with the implementation of the single system (PJe) in 2013. (...) the law inconstancy allowed the existence of different rules for electronic proceeding. In 2014, when the OAB realized we could not change this reality, they went for the MNI (*Modelo Nacional de Interoperabilidade* – Nacional Model of interoperability), based on a law definition from 2002 (...) the systems need to communicate (...) But there is a lot of room for improvement, because the system needs to fulfil their goal, to deliver justice. There is a lot of peculiarities in Brazil that we need to respect (...) some places at the Amazonas only have electric power for 3 hour per day. It is a complex reality. It is not enough to use technology, we will only fulfil our goal when we meet the citizen need. We need a vision that put the citizen in the center. (*Our translation*) (Other 4)

²⁸ http://www.mprj.mp.br/inova/impacta

²⁹ Startup Gov.br Program. Portaria SGD/ME Nº 2.496.

⁽https://www.gov.br/economia/pt-br/assuntos/noticias/2021/marco/programa-startup-gov-br-impulsiona-inovacao-e-transformacao-digital-no-governo-1)

(...) with the staff renovation, with more young people, the use of technology is simply natural. They are digital natives, they were born dealing with computers and other technologies. (...) However, the court is a very consolidated institution, so when someone has a lot of ideas, as happens with young people who come to work, they are cut off in a certain way, on the grounds that they want to grow too fast (...) the old judges have more voice in the court administration, you know. (*Our translation*) (Judiciary 3)

Old judges have aversion to technology, in general, because it takes them out of their confront zone. People want to do thinks how they ways did. (...) but that is changing, as people deal with technology everywhere. (*Our translation*) (Judiciary 4)

In addition, some specific solutions are not necessarily formally adopted by the whole court. It is common to see judges using tools that they buy by themselves (license purchase) using an individual annual budget originally destinate for law books and professional actualization, or even using their own means. They are usually tools of jurimetrics, Legal content and education, and document management.

However, there is also an important concern about privacy rules compliment and the "robotization" of courts. Judges face an enormous quantity of lawsuits in Brazil and, even within the traditional model, it is common to hear lawyers complaining about the use of "decision models" to certain cases, sometimes ignoring important peculiarities. So, there is a fear that the use of technology in the core function of courts will aggravate this problem, also enlarging existent bias or creating new ones. Beyond that, the use of personal data to shady purposes by companies may be difficult to be identified and controlled. These fears are congruent with what have been already reported by literature (e.g., Ferro, 2021; Foster *et al.*, 2018). On the other way around, respondents also indicated an underdevelopment of the arbitrage courts, which can offer a private via for dispute resolution in some cases, which could alleviate the judiciary overflow.

> (...) people in justice misinterpret technology, they think any type of robot is an artificial intelligence, when it is not. (...) I mean, people need to fill out the same kind of information in a form 30 times, 40 times a day, it is the same document, just some few information changes, so you can have a robot for doing that. It can be through Microsoft Excel or similar (...) however, it is necessary some patronization of public data - so people start misinterpreting this practice with data exposition. People are very concern about privacy (...) Now, courts are implementing more operational software, it is still the base of the pyramid in terms of technology. Artificial intelligence needs digital data, big data. Courts are still in a first wave, replacing paper form for some kind of electronic equivalents, that is the base. We see some advanced experiences, but they are outliers. (*Our translation*) (LegalTech 9)

Respondents also indicate that the practical experience has shown the use of technology in courts is a slow "construction" that involve many of evaluation cycles and

institutional shifts. For instance, when the digital signature/digital certification of documents was implemented, there was several solutions available. One of them was the Adobe tool, which exposes the CPF^{30} of the judge or of the administrative personnel – which became a problem, as it is not compliant with the Brazilian Law of Personal Data Protection of 2018^{31} . So, courts just start seeking for products that were compliment with the current international and national standards of privacy and data protection, which can change relatively fast. Most basic solutions in courts are licence purchased and chosen based on experimentation, even at small courts that bet on the public development of solutions.

The main challenge of dealing with justice is the cultural aspect, with people from the law field. It seems they are still "measuring the temperature of water before going into the swimming pool" (...) but that is changing, and we know it is a question of generation, there are new people in justice that have another vision around technology. I think it also a question of education (...) We need to deal with public internal staffs, we need to be synchronized and aligned with them (...) sometimes the IT internal staff need to step aside - because we need to share the same strategic goals, the same view. When we have this vision well structured, projects go very well; when this is not so well structured, we have more "noise" (communication), so there is an important dependency here. (*Our translation*) (LegalTech 9)

Currently, some specific initiatives have been coming up to foment the development, diffusion and use of technology and innovation among the public legal services providers, and between them and other actors. One example is the *Judiciário Exponencial*³², an organization born in 2014 that have massive public legal services participation and that bet on the so-called Justice Ecosystem. In addition, it is possible to find some particular innovation programs and labs at courts, such as the iNovaJusp and the iJuspLab, at the Federal Justice of São Paulo; and the LINC, at the Federal Justice of Paraná; all of them now linked to the Nacional Platform of the Judicial Intelligence and Innovation Network (CNJ), lunched in 2020.

Despite respondents had mentioned some initiatives at universities, such as the Cascudo JuriLab (UFRN) and the FGV Centre of Education and Research on Innovation (CEPI); universities seem to actuate more (when they do) in an education and legitimation front among students.

³⁰ The Brazilian individual taxpayer registry identification.

³¹ Lei Geral de Proteção de Dados Pessoais (LGPD) (pt). Federal Law number 13.709 of 2018.

³² https://www.judiciarioexponencial.com/

4.3 Legaltech companies

4.3.1 Germany

According to the "Legal Tech in Deutschland" data base (LTD, 2019) and Tobschall (2019), about 255 legaltech companies compose the German legal market, most of them with headquarters in the German territory, especially in Berlin, Munich, Frankfurt, and Hamburg. However, according to the interviews, the real number of companies is supposed to be much higher, as they quickly appear and disappear, and international businesses have been playing an increasingly role in the market.

Therefore, respondents describe foreign companies are active in the German legal market in some segments, and that German legaltech companies want/plan to work abroad, nevertheless, most of the German companies work in a local level.

...we have competitors mainly in the US and in the UK. (...) I would say that there is no real German competitor doing the same thing as we do. (LegalTech 1)

we are interested in the international market, but also obviously the local one (...) international competition is already here (...) Trying to straighten and push along the German legal tech community, obviously, is super important for us, because there's so much room for improvement still. (LegalTech 2)

Despite the significant number of companies in the sector, only few can be considered successful – as a lot of these companies just disappear after a while. For respondents, the successful companies are mainly: (i) the global large ones, which offer basic or standardized ICTs, such as IBM, Apple, Microsoft etc., and (ii) regional/local ones, which offer technologies more related to the core of legal services and are more adapted to the peculiarities of the German legal environment and language.

The main reasons for the success of these both groups are related to competitive advantages and investment capacity. The large ones lead an oligopolized market, have more capacity for large investments in R&D, and more resilience to face long cycles. On the other hand, regional and local ones have capacity for introducing legal local knowledge, training their software in local legal standards, and offering more customized products to clients.

Especially when it comes to Germany, language is complex, and usually you don't have the models, so you have to do six or eight weeks training the system with the client. I think customers prefer we train, so they can just directly use it. That is one of our advantages. (LegalTech 1)

Regarding the financial support, despite legaltech companies are frequently suitable for general incentives and funding in the area of technology, all respondents said there is a lack of specific public programs focused on legal technology. They explain specific programs would be interesting because of the complicated technology involved, which requires a significant level of R&D, and because revenues usually take a while to come. Some respondents also indicated that is not rare to see legaltech startups leaving Germany looking for more attractive environments, such as at the Silicon Valey (USA), especially in terms of business models.

