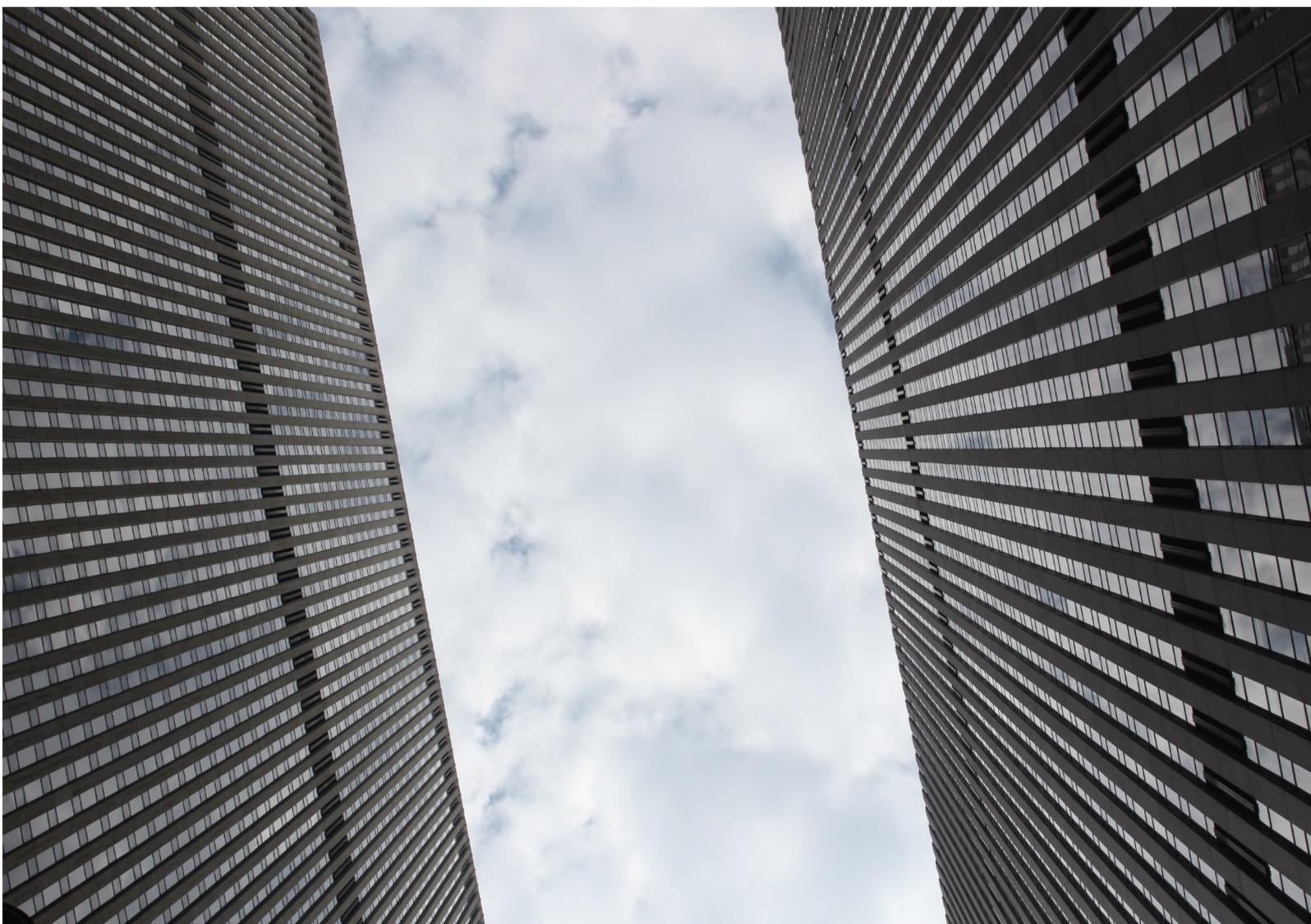# BUSINESS MODELS IN LEGAL TECH COMPANIES

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Preface

This present work corresponds to, with slight adaptations, the dissertation under the original title "How business models and technologies are being integrated in Legal Tech companies?" from the Master's in Innovation and Technological Entrepreneurship from University of Porto, defended in the Faculty of Engineering at July 23, 2019, under the examination of the following jury members: Dr. Adélio Miguel Magalhães Mendes (jury president), Dr. Jorge Morais Carvalho (arguer), and Dr. Maria Raquel Guimarães (advisor).

Legal Tech is still in its infancy as a technology and as a business. Up to now, little is known about those businesses, what they actually do and who are they actually serving. Most of the material about legal technology in the literature focus on the aspects of technological advances, technological applications and challenges to the practice of law. However, researchers haven't given much attention to the business elements related to this innovation and how those technologies are been commercialized.

This work focus on mapping the Legal Tech companies spread around the world while providing a synthesis of their technologies, products, services and business models. Data collected from websites of those companies was used to explain how those elements interact. Moreover, a taxonomy was created in order to group similar solutions and allow easier visualization and comprehension of Legal Tech businesses.

The results of this work show effective references about the most common business models in this new industry, its connection to new technologies, and also provide new evidences about the number of companies operating in this market. Entrepreneurs, innovation managers, business researchers, lawyers, Legal Tech owners and investors might find the contents of this material very useful to undertand and explore Legal Tech.

Keywords: Legal tech, business models, taxonomy, artificial intelligence, blockchain, digital transformation, law firms

O presente trabalho corresponde, com ligeiras adaptações, à dissertação de título original "How business models and technologies are being integrated in Legal Tech companies?" do Mestrado em Inovação e Empreendedorismo Tecnológico da Universidade do Porto, defendida na Faculdade de Engenharia em 23 de julho de 2019, sob a avaliação dos

seguintes membros do júri: Dr. Adélio Miguel Magalhães Mendes (presidente do júri), Dr. Jorge Morais Carvalho (arguente) e Dra. Maria Raquel Guimarães (orientadora).

Legal Tech ainda está em sua infância como uma tecnologia e como um negócio. Até agora, pouco se sabe sobre estas empresas, o que elas realmente sentem e quem estão realmente servindo. A maior parte do material na literatura foca nos aspectos dos avanços tecnológicos, as aplicações tecnológicas e os desafios para a prática do direito. No entanto, os pesquisadores não têm dado muita importância aos elementos de negócio relacionados com essa inovação e como essas tecnologias têm sido comercializadas.

Este trabalho se concentra no mapeamento das empresas de Legal Tech pelo mundo e fornece uma síntese de suas tecnologias, produtos, serviços e modelos de negócios. Os dados foram coletados dos sites dessas empresas e foram utilizados para o explicar como esses elementos interagem. Além disso, foi criada uma taxonomia para agrupar as soluções e permitir uma visualização e compreensão dos negócios de Legal Tech.

Os resultados obtidos neste trabalho mostram referências efetivas sobre os modelos de negócios mais comuns nessa nova indústria, a conexão com novas tecnologias e também introduz uma nova estimativa de número de empresas que operam neste mercado. Empreendedores, gerentes de inovação, pesquisadores de negócios, advogados, proprietários de empresas de Legal Tech e investidores podem achar o conteúdo deste material muito útil para entender e explorar o universo das empresas de Legal Tech.

Palavras-chave: Legal tech, modelos de negócio, taxonomia, inteligência artificial, blockchain, transformação digital, escritórios de advocacia

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Abbreviations

AI	Artificial Intelligence
ML	Machine Learning
NLP	Natural Language Processing
SaaS	Software as a Service

Chapter 1

Introduction

Law has traditionally been a conservative profession and business (Cohen, 2018). Although laws changed over time, the way people practice and deliver law has not changed that much. In fact, most law firms around the globe tend to replicate the same work processes and the same business model (Simmons, 2015) which rely on expensive (and dubious) hourly billings and large commissions on dispute resolutions. However, a rising number of companies around the world have been challenging the traditional legal market and started to tackle legal activities with a different approach, introducing new technologies and digital processes to drive costs down, reduce time of deliverables, improve access to justice and much more (Miranda, 2019). These new ventures are called "Legal Tech companies".

Up to now, little is known about those businesses, what they actually do and who are they actually serving. Most of the material about legal technology in the literature focus on the aspects of technological advances, technological applications and challenges to the practice of law. However, researchers haven't given much attention to the business elements related to this innovation and how those technologies are been commercialized. This is an important issue to discuss because even the development of cutting-edge technologies does not guarantee the success of a business.

With that in mind, this work aims to shed a light on how business models and technologies have been integrated in this promising market. This research starts by exploring some of the most relevant and fresh literature about legal technology and later it extends the body of knowledge with data collected from several Legal Tech companies. The analyses of several business models in each legal category will allow the readers to easily spot and understand the most common patterns.

As a result, Entrepreneurs, innovation managers, business researchers, lawyers, Legal Tech owners and investors will find this material very useful as it can either be used as a scientific reference, as a market research report or as a Legal Services guideline. To accommodate all

stakeholders, readers are not assumed to have previous knowledge about business models, technologies nor specific legal activities. Definitions and examples will be provided in this material and hopefully will suffice to bring all sorts of readers to a minimum level of comprehension.

1.1. Motivation

As a statistician, who have always worked with data mining and machine learning applications for different areas, one specific industry has driven my attention due to its historical distance from the data-driven world: the legal industry. Overflowing with data from text documents, very few lawyers or law offices around the world seek help of modern technologies to deal with this problem. Moreover, as an entrepreneur, I have also suffered to get legal advice and legal services for my businesses, specially because most lawyers could not provide me with a final price for a job beforehand and execution deadlines were often too loose. The whole process of getting a simple quote for a service was tiresome and discouraging and most of the time I would just get by without specialized help, hoping for the best. In this context, Legal Tech companies seem to be filling the gap in both ways, either by connecting modern technologies to a very traditional market and by solving several issues related to the provision of legal services. Therefore, Legal Tech showed itself to be a very attractive field for studies under the optics of Innovation and Technological Entrepreneurship.

1.2. Objective

This research is built on top of some important issues and challenges about the digital transformation of law firms (Hartung, Bues, & Halbleib, 2018). When this transformation occurs, law firms' businesses evolve to "Legal Tech businesses", once technology starts to play a much bigger role in these firms' operations and value propositions. In this sense, authors believe that:

a) "automatization erodes current business models and revenue streams"
b) "a digital transformation means changing the current business model or adding additional layers to an existing model"
c) "To develop a successful digital strategy, it is most likely not enough just to automate the current core business. The challenge is to expand the current business model."

Taking that into consideration and knowing that literature doesn't provide much information about the legal tech businesses models, this research aspires to provide a satisfactory explanation to **"How business models and technologies are being integrated in**

Legal Tech companies". To achieve this result, this research was guided to answer the following auxiliary questions:

I. Who are the legal tech companies spread around the world?
II. What core technologies drive the businesses of these companies?
III. What are the core products and services of these companies?
IV. Whom do these companies serve?
V. How do they charge for their services?
VI. What business models patterns (Gassmann, Frankenberger, & Csik, 2013) are being used by those companies?

As a direct result, this work will:

i. Create short and effective references about the most common business models used by legal tech companies
ii. Stimulate existing companies and new entrants to explore other business models variations

1.3   Methodology

This work gathered data from legal tech websites and conducted an exploratory data analysis in order to build business models for each group of business solutions. First, each company was assessed in terms of adherence to the definition of legal tech. Later, information about their legal taxonomy, their technologies, customer segments, revenue streams, core value propositions and business model pattern were collected and analyzed. The whole process was also framed under a Design Science approach.

1.4.   Structure of the report

This Ebook is structured in seven parts.

Chapter 1 presents a brief introduction to the topic of this research along with some personal motivations, research goals, methodology and relevance of this contribution.

Chapter 2 gives an overview of the basic concepts necessary to fully understand this Ebook such as business models, artificial intelligence, blockchain and legal work taxonomy. Examples were also provided. While I believe most readers will be familiar with at least some of these definitions, my guess is that only a few individuals will be comfortable with all of those concepts simultaneously, considering this is a is very unusual combination of interests. Hence, I recommend most people to, at least, check if they are aware of all the concepts listed in this chapter before considering skipping it.

Chapter 3 explains how the literature review was conducted and presents the results of the investigation of publications in papers and books regarding Legal technology, innovation in the business models of Law firms and the future of law.

Chapter 4 details the methodology, design science, criteria, provides justifications for the choice of the sample and discuss the limitations of this study.

