



ΔΙΑΤΜΗΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ
ΣΠΟΥΔΩΝ ΣΤΗ ΔΙΟΙΚΗΣΗ ΕΠΙΧΕΙΡΗΣΕΩΝ
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**EXPLORING THE CURRENT STATE OF
THE LEGAL SERVICES MARKET: THE
RISE OF LEGAL TECH AND THE
EFFECTS OF DIGITAL
TRANSFORMATION**

της

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**ΔΙΑΤΜΗΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ
ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ ΣΤΗ
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MBA 2016 - 2020**

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Abstract

In recent years, the legal sector appears to be in the midst of a transformation that has not yet been widely studied and comprehended. This study describes the current legal services market, by looking into the three following elements: the factors currently shaping the market, the activity of the market participants and the available Legal Tech types and technologies. By looking through the information gathered, the findings firstly reveal the crucial impact of technology, liberalization and the “more-for-less” challenge in shaping the present and future services market and transforming legal work into a commodity that can be more easily compartmentalized and outsourced. Additionally, looking into the participants of the legal services market, it is revealed that the degree of adaptation to the pressure for less cost and the need for utilization of innovative technological solutions, is the essential element of competition among the market stakeholders. Lastly, this study has collected the Legal Tech types and technologies listed by experts in the relevant bibliography and subsequently described them at length, commenting on the points of concensus among the experts and the degree of disagreement. Document Automation, Practise Management, Legal Research, Predictive Analytics and Electronic Discovery were found to be the most prominent and promising types of Legal Tech. This review contributes to the lacking existing bibliography related to the current developments in the legal services market and their possible implications.

Keywords: legal technology; legal services market; disruptive technology; digital transformation; innovation; automization of legal professions

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Introduction

In recent years, technology has disrupted and transformed virtually every service area, not limited to banking, medicine and finance. The legal services industry, has been traditionally resistant to change, but is currently in a state of transition. Starting on the side of the clients, there is increased demand for the delivery of more services at less cost, added to the competitive pressures among legal service providers (Susskind, 2017).

With the universal advancement of technological opportunities, the legal market has gradually opened up to the adoption of technological innovations and is undergoing a “digital transformation”, where traditionally manual processes are gradually replaced by digital processes. The digitization of legal processes is possible through the application of sophisticated technological solutions that can allow legal providers to enhance productivity, innovate, improve delivery timeframes and achieve lower costs. Cumulatively, these solutions are what is known as “Legal Technology”. According to Marcelo Corrales et al. (2018), Legal Technology (Legal Tech) is “a term that broadly refers to the adoption of innovative technology and software to streamline and enhance legal services.”

The legal tech landscape is comprised of three broad categories of technology solutions:

1. **Enabler technologies:** more “generalized” solutions that consist of technologies that aid digitization. Many of those technologies have application in a variety of industries outside of Legal Tech (e.g. cloud storage).
2. **Support process solutions:** these solutions aim to facilitate greater efficiency in law firms’ office processes (processes relating to human resources management, case management, customer relationship management, accounting, billing and finance).
3. **Substantive law solutions:** these solutions can assist or even replace lawyers in the execution of essential legal tasks in transactions and litigation cases. This category is of the most interest to this paper and contains a variety of solutions

that we will be looking into in greater detail for the purposes of this paper.

Although the category shows promising growth, it still has a lower adoption rate than the previous two. (Veith et al, 2016)

Overall, the rising adoption of Legal tech in the industry, has resulted in transformative changes, both to the conventional business models and to the way in which legal services are provided. Through technology-assisted process automation, traditionally bespoke legal work is becoming commoditized and more easily disassembled and outsourced. What's more, new players are entering the legal market: Legal tech start-ups and Alternative Legal Service Providers. The multitude of changes at work, shows that the current state of the legal services market is inherently complex and still needs to be clearly unveiled and studied. This study aims to contribute to this necessary unveiling process. Due to the innovative nature of the subject, the related bibliography is scarce and often burdened with specificity: looking into a narrow range of aspects of the subject. This paper endeavors to provide a more collective, overall description of the current environment, the key players and the types of services they can provide, all-in-one. It can thus serve as an introductory guide to the current sector developments, all in layman terms.