Accordingly, the formal institutional framework is described as not welcoming for these businesses once legal professionals are usually highly concerned about data protection and other risks that technology may bring to the field - which sometimes are described as not realistic and related to a protectionist position. These concerns reflect especially on the German Federal Bar³³, on the German Bar Association³⁴, and on the Regional Bar Associations³⁵, whose orientations are manly based on the fear of risks, on the necessity of legal certainty and on the *status quo* maintenance. Most of the respondents interviewed said the German Bar Associations discourage the absorption/use of new technologies by lawyers.

In Germany they tend to be much more protective and not supportive for technology or innovation. All of them have a very conservative view, I don't know why (...) if the Bar associations were active about that, then the acceptance within the lawyers would increase, I think. (...) in the UK there is a Bar Association much more active and actually promoting legal tech. (LegalTech 1)

Consequently, the informal institutional framework in Germany is also driven by a risk-based perspective, which means most public and private traditional legal services providers as hesitant and delayed technology adopters, despite this scenario is changing as technology permeates other spheres of people's lives.

...we started as well with a Windows solution, that you install in your computer. But then, very early on 2001, I think, we had a concept to develop cloud-based solutions and to have browser-based cloud enabled solution...By now, obviously, this is fully functioning and most of our clients use this cloud-based solution. However, they use it not necessarily in the public cloud, but in their own private cloud, due to security and data protection concerns that many users have. (LegalTech 2)

³³ Bundesrechtsanwaltskammer (BRAK) (de).

³⁴ DeutscherAnwaltVerein (DAV) (de).

³⁵ Rechtsanwaltskammer (de).

Universities, on the other hand, play two different roles in this context. At least 9 successful regional and local Legaltech companies in Germany were in incubators/accelerators in an early stage of development. According to respondents, these incubators and accelerators. usually based on management/economics schools/departments, encourage R&D, help companies to obtain investments, and help with contacts and press coverage. However, the schools/departments of law and political science focus on a risk-based perspective. Most of the respondents said law education is very theoretical in Germany, which does not contribute for entrepreneurship and innovation, also focusing almost exclusively on the necessity of legal certainty in legal services.

We were at three different accelerators. One was the Ludwig Maximilian University Entrepreneurship Center (LMU EC) (...) we were at the accelerator at Tum (Technische Universität München), the Expreneurs. Then we were at the Tech founders, another accelerator of the Tum. The LMU EC was in a very early phase, and they helped us a lot with contacts, nice press coverage (...) introduced us to companies. So, that definitely helped us during that very early phase. At Expreneurs, we were deeper involved into the Tum networks. Tum is now also an investor in our company. We have a small grant from them, like a pre-set finance. The Tech Founders helped us with coach mentoring, so they had a nice importance on marketing, about how to do that, how to do B2B sales. (LegalTech 1)

It is pretty common legaltech companies go through accelerators at Universities in Germany. I know lots of them (...). (Lawyer 3)

At university we are being told constantly that is wrong to make mistakes. It's dangerous to make mistakes because you are going to be accountable for it. Also, you, as a lawyer at the least, are being told that there is just one result that you should achieve. Innovation really means that you are approaching things with open results, you don't know what is going to happen, you don't know anything and sort of collect from others. We don't do that at university, we don't learn to take perspective from others, we only have our own perspectives, we never work with others disciplines together, we never work in a team. (Lawyer 4)

Even knowing about all these startups and the changes in the market, I would never be an entrepreneur. It is much safer and more profitable to work as a lawyer (...) my legal education didn't provide any background for innovative approaches in legal services. (Academy 5)

 (\ldots) all lawyers are educated to become a judge. It is kind of a waste. (LegalTech 3)

Legaltech entrepreneurs are mostly described as high qualify lawyers that also have a background in other areas of knowledge, especially in business; and that usually dive in the entrepreneurial activity for passion, as the practice of law in Germany is considered of status and well paid. Respondents also indicate that some entrepreneurial experiences were absorbed by large companies and that, when legaltech enterprises somehow failure, professionals are also easily reallocated in the market. Participants gave some examples of professionals whose startups didn't succeed and that now work for large companies related to legal tech (such as Deloitte Legal and KPMG Legal).

4.3.2 Brazil

According to the Brazilian Association of Lawtechs and Legaltechs (AB2L), about 210 legaltech companies compose de Brazilian legal market. However, respondents believe the real number is much larger, as the AB2L only count their associates, and companies both appear and disappear fast. According to the Association, based on the number of partners, the market grew up 300% only between 2018 and 2019 and is accelerating.

According to the interviews, there is a significant presence of international companies in the market, especially when it comes to standardized or basic products. For customized solution seeking to serve a specific segment or need of the legal sector, however, companies are mostly national and actuate locally or regionally, despite the existence of some large ones and a significant movement of mergers and acquisitions.

There are small players that do an excellent work, but they are not known. The Oystr, in Curitiba, is a big player; the Courier was sold last year to the Constellations, a Canadian company. There are many small of them...the Judice Office, in Rio Grande do Sul, they have a significant market share, but only at their state, not at national level. If you think at the level of softwares, there are a lot of interactions. People from Oystr have been doing integrations with CBJ. There are certain "weddings". I think we had a large centralization at the Brazilian market. The American and Canadian buy a lot of companies and solutions. A lot of companies are not competitors anymore, they ate part of the same group. CP Pro, Tedesco, and Revista dos Tribunais now are all Thompson Reuters (the Legal One). The Oystr and the CPJ have the same owner. It is complex, companies have different niches. (...) I would say most small players don't last more than 5 years in the market. There are very good players that just disappear. That is not true for everyone, of course. (...) (*Our translation*) (Other 4)

In the private (legal sector) most technology providers are small, there are few large competitors (...) when Thomson decided to enter in the Brazilian Market, in the law firm's software segment, they bought Brazilian companies that already had a certain time of life. They bought Tedesco, Nova Prolink, and others, and they put all that together and gave it a nice name, the Legal One. They start offering almost the same products for a little higher ticket (license purchased), which not every law firm can pay. (*Our translation*) (LegalTech 9)
Regarding how the Legaltech companies were born, respondents indicate that the leaderships are usually composed by people with outstanding legal education (such as people from USP, UFRJ, UFRN, Insper, and FGV), interested in technology, and propense to become entrepreneurs. They are also usually young (between 22 and 35 years old) and have some education background in technology and/or management. Respondents say that, as law is a very specific knowledge field, entrepreneurs need to understand law very well, and be able to identify problems to be solved in a service perspective. Professionals don't need necessarily to know how to code, but they have to know how dialogue directly with IT professions, planning and describing what need to be done. More than that, they need to be able to evaluate if a solution can potentially be implemented (in terms of technology and regulation), and if it is profitable - which require interdisciplinary skills.

In terms of support, respondents indicate most companies went through acceleration, incubation, and investment programs linked to the technology area. Some examples are the ACE Startups, the Google Startups One, the Anjos do Brasil, the Startup Farm, the CV Ventures, the Cubo, and the 10k.Digital; Microsoft, IBM, Amazon, and Itaú are also cited at interviews as having initiatives for startups that may handle Legaltechs.

The programs especially contribute with infrastructure (rooms, internet, equipment, credit for acquiring software, etc.), mentoring on sells, marketing, and other management matters to early-stage ventures. They are important early risk takers, and also contribute for the visibility of the beneficiated companies, because of the programs' branding. What the programs ask in return can variate; some of them, when there is specific financial apport, can became shareholders; others are only focused on incentivising and observing the environment. Respondents also explain that some Legaltech companies in these programs eventually make a shift of market, migrating to Canada or US; and some others became clients or suppliers of the technological companies responsible for the programs, being bought by them sometimes. In addition, even when startups don't work out, entrepreneurs are often hired by other companies in the legal field, so programs also play a networking role for professionals and an "observatory" role for more settled companies.