Chapter 5 describes general characteristics of the collected sample such as the number of companies analyzed, geographic dispersion, proper fit to the research criteria, groups identified, and a list of observable technologies used by the companies. This chapter also provides evidences that questions findings from the literature.

Chapter 6 provides the most relevant results of this Ebook by analyzing and summarizing the business models of Legal Tech companies according to their areas of legal work.

Finally, **Chapter 7** presents some conclusions and discussions.

Chapter 2

Background Concepts

The following concepts are critical to understand this Ebook. In order to accommodate all stakeholders, some brief descriptions, definitions and examples were provided. To sum up, topics were grouped according to three areas: business, technology and law.

2.1. Business-related

1.1.1. Business Model

In a few words, a Business Model is a representation of how a firm does business. However, this definition is too loose and doesn't provide guidance to a satisfying answer. One may say that its company does business by "selling TVs at the lowest prices", while another may answer his/her company does business by "mixing fresh organic ingredients to make the best ice cream of the planet". While both answers may be true to both companies, they explain the businesses under completely different points of view. The first explains it in terms of the prices, whereas the second explains it in terms of the uniqueness of their product. In neither case they provide any information about who their customers are or where their product is sold, for instance. It's impossible to figure out if they are an online business, a retail store or maybe even an international franchise.

In order to improve the quality of these descriptions and make businesses comparable, several authors developed alternative definitions. However, authors haven't reached an agreement as to which building blocks exactly make up a business model (Gassmann et al., 2013). While this is not a problem *per se*, it is important to choose one framework to which different companies can be analyzed and compared.

For this dissertation, legal tech companies will be analyzed and compared to the 55 business model's patterns (Gassmann et al., 2013). Their approach is straightforward and summarizes businesses using only four building blocks, as depicted hereafter.
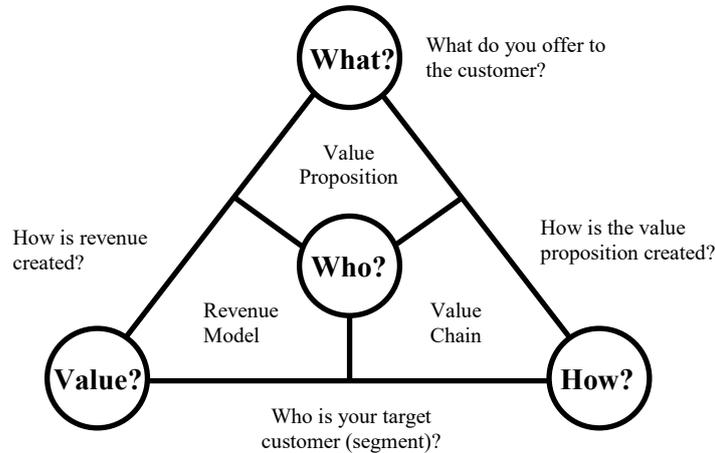
Figure 1 – Business model definition – the magic triangle, adapted from Gassmann et al. (2013)

2.2 Technology-related

1.2.1. Artificial Intelligence

"Intelligence can be defined as wisdom and ability; what is called artificial intelligence (AI) is a variety of human intelligent behaviors, such as perception, memory, emotion, judgment, reasoning, proof, recognition, understanding, communication, design, thinking, learning, forgetting, creating, and so on, which can be realized artificially by machine, system, or network" (Li & Du, 2017, p. 1).

The term AI was coined in the 1950's to represent all computer efforts to mimic human and animal intelligence. However, AI is not a technology *per se*, but rather a field of study with multiple waves of technology that represent ways of achieving its goal. Nowadays, the umbrella term covers a wide range of methods, algorithms and technologies such as Machine Learning (ML), Machine Vision (Computer Vision), Natural Language Processing (NLP), robotics and other related topics. Compared to other industries, legal AI applications are still in earlier stages of research, development, implementation and training (Hartung et al, 2018, pp. 265-267).

The AI as depicted in Hollywood movies usually has little to do with the current stage of development in the industry. To this point, real machines aren't able to think by themselves nor develop any kind of actual learning. Although some fascinating cases may trick the human mind

to believe machines are "intelligent", they can only respond to tasks that were previously programmed by humans.

1.2.2. Machine Learning

Lantz (2013, p. preface) defines Machine Learning as an area of study that is "concerned with algorithms that transform information into actionable intelligence". Morever, Richert and Coelho (2013, p. 8) explain that the goal of ML is "to teach machines (software) to carry out tasks by providing them with a couple of examples (how to do or not do a task)". Basically, Machine Learning is a technology that learns from data (Hastie, Tibshirani, & Friedman, 2009).

However, learning from data is not the same as storing and consulting data. In machine learning, algorithms create an abstraction from the data in order to form some kind of generalization, or "understanding". Although a true comprehension does not occur, machines behave like they have learned from the examples and can even provide answers for new cases that were never registered in the database. Take a look at the following illustration and example.
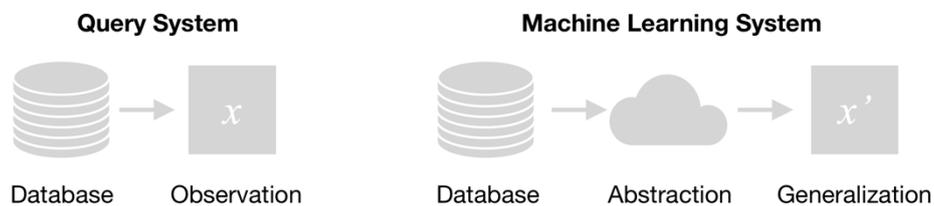
Figure 2 – Query System and Machine Learning schematics

Table 1 – Real Estate Database for ABC City

Property	Rent ($)	Size	Bedrooms
House A	1000	90m^2	3 bedrooms
House B	1200	95m^2	3 bedrooms
House C	750	60m^2	2 bedrooms
House D	900	70m^2	2 bedrooms

Question 1: How much rent should I pay in a house with 60m^2 and 2 bedrooms?

- **Query System:** $750.
- **Machine Learning System:** $725.

Question 2: How much rent should I pay in a house with 80m^2 and 2 bedrooms?

- **Query System:** I don't know. No houses like that were found in the database.
- **Machine Learning System:** $1125.

Figure 3 – Query System vs. Machine Learning

In both questions, the Query System provided an answer based on its memory, whereas the Machine Learning System provided an answer based on its abstraction and generalization of the data. Although the price matches the database record in the first case, it is not a guarantee that another house would have an equal rent under the same conditions, since prices are negotiated case by case in the market. Thus, one should not think about the Query's System answer as "the right answer". In fact, the Machine Learning algorithm provided a better-informed guess, since it used more information from the market's behavior by taking the other cases into consideration.

Moreover, Machine Learning is not limited to price predictions. This technology can be used to predict numeric variables, such as prices, age, size, revenues, quantities or time, for example, and it can also be used to classify cases into categories such as positive or negative, true or false, spam or not spam, degrees of quality (cheap, average, premium), tag photos according to their features (sunset, river, mountain, dog, building, …) and much more. Machines can also learn to identify relevant and useful patterns to make recommendations, like what videos to watch next on YouTube or what other songs you might enjoy discovering on Deezer or Spotify. Applications for ML are endless.

The last essential concept that readers must understand about Machine Learning is that machines can only perform tasks in a satisfactory manner inside the boundaries of the data they were trained with. In the given example, the machine is able to make good guesses about that specific market because it was trained to do that. However, this machine would perform poorly when trying to estimate real estate prices for another city, since it would have no previous information about that market's dynamics.

1.2.3. Natural Language Processing

Natural Language Processing (NLP) is a branch of Text Mining, which is the process of treating large volumes of written resources (emails, books, contracts, webpages, etc) as pieces of data and analyzing them using specialized algorithms in order to extract relevant information (Srivastava & Sahami, 2009). In NLP, the ultimate goal is not only to analyse data, but also to make sense of the human language. By exploring the syntax (grammatical aspects) and semantics (interpretation of words), NLP is able to establish a communication between human language and computer language.

Since text is treated like data, machine learning techniques can also be applied on top of NLP. In fact, most commercial products created with NLP also use ML. Some notable commercial applications of this technology include language translators such as Google Translate and Microsoft Bing Translator, personal assistants like Siri (Apple) and Alexa (Amazon), social media sentiment analysis such as HootSuite Insights and RapidMiner and writing assistants such as Grammarly and Ludwig. Recently, the introduction of chatbots in

several websites (automated assistance with a chat interface that simulates a person interacting with you) also increased the popularity of this technology. Finally, in more domain specific applications, NLP is also able to produce automatic summarization of literature, identify facts and parts involved in legal cases, identify diagnostics from electronic health records and detect semantically equivalent questions in online forums (two or more questions that have the same meaning).
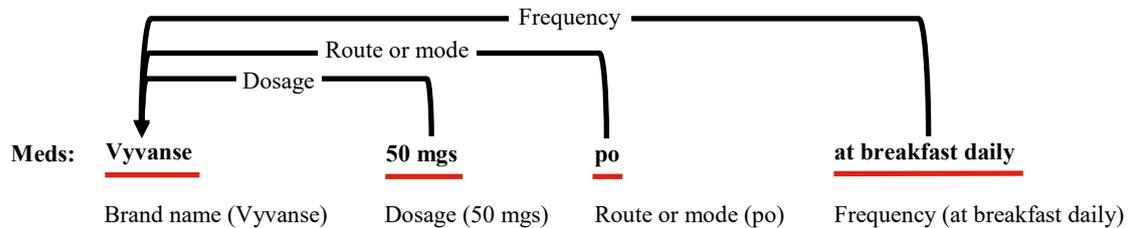
Figure 4 - NLP for Healthcare Customers, adapted from Simon (2018)

1.2.4. Blockchain

Blockchain is an information technology that secures ownership and veracity of data over a decentralized, transparent and neutral network (Swan, 2015). This technology is capable of assuring who created the data and when it was created as well as tracking all events involving that block of information. As the name suggests, blockchain is structured as a chain of blocks of information.

In this new paradigm of information flow, malicious modifications of data become almost impossible once the integrity of the information is verified across several neutral agents in a network. This results in trust between users of a blockchain and provides ground for developing new businesses. Essentially, once the system is reliable it eliminates the need of a third-party to "seal the deal" between two agents and to assess the truthfulness of an information, thus creating new opportunities to change the business models of several industries.

Blockchain's most widespread applications are probably the cryptocurrencies, lead by Bitcoin and Ethereum (All Cryptocurrencies, n.d.). Nevertheless, this new technology is also enabling innovation in other segments. In the car-leasing business, blockchain has been used to transform cars into a smart asset. Once connected online, cars can auto-manage services such as auto insurance, lease payments, tolls or even parking (Blockchain and Smart Contracts: A Pilot in the Car-Leasing Business, 2016). Moreover, blockchain has been also used to register patents and to establish copyright and trademark protection online (Does Blockchain Matter Yet In Intellectual Property For Business?, 2019). Other uses of the technology include supply chain

management, voting or even real estate transactions (Top 10 Blockchain Technology Applications Explained In-Depth, n.d.).

2.3 Law-related

1.3.1. Legal Industry

The Legal Industry comprises independent lawyers, paralegals, judges, traditional law firms, legal departments, alternative legal service providers, legal process outsourcing companies, legal tech companies and professional services networks (Beemen, Pfeil, & Tanja, 2108). In a less rigorous definition, law schools and law students may also be considered part of the industry.

1.3.2. Practice of Law vs. Legal Services

In order to fully understand this work, it is paramount to understand the distiction between practice of law and provision of legal services.

Although there is no consensual definition about what practice of law really is, since it varies across different countries, a general interpretation is that it involves the provision of legal advice and representation of clients in legal negotiations, courts or lawsuits (Practice of law, n.d.). Moreover, the American Bar Association defines it as "the application of legal principles and judgment with regard to the circumstances or objectives of a person that require the knowledge and skill of a person trained in the law." (Definition Of The Practice Of Law, 2002).

Legal services also lack a clear definition and are usually explained in a superficial way. Cambridge's dictionary defines it as "work done by a lawyer for a client" (Legal services, n.d.). However, there are several "legal services" that are not necessarily done by lawyers. For instance, companies' incorporations, patent filing or rental agreements, to name a few. This happens because many tasks demand low levels of specific knowledge in law and can be easily done by other professionals or citizens by themselves.