Purpose of this Research and Research Questions

The purpose of this research is to comprehensively explore and describe the current state of the legal services market, focusing on the effects of its digital transformation and the rising adoption of Legal tech. Since the subject ventures into relatively new and uncharted territory, there is limited related bibliography that provides a thorough and current description and older available papers are quickly becoming outdated or irrelevant.

In order for the research to be comprehensive, we will be looking at three different but complementary aspects of the current market. Firstly, the transition of the legal market, from its more traditional, bespoke roots to its current state will be studied. **The factors that have driven this transition** will be pinpointed and analyzed, to achieve a better

understanding of its causes and to more effectively set the research premise for the following two focuses of our research.

Secondly, we will be looking at **the participants of the legal services market, both providers and recipients**. For each participant, we will be describing their current state, advantages and disadvantages they have faced due to technological developments and suggest ways in which their competitive positions or the way they provide their services could be further transformed in the future. In short, this chapter will be examining how the changes in the legal sector have affected the participants and how they could continue to affect them, based on current predictions.

Lastly, we will be studying **the current Legal Tech Types and technologies categories that are transforming the sector**, as they have been observed by experts. With this goal in mind, the last chapter will initially present the Legal Tech types and technologies categories gathered from related literature. Subsequently, the Legal Tech types and technologies will be comprehensively individually analyzed. For most findings, examples of successful or up-and-coming companies that currently utilize the mentioned types of technological solutions will be included, to provide a better understanding of the extend and manner of adoption of these innovative technologies.

For the purposes of this paper, the research questions are as follows:

- I. What are the factors affecting the current legal services market ?
- II. What is the current situation of the various legal services market participants?
- III. Which are the current available Legal Tech types and technologies?

Firstly, we describe the factors that are affecting the legal services market, thus setting the more general and necessary premise of what the current market looks like. Next, we look into the participants of the legal services market, essentially describing how the preceding factors have affected them. Lastly, we look into the Legal Tech types and technologies that can be utilized by the participants (more specifically, the providers) of

the legal services market, in order to provide more competitive services to clients and achieve greater functional efficiency aided by innovative technologies.

The research questions have been selected as such to provide a complementary, overall description of the current legal sector environment. Furthermore, the research questions follow a path starting from the more general and moving to the more specific, so that the first two questions set the necessary premise for the ones that follow. In other words, each question has a reliant relationship with the one preceding it and all together they provide a more rounded description of the sector, by exploring the factors shaping the environment, the participants and the available technologies that can be utilized in service provision.

Literature Overview

In order to answer the research questions, relevant literature had to be reviewed on the transition of the legal sector, the factors leading to it, the effects on participants and lastly, the current available Legal Tech types and technologies.

The background and basis for this research was primarily provided by noted legal futurologist, Richard Susskind. In his book *Tomorrow's Lawyers: An introduction to your future* (2017) the role of technology in transforming the traditional legal market is meticulously analyzed. The book also pays great attention to the effects of technological innovation on legal services providers and recipients (Big law, individual lawyers, in-house legal departments, clients). Additionally, other sources of extensive information included three relevant industry reports. Firstly, the 2016 Boston Consulting Group report titled *How Legal Technology Will Change the Business of Law*, that provided a mapping of the current legal landscape and Legal Tech's impact on legal service providers and legal education. *Disruptive Technologies & Legal Service Provision in the UK: A Preliminary Study* (Cunningham, A., Andrew D., Taylor, P. and Tether B., 2018) was also instrumental, by discussing the rise of Legal Tech, naming technological solutions of interest and their impact. The 2016 ABA Report on the Future of LEGAL SERVICES in

the United States, was also very useful in describing the current landscape of the legal services industry and the difficulties the legal providers are facing in remaining competitive.