We participated of two programs (...) they helped us with all costs involving biggening a startup. (...) we had four or five hundred dollars in "credits" for acquiring certain products; we had free mentoring, orientation, and infrastructure (...) the goal was

to validate the startups' products. (...) Basically, we didn't need to apport specific capital beyond our own work, that was really good. In addition, there was the "branding" of the program. Law firms were more open to talk to us when we explained that we were in an acceleration program. (...)

We saw several other companies in the field of technology applied to law that also went to those programs. At Google, some latter became suppliers of the company or were bought. Some entrepreneurs went through the Googles' program and their startups didn't work out, but Google took them, hired them for other products within the company. So, there are all this intellectual and professional networking, they also seek for people. I think there is also a commercial point, I mean, all these credits they give us to use, we use Google apps, we use credit for storage, cloud (...) if the product works, we kind of get stuck in consuming their products as a base for ours. (...)

(...) the ACE works also as an investment fund, I guess. Once they invested more than 150 thousand reais in a legaltech and get 10% of participation. (...) this company was sold to a larger company in the area of payment management, to expand services to Law Firms. Now the (...) is evaluated in fifty million reais (...). Some families also like to invest in startups, some do it through ACE. I think other funds, like Bossa Nova Investments, also use ACE. It almost like a Head-hunter for startups, they have a portfolio and relationships with large companies as well. I guess when the Magazine Luiza did that process called Luizalabs, about all their digital transformation, the ACE was a partner, an innovation partner, they orientated and indicated startups (...) including in the area of law (in-house legal). Diverse large companies, such as Magazine Luiza, Banco BTG, Evaste, Gol, Azul, contact the ACE when it comes to innovation. (*Our translation*) (LegalTech 10).

We realized there is constant movement of startups (legaltechs) internationalization, especially to the USA. They are looking for specific investments at the Silicon Valley, looking for connexions. We see that as a real flow. (*Our translation*) (LegalTech 5).

We tried to set partnerships with universities, but it didn't work out yet...we are super disconnected universes. (...) I think there is a lack of professionals for technology applied to legal. The technology market is effervescent, and companies are "fighting" for good and specialized professionals.

^(...) we also have a higher risk on making wrong choices about technology, so we observe (...) we need to be concerned about the longevity of the solutions. We adopt a bimodal system. The mode 1 is for operations; and the model 2 is for innovation, for P&D. They are different teams, with different budgets and

The legaltech companies had also being beneficed by general private and public funding, such as Canary.VC (invested in MOL, Docket e NetLex); Monashees (JusBrasil); Kaszek ventures (Docket); Founders Fund (JusBrasil); One.Vc (Docket); Domo Investimentos (Resolvvi); Gv Angels (Resolvvi and Sigalei); E.Bricks; and Finep (Softplan). However, no specific institutional incentives for ventures dealing with legal services were mentioned. Basically, respondents are sure that innovation incentives for legaltech companies are only related to market mechanisms, although these ventures are beneficiated by general entrepreneurial incentives for the area of technology or for SMEs.

For most respondents, we are talking about a market in formation that is trying to set its room. Their solutions can serve traditional legal services providers, acting as external agents; or can somehow to "couple" with them and with corporative venture in other areas. Therefore, their actuation obfuscates the boundaries between sectors. Let's see the case of Loft, for instance, a Brazilian company in the real estate industry. According to respondents, the company is a Unicorn startup that deal with legal matters, especially the sales and purchase agreement, and notarial procedures. They had a strong in-house legal department that are very well automatized, making their services faster and cheaper (one of their main competitive advantages). They mostly use the services of the legatech companies Linte and Docket, in a partnership relation:

> The Loft hired the Linte's software to be able to do this automation for house sales. Indeed, they had an absurd strategic gain. Any lawyer doing a draft of a sales and purchase agreement would take 4 to 5 times longer than with Linte. (...) They (Loft) can sell a house, with all steps concluded, in seven days. (...) they pushed the digitalization of the notaries, the digital notarization. (...) They went into a "fight" with the CNJ, to show it was safe, that there were existing tools, that notaries were ready for that, that people need that. (...) They were notified by the OAB, which argued: "you are not a law firm, you can't do that". So, the company (Loft) needed to convince them that they are compliant with the law, that what they do was not a strict sense legal service. They (Loft) argue they are just automatizing their existing services. It was a political struggle. (...) regarding due diligence, I guess Loft uses the Docket system, it reads the land register of more than 18 notary offices and the accuracy is very good. People don't have to open and read the archive to be able to find out if there are real encumbrances on that property, who the current owners are, or the taxpayer number (...). (*Our translation*) (LegalTech 5)

In this chapter we identified and analysed diverse features of the legal sector innovation system in both Brazilian and German contexts. It was based on information extracted from interviews, which was complemented with documents and literature. Documents were important to help researchers to interpret the interviews results, and these results were reinforced or contrasted with the literature on the dynamics of innovation in the sector, which is still incipient.

As a conclusion, what this chapter shows is the existence of a significant common rationale about who are the actors in the system and how they behaviour, as well indicating some nuances in the system features, once the contexts have different institutional, social, and economic environments. This common rationale and differences will be summarized and in the next chapter.

CHAPTER 5 THE LEGAL SECTOR INNOVATION SYSTEM: STRUCTURE AND FUNCTIONALITY

In the last chapter we could identify and analyse diverse features of the legal sector innovation system in both Brazilian and German contexts. We identified and analysed the features considering information extracted from interviews, documents, and literature, performing a cross-case analysis and data triangulation. Moving forward, in this chapter we summarize similarities and differences between the cases, discussing what are the structural components, the dynamics, and the functionality of the legal sector innovation system.

5.1 The common rationale between the contexts

In a synthetic perspective, considering both contexts analysed, the legal sector innovation system is composed by six main categories of actors: (i) the traditional public legal services providers; (ii) the traditional private legal services providers; (iii) the legaltech companies; (iv) the universities; (v) the supporting organizations, and (vi) the final consumers of legal services. Traditional legal services providers and legaltech companies have a protagonist role in the system; and universities, supporting organisations, and final consumers have still a minor participation, despite also relevant to how the innovation dynamics is stablished.

Regarding the German and the Brazilian contexts, the public legal sector can both buy and develop specific technologic solutions; when buying, they mostly absorb technology from legaltech companies; when developing, they can also set knowledge and technology interchange relations with legaltech companies. Situations where the public legal sector doesn't somehow set partnerships with technology companies to build or acquire solutions are rare, despite there is a disagreement among actors about adopting rather external or internal models of technology and innovation supply. Some legaltech' initiatives can also represent alternatives of legal services provision in face of public services, such as the ODR, which includes arbitrage private courts, for instance. In the public legal sector, the main pressures for innovation come from public interests around access to justice, inclusion, satisfaction, transparency, efficiency, speed, and resource rationalization, which are ultimately prescribed at the law itself (formal institutions). In addition, the existence of regulations that allow changes is a *si ne qua non* condition for innovating. Recently, the e-government strategies and the specific regulations around digitalization of legal proceedings have been increasingly approximating startups to the public legal sector.

The private legal sector can set a larger spectrum of relations with legaltech companies: they can just buy solutions from them (usually licence purchase); they can assume more collaborative connections to customize solutions; they can, together, present some entrepreneurial experimentation in terms of trying to set new business models and/or offer new types of legal services; and they can set competition relationships (related to liberalization). Situations where the private legal sector doesn't somehow set partnerships with technology companies to build or acquire solutions are rare in both German and Brazilian contexts. Their main pressures for innovation are associated to the corporative transnational demand (mostly for in-house legal departments, and large to medium law firms), domestic demand, and public legal services digitalization (these last ones mostly for small law firms and solo lawyers).