As one can see, the practice of law is not exactly the same as the provision of legal services, and non-lawyers can also operate in those niches.

1.3.3. Legal Tech

Legal Technology ("Legal Tech") is a term that lacks a unique and accurate definition in the literature. In the broadest sense, "it is simply about the application of software technology in the legal profession" (Hartung et al., 2018, p. 5). However, by this definition, building a file sharing system for lawyers or using artificial intelligence to review contracts would end up in the same category, whereas there is clearly a huge difference in the essence of them. The first is basically a generic system that has nothing to do with legal services or the legal profession *per se*, but is marketed to a very specific niche of users. In contrast, the second deals directly with a common legal activity and can be used to help lawyers in their work or even grow in complexity to replace them in this task.

Legal Tech may also be defined in a narrower sense, using the results from a study by Bucerius CLP and The Boston Consulting Group (Veith, et al., 2016). According to them, "Legal Tech is software that directly affects the provision of legal services, such as automated document or typesetting creation, workflow automation, document review, self-service tools and so-called 'intelligent databases'". This definition is also closer to the startup scene, which uses the term not only to define the technology, but also to refer to companies that use this technology to promote innovation in the legal market.

For the purpose of this research, both definitions will be considered, yet more attention will be driven to the later.

Chapter 3

Literature Review

As mentioned earlier, "Legal Tech" is a relatively new phenomenon. These companies not only connected modern technologies to the legal industry, but they also created a whole new industry. This opens up several questions regarding the current state of the development of these technologies, what is this industry, the challenges presented by this innovation and the future of law. To gather diverse and relevant knowledge about this relatively new field of study and allow this work to be replicated by other researchers, this literature search and review of articles was conducted in a systematic way (Webster & Watson, 2002) and complemented with book recommendations from my advisor.

This literature review is divided into four sections. In Section 3.1, the reader is introduced to the systematic work developed. Section 3.2 details important book references and explains why there were added to this review. In Section 3.3, key findings from books and articles are presented and synthesized. This will help readers go fast through what is already known in this topic. To conclude, Section 3.4 identifies a research gap that will provide the basis for the new research conducted in the following chapters.

4.1   Systematic Literature Review

This study began by selecting an arbitrary article due to its journal relevance, title and release date. The study "How artificial intelligence will affect the practice of law" (Alarie, Niblett, & Yoon, 2018) was chosen. This article was used as a reference to provide a glance of the current development on the topic. From the main ideas extracted from this publication, a list of keywords and keyword combinations was generated.

> *artificial intelligence, big data, business model, data-driven, disruptive, entrepreneurship, future of law, innovation, law as a service, law firms, law tech, lawyers, legal, legal industry, legal market, legal profession, legal services, legal tech, legal technology, machine learning, technologies for law, technologies.*

Then, on November 22, 2018, each combination of keywords was transformed into a query and inserted at a time in the Scopus website search engine. All queries were targeted to inspect the title, abstract and keywords following the syntax "TITLE-ABS-KEY (keywords combinations)". Only articles published during the last 10 years were considered.

For each query results, a visual inspection was performed and only publications that were related to the research topic were selected. This visual inspection required looking into titles, abstracts and the keywords from the authors. To perform this task in a reasonable time, queries that resulted in more than 200 publications where discarded due to poor precision and then refined to narrow down the results.

Table 2 – Query Results

Query ID	Query Terms	Total	Selected
1	artificial intelligence AND legal services	11	9
2	business model AND law firms	11	9
3	business model AND lawyers	22	10
4	business model AND legal	464	-
5	data-driven AND entrepreneurship	18	0
6	data-driven AND legal	125	13
7	data-driven technologies	66	0
8	future of law	36	11
9	law AND big data	865	-
10	law as a service	4	1
11	law firm AND innovation	38	20
12	law tech	1	0
13	legal AND disruptive	270	-
14	legal industry	41	12
15	legal market	145	19
16	legal profession AND disruptive	3	3
17	legal services AND disruptive	4	2
18	legal services AND innovation	29	12
19	legal tech	5	3
20	legal technology	49	13
21	machine learning AND law	793	-
22	machine learning AND law firms	3	2
23	technologies for law	5	1
Total		**3.008**	**140**

Since the same articles could appear in different queries due to the fuzzy nature of the search engine, an additional step of eliminating duplications was applied. The uniqueness of each paper was controlled by using Scopus EID, which is a unique academic work identifier assigned in Scopus bibliographic database. This yielded in a final selection of 108 articles.

Table 3 – Results filtering

Selected	Duplicated	Final selection
140	32	108

4.2 Other relevant sources

Although the systematic search identified plenty articles, one might get biased to its own experience when choosing keywords. To reduce this bias, other materials were included with the help of an expert in law.

The first additional source is the book Legal Tech (Hartung et al., 2018). The book has just been published and uses contributions of specialists from United States, Canada, Israel, China, India, Japan, Australia, Brazil, and several other countries in Europe and Africa. This up-to-date collection illustrates the current state as well as future developments of the digital transformation on the legal market, with a special emphasis in artificial intelligence.

Another additional source is the special report by Beemen, Pfeil and Tanja (2108) on legal tech and digital transformation. This publication will help complement the research with information in a more business-oriented perspective.

4.3 Synthesis

4.3.1. Articles Synthesis

From the 108 documents selected in the systematic search, only 16 were read. According to Webster and Watson (2002), "a systematic search should ensure that you accumulate a relatively complete census of relevant literature. You can gauge that your review is nearing completion when you are not finding new concepts in your article set". Frame 1 summarizes the main concepts found.

Frame 1 – Articles' key concepts

Alarie et al. (2018)	
Keywords	Law; Law Firms; Legal Profession; Machine Learning; Technology
Main ideas	• Flaws in the traditional business model for law offices.
	• Digital transformation of law.
	• Artificial intelligence gives power to small firms to compete with larger firms and also lead to the creating of more specialized legal services.
	• True benefits of artificial intelligence will occur when lawyers completely rethink provision of legal services.
Alschner, Pauwelyn and Puig (2017)	
Keywords	Not available
Main ideas	• Data should have a central place in empirical legal research.
	• There is no scarcity of information, but people only work with subsamples instead of the whole information available.
	• Legal scholars lack technical knowledge to fully exploit legal data.
Barton (2014)	
Keywords	Law; Legal market; Legal profession
Main ideas	• The future is law available at lower prices.
	• Less people will go to law schools.
	• There is a market disruption in progress.
Cox (2009)	
Keywords	Not available
Main ideas	• Vulnerabilities of the conventional law firm business model.
	• High dependence on bank financing for working capital.
Evans and Price (2017)	
Keywords	Not available
Main ideas	• Interviews with partners and practice managers in law firms to investigate the changes in the legal industry.
	• Unprecedented change resulting in numerous challenges for law firms.
	• Question the traditional law firm business model.
	• Enumerates and describe challenges in terms of value proposition, effective business structure, technology, culture and behavior of individuals.
	• Clients are more informed and demanding.

(cont.)

Hadfield (2014)	
Keywords	Access to justice; Corporate; Legal markets; Legal profession; Practice of law
Main ideas	• Law has high costs and is inaccessible to a large part of the population because of the self-regulation of the legal market. • Information costs are high for small firms and sole practitioners. • Law firms are inefficient because only lawyers can have ownership and become partners, which makes it hard to implement good business practices.

Hadfield and Rhode (2015)	
Keywords	Not available
Main ideas	• Criticizes the regulation of legal services. • Shows U.K. changes in regulations as beneficial example with the creation of Alternative Business Structures (ABS) that allow non-lawyers to provide some particular activities. • Lower cost of justice and increase population access. • Proposals for more flexibility in regulation of legal services.

Hildebrandt (2018)	
Keywords	Cybernetics; Information Theory; Legal Intelligence; Legal Protection by Design; Legal Services; Legal Theory; Meaning; Political Economy; Rule of Law; Speaking Law to Power
Main ideas	• Disruption of legal profession based on commodification of legal services. • Algorithms can outperform legal experts. • Shift from law as information to law as computation (shift from reason to statistics). • Opacity of machine learning may render decisions that are incontestable. • Legal practitioners should learn to 'read' statistics. • Lawyers should engage with artificial legal intelligence to make sure it aligns with law and the Rule of Law in a testable and contestable way.

Hildebrandt (2016)	
Keywords	Not available
Main ideas	• Invite lawyers to reconsider the grammar and alphabet of modern positive law and of the Rule of Law in face of the alternative grammar and alphabet of a data-driven society. • Lawyers should collaborate with computer scientists. • Contestation is a problem.

(cont.)

Kerikmäe, Hoffmann and Chochia (2018)	
Keywords	Automatization of legal professions; Innovation; Law firms; Legal technology
Main ideas	• Categorization of legal technology. • Categorization of society needs regarding law. • Implementation issues of legal artificial intelligence. • Technology as a transition to a new form of work.
Lettieri et al. (2018)	
Keywords	Analytical platforms; Computational legal science; Computational science; Crime analysis; Legal informatics; Machine learning; Network-based inference
Main ideas	• Technology in the legal world is delayed in relation to other industries. • The vast majority of lawyers still rely solely on their own experience. • Data-driven approaches to legal research are isolated experiences. • Legal research should have a multidisciplinary approach. • The law business model is inefficient. • Analytical platforms represent an important part of the future of the law and legal science.
Li (2018)	
Keywords	Not available
Main ideas	• Legal profession in China is highly regulated and fragmented with several levels of qualification exams. • Describes the business models of four leading Chinese corporate law firms. • Technological and business innovation led to multidisciplinary services. • Non-lawyers drive the new generation of internet-based legal service which provide an effective alternative to improve access to justice. • China must start reconsidering its restrictive position on the regulation of law firm legal form and ownership structure to reduce costs and increase access to justice.

(cont.)

Ribstein (2010)	
Keywords	Not available
Main ideas	• Economic crisis and higher international competition forced big law firms to downsize. • Law firms have a precarious business model that relies heavily on the hourly billing. • Legal outsourcing will increase with the deprofessionalization of law practice. • Reputation is not the main driver for customers anymore and law firms should try to differentiate themselves with a clear value proposition. • Other less explored business models: franchising, holdings, joint ventures, multidisciplinary firms. • Road to a new business model.
Stern (2018)	
Keywords	Artificial Intelligence; Legal Theory; Machine Learning; Natural Language Processing; Rule of Law
Main ideas	• Machine learning algorithms are black boxes. • Lawyers should learn to 'speak' statistics. • Replacement of persuasion (based on explanation) with prediction (inputs and outputs). • Not all areas of law are affected the same way by AI. • With time, machine learning and related technologies will improve their transparency.
Strevens, Welch and Welch (2011)	
Keywords	Not available
Main ideas	• Discuss the changes in the legal market. • Technology should be considered as part of the law school program. • Increased opportunities for law graduates who do not take legal practice or bar vocational courses but who obtain employment as paralegals, either in law firms or Alternative Business Structures (ABS).
Wasim, Ibrahim, Bouvry and Limba (2017)	
Keywords	Blockchain; Breach of contract; Contract law; Court injunction; Factor analysis; Smart contract; Stochastic modeling; Structural equation modeling; Unsupervised machine learning
Main ideas	• Suggests the potential for a service that applies probability models in a blockchain to identify breaches in contracts that can cause substantial damage and have high probability of recurrence.

Although each article focusses on a specific topic, at a higher level almost all authors explored the thematic of legal services, legal profession, legal technology or even legal industry. Only one of the articles reviewed lacked more depth on the matter. Wasim et al. (2017) had a more technological approach and focused mainly in the mathematical and computational aspects.

Aside from that paper, authors agree in several aspects regarding the regulation of law markets, the business models of law firms, the benefits and challenges of legal artificial intelligence and how the digital transformation is affecting the lawyers of now and the future.

Flexibility in regulation

The authors believe that the regulation of the legal market need to be more flexible. In the UK, regulations have recently changed and showed to be beneficial for the population. With the entrance of new and specialized players as Alternative Business Structures (ABS), costs of several services dropped increasing the access to justice. These kind of alternative legal service providers also appear in different countries and are commonly structured as multidisciplinary firms.

Flaws in the business models of law firms

All authors that addressed the business models of law firms agreed they have problematic models. As Lettieri et. al (2018) revealed, law may be "inefficient by design", considering that the hourly-billing model rewards who takes longer to produce and deliver. However, in terms of the business model of law firms, authors also agree there is an unprecedented change happening in the industry and conventional law firms will have to adapt to clients that are getting more informed and demanding everyday.