Since the legal service industry transition has not been largely studied in past few years, the above mentioned sources were crucial in providing the necessary context for the purposes of this research. The fundamental conclusions we could draw, were that despite Law's traditional resistance to change, the sector is currently facing the pressures of increasing competition from non-traditional actors, as well as higher customer demand and a commoditization of legal services. The increased competition, will incentivize legal service providers to adopt new technologies and processes, in order to continue thriving in the changing business environment.

Methodology

The literature review related to the aforementioned research questions, was conducted online, with the use of Boolean search operators. Due to the innovative nature of the subject and its technological association, online research was deemed to be more fruitful, since there is greater limitation in relevant printed material. The use of Boolean search operators was selected to assist in reproducibility and expressivity; the subject analyzed had to be represented by many complex keywords and their combinations, that Boolean operators could express more explicitly.

As previously mentioned, this paper is separated into three chapters. Since each of these chapters required a different set of proposed keywords to yield more accurate and relevant results, the Boolean research for each of the chapters was conducted separately. At the start of every chapter the research goal is pinpointed. Next, the selected keywords are presented, separated into groups and then used in various combinations to conduct the research. The keywords were selected as words describing or related to the main concepts of the paper topic. Afterwards, synonyms of these words were also utilized. Search query was restricted to the abstract and title, where relevant. There was no restriction in relation

to the article type. Language was restricted to English. The dates of articles included were limited between January 01 2005 and January 31 2020 to exlude outdated information.

Chapter 1: Factors Affecting the Current Legal Services Market

1.1 Search strategy

The review for this chapter was individually conducted online, with the use of specified Boolean search operators, to achieve more relevant and explicit results. For this section of the paper, the goal was to pinpoint and describe the factors impacting the transitioning legal tech services market and also look into how those factors could evolve in the future. Based on this goal, the most important keywords were separated into the following groups and then used to conduct the research in various combinations. Search was restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive were included.

No restriction by article type. Language was restricted to English.

Boolean Search Components

Group 1 (G1) Words relating to legal tech

Legal tech OR

Law tech OR

Legal technology OR

Legal informatics OR

Legal services OR

Legal services market

Group 2 (G2) Words relating to current or future transition / transformation

Future

Innovation*

Change*

Transformation*

Disruption*

New

Disruptive innovation*

Digital Transformation*

Sources with Boolean search strategies

1. Information technology databases

IEEE Xplore	http://www.ieee.org/ieeexplore
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Boolean search strategy

G1 AND G2

Limits

Search will be restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

2. General purpose scientific databases

Science Direct	https://www.sciencedirect.com/
JSTOR	https://www.jstor.org/
Springer Link	https://link.springer.com/
SSRN	https://www.ssrn.com/index.cfm/en/

Boolean search strategy

G1 AND G2

Limits

Search will be restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

3. Grey Literature

Google	http://www.google.com
Google Scholar	https://scholar.google.com/
Google Books	https://books.google.com/
BASE	https://www.base-search.net/
Semantic Scholar	https://www.semanticscholar.org/