The legaltech companies are an entrepreneurial experimentation itself. They have several levels of "coupling" with other industries and with the traditional legal services providers, depending on the level of institutional acceptance (which consists in their main obstacle, in addition to specific funding). However, they still act as external technology providers mostly, composing a market in formation. They are technology and knowledge intensive and represent the central way of technology and knowledge flows among actors in the innovation system, despite sometimes also present divergent interests in face of these actors. Therefore, they can be understood as KIE and KIBS. Legaltech companies are motivated by business opportunities (profit orientated mostly), meeting the needs of traditional legal services providers for specific solutions to legal, and of the final consumers for faster, cheaper and more convenient legal services.

Traditional legal services providers can interact with legaltech companies in many ways. They are a crucial part of the demand (when they establish relations of consume and collaboration); and can occupy competition positions against legaltech companies (hostile relations, which are usually not driven by usual market mechanisms). This corroborates that there is a significant market formation and entrepreneurial activity around new ways of providing legal services, which can be both internal and external to the traditional legal services providers.

Regarding the obstacles for innovating, actors indicate the traditional mindset of professionals of law and the lack of specific funding. Therefore, professional openness, technology' legitimation, and resource mobilization in the field are described as crucial

elements for legal tech to settle and the market to grow in its whole potential. In regard with these matters, universities and supporting organizations have an important role as they are responsible for legal and entrepreneurs training, and for incubating and accelerating statups.

On one hand, universities, in general, are responsible for maintaining the mindset of legal services traditional providers and have a minor participation on the knowledge and technological flows around innovation in legal services. On the other, a small group of universities (described as prestigious and/or elite universities) have been playing a trailblazer role on the professional openness and technology' legitimation. The same occur with the BAR Associations, which can play a supportive or a reactive role in face of innovation. However, in both contexts, universities (particularly law departments) and BAR Associations are mostly indicated as resistant or oblivious to innovation. Legal Tech and Law Tech associations are indicated as well articulated supporting organizations though.

This tension between groups in universities and BAR Associations is related with two important concerns. At one side, the need for legal certainty and for professional principles protection, particularly the non-commercialization of the legal profession (which implies specific rules of competition, advertising, private ownership, and wage). At the other, the need for new solutions - and related new productive arrangements and business models - capable to meet the XXI century necessities, usually requiring some level of institutional change.

In addition, traditional players have an important role in the political process around innovation regulation in the sector, as they have a strong institutional dimension due the nature of legal services and of their providers, which means their mindset reflects on the institutional scenario. The legal sector is not governed by the market rules that we are used to see in other segments of the services economy, institutions have a crucial role in the sector, and the public nature is outstanding, even for the services of private nature. An important peculiarity is that, firstly, at the public legal sector, the implementation of changes relies on previous regulation that authorizes them; and, at the private legal sector, changes may occur freely when related to non-regulated matters (non-reserved legal activities), which opens some space for free market economics mechanisms. Secondly, legal services providers can perform institutional functions for their own sector regulation. That means, on one hand, when innovation has to do with core legal activities, responsibility and legal certainty are the strongest concerns reflected on law. On the other, the same actors who claim these concerns, may also use their position to maintain their *status quo*, resisting to experimentation.

Indeed, it is acknowledged that technological and innovation paths, that is, the choice of adopting (or not) certain solutions, are immersed in complex social-political

relationships, embodying diverse interests. The expression of technology and innovation (and even the lack of change) is not neutral, such as any other product of society. However, the legal sector peculiarities imply a different rationale around institutional setting, which need to be carefully considered to understand innovation dynamics in the sector.

In general, professionals that dive into the entrepreneurial experimentation or advocate for institutional changes to support innovation in the sector have multidisciplinary education and skills (beyond law) and come from prestigious/elite universities. The entrepreneurial experimentation tends to be closely watched by medium and large legaltech companies, as well by large technology companies attentive to market formation. They usually absorb professionals and solutions from de smallest ones, both in case of failure and success. In both contexts analysed, startups appear and disappear fast. Some startups also choose to migrate, especially for the USA, looking for a more opened and supportive institutional settings.

Based on the common elements, figure 25 briefly illustrates the main structure of the legal sector innovation system. The circles represent the actors in the system, which are the traditional public and private legal services provers (agglomerated in the same circle); the legaltech companies of all sizes (including KIE and KIBS); the universities (including their innovation labs, incubators and accelerators programs, new education programs etc.); the supporting organizations (BAR Associations, Legal Tech and Law Tech associations and hubs; other incubators and accelerators etc.); and the final consumers of legal services (basic expressed in the corporative and personal demand).

The lines represent the main relationships flows among the actors around the development, use and diffusion of technology and innovation. These connections are summarized in six kinds: (a) consume, which means relationships focused on buying significantly finished technologies, or services based on these technologies; (b) collaboration, which means relations focused on co-development of solutions; (c) competition; (d) articulation, which means relations based on setting proper situations and spaces for interactions; (e) legitimation, which means relations based on the exploration/discussion and advocacy on appropriate and desirable solutions; and (f) resource mobilization, which means connections based on incentives and investments flows. Finally, the background of the illustration represents the institutional setting, where formal institutions are outstanding (such as formal rules regarding the e-government; the digitalization of proceedings etc).



Figure 25. Main structure of the legal sector innovation system

Source: elaborated by the authors

Considering this common rationale between the contexts, the specific characteristics of the sector and its technological trajectory are important to understand the innovation dynamics in legal services, independently from the spatial organization of innovation. Therefore, as we saw in chapter two, the specific conditions of a sector and the related technological regimes can imply consistent similarities in different geographic areas. However, of course, this doesn't mean differences between the countries' contexts are not relevant, as we will summarize in the next section.

In addition, we end up in an actors' structure alike the Helix model, which was already expected into de SIS literature. Also, the legaltech companies have they role very much aligned to what is described by KIE and KIBS theories. However, such as described by Sundbo & Gallouj (2000) for sector of services, the patters of innovation in the legal sector are still transmitted by Loosely Coupled Systems, characterized by a low level of R&D, more corporate entrepreneurship, strategic guidance, and service professional trajectories (when compared to other sectors). Doing a parallel to Miozzo & Soete' (2001) classification, most of the traditional legal services providers seams to follow a Supplier-Dominated patter, despite some specific experiences and the legaltech companies fit very well as Scale-Intensive Informational Networks and Specialized-Based Suppliers.

5.2 Differences and peculiarities between the contexts

Despite the existence of a basic common rationale of the IS between the contexts analysed, it is also possible to summarize important differences between the countries' contexts, as they have different cultural, social, and economic environments.

Regarding resource mobilization, despite both contexts indicate the lack of funding or programs specifically focused on fostering legal technology, Germany presents a pretty more structured general economic environment. This means that there is substantial general funding and general support for entrepreneurs, which usually embrace legaltech enterprises. Universities usually have also more structured and articulated accelerators and incubators programs linked to their business departments, which also reach legaltech startups in the country.

Conversely, in Brazil, the general context of resource mobilization for entrepreneurs is less structured and wealthy, which is a disadvantage for any kind of startup in the country. Accelerators and incubators programs at universities exist but are rarely cited as important for legatech stutups development. This situation is aggravated by the vertiginous dropped of public investments in R&D in the country, especially in the last years at the Bolsonaro's' government. However, accelerators, incubators and funding programs directly linked to the technology industry somehow have been embracing legaltech startups in the country. In addition, Brazil has more profound regional differences when compared to Germany, especially in terms of infrastructure and access.

In Germany, the corporative transactional demand is way more present, which seems to strongly influence the market formation regarding to non-reserved legal activities. Respondents stress the presence of strong large companies that offer a varied portfolio of solutions for in-house legal department and law firms (such as KPMG Legal and Deloitte Legal). In Brazil, the corporative transactional demand and the actuation of large companies are minor.