The biggest flaw pointed out in this traditional business model is the lack of transparency in the process and billing. Also, law firms seem to have trouble defining a unique value proposition to differentiate their offer from competitors. Lawyers, which are the main resources of those firms, are also expensive to keep and difficult to scale.

Finally, authors agree that the introduction of legal technology will be inevitable and will force law firms to rethink the provision of legal services.

Artificial intelligence and the future of law

Artificial intelligence, mainly represented by machine learning and natural language processing, has become very powerful and is able to outperform lawyers at specific tasks. The technology, which is scalable, can give power to small law firms and sole practitioners, and at the same time, can also power Legal Tech companies and alternative legal service providers to create solutions to several legal issues. The main complaint with the application of AI to solve legal conflicts is that the solution is opaque and difficult to understand. Since the algorithm uses

complex statistical or mathematical models to shape data instead of reasoning, it is almost impossible to contest.

Having technology as a means of disruption in this market made authors believe that lawyers and law schools should start learning how to interact with them, since the future of law is data-driven. A recommendation is that law practitioners and law schools should start learning the grammar and alphabet of statistics in order to be part of this next generation of a data-driven society.

4.3.2. Book Synthesis

In Hartung et al. (2018), similar ideas and conclusions were also found and thus will not be repeated in here. The book, however, gives more attention to the Legal Tech as a business and an industry. The following information will help the readers to have a better idea of the current knowledge on the subject.

Legal Tech companies' taxonomy and overview

Legal Tech still lives in its infancy. Thus, a lot of confusion can be noticed from the book when trying to divide companies into categories. In one single page, Hartung et al. (2018, p. 7) managed to provide three different categorizations for Legal Tech companies:

- The first, divide companies according to the lawyers' perspective — companies that support lawyers to perform their work, companies that connect lawyers to clients, and companies who substitute lawyers' services with software.
- The second criterion comes from Stanford CodeX Center for Legal Informatics. According to Hartung, in June 2018 the Stanford's CodeX Techindex divided 864 Legal Tech companies into 10 categories and 24 subcategories. However, in my investigation on May 2019, only 9 categories were found in the registration form (Marketplace, Document Automation, Practice Management, Legal Research, Legal Education, Online Dispute Resolution, E-Discovery, Analytics and Compliance) and no references were made to subcategories.
- Finally, the author summarizes Legal Tech products and services into four other categories (Automated legal advice products, Electronic marketplaces, Legal process outsourcing, and E-Discovery and document review).

Although definitions and perspectives vary, they illustrate how this categorization can be complex and full of overlaps.

Business Models

Throughout the book, several sessions elucidate the importance of business models, specially when linked to the digital transformation process.

Whereas some companies believe digital transformation is about adding new software and databases to their daily activities, Hartung et al. (2018, p. 15-26) explains that for digital transformation to happen, it is necessary to change the current business model or add additional layers to it. This means that companies will have to make a considerable change in what they do, how they do it and how they charge for it, and there are numerous different ways to achieve that. As explained, "it is most likely not enough just to automate the current core business. The challenge is to expand the current business model" (Hartung et al., 2018, p. 18).

Moreover, Hartung et al. (2018, p. 47) complements this vision stating that "data will be at the heart of any legal business model in the future. Law firms will be data driven businesses", and the law business "will become more entrepreneurial, more professional and augmented with a lot more technology than today." This suggests the idea that the business models of law firms will become closer to the business models of technology companies in the long term.

4.4   Research gap and research question

This literature review identified consistent knowledge about the current state of affairs of lawyers, law firms and their relationship with technology. Moreover, whereas authors agreed that the business model of law firms is problematic, and they should incorporate more technology into their core propositions, little explanation was given about how technologies should be integrated into their business models. As in Hartung et al. (2018, p. 18), "the challenge is to expand the current business model".

So, how could law firms expand their current models? A natural step would be to seek for inspiration from the Legal Tech companies. According to literature, those companies excel at combining technologies with legal demands and developed whole businesses around it. But one may ask, what are the business models of the Legal Tech companies? The literature described legal technologies mostly at the technology- or product-level, however almost no attention was given to the business-level. **To this point, there are no structured references about the business models of Legal Tech companies.**

Taking that into consideration and knowing that literature doesn't provide much information about the legal tech businesses models, this research aspires to provide a satisfactory explanation to **"How business models and technologies are being integrated in Legal Tech companies"**. To achieve this result, this research was guided to answer the following auxiliary questions:

    I.   Who are the legal tech companies spread around the world?

    II.   What core technologies drive the businesses of these companies?

    III.   What are the core products and services of these companies?

    IV.   Whom do these companies serve?

    V.   How do they charge for their services?

    VI.   What business models patterns (Gassmann et al., 2013) are used by those companies?

Chapter 4

Methodology

4.1 Research Design

This research was framed using a Design Science approach (Hevner & Chatterjee, 2010), as illustrated in Figure 5.
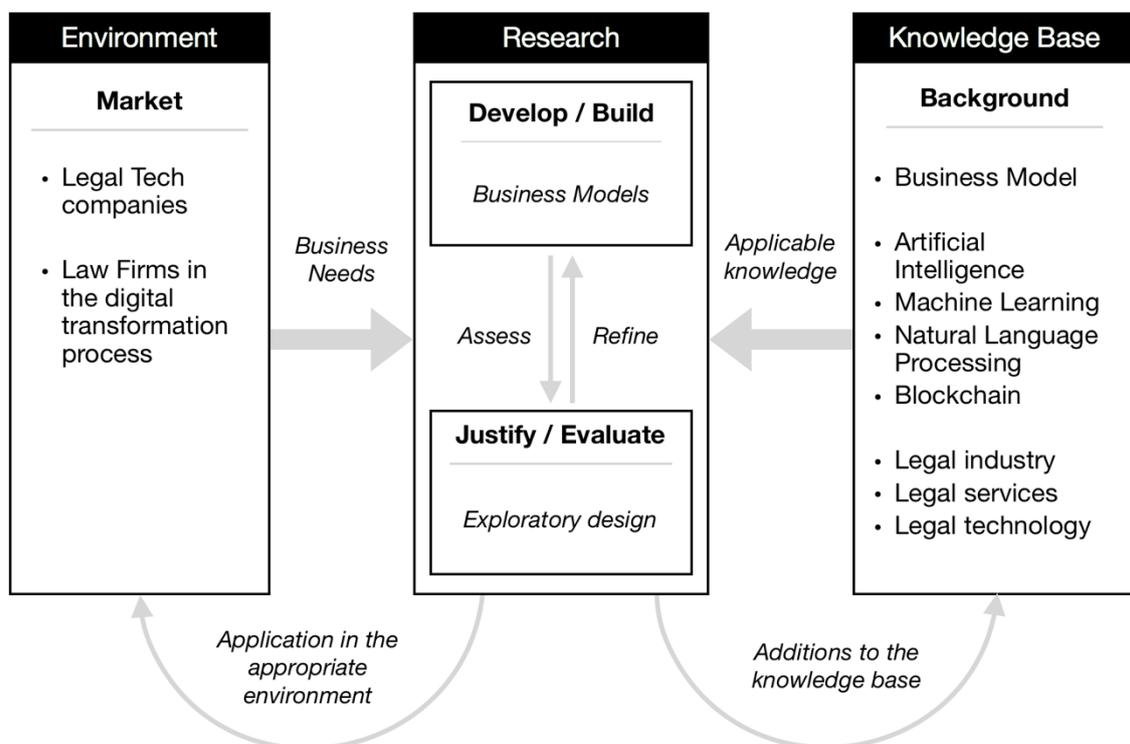

Figure 5 – Research Design

As it can be seen in Figure 5, previous knowledge about business models, technologies and the legal industry were used to address the business needs of legal tech companies and law firms that are going through a digital transformation process. Since the current body of knowledge is not enough to answer all the business needs of that environment, this research proposes to build business models references as artifacts that could be used to help those companies. The models developed will be backed by data collected through an exploratory research (Types of Research Designs, 2013). Finally, the results of this research will add new information the knowledge base and will also be applicable to the targeted businesses.

The following sections of this chapter will provide further details about the target population, sample choice, data collection, selection criteria and will introduce the framework that was used to conduct this exploratory analysis.

4.2 Target Population

This dissertation aims to build knowledge around Legal Tech (at the company level). As previously defined in Chapter 2, Legal Tech (at the product level) is software that directly affects the provision of legal services, such as automated document or typesetting creation, workflow automation, document review, self-service tools and so-called "intelligent databases". However, the "Legal Tech" label for companies does not really seems to exist under national or international economic or industrial classification systems. Searches in the International Standard Industrial Classification of All Economic Activities (ISIC) and in some national systems such as the North American Industry Classification System (NAICS), the Statistical classification of economic activities in the European Community (NACE) and the Brazilian National Classification of Economic Activities (CNAE) yielded no specific results.

As a newborn industry, it is difficult to find a national or international database that contains a list of these companies. However, three less formal (and less reliable) alternatives were identified as references to this sector: Stanford's CodeX Techindex[1], Crunchbase[2] and AngelList[3].

Crunchbase provides a lot of business details about the companies, however it is a paid tool. Stanford's Techindex and AngelList are both free to use and by inspecting some cases on Techindex it is possible to notice there are a lot of hyperlinks to each company's AngelList profile, showing a clear overlap. Finally, AngelList is different from Techindex in the sense that it provides a convenient tool to export results, therefore, it was chosen as the reference for this research.

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[1] http://techindex.law.stanford.edu/

[2] https://www.crunchbase.com/

[3] https://angel.co/

4.3 Sample

AngelList's website allows a partial list of 100 results to be exported. Consequently, if the query results yield in 100 cases or less, then one can manage to download a full list. Queries can be as simple as one keyword or as complex as a combination of several keywords into different filters. By combining them, queries get more specific and hence generate smaller lists of results.

Using this approach, the full list of 973 legal tech companies from AngelList spread around the world was then filtered by regions in order to generate smaller sets of companies. For instance, by combining MARKET="Legal Tech" and LOCATION="Canada", it was possible to generate and export the full list of Canadian Legal Tech companies (64 results). The problem is that AngelList doesn't inform *a priori* which regions are available in the dataset, so all countries (and states, for large countries) would need to be tested. As this is a slow and tedious process to try to guess what locations are available in the database, results stopped being collect once a reasonable number of cases from several countries were obtained (614 results from 19 countries).

Due to restrictions in time to conduct this research, this partial list was accepted as a sample for which the business models and technologies would be derived from. As stated in Chapter 1, this research aims to provide a satisfying explanation about "How business models and technologies are being integrated in Legal Tech companies", and to achieve that, a modest number of cases in the industry must be taken into account. In this research, almost two thirds of the population will suffice it.

This sample was not chosen at random and might imply in some bias by region selection. However, for the purpose and goals of this research, this will not be an issue as countries from all continents were considered.

Finally, when companies from those several smaller lists were put together in a single list, some cases appeared more than once. Sometimes enterprises have offices spread across multiple states or countries, therefore duplications needed to be removed. Although this makes no difference in terms of the websites that will be analyzed, this has an effect in the geographic distribution of the sample.

4.4 Selection Criteria

Companies listed in AngelList are usually registered in the website by the owners or early-stage employees and do not need to satisfy any formal requirements. This means that data is self-declared and might not correspond to the truth. For instance, companies that are self-declared as "legal tech" might have little to do with or no correspondence at all with this industry. Other companies might not even exist, and since there is no following up, dead companies might still be listed in the results.

Given that, companies need to pass the following selection criteria to be included in the business analysis:

a) **Is the website available?** Servers down, loading errors, wrong URLs, websites under construction or the domains available for purchase are examples of websites that were not available, and those companies were discarded for the business analysis.

b) **Is the product available?** If the core products were not complete (beta or pre-launch stage) or products were not described in the website, the companies were not included in the analysis.

c) **Is it a technology product?** If the core products and services were not built on top of a meaningful technology, companies were not included in the business analysis.

d) **Is it scalable?** If the core products and services were delivered through consulting projects or software development case by case, then it was discarded from the analysis.

e) **Is it a legal solution?** If the core products and services did not directly affect the provision of legal services, they were not included in the analysis. Examples of legal solutions may include e-Discovery, legal research, due diligence, contract review, etc.

f) **Is it nonspecific enough to be used outside of the legal scope?** If the core product and services can be applied to a broader range of markets, then it is not legal tech. Example: time tracking systems can be used to help lawyers improve transparency in their billings and control time spent on each project, however the solution is so nonspecific that can be used for any other service that charges by the hour.