Boolean search strategy

G1 AND G2

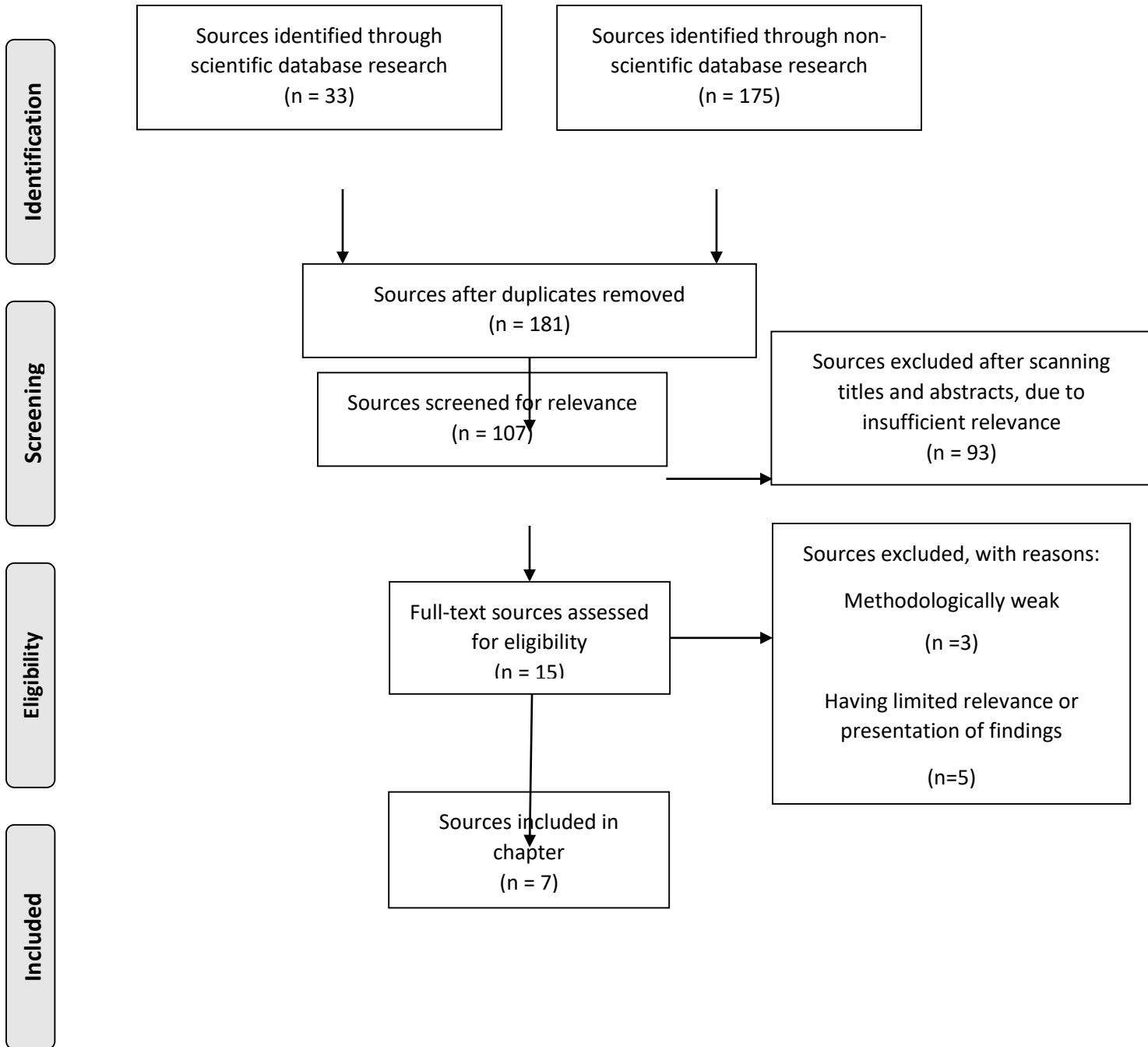
Limits

Search will be restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

PRISMA Flow Diagram



Prisma Flow Diagram 1: Search Strategy for the Factors affecting the Current Legal Services Market

The above search produced the following seven results as the most relevant and reliable sources of information regarding the factors impacting the transitioning legal sector. The results are listed below in **Table 1**. In addition to the sources, the figure lists the factors named in each source. The selection of the factors listed in the present chapter was primarily based on the information produced by studying the following writings by industry experts. Additional information was also considered and included in the chapter, as secondary sources of information that enriched and supplemented the below findings.