The structure and way of working of law firms are also different among the contexts, despite they share a similar base around professional principles, the non-commercialization of the legal profession, rules of competition, advertising, private ownership, and wage. In general, the German model is more open to globalization compared to Brazil, especially because of the models bult from the mergers with US and UK law firms and the admittance of MDPs.

For both public and private actors, in both contexts, the budget can put players in different positions in terms of capacity for innovation investments. However, there are particular path dependences, that is, the previous choices made by actors effect on their future ones. For instance, Germany has a pretty more old and solid judiciary structure, which is acknowledged as signifyingly efficient by their population. Also, due its specific historical trajectory, and as an important base of society, the Germany Judiciary is cautious on implementing changes. They usually prefer to maintain their traditional way of working rather to be possible vulnerable to the risks that innovation may bring to the court system. The German public legal sector tends to change workplace infrastructure more slowly, once they see the consolidation of technology at other sectors of society, which impacts "when" and "how" they can implement innovations that rely on that infrastructure. Beyond that, previous negative experiences affect the perception of actors on the viability of experimentation.

In Brazil, differently, the population usually sees the judiciary as slow and expensive, so, changes that seek to make faster and more accessible legal services are welcome by the population. In general, the Brazilians are more opened to change, as Brazil's history is characterized by successive significant shifts on formal institutions.

The development of the e-government movement, however, seems to be largely impacted the public legal services providers in several countries, including in both contexts analysed, and gained even more relevance in the scenario of COVID-19 pandemic, consisting in an additional incentive to changes on how public actors deliver legal services.

5.3 Challenges for the Innovation System consolidation

Considering the contexts analysed, we can conclude the Legal Sector Innovation System exists, but still presents weak (and sometimes not planned) interactions among players. It is a sector dealing with an emergent technology (Legal Technology) and where institutions have and outstanding role, reflecting diverse tensions among actors around innovation in the sector.

On one hand, the growing presence of KIE and KIBs (Legaltech companies) indicates the rising of entrepreneurial experimentation, market formation, and knowledge and technology exchange among actors. On the other, the lack of structured policies on the field, as well the still weak participation of universities and supporting organization, implies a low level of legitimation and resource mobilization.

Therefore, we can summarize the main obstacles for the Innovation System consolidation in four key issues: Legal Certainty, Responsibility, Legitimation and Funding.

Uncertainty is intrinsic to the innovation process in any knowledge and economic field. However, when it comes to the core of justice and of legal services in general, pillars of the state, uncertainty is a pretty important concern. Institutions in the legal sector are designed to avoid uncertainty, they seek to be as clear, objective, and cover the most situations as possible. In addition, if experimentation failure, causing damage to others, who will be accountable about that? Here we clearly have a tension and a conflict of interests for the IS consolidation in the sector, especially when we also consider that traditional actors have a particular influence in the sector regulation.

To better deal with these problems, focusing on the meaning and consequences of innovation for different social groups, some authors have been suggesting controlled environments, such as the Regulatory Sandboxes, and the application of the Responsible Research and Innovation (RRI) framework.

According to Jiménez and Hagan, "a sandbox is a safe playground in which to experiment, collect experiences, and play without having to face the strict rules of the real world" (p. 2-3). That means it is possible to create environments specifically design to experimentation, which allows actors to innovate without worrying as much as when they are embedded in the real institutional scenario. In these sandboxes is also possible to test new regulations "to see what works before going through the long process of creating new rules, and consumers have access to these services in a controlled environment. The goal is to relax or change existing regulation in a controlled and evaluated space to run real-world experiments". Therefore, the sandbox environments can be useful for evidence-based decision making, rather than the usual speculation about what experiences could result from changing technologies or policies (JIMÉNEZ; HAGAN, 2019, p. 2-3).

The Responsible Research and Innovation (RRI) can be also useful to mitigate the legal sector IS challenges. It is a framework for public policy design on Science, Research and Innovation (SRI) in a way that encourage investments and the setting up of an infrastructure that promotes knowledge interactions and technology transfer between different agents. Differently of other frameworks on SRI policy, the RRI focus on the ethical use of technology and its social impact. Therefore, social responsibility and social development are the core of RRI (STILGOE *et al.*, 2013), which is a framework very suitable and useful to the think about fostering innovation in the legal sector.

In addition, discussions about a structured public policy on SRI particularly designed to the legal sector can impact on how universities and supporting organizations take part of the System, enhancing legitimation and openness, as well impacting on the creation of specific programs of funding. Universities have an important role in most innovations systems, not only for providing incubators and accelerators programs, but for changing the own structure of education, which is impacted by technology in all professions. Therefore, new programs and curriculums related to legal education are essential. Also, public and private actors need to be significantly involved in the development and adoption of technologies, which usually occurs through specific lines of funding.

If the legaltech companies follow the same pattern of fintechs (at the financial sector), edutechs (at the education sector) and agritechs (at the agriculture sector), among others, they must consolidate as important suppliers that bring essential contributions to the legal sector, enhancing a positive movement of knowledge and technology exchange among actors in the innovation system. Therefore, these enterprises tend to settle in the sector, even having challenging life cycles - which are part of the startups nature.

Final consumers of legal services should also not be left aside in the innovation process and in related policies. In a world that is becoming more and more digital, it is expected of services to be aligned to it, including in the legal field, which implies delivering more

accessible, convenient, faster, and cheaper services. The data related to these services, even still in phase of trials, can be used to stablish evidence-based policies, that is, policy decisions based on objective evidence rather than on theoretical speculation. Of course, along with this alignment also come diverse challenges on data protection and privacy which we still need to overcome.

FINAL REMARKS

The general objective of this manuscript was to characterize the legal sector innovation system, focusing on agents' configuration and on their dynamics of interaction. We were guided by three research questions: "how does the process of development, use, and diffusion of innovations happen in the legal sector?", "who are the main actors involved?", and "how do they interact with each other to innovate?".

To reach our general goal and answer our questions, we set 7 specific objectives distributed to each one of our 5 chapters. In chapter 1: (i) to outline the legal sector structure, its actors, and technologies. In chapter 2: (ii) to analyse the meaning and types of innovation in the legal sector; (iii) to select the IS approach that best fits the analysis of the legal sector innovation environment; and (iv) to describe relevant concepts and theories for analysing the legal sector innovation system. In chapter 3: (v) to describe and justify our research methods. In chapter 4: (vi) to analyse the innovation system features in two different empirical contexts, Brazil and Germany. And, in chapter 5: (vii) to discuss structural components, the dynamics and functionalities of the legal sector innovation system. Basically, chapter 1 and chapter 2 contextualized and justified our research, based on literature review; Chapter 3 exposed our research methods for performing an empirical qualitative study, a case study based on interviews and documents analysis; and Chapter 4 and 5 showed our main findings.

We interviewed a set of actors involved in the legal sector innovation environment in two different contexts: Brazil and Germany; also analysing relevant documents for the cases. Interviews took place in Germany from January to June 2020, and in Brazil from August to December of the same year. Both in Germany and in Brazil we have 19 participants, totalizing 38 interviews. The interviews were performed by means of semi-structured questionnaires. Our analysis started from a within-case approach, which consisted in the interview's transcriptions. After that, we went thought a cross-case analysis and data triangulation.