4.4.1. Shady area

In some cases, it is not obvious if the company affects the provision of legal services or not. Email services, for example, are nonspecific enough to be discarded as legal tech, however, some companies managed to build specific technologies on top of emails that are able to address issues related to e-commerce frauds, regulatory compliance, data protection and intellectual property rights. In cases like that, they were considered as legal tech companies.

4.4.2. Exception

One exception to the rules is the "Marketplace". Although marketplaces do not provide legal solutions per se, they connect people to providers of solutions. Marketplaces are also nonspecific enough to be used in a broader range of markets, however, if the website limits its activities to the legal market, then it was considered as a legal tech.

4.5. Framework of Analysis

Companies' websites may be used as a good source of information about the businesses. However, they are not expected to reveal strategic information nor provide full details of the companies' internal operations. Hence, using them to map some elements of a business model such as key resources, key activities or cost structure might not prove very effective. Nevertheless, those websites do provide some other relevant information that are paramount for their sales processes.

Elements such as customers segments, value propositions, channels, revenue streams, customer relationships and business partners are often diluted in pages such as home, services (sometimes also called products or solutions), pricing, help, contact, blog and partners. For high-tech companies, it is also very common to find a clear description of the core technologies that are being used in their products. Whereas the same might not be true to lower levels of technology, one may find it is relatively easy to make inferences about them.

In this research, Legal Tech companies were analyzed according to the following dimensions:

4.5.1. Core technology and technology level

Core technologies are the ones that contribute the most to the companies' value propositions. In the case of Legal Tech, they can range from standard web technologies and applications to highly sophisticated software. In order to simplify this analysis without losing its essence, the following criteria were applied.

Table 4 – Technology Classification

Technological level	Core technology
Basic	Forms, filters
Intermediate	Some task automation, some business rules
Advanced	Web Applications, Cloud Storage, Cloud Computing, Many Task Automations, Many Business Rules, Integrations, APIs
Cutting-edge	Artificial Intelligence, Machine Learning, Blockchain, Natural Language Processing

4.5.2. Customer segments

Customers segments were extracted from each website keeping the same terms they were displayed. In a second step, customer segments were grouped according to similarity to simplify their representation and identification across different businesses. For example, while one

website might label their customers as "individuals", another website might label the same customers as "single users". In this case, both would be stored simply as "individuals".

4.5.3. Revenue stream

A product or a service may be commercialized in several different ways. They can be sold, rented, leased or even offered for free. Moreover, offers can become more complex when including other variables such as time, quantity, number of users and so on. In the revenue stream component, companies were assessed according to how they capture value to their businesses. For instance, in a marketplace that helps individuals connect to lawyers to get legal advice online, a website could generate money by charging lawyers a fixed monthly fee to be able to advertise their services through the platform. Another similar website could provide the same service for free for lawyers and generate revenues by exploring ads in their webpage.

4.5.4. Core Value Proposition

Extracting a precise value proposition for each business would require a lot of time, once many businesses may fail to communicate their true value. For the purpose of this research, the main sentences extracted from titles and subtitles of each homepage were treated as an approximation to the companies' value propositions. Moreover, core elements of the value propositions were identified (Osterwalder & Pigneur, 2010, pp. 23-25) .

4.5.5. Core Legal Tech Category

Since literature review didn't provide a convincing taxonomy for legal tech activities, companies received temporary labels inspired on the Stanford's CodeX Techindex and were later revised in order to adapt to new categories.

4.5.6. Business Model Patterns

Business models were analysed using the patterns from The Business Model Navigator (Gassmann et al, 2013).

Chapter 5

Sample Description

5.1   Sample inspection

Websites from 573 companies listed in AngelList were initially visited and inspected between April 4 and April 17, 2019, to identify which cases matched or not the research criteria. From those enterprises, 170 websites were not available and 138 did not meet the requirements to be qualified as a legal technology company. Reasons varied between servers down due to technical issues, companies that went out of business, companies that were sold, companies that never existed, companies that did not provide a technological solution or companies that had no connection to the legal industry. The remaining 265 companies were classified as legal tech.

With only 43,16% of companies being identified as legal tech (265 out of 614 from the initial list), this raises a question about the true number of legal tech companies existing in the world. Hartung et al. (2018, p. 7) states there were 864 legal tech companies at the beginning of June 2018 included in the Tech Index of CodeX Center for Legal Informatics at Stanford University. As mentioned earlier, there is a considerable overlap between Tech Index and AngelList, from which this sample was obtained. AngelList's database listed 973 companies at the beginning of April 2019. Using these numbers, it is possible to get to a better estimate of the true number of legal tech companies.

Frame 2 – Estimation of number of Legal Tech companies

Number of companies listed as Legal Tech in the population	973
Estimated proportion of Legal Tech companies obtained by the sample	43,16%
Expected number of Legal Tech companies in the population	420

According to the calculations, instead of 973 legal tech companies, there were approximately 420 legal tech companies at the beginning of April 2019, less than half of Hartung's estimate for 2018. This happens because once registers are inserted in databases such as Tech Index or AngelList, there is no follow up process to keep data up to date and remove companies that no longer exist. In a startup environment, companies' lifespan is very short and if those lists do not get updated regularly, then numbers will not represent the reality and will mislead people.

5.2 Taxonomy

After the initial inspection, the 265 companies identified as legal tech received a second inspection in order to classify them according to similarity. At this point, little was known about which categories existed in the legal tech industry and because of that, short temporary descriptions where made to each case. Later, similar descriptions were grouped to form categories, following a taxonomy suggested by Legal Geek (Legal Geek startup map, 2019) as a reference. Since this taxonomy was not robust enough to accommodate all cases, new groups were introduced, and some existing groups were merged.

Some restrictions were imposed in this analysis. First, companies that were classified as non-profit organizations were excluded from the sample, since their business models are not of interest of this research. Second, companies that did not fit any category and did not have a clear value proposition were discarded from this work. In those cases, it was not possible to clearly identify what problems those companies were solving and, as a consequence, it was not possible to create a new category for them. Third, in this second inspection, some companies that were operational in April were no longer operational in May and had to be dropped for this stage since more specific information was no longer available. These restrictions and limitations reduced the database from 265 to 221 companies. Finally, groups that only had one company in it were also discarded from future analyses, since there were no other cases to validate it as a category. This led to the final database containing 197 companies. Figure 6 ilustrates the sample before and after inspections. Figure 7 ilustrates the sample distribution according to the suggested taxonomy.
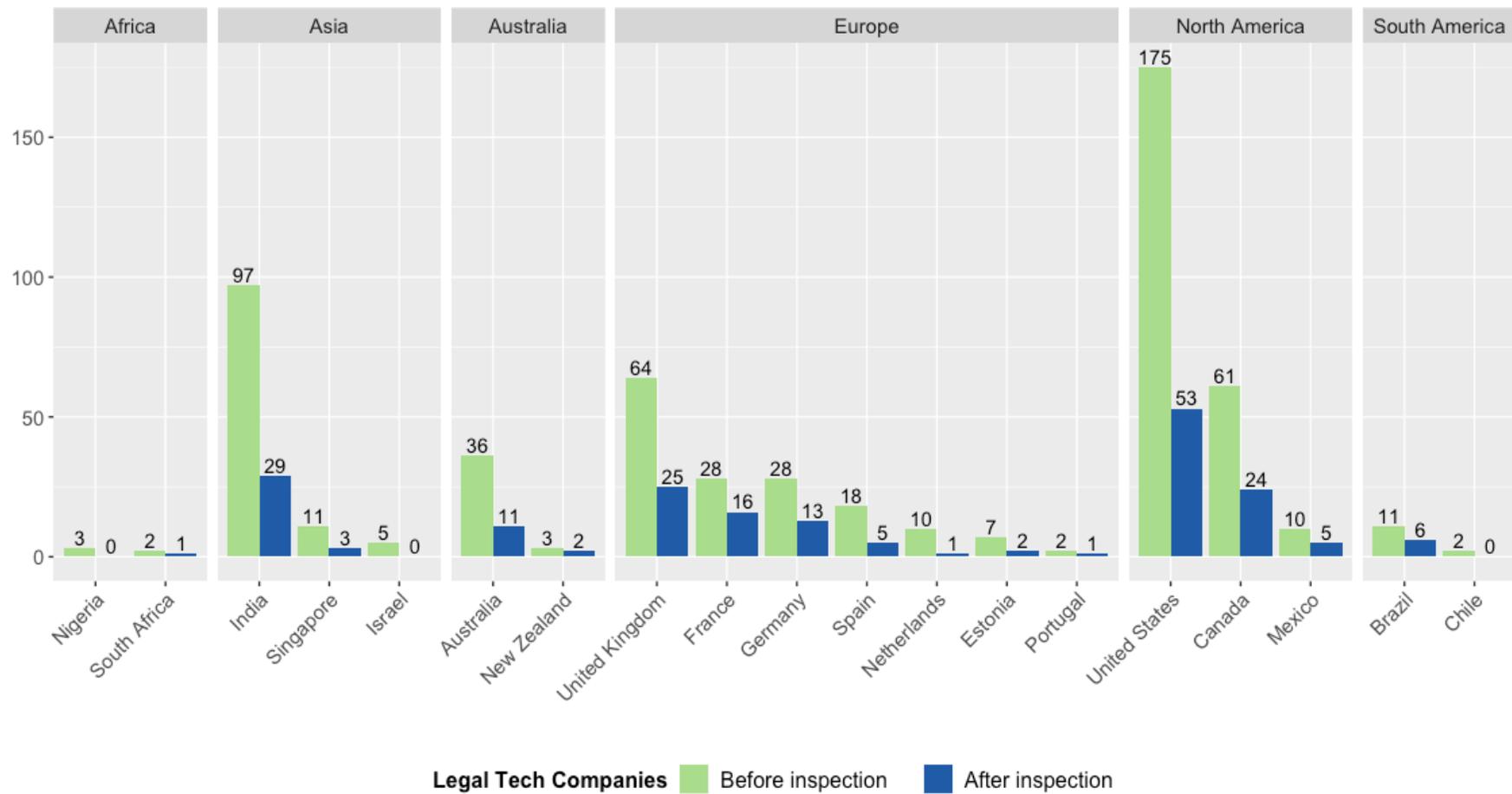
Figure 6 – Distribution of Legal Tech companies in the sample by region, before and after inspections
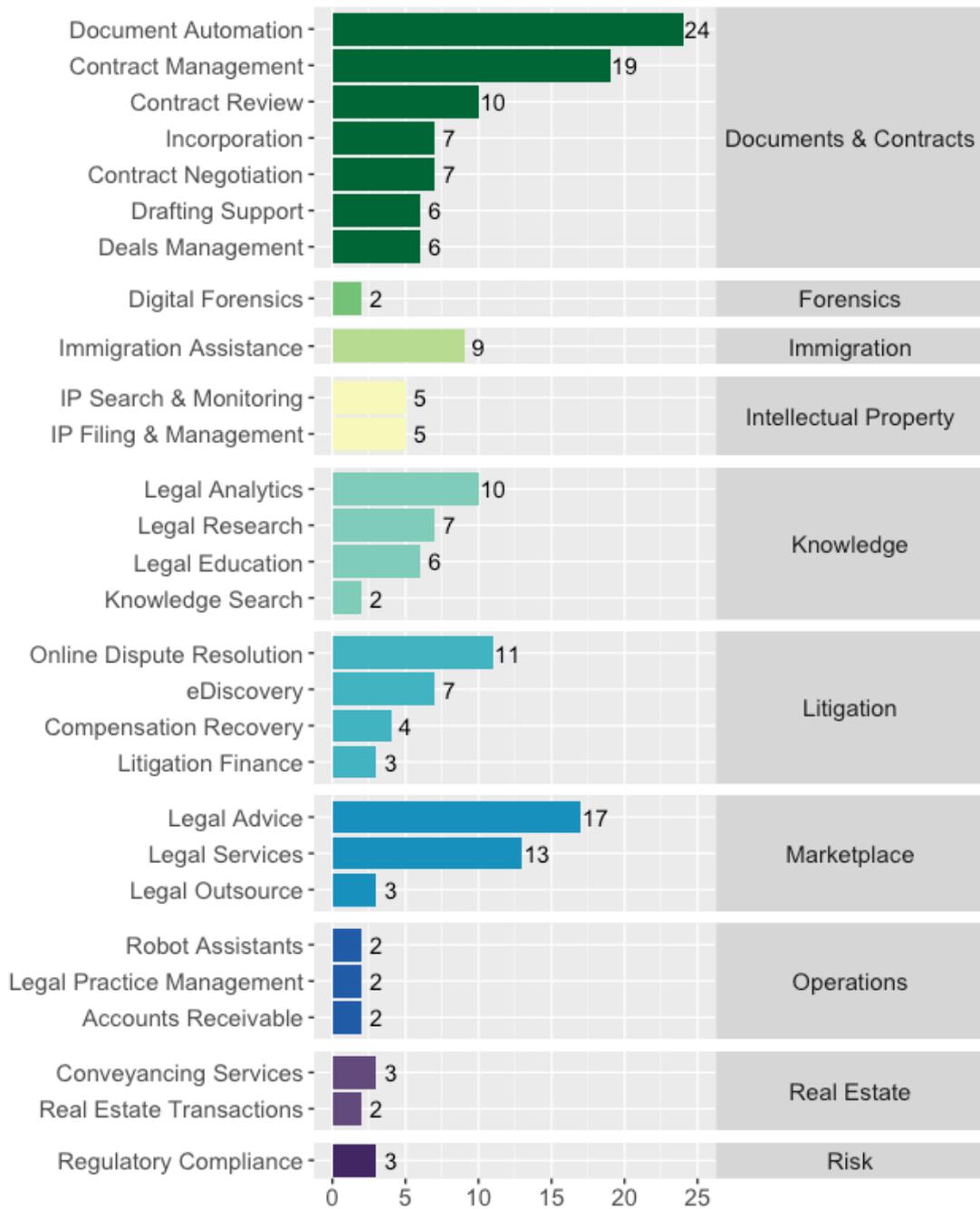
Figure 7 – Distribution of Legal Tech companies after inspection according to their taxonomy

5.3 Technology

Each company was analyzed in terms of its technology and technology level. However, companies in the same category might have achieved different levels of technology, making it difficult to represent this information in terms of groups. In order to simplify this representation, levels were analyzed in terms of the proportion of companies that achieved those levels in each group.

Figure 8 shows the levels of technology by legal tech category. Overall, companies compete at the same level of technology against their direct competitors. As it can be seen, the greener marks indicate that all companies inside a group use that specific level of technology. On the other hand, when marks fade to yellow it represents a larger dispersion, showing there is a wider range of technologies used in that group of solutions. Last, grey areas to the left indicate that companies surpassed those levels and are at a higher level, whereas grey areas to the right indicate that companies have not achieved those levels yet.

5.4 Customer Segments

Companies were also analyzed in terms of the customers they serve. In a first step, several customer segments were identified across different companies. In a second step, it was possible to identify a few general concepts that could represent those segments.

- **Businesses** – entrepreneurs, SMEs, large enterprises, legal departments (in-house), startups, hospitals, real estate agents, investors, etc.
- **Legal** – law firms, lawyers, attorneys, paralegals, conveyancers, etc.
- **Individuals** – general people, consumers, individuals not related to other categories.
- **Government** – government institutions, courts, tribunals, notaries.
- **Education** – law schools, law students, academic institutions, universities, training providers.

Figure 9 illustrates the customer segments served by each legal tech branch. As it can be seen, some solutions target exclusively individuals, while others target only businesses or legal professionals. Overall, solutions that serve legal departments of enterprises and organizations usually are also a good fit for law firms, solo practitioners, paralegals and other professions related to legal services. Chapter 6 will explore the customer segments in more depth, together with technologies used by each category and the most used revenue models.
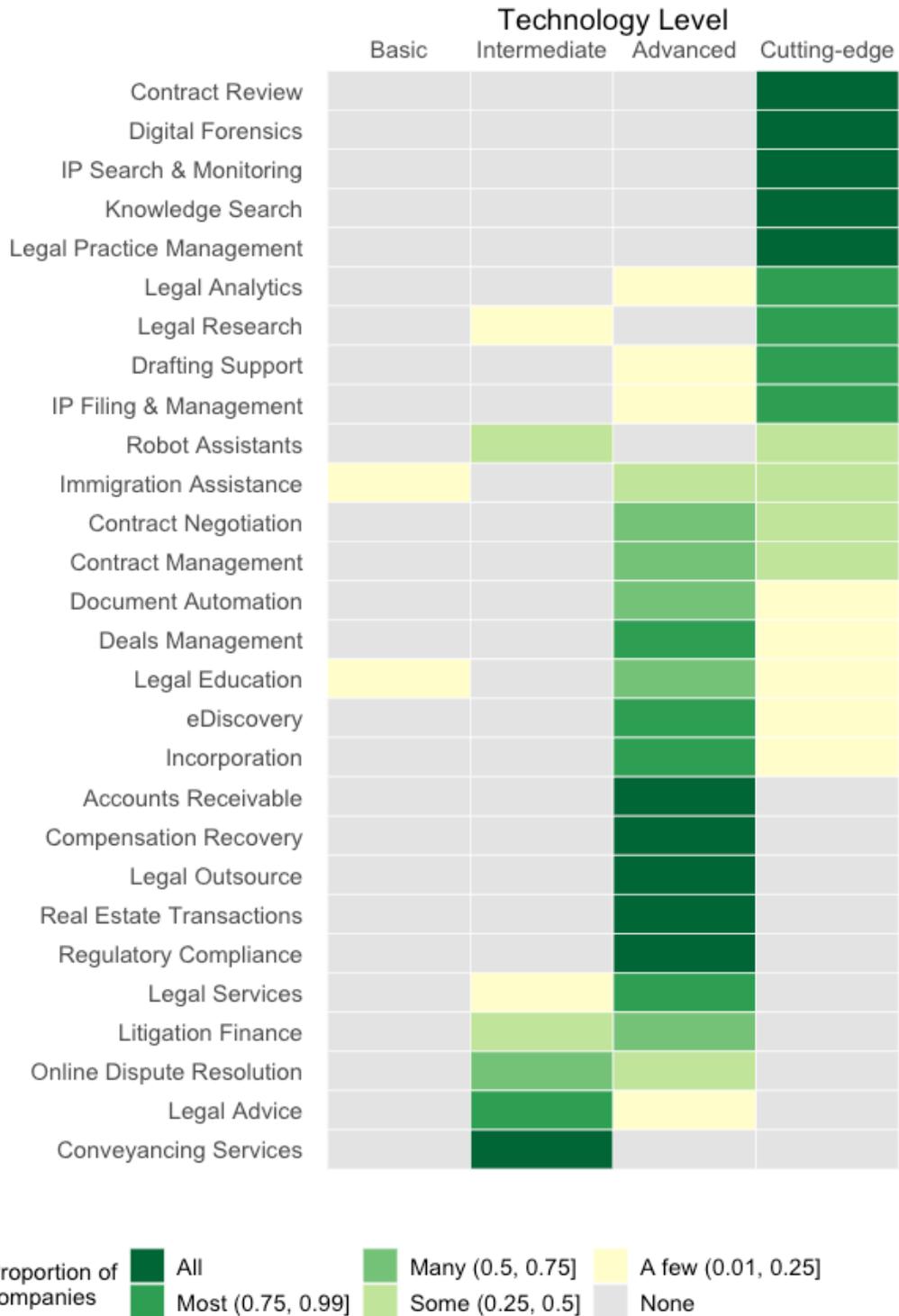
Figure 8 – Distribution of Legal Tech's technology level, per category
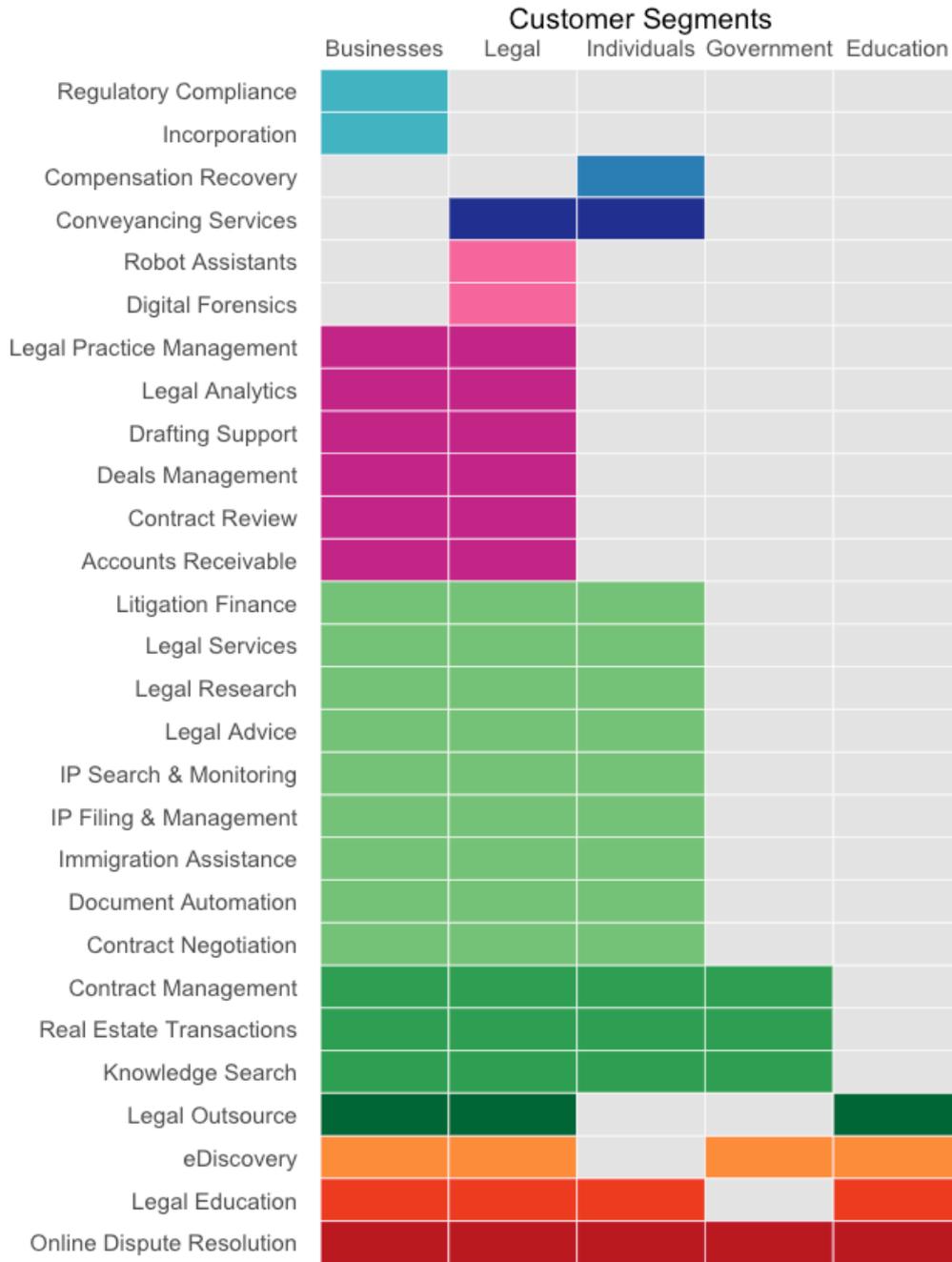
Figure 9 - Customer segments served, per category

Chapter 6

Business Models and Technology Integration

In this chapter, each one of the 28 groups of Legal Tech previously identified will be summarized in terms of its generic value proposition, core value proposition elements, customer segments served, a brief description of core products and services, its techonology level, and a brief explanation about how products and services are being charged. Finally, some examples were provided to illustrate each category.

Groups were arranged into 10 categories (Sessions 6.1 to 6.10) and presented in the same order as depicted in Figure 7.