Considering both contexts analysed, our findings show the main actors involved in the legal sector innovation system are the traditional public and private legal services providers, the legaltech companies, the universities, the supporting organizations, and the final consumers of legal services. We also found a common rationale between the Brazilian and German contexts on how the process of development, use, and diffusion of innovations happens in the sector. Within the traditional legal services providers, the public legal sector can both buy and develop specific technologic solutions; when buying, they mostly absorb technology from legaltech companies; when developing, they can also set knowledge and technology interchange relations with legaltech companies. Situations where the public legal sector doesn't somehow set partnerships with technology companies to build or acquire solutions are rare in both countries. Some legaltech' initiatives can also represent alternatives of legal services provision in face of public services, such as the ODR, which includes arbitrage private courts, for instance. In the public legal sector, the main pressures for innovation come from public interests around access to justice, inclusion, satisfaction, transparency, efficiency, speed, and resource rationalization, which are ultimately prescribed at the law itself (formal institutions). In addition, the existence of regulations that allow changes is *a si ne qua non* condition for innovating. Recently, the e-government strategies have been increasingly approximating startups to the public legal sector.

For its turn, the private legal sector can set a larger spectrum of relations with legaltech companies: they can just buy solutions from them (usually licence purchase); they can assume more collaborative connections to customize solutions; they can, together, present some entrepreneurial experimentation in terms of trying to set new business models and/or offer new types of legal services; and they can set competition relationships (related to liberalization). Situations where the private legal sector doesn't somehow set partnerships with technology companies to build or acquire solutions are also rare. Their main pressures for innovation are associated to the corporative transnational demand (mostly for in-house legal departments, and large to medium law firms), domestic demand, and public legal services digitalization (mostly for small law firms and solo lawyers).

The legaltech companies are an entrepreneurial experimentation itself. They have several levels of "coupling" with other industries and with the traditional legal services providers, depending on the level of institutional acceptance (which consists in their main obstacle, in addition to specific funding). However, they still act as external technology providers mostly, composing a market in formation. They are technology and knowledge intensive and represent the central way of technology and knowledge flows among actors in the innovation system, despite sometimes also present divergent interests in face of these actors. Therefore, they can be understood as KIE and KIBS. Legaltech companies are motivated by business opportunities (profit orientated mostly), meeting the necessities of traditional legal services providers for specific solutions to legal, and of the final consumers for faster, cheaper, and more convenient legal services.

Therefore, traditional legal services providers can interact with legaltech companies in many ways. They are a crucial part of the demand (when they establish relations of consume and collaboration); and can occupy competition positions against legaltech companies (hostile relations, which are usually not driven by common market mechanisms).

Regarding the obstacles for innovating, actors indicate the traditional mindset of professionals of law and the lack of specific funding. Therefore, professional openness, technology' legitimation, and resource mobilization in the field are described as crucial elements for legal tech to settle and the market to grow in its whole potential. In regard with these matters, universities and supporting organizations have an important role.

On one hand, universities, in general, are responsible for maintain the mindset of legal services traditional providers and have a minor participation on the knowledge and technological flows around innovation in legal services. On the other, a small group of universities (described as prestigious and/or elite universities) have been playing a trailblazer role on the professional openness, technology' legitimation and resource mobilization. The same occur with the BAR Associations, which can play a support or a reactive role in face of innovation. However, in both contexts, universities (particularly law departments) and BAR Associations are mostly indicated as resistant or oblivious to innovation. Legal Tech and Law Tech associations are indicated as well articulated supporting organizations though.

This tension between groups in universities and BAR Associations is related with two important concerns. At one side, the need for legal certainty and for professional principles protection, particularly the non-commercialization of the legal profession (which implies specific rules of competition, advertising, private ownership, and wage). At the other, the need for new solutions - and related new productive arrangements and business models - capable to meet the XXI century necessities, usually requiring some level of institutional change.

In addition, traditional players have an important role in the political process around innovation regulation in the sector, as they have a strong institutional dimension due the nature of legal services and of their providers, which means their mindset reflects on the institutional scenario. The legal sector is not governed by the market rules that we are used to see in other segments of the services economy, institutions have a crucial role in the sector, and the public nature is outstanding, even for the services of private nature. An important peculiarity is that, firstly, at the public legal sector, the implementation of changes relies on previous regulation that authorizes them; and, at the private legal sector, changes may occur freely when related to non-regulated matters (non-reserved legal activities), which opens some space for free market economics mechanisms. Secondly, legal services providers can perform institutional functions for their own sector regulation. That means, on one hand, when innovation has to do with core legal activities, responsibility and legal certainty are the strongest concerns reflected on law. On the other, the same actors who claim these concerns, may also use their position to maintain their *status quo*, resisting to experimentation.

The choice of adopting (or not) certain solutions is immersed in complex socialpolitical relationships, embodying diverse interests. The expression of technology and innovation (and even the lack of change) is not neutral, such as any other product of society. However, the legal sector peculiarities imply a different rationale around institutional setting, which need to be carefully considered to understand innovation dynamics in the sector.

In general, professionals that dive into the entrepreneurial experimentation or advocate for institutional changes to support innovation in the sector have multidisciplinary education and skills (beyond law) and come from prestigious/elite universities. The entrepreneurial experimentation tends to be closely watched by medium and large legaltech companies, as well by large technology companies attentive to market formation. They usually absorb professionals and solutions from the smallest ones, both in case of failure and success. In both contexts analysed, startups appear and disappear fast.

Our results also show important differences between the countries' contexts, as they have different cultural, social, and economic environments. Regarding resource mobilization, despite both contexts indicates the lack of funding or programs specifically focused on fostering legal technology, Germany presents a pretty more structured general economic environment, that is, exist substantial general funding and general support for entrepreneurs, which usually embrace legaltech enterprises. In addition, universities usually have also more structured and articulated accelerator and incubators programs linked to their business departments, which also reach legaltech startups in the country. In Brazil, on the other side, the general context of resource mobilization for entrepreneurs is less structured and wealthy, which is a disadvantage for any kind of startup enterprise in the country. Accelerators and incubators programs at universities exist but are rarely cited as important for legatech stutups development; differently of accelerator, incubators, and funding programs directly linked to the technology industry, which somehow have been embracing legaltech startups in Brazil.

In Germany, the corporative transactional demand is way more present, which seems to strongly influence the market formation regarding to non-reserved legal activities. Respondents stress the presence of strong large companies that offer a varied portfolio of solutions for in-house legal department and law firms. In Brazil, the corporative transactional demand and the actuation of large companies are minor, when compared to Germany. The structure and way of working of law firms are also different among the countries' contexts, despite they share a similar base around professional principles, the non-commercialization of the legal profession, rules of competition, advertising, private ownership, and wage. Finally, also in both contexts, the budget can put players in different positions in terms of capacity for innovation investments, and previous choices made by actors affect their future ones.

Considering these results, we concluded the Legal Sector Innovation System exists, but still presents weak interactions among players. It is a sector dealing with an emergent technology (Legal Technology) and where institutions have and outstanding role, reflecting diverse tensions among actors around innovation in the sector. On one hand, the growing presence of KIE and KIBs (Legaltech companies) indicates the rising of entrepreneurial experimentation, market formation, and knowledge and technology exchange among actors. On the other, the lack of structured policies on the field, as well the weak participation of universities and supporting organization, implies a low level of legitimation and resource mobilization. We summarized the main obstacles for the legal sector innovation system consolidation in four key issues: Legal Certainty, Responsibility, Legitimation and Funding; indicating some possible solutions to mitigate these obstacles.

The limitations of our findings are related to the fact that they show a picture of a recent on-going phenomenon, reflecting a stationary drawing of a "moving target". In addition, they rely on specific contexts of the two selected countries and particular respondents' perceptions. In that sense, we recommend that future studies seek to better comprehend the systemic dynamic of innovation in the sector at other contexts, and to test our results handling other research methods or expanding the set of interviews. To explore specific movements in the system would be also interesting, for instance: why some legaltech companies migrate? Why they appear and disappear fast? Why universities have a low participation in the innovation process? What is the influence of specific local conditions on institutions, actor's dynamics, and interactions? among many other questions.