6.1   Documents & Contracts

6.1.1. Document Automation

Component	Description
Generic value proposition	Document Automation platforms help individuals and businesses to have access to fast, affordable and customized legal documents adapted to their needs and also help lawyers avoiding repeating their work by automating the creation of intelligent templates.
Value proposition elements	• Customization • Performance • Convenience • Price • Getting the job done
Customer segments	• Businesses • Individuals • Legal
Core products and services	For businesses and individuals, it provides customized legal documents for hundreds of purposes: buy/sell a service, rent out property, buy a house, get married, get divorced, loan money, start a business, hire employees, etc. For lawyers, it provides SaaS to help them assemble and automate their own templates.
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Freemium • Pay per use • Lock-in • Self-service • Long Tail • Subscription • Mass Customization • User-designed
How products and services are charged	Documents may be charged per unit, per packages of documents or per subscriptions plans (for frequent demand). The software may be offered for free with some limitations and as monthly/yearly subscription plans to accommodate different demands of law firms and businesses, such as number of users, number of template automations, cloud storage, etc. Lawyers may also share their automations in a specialized marketplace and get paid for each document sold to consumers. These websites retain a small fee for each successful sale.
Examples	• Community Lawyer https://community.lawyer • LawLift https://www.lawlift.de/ • Rocket Lawyer https://www.rocketlawyer.com/ • Wonder.Legal https://www.wonder.legal

6.1.2. Contract Management

Component	Description
Generic value proposition	Contract Management systems help contract managers to track their contracts and better control the risks of missing a piece of information, deadlines or decisive clauses. Exception: PlayNice, which is a mobile app that helps individuals manage peer-to-peer agreements.
Value proposition elements	• Convenience • Risk Reduction
Customer segments	• Businesses • Legal • Individuals • Government
Core products and services	Cloud-based software to manage contracts. Typically, its features include secure cloud storage, tracking deadlines, summary of obligations, values and parts involved.
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Add-on • Pay per use • Subscription • Lock-in
How products and services are charged	Subscriptions plans vary according to companies' size or number of users and optional features. In most cases, pricing details were not available in the website.
Examples	• Ligo http://www.ligo.nl • Monax https://monax.io • PlayNice https://playniceapp.com

6.1.3. Contract Review

Component	Description
Generic value proposition	Contract Review platforms automate contract analysis in order to assist legal professionals with their review process to mitigate contract risk while helping businesses to close deals more quickly.
Value proposition elements	• Convenience • Risk Reduction
Customer segments	• Businesses • Legal
Core products and services	Cloud-based, machine learning-powered contract review systems that can review thousands of complex documents at a time and rapidly extract key provisions, generating contract summaries and analytical reports.
Technology Level	Cutting-edge
Business Model Patterns	• Subscription
How products and services are charged	Monthly subscription according to number of contracts to review. Custom quotes.
Examples	• Atrium https://www.atrium.co/ • Diligen http://www.diligen.com • SpotDraft https://www.spotdraft.com/

6.1.4. Incorporation

Component	Description
Generic value proposition	Online Incorporation services make it easier and less expensive for entrepreneurs to start a new business and for established companies to incorporate their businesses in other countries.
Value proposition elements	• Convenience • Getting the job done • Cost Reduction
Customer segments	• Businesses
Core products and services	Company incorporation and name registration, Accounting and Taxation, Corporate Secretary.
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Add-on • Pay per use • Subscription
How products and services are charged	Pay per company incorporated or pay a subscription to have access to basic services that complement the incorporation.
Examples	• Founded https://www.founded.co • Osome https://osome.com

6.1.5. Contract Negotiation

Component	Description
Generic value proposition	Contract Negotiation platforms help business and legal professionals to negotiate terms, share documents and sign agreements online in one place, accelerating the contract process.
Value proposition elements	• Convenience • Performance
Customer segments	• Businesses • Legal • Individuals
Core products and services	Contract negotiation platforms are cloud-based web applications that connect all parties involved while keeping track of all changes made in the contract under negotiation. After that, contracts are signed electronically.
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Mass Customization • Pay per use
How products and services are charged	Services are charged per signed documents, without limit of signatories. Documents can be used at any time.
Examples	• Agreemint http://agreemint.io • Synergist.io https://synergist.io

6.1.6. Drafting Support

Component	Description
Generic value proposition	Drafting Support helps legal professionals write legal documents faster and better, from form filling automation to complex drafting. By learning from several previous documents, the system helps these professionals to avoid rewriting generic content, auto-complete sentences and recommend clauses to include or remove.
Value proposition elements	• Convenience • Customization • Performance
Customer segments	• Businesses • Legal
Core products and services	Web-based text editors powered by machine learning and natural language processing.
Technology Level	• Cutting-edge
Business Model Patterns	• Flat Rate • Subscription
How products and services are charged	Subscriptions may appear as a flat rate with everything included or divided in tiers (plans) based on number of users or features.
Examples	• Document Modelling https://documentmodelling.com • Smarter Drafter http://smarterdrafter.com.au

6.1.7. Deals Management

Component	Description
Generic value proposition	Deals Management Platforms increase efficiency in transactions management by centralizing communication between your team and your clients in one place. Deals Management focus on the negotiation aspects of financial transactions such as investments, merges and acquisitions or assets acquisitions.
Value proposition elements	• Convenience • Performance
Customer segments	• Businesses • Legal
Core products and services	Web-based platform to connect people involved in the deal to collaborate, share documents and files and negotiate.
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Subscription
How products and services are charged	Pricing details were not available in the websites.
Examples	• Legatics http://www.legatics.com • thedocyard https://www.thedocyard.co

6.2 Forensics

6.2.1. Digital Forensics

Component	Description
Generic value proposition	Digital Forensics services provide investigation in digital assets in order to help lawyers with facts that will be used in the litigation process.
Value proposition elements	• Cost Reduction • Risk Reduction
Customer segments	• Legal
Core products and services	Investigation services in Data Breach, Ransomware, Malware, Denial of Service, Cloud Account Attacks. USB device that automates data acquisition and evidence collection.
Technology Level	• Cutting-edge
Business Model Patterns	• Performance-based contracting
How products and services are charged	Custom quotes for investigation. Not clear if the USB device is sold for a fixed price or is part of a service.
Examples	• DFI Forensics http://www.dfiforensics.ca • GRC Agent http://www.GRCAgent.com

6.3 Immigration

6.3.1. Immigration Assistance

Component	Description
Generic value proposition	Immigration Assistance services help individuals and business workforce to obtain visas and follow countries' compliance rules, simplifying international mobility, and also help immigration practitioners to track and manage their client's cases.
Value proposition elements	• Performance • Risk Reduction
Customer segments	• Businesses • Legal • Individuals
Core products and services	Assistance to obtain visas for temporary or permanent stay. Examples: Work permit, Entrepreneur Visa, Artist Visa, Investor Visa, Citizenship Applications, etc. For businesses, it helps workers to move internationally and also make the hiring process of immigrants easier. For immigration lawyers, it provides a platform to manage their cases.
Technology Level	• Basic • Advanced • Cutting-edge
Business Model Patterns	• Flat Rate • Pay per use • Subscription
How products and services are charged	Individuals and Businesses pay per visa submission. Immigration lawyers pay subscription plans to have access to immigration assistance platforms. Prices for subscription plans are customized for each client.
Examples	• Bridge.us https://bridge.us • VISARIGHT https://visaright.eu/

6.4 Intellectual Property

6.4.1. IP Seach & Monitoring

Component	Description
Generic value proposition	IP Search & Monitoring solutions use artificial intelligence and blockchain to help legal professionals search, identify and analyze possible intellectual property infringement.
Value proposition elements	• Convenience • Newness • Performance • Risk Reduction
Customer segments	• Businesses • Legal • Individuals
Core products and services	IP search and monitoring IP litigation
Technology Level	• Cutting-edge
Business Model Patterns	• Subscription • Performance-based contracting
How products and services are charged	Search image infringements online for free. Customers only pay if the legal team wins litigations around those matters. Platforms for businesses and legal professionals are charged in subscriptions.
Examples	• DataNovo http://www.datanovo.com • DMCA Services https://www.pirat.io/

6.4.2. IP Filing & Management

Component	Description
Generic value proposition	IP Filing systems use blockchain and automation technology to help businesses and individuals file patents, designs, trademarks and other copyrighted material in multiple countries, while IP Management helps legal professionals manage businesses' IP portfolio.
Value proposition elements	• Convenience • Getting the job done • Newness • Performance
Customer segments	• Businesses • Legal • Individuals
Core products and services	IP certifications and IP Management platform.
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Flat Rate • Freemium • Subscription
How products and services are charged	Pay per certification or package of certifications. A few certifications are offered for free to attract new customers. Subscription plans for the IP Management platforms. Free trial versions are available to attract new customers.
Examples	• Alt Legal http://www.altlegal.com • Berstein https://www.bernstein.io • Certifydoc https://www.certifydoc.eu • LawPanel http://www.lawpanel.com

6.5 Knowledge

6.5.1. Legal Analytics

Component	Description
Generic value proposition	Legal Analytics solutions use artificial intelligence to help legal professionals efficiently identify, extract and analyze text from contracts, other documents and data from courts decisions in order to generate legal insights, create knowledge and predict cases outcomes.
Value proposition elements	• Convenience • Newness • Risk Reduction
Customer segments	• Businesses • Legal
Core products and services	Analytical web applications.
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Subscription
How products and services are charged	Subscription-based, pay per user. In most cases, pricing details were not available in the website.
Examples	• eBrevia http://ebrevia.com • Kira https://kirasystems.com • Loom Analytics https://www.loomanalytics.com/ • Riverus http://www.riverus.in

6.5.2. Legal Research

Component	Description
Generic value proposition	Legal Research platforms organize information about laws, doctrines, processes, court decisions, interpretations and other related content and make it easily accessible to legal professionals and individuals that seek legal information to help them in litigations, compliance, taxes, due diligence and other general law-related questions.
Value proposition elements	• Accessibility • Convenience • Performance • Risk Reduction
Customer segments	• Businesses • Legal • Individuals
Core products and services	Specialized search engines that can be as simple as a database filter or make use of complex search criteria powered by artificial intelligence.
Technology Level	• Intermediate • Cutting-edge
Business Model Patterns	• Flat Rate • Subscription
How products and services are charged	Subscription plans may vary per number of users or appear as a single price for everyone with unlimited usage.
Examples	• Alexsei https://www.alexsei.com • Doctrine http://www.doctrine.com • ROSS Intelligence http://www.rossintelligence.com

6.5.3. Legal Education

Component	Description
Generic value proposition	Legal Education platforms provide online classes, training tools and feedbacks about law fundamentals to anyone, whether they are regular individuals, law students or legal professionals searching for continuous education.
Value proposition elements	• Accessibility • Convenience
Customer segments	• Businesses • Legal • Individuals • Education
Core products and services	Online educational platforms specialized in legal content.
Technology Level	• Basic • Advanced • Cutting-edge
Business Model Patterns	• Long Tail • Pay per use • Crowdfunding • Subscription
How products and services are charged	Classes may be sold individually and charged per module (set of classes of the same topic) or be part of a subscription plan with access to several courses. Subscriptions plans' prices vary per number of users and type of customer (single, corporate, educational institution). Canada Legal Help, on the other hand, provide services for free and it is supported by crowdfunding.
Examples	• AltaClaro http://www.altaclaro.com • Canada Legal Help http://www.canadalegalhelp.com • Hotshot https://www.hotshotlegal.com

6.5.4. Knowledge Search

Component	Description
Generic value proposition	Knowledge Search tools help lawyers cut down on repeated research by organizing knowledge from previous works automatically.
Value proposition elements	• Convenience • Performance
Customer segments	• Businesses • Legal • Individuals • Government
Core products and services	Cloud-based document management system powered by artificial intelligence.
Technology Level	• Cutting-edge
Business Model Patterns	• Lock-in • Subscription
How products and services are charged	Pricing details were not available in the websites.
Examples	• INTELLEX http://www.intelllex.com • Knomos http://www.knomos.ca

6.6 Litigation

6.6.1. Online Dispute Resolution

Component	Description
Generic value proposition	Online Dispute Resolution platforms help people, government and businesses to solve small cases through online mediation, arbitration or even without a third-party intervention, reducing costs, speeding the resolution process and improving access to justice.
Value proposition elements	• Convenience • Getting the job done • Cost Reduction
Customer segments	• Businesses • Government • Legal • Education • Individuals
Core products and services	Online platforms that connect parties to solve disputes in matters such as divorces, child custody, inheritances, consumer complaints, properties, tenancy and rental, employment, insurances, intellectual property rights and others.
Technology Level	• Intermediate • Advanced
Business Model Patterns	• Hidden Revenue • Subscription • Performance-based contracting • Two-sided market
How products and services are charged	• Free for individuals, monthly subscriptions for businesses and government. • Free negotiation. If a settlement is reached, then both parties pay a percentage of the final amount. • Pay per session, even if a settlement is not reached. • Legal professionals can join the platform and work as mediators. Part of their revenues goes to the website. • In divorce cases, couples pay an initial fee for the first month and after that a monthly maintenance fee until the divorce is complete.
Examples	• bidsettle https://www.bidsettle.com • coparently http://coparently.com • Justto https://justto.com.br • Wevorce http://www.wevorce.com

6.6.2. eDiscovery

Component	Description
Generic value proposition	eDiscovery solutions help legal professionals in litigation, investigations, audits, government requests and more by automating and improving review and analyses processes, reducing time spent and decreasing review costs.
Value proposition elements	• Convenience • Cost Reduction • Performance
Customer segments	• Businesses • Legal • Government • Education
Core products and services	eDiscovery software (web-based application)
Technology Level	• Advanced • Cutting-edge
Business Model Patterns	• Lock-in • Pay per use • Subscription • Performance-based contracting
How products and services are charged	eDiscovery solutions are typically charged by subscriptions (monthly or annually). Pricing plans vary according to type of client, team's size and volume of data. Custom quotes may apply.
Examples	• CloudNine http://www.ediscovery.co/ • Nextpoint http://www.nextpoint.com

6.6.3. Compensation Recovery

Component	Description
Generic value proposition	Compensation Recovery services help individuals get refunded by issues generated by a regulated service provider, on which compensation rules are easily enforceable with the help of technology. Although rules are easily enforceable, individuals lack time, patience and skills to deal with the issue by themselves, and benefit from a third-party solution that only charges them in case of a successful negotiation. At the same time, alternative solutions, such as lawyers, lack convenience and may cost more for individuals than the compensation value.
Value proposition elements	• Convenience • Getting the job done • Risk Reduction
Customer segments	• Individuals
Core products and services	Online service to help consumers in compensation recovery.
Technology Level	• Advanced
Business Model Patterns	• Performance-based contracting
How products and services are charged	Individuals are not charged to check for eligibility. In case of a successful negotiation with the company, a percentage fee is charged over the total amount in dispute.
Examples	• Compensation2go http://www.compensation2go.de • Flightright http://www.flightright.de

6.6.4. Litigation Finance

Component	Description
Generic value proposition	Litigation Finance solutions range from funding individuals that cannot afford justice to law firms and businesses that need substantial loans to finance lawsuits.
Value proposition elements	• Accessibility • Risk Reduction
Customer segments	• Businesses • Legal • Individuals
Core products and services	Provide funds to support a litigation.
Technology Level	• Intermediate • Advanced
Business Model Patterns	• Crowdfunding • Performance-based contracting • Target the poor • Two-sided market
How products and services are charged	Regardless the segment, customers only pay a percentage of the total amount in dispute if they win the lawsuit.
Examples	• CrowdJustice http://crowdjustice.org • Legallist http://legalist.com

6.7 Marketplace

6.7.1. Legal Advice

Component	Description
Generic value proposition	Legal Advice marketplaces connect individuals and businesses to lawyers who will provide them legal advice online or offline. Simultaneously, lawyers benefit from exposure to a growing number of clients.
Value proposition elements	• Accessibility • Convenience • Cost Reduction • Customization
Customer segments	• Businesses • Legal • Individuals
Core products and services	Online catalogs with local lawyers. Question and answer platforms. Lead generation for lawyers.
Technology Level	• Intermediate • Advanced
Business Model Patterns	• Crowdsourcing • Hidden Revenue • Subscription • Two-sided market
How products and services are charged	Businesses and Individuals browse lawyers for free, while lawyers pay for credits to be converted in qualified leads. Businesses and Individuals ask legal questions for free. Legal professionals pay a subscription to the website to answer those questions and attract new clients. Questions can be asked and answered for free. Or, users inform how much they are willing to pay to get an answer. Multiple lawyers respond and one or more will get paid (or share the total payment). Websites retain a percentage over transactions.
Examples	• elAbogado http://www.elabogado.com • LawRato http://lawrato.com • MyLegalAdviser https://mylegaladviser.co.uk/

6.7.2. Legal Services

Component	Description
Generic value proposition	Legal Services marketplaces connect individuals and businesses to lawyers who will assist them in basic legal services such as court assistance or elaboration of legal documents such as contracts, notifications, agreements, registrations, divorce documents, wills and much more. In parallel, lawyers have access to a growing number of clients and services.
Value proposition elements	• Accessibility • Convenience • Customization • Getting the job done
Customer segments	• Businesses • Legal • Individuals
Core products and services	Legal assistance to basic legal services.
Technology Level	• Intermediate • Advanced
Business Model Patterns	• Add-on • Pay per use • Hidden Revenue • Subscription • Long Tail • Two-sided market • Mass Customization
How products and services are charged	Businesses and Individuals pay per service hired. Clients can add more services according to their needs. Lawyers pay a subscription fee to join the platform, sell and deliver their services online. In this case, the website does not retain any percentage of the lawyers' sales. One variation of this format is to charge a fee from lawyers' sales and do not charge them for a subscription. Another variation is to charge a service fee from the clients and let lawyers be paid in full. In some situations, lawyers can get paid fixed values established by the websites or they can set their own prices.
Examples	• Captain Contrat http://www.captaincontrat.com • Court Buddy http://www.courtbuddy.com • Law Scout https://www.lawscout.ca/

6.7.3. Legal Outsource

Component	Description
Generic value proposition	Legal Outsource marketplaces connect lawyers, law firms and legal departments to law students, other lawyers and paralegals in order to help them in specific projects, providing their knowledge and experience, or to help them with time consuming tasks. At the same time, law students, lawyers and paralegals benefit from increased services demand.
Value proposition elements	• Convenience • Getting the job done • Performance • Risk Reduction
Customer segments	• Businesses • Legal • Education
Core products and services	Booking services to outsource legal professionals and law students.
Technology Level	• Advanced
Business Model Patterns	• Pay per use • Two-sided market
How products and services are charged	Clients are charged per booking. Short-notice fees may apply.
Examples	• Flex Legal https://flex.legal • Run the Call http://runthecall.com

6.8 Operations

6.8.1. Legal Practice Management

Component	Description
Generic value proposition	Legal Practice Management applications help legal professionals streamline processes inside a legal department in order to optimize workflow, collaboration and maximize team's productivity.
Value proposition elements	• Convenience • Performance • Risk Reduction
Customer segments	• Businesses • Legal
Core products and services	Legal practice management web application powered by artificial intelligence.
Technology Level	• Cutting-edge
Business Model Patterns	• Ingredient Branding • Solution Provider
How products and services are charged	Pricing details were not available in the websites.
Examples	• LawVu http://lawvu.com • PracticeLeague http://www.practiceleague.com/

6.8.2. Robot Assistants

Component	Description
Generic value proposition	Chatbots in legal tech are marketing tools that help lawyers interact with potential clients in their websites, while Personal Assistance Robots help lawyers with voice recognition to schedule appointments, dictate notes and assign tasks, specifically to the law work.
Value proposition elements	• Convenience • Customization • Newness
Customer segments	• Legal
Core products and services	Chatbot Voice-activated personal assistant
Technology Level	• Intermediate • Cutting-edge
Business Model Patterns	• Mass Customization • Subscription
How products and services are charged	Monthly subscription per size of the law firm.
Examples	• LawDroid http://lawdroid.com • Reclamar.io http://reclamar.io

6.8.3. Accounts Receivable

Component	Description
Generic value proposition	Accounts Receivable solutions help companies to collect debts, facilitate debts payments and increase customer retention.
Value proposition elements	• Convenience • Performance • Risk Reduction
Customer segments	• Businesses • Legal
Core products and services	Accounts Receivable software.
Technology Level	• Advanced
Business Model Patterns	• Performance-based contracting
How products and services are charged	A percentage of each A/R transaction paid.
Examples	• Headnote http://www.headnote.com • Lexop http://www.lexop.com

6.9 Real Estate

6.9.1. Conveyancing Services

Component	Description
Generic value proposition	Conveyancing (or Solicitor) marketplaces matches individuals to a local legal specialist in aspects of buying and selling real properties, such as transfers, mortgages or liens. While individuals benefit from easy access to services, conveyancers benefit from increased demand.
Value proposition elements	• Convenience • Getting the job done
Customer segments	• Legal • Individuals
Core products and services	Platform to compare prices and hire conveyancers.
Technology Level	• Intermediate
Business Model Patterns	• Add-one • Pay per use • Two-sided market
How products and services are charged	Conveyancers are hired and paid online. Websites did not provide details about how they generate revenues.
Examples	• Homebuyer Conveyancing homebuyerconveyancing.com • Law & Co http://www.lawandco.com.au

6.9.2. Real Estate Transactions

Component	Description
Generic value proposition	Real Estate Transactions applications connect real estate agents, lawyers, notaries and consumers during a real estate sale in order to build contracts, sign them and register the sales, while keeping all stakeholders informed of the process.
Value proposition elements	• Convenience • Getting the job done
Customer segments	• Businesses • Legal • Individuals • Government
Core products and services	Web application to manage real estate transactions.
Technology Level	• Advanced
Business Model Patterns	• Pay per use
How products and services are charged	Websites did not provide details about how they generate revenues.
Examples	• MyNotary https://www.mynotary.fr • Notiplus https://notiplus.com

6.10 Risk

6.10.1.Regulatory Compliance

Component	Description
Generic value proposition	Regulatory Compliance solutions help enterprises constantly monitor regulations that matter to their businesses and keep track of changes.
Value proposition elements	• Convenience • Risk Reduction
Customer segments	• Businesses
Core products and services	Web-based compliance tool with cloud-based storage.
Technology Level	• Advanced
Business Model Patterns	• Subscription
How products and services are charged	Pricing is personalized to each business. It may consider the legal jurisdiction in which the business operates, type of activities and types of regulation.
Examples	• 8of9　　　　　　http://www.8of9.nyc • Libryo　　　　　http://libryo.com

Chapter 7

Conclusions

Trying to classify companies under a Legal Tech taxonomy in order to derive the most common business models was a huge challenge. First, there was not a compelling taxonomy to follow. Second, companies created hybrid solutions that were difficult to frame into a single category, which might have yielded in some misclassifications. Nevertheless, it was possible to analyze the bulk of companies that felt under these proposed categories and identify some common behaviors.

7.1   Achievements

The purpose of this research was to provide a satisfactory explanation about how business models and technologies were being integrated in Legal Tech companies. Six auxiliary questions were defined and answered throught this work.

First, this research explored who were the Legal Tech companies spread around the world. Chapter 4 listed databases that contain registers of those companies and a sample was drawn and analysed in Chapter 5. The inspection of these registers also revealed that the number of Legal Tech companies is estimated to be lass than half of what literature pointed out.

Second, with a detailed inspection of 197 companies' websites, it was possible to identify core technologies and classify them between basic, intermediate, advanced and cutting-edge technologies. Overall results were presented in Figure 8.

Third, the core products and services of Legal Tech companies were also identified through sample inspection and detailed in Chapter 6. Moreover, companies were grouped in two levels, creating a new Legal Tech taxonomy, which I believe provides a better comprehension of this market than previous groups suggested by Stanford's Techindex.

Moreover, Chapter 5 summarized who are the main customer segments served by Legal Tech companies. Figure 9 illustrated those results per categories of products and services, which allows easy comparissons.

Chapter 6 went into more details about how companies charge for their services. In order to summarize the groups' behavior, generalizations were made. Examples of companies were also provided to illustrate some possibilities.

Finally, Chapter 6 also identified patterns of Legal Tech business models following the patterns presented in the Business Model Navigator (Gassmann et al., 2013).

With that in mind, I believe this work answered all questions in a satisfactory manner and also provided new evidences about the Legal Tech industry.

7.2 Future work

Developing a taxonomy for an emerging market such as Legal Tech requires a constant inspection and evaluation of cases. In order to successfully manage this task, more cases need to be included in the analysis and better definitions need to be created. Literature lacks a taxonomy of legal services and a clear distinction about services provided by lawyers and non-lawyers. I believe that a precise description about what can be done or not by lawyers would boost greatly the creation of new technological solutions in this area.

Moreover, this work was limited to websites' inspection and clearly depends on how companies communicate their services and technologies and might not represent in fact the exact characteristics of those businesses. Further research including testing the products and getting in contact with the companies might generate new insights.

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