Despite these limitations, this research is an original study that explores the dynamic of innovation in the legal sector through an economic and systemic perspective, an inedited approach in literature so far. We believe our findings present theoretical and practical contributions to all actors involved in the legal sector innovation system, as they may help intrapreneurs, lawyers, government, and academics to better understand and manage the innovation process in a such peculiar and complex sector.

Each actor in the innovation system has different and complementary technological capabilities and knowledge that need to be integrated to increase the system' functionality. A

healthy innovation system shall be able to discuss and present more options to the sector in a collective movement of solutions' construction.

Structured public policies on Science, Research, and Innovation (SRI) are essential in a way that encourage investments and the setting up of an infrastructure that intentionally promotes knowledge interactions and technology transfer among the different agents in the legal sector innovation system. The still weak participation of universities and supporting organizations implies a low level of legitimation and resource mobilization that can sabotage the system consolidation and functionality. Therefore, we recommend the legal community and all actors involved to mobilize themselves as soon as possible around the establishment of specific policies on the field that incorporate the frameworks on Regulatory Sandboxes, the Responsible Research Innovation and the Evidence-based decision making. That is a critical political agenda for enriching innovation dynamics in the sector.

Universities have an important role in most innovations systems, not only for providing incubators and accelerators programs, but for changing the structure of education itself, which is impacted by technology in all professions. Therefore, new programs and curriculums in legal education are essential. Also, public and private actors need to be significantly involved in the development and adoption of technologies and innovation, which usually occurs through specific lines of funding that create supportive environments to these actors to meet and articulate themselves. The resistance of traditional actors in the legal sector to exchange technologies and knowledge need to be overcome, as they can't obliviate all changes happening in society, expecting to face the same obstacles and to obtain the same results that they did before.

If the legaltech companies follow the same pattern of fintechs (at the financial sector), edutechs (at the education sector) and agritechs (at the agriculture sector), among others, they must consolidate as essential suppliers that need to be supported, bringing crucial contributions to the legal sector innovation system through a positive movement of knowledge and technology exchange. Final consumers of legal services should also not be left aside in the innovation process and in its related policy agenda. It is important to stablish evidence-based policies, that is, policy decisions based on objective evidence rather than on theoretical speculation.

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ANNEXES


ANNEX 1. Global Legatech companies, by categories (Thomson Reuters)

Source: Curle (2016)



ANNEX 2. Global Legatech companies, by categories (Wilson)

Source: Wilson (2016)



ANNEX 3. Legaltech companies in Germany, by categories (Tobschall).

Source: Tobschall (2019)

ANNEX 4. Leg	altech companies ir	n Germany, by	categories (LTD).
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Categories	Companies
Automated Legal Advice	Severance pay hero; Subscription alarm; Airhelp; autopilot: 261; Railway buddy; BRYTER; dasRecht.de; DataGuard; Replacement pilot; EUclaim; EUflight; FairPlane; Flightright; Flug-Ericherung.de; Flug-Verspaetet.de; Geblitzt.de; Hartz 4 contradiction; helpcheck; kuendigung.org; legalview; Rental heroes; MINEKO; myRight; Pixsy; rightmart; Divorce.de; Accident heroes; Volders.
Expert Portals	123recht.net; Advocado; Attorney info; rates.de; FAQ right; Frag-einen-Anwalt.de; FragRobin; JustAnswer; Legal base; Marktplatz-Recht.de; Skuani; tulex.de; yourXpert.
Education and Research:	Beck Akademie seminars; Bucerius Executive Education; Defendo; Econtrario; Iurlexico; Law Online; Law academy; Jurassic course; Lecturio; Legal Tech Center; Lexalyze; Repetico.
Job Markets	beck-stellenmarkt.de; Career law; Lawconex; Lawyered; LegalCareers; Legalhead; LTO jobs; Talent rocket.
Lawyers Directories	Attorney info; Lawyer search service; anwalt.de; lawyer24; Legal advice; anwaltssuche.de; Lawyers Directory; DASD German lawyer tracing service; jusmeum; Rechtsanwalt.net.
News	Legal advice; Digitization and law; ELTA; eRecht24; Legal-Tech.de; LTO - Legal Tribune Online; per tenancy law.
Document Analysis	BigHand Scrub; Consilio; epiQ; Evana; inventus; KLDiscovery; knowledgeTools; Leverton; Normal case; Recommind; Rfrnz.
Document Creation	agreement24; avalex; CONSULTIMATOR; Form flash; HDCM; Janolaw; Law lift; Rechtsanwalt.net; Smartlaw; Smartdocs; streamlaw; synergist.io; Wonder.legal.
Legal tools	Advo Assist; a-Jur; Advobot; AdvoCoder; Advolux; AnNoText; Lawyers fees online; Amber.io; Busy lamp; Cetonis; Datev; DictaNet; Effects; j-lawyer; Jurcase; jurmatix legal intelligence; Kleos; Clientele; KPMG Law; LawFirm; Lecare; legal strike; Legalvisio; LeReTo; lexemo; Client Win; Methodigy; NoRA; Philips SpeechLive; RA Win.
Legal Databases	Beck-online; buzer.de; dejure.org; Laws on the Internet; Jurion; juris; commentar.de; Lexetius; omsels.info; Openjur; Openlaws; Jurisprudence on the Internet; Judgments & laws; Administrative regulations on the Internet.
Apps	JLaw; LEX Superior; LX laws; My JEM.
Legal Outsourcing	Axiom; CLARIUS.LEGAL; Digitorney; e-Profound; edicted; Jurato; Law Apoynt; Legalflex; perconex; Terminsvertreter.com; tpr legal; Xenion.

Source: LTD (2019)

ANNEX 5. Legaltech companies in Brazil, by categories.



Source: AB2L (2021)

ANNEX 6. Legaltech companies in Africa, by categories.



baobabinsights.com/companies

Baobab Insights.

Source: BAOBAB INSIGHTS (2020)



ANNEX 7. Legaltech companies in Switzerland, by categories.

Source: SLA (2020)

ANNEX 8. Legaltech companies in China, by categories.

At a glance: China's Legal Tech landscape with examples



Source: 86INSIDER (2020)

ANNEX 9. Nordic Legaltech companies, by categories.



Source: NLTH (2020)

ANNEX 10. Asia Pacific Legaltech companies, by categories.



Source: Thomson Reuters (KIM, 2018).



ANNEX 11. Cross-Citation analyses (main authors).

Size of the bubble: % of references citing a particular author. Arrows: cross citations. Color: country of authors' affiliation (Pink: UK; Blue: USA; Green: Australia; Grey: Canada).

Source: IBA (2017).

ANNEX 12

Alterative application of the Informed Consent, how approved by the Brazilian Ethics Committee in July 2020 (CAAE: 33392920.5.0000.5404).

Approved version in the original idiom (Brazilian Portuguese):

REGISTRO DO CONSENTIMENTO EM MODELO ALTERNATIVO

Considerando a existência de modos alternativos de registro de Consentimento, é solicitada a dispensa da aplicação do TCLE em seu modelo formal com base em três argumentos: (i) advogados, Juízes e outros profissionais membros do setor jurídico tendem fortemente a não assinar o TCLE em seu formato clássico. Isto ocorre, geralmente, em razão de entenderem o instrumento como desnecessário, dada a sobreposição às garantias legais já existentes e válidas de pronto. Quando apresentado fora do contexto dos cuidados e das pesquisas na área da saúde, o TCLE em formato formal tende a ser interpretado por esses profissionais como tendo algum elemento restritivo de direitos. Por tudo isso, não o assinam e dizem que os esclarecimentos podem ser feitos verbalmente; (ii) representantes de empresas tendem a não dar entrevistas quando apresentado o documento, pois a assinatura do termo no formato formal causa insegurança; e (iii) dado o contexto de isolamento social causado pela Pandemia por Corona Vírus, as entrevistas serão realizadas via remota. A apresentação do TCLE em formato escrito interfere ainda mais na sensação de segurança dos entrevistados perante o pesquisador nesse contexto.

Portanto, propõe-se que o registro do consentimento seja realizado de modo pouco intrusivo, a fim de evitar desconforto. Basicamente, os elementos essenciais do TCLE formal serão explicitados aos participantes de modo verbal e informal, durante a própria entrevista. A manifestação do consentimento será baseada na pergunta quanto à concordância com a participação na entrevista/pesquisa, ficando a resposta gravada, em conjunto com a própria entrevista. Se o participante não autorizar a gravação da entrevista em si, ficarão gravados apenas os esclarecimentos e a manifestação de consentimento.

Apresenta-se abaixo os elementos essenciais a serem abordados na explicação verbal informal. As explicações serão espontâneas e não a leitura mecânica da descrição de cada elemento.

Elemento essencial 1. Objetivos da pesquisa.

O objetivo desse estudo é analisar se existe um sistema de inovação no setor jurídico, comparando o contexto alemão com o brasileiro. Como base na literatura científica sobre Sistemas Setoriais de Inovação e com foco nas inovações de cunho tecnológico, pretende-se (i) caracterizar o setor jurídico; (ii) descrever o significado e os tipos de inovação existentes no setor e (iii) analisar a existência e a dinâmica dos seguintes elementos estruturais de um sistema setorial de inovação: atores, relações e instituições.

Elemento essencial 2. Métodos da pesquisa.

- A fim de atingir estes objetivos, este estudo prevê a realização de entrevistas.
- Prestem-se entrevistar pessoas envolvidas no desenvolvimento, uso ou difusão de inovações tecnológicas.

• As entrevistas serão realizadas entre agosto e dezembro de 2020, durando cerca de 40 minutos cada.

Elemento essencial 3. Procedimentos

- Participando do estudo você está sendo convidado a responder algumas perguntas que auxiliarão os pesquisadores.
- Essas perguntas serão respondidas oralmente, o que será gravado em formato de áudio (MP3) e, posteriormente, transcrito.
- As entrevistas e suas respectivas transcrições serão armazenadas em arquivo eletrônico e acessíveis unicamente pela equipe de pesquisa.
- O estudo será publicado em formato digital e será disponibilizado a todos os participantes.

Elemento essencial 4. Desconfortos e riscos

- As perguntas são sobre sua prática profissional e sobre seu negócio.
- Caso sinta que as perguntas são invasivas, causando-lhe qualquer desconforto, por favor sinta-se livre para não as responder ou mesmo deixar a entrevista.

Elemento essencial 5. Benefícios

- Esse estudo não traz nenhum benefício direto a você.
- Indiretamente, entretanto, pode ajudar a entender como a inovação no setor jurídico funciona e, consequentemente, ajudar a melhorar a prestação de serviços jurídicos numa perspectiva econômica e social.

Elemento essencial 6. Sigilo e privacidade

• Nenhum dado que permita a identificação dos entrevistados será divulgado.

Elemento essencial 7. Ressarcimento

• Não há previsão de ressarcimento de eventuais despesas decorrentes da sua participação.

Elemento essencial 8. Indenização

- A pesquisa não conta com recursos reservados a indenizações.
- Todavia, os participantes têm o direito de buscar indenização se entenderem que a participação na pesquisa resultou em dano ou prejuízo.

Elemento essencial 9. Consentimento

- Você concorda em participar dessa pesquisa?
- Podemos gravar a entreva em si junto com esses esclarecimentos?

Elemento essencial 10. Dúvidas, acompanhamento e assistência

- Você tem alguma dúvida?
- Os pesquisadores estão à disposição para qualquer contato futuro sobre a pesquisa, por e-mail ou telefone.

ANNEX 13

Alterative application of the Informed Consent, how approved by the Brazilian Ethics Committee in July 2020 (CAAE: 33392920.5.0000.5404).

Approved version translated to English:

ALTERNATIVE MODEL OF INFORMED CONSENT STATEMENT

Considering the existence of ICF alternative models for registration of consent, we require the exemption of the formal version based on three arguments: (i) lawyers, judges and other legal professionals strongly tend not to sign the ICF in its classic format. This usually happens because they consider the instrument unnecessary, especially due the exiting legal framework. So, when the formal ICF is presented outside the context of health care, it tends to be interpreted by these professionals as having some element of rights restriction. So, they do not sign it and ask for verbal information; (ii) Companies tend not to give interviews when the document is presented, the formal model causes insecurity; and (iii) given the context of social isolation caused by the Pandemic by Corona Virus, the interviews will be conducted at a distance. However, the presentation of the ICT in a written model interferes even more in the sense of security of the interviewees.

Therefore, we propose that the registration of the consent occurs in a less intrusive way, in order to avoid discomfort. Basically, the essential elements of the formal ICT will be explicated to the participants in a verbal and informal way, during the interviews. The manifestation of consent will be based on the question about the agreement with the participation in the interview/research, being the answer recorded, together with the interview itself. If the participant doesn't authorize the recording of the interview, we will only record the orientations and the participant consent.

The essential elements to be addressed in the informal and verbal explanation are presented below. The explanations will be spontaneous and not the mechanical reading of each element description.

Essential element 1. Research objectives.

- The objective of this study is to analyze if there is an innovation system in the legal sector, comparing the German context with the Brazilian one. Based on the scientific literature on Innovation Sector Systems and focusing on technological innovations, it intends (i) to characterize the legal sector; (ii) to describe the meaning and types of innovation existing in the sector and (iii) to analyse the existence and dynamics of the following structural elements of an innovation sector system: actors, relationships and institutions.

Essential element 2. research methods.

- In order to achieve these objectives, this study involve interviews.

- We are interested in talking to people involved in the development, use or diffusion of technological innovations in the legal sector.

- In Brazil, interviews will be held between August and December 2020, lasting about 40 minutes each.

Essential element 3. Procedures

- By participating in the study, you are being invited to answer some questions that will help the researchers.

- These questions will be answered verbally, which will be recorded in audio format (MP3) and transcribed.

- The interviews and their respective transcriptions will be stored in an electronic file accessible only to the research team.

- The study will be published in digital format and will be available to all participants.

Essential element 4. discomfort and risks

- The questions are about your professional practice and your business.

- If you feel that questions are invasive, causing you discomfort, please feel free to not answer them or to leave the interview.

Essential element 5. Benefits

- This study does not bring any direct benefit to you.

- Indirectly, however, it can help to understand how innovation in the legal sector works and, consequently, help to improve the provision of legal services from an economic and social perspective.

Essential element 6. Confidentiality and privacy

- We will not publish data capable of identifying the interviewees.

Essential element 7. Compensation

- There is no provision for reimbursement of any expenses arising from your participation.

Essential element 8. Indemnity

- The research has no resources reserved for indemnification.

- However, participants have the right to seek compensation if they understand that the participation in this research caused damage.

Essential element 9. Consent

- Do you agree to participate in this interview?

- Can we record the interview content?

Essential element 10. Questions, follow-up, and assistance

- Do you have any questions?

- If you have any further questions, please do not hesitate to get in touch. We are available by e-mail or phone.

ANNEX 14: Structure of the German Court System



Source: German Federal Ministry of Justice and Consumer Protection. Available in: https://www.bmjv.de/SharedDocs/Archiv/Downloads/Schaubild Gerichtsaufbau Deutsch.html

ANNEX 15a: Simplified structure of the Brazilian Court System.



→ Simplified appeal flows.

Source: elaborated by the authors, basead on the Brazilian Federal Constitution (CF/88)

ANNEX 15b: Simplified structure of the Brazilian Court System (pt)



Fluxo simplicado de recursos.

Source: elaborated by the authors, basead on the Brazilian Federal Constitution (CF/88).