Table 1. Factors Affecting the Current Legal Services Market

	Cost reduction/ Workload Increase	Commoditization	Technology	Liberalization
Susskind, 2017	✓	✓	✓	✓
Linna, 2016				✓
Brescia et al, 2015			✓	
Replogle, 2017			✓	✓
Hongdao et al, 2019			✓	
Caserta et al, 2019				✓
Cunningham et al, 2018			✓	

1.2 Factors Affecting the Current Legal Services Market

The legal market is undergoing change in many significant ways. New providers are emerging, new technologies are discovered and implemented and entirely new ways of delivering legal services are surfacing. In the following chapter, we will attempt to shed some light at the amalgam of determining factors behind the current state of flux of the legal services sector. The research method resulting in the below findings has been described in the preceding section “Search Strategy” and the sources per finding have been mapped in the preceding **Table: 1**.

1. Cost reduction/ Workload increase

The recipients of legal services can be large corporations, small – medium sized businesses and even individual clients. Their common denominator is a desire for reduced cost for legal services.

Undoubtedly, the providers of legal services are the recipients of this intense cost pressure from the clients. In order for them to reduce the cost of legal work for their clients, it is vital for them to in turn reduce their expenditures. According to the General Counsels in various in-house departments, they are often faced with the impossible task of undertaking an increased workload, while trying to reduce the number of lawyers in their teams and slashing their legal budgets. Lawyers working for smaller businesses are often discouraged from seeking out expensive outside legal help and resort to working with diminished legal guidance.

The problem can be summarized as a pressure to provide increased legal workload, with diminished legal resources, the “more for less challenge” (Susskind, 2017).

2. Commoditization

Faced with the “more for less challenge”, it is inevitable for legal practitioners to seek out ways to reduce the cost of legal work in an effort to remain competitive. But how is it possible to lower the cost of lawyering?

Since the nuanced, bespoke legal work of a specialized practitioner is something a client can easily justify paying for, the solution to cost cutting lies in reducing the cost of the more routine, repetitive administrative legal work. In every legal business there is a significant amount of routinized work, usually undertaken by less experienced junior lawyers: basic legal research, document drafting or due diligence are examples of this. Taking on the example of rudimentary document drafting, with the help of precedent, a document template and a procedure manual, the process can achieve a degree of standardization.

With the advancement of technology, the process of standardization can evolve to systemization: the computerization of a procedure manual into a workflow system. This enables a procedure to become streamlined and automated with the use of technology, taking the requirement for the expertise of an experienced lawyer out of the equation. This inevitably leads to a. the lowering of costs for legal work, since there is less consumption of a lawyer’s billable time b. the externalization of legal work, since legal services can now be pre-packaged and made available to other parties as a chargeable service. The evolution of bespoke legal work into a standardized, chargeable service is described by experts as a “commoditization” of legal services. (Susskind, 2017).

3. Technology

The legal profession largely depends on endeavors to manage, store, analyze, look up and convey tremendous amounts of information. As such, the current technological advances transforming the handling of information like Big Data, artificial intelligence and cloud computing could not go unnoticed. Many of these and other technologies have the

potential to streamline and automate processes that previously had to be completed manually with substantially less efficiency.

The immense possibilities of technology, also create important challenges: the gradual introduction of these new digital technologies in the field of law is likely to alter structural elements of the field, transform methods and practices and even invent new ones. In other words, some of these technologies will be disruptive. This means they will not simply accommodate the current processes and methods of legal work, but in many ways radically change them, replace them and transform them. (Susskind, 2017)

3.1 Disruptive technology

In order to examine the contemporary effect of disruptive technology in the legal service industry, it is important to first discuss the birth of the concept of “disruptive innovation”. The term was introduced by Harvard Business School Professor Clayton Christensen, in his book *“The Innovator’s Dilemma”*.

A “disruptive innovation” is “ a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors”. The process “transforms a product that historically was so expensive and complicated that only a few people with a lot of money and a lot of skill have access to it. Disruptive innovation makes it so much more affordable and accessible that a much larger population have access to it.” (Brescia et al, 2015)

Since the term was coined, there have been numerous exemplifications of this paradigm in many sectors. Looking at the legal sector, according to Raymond et al. (2014) the legal profession is undergoing immense disruption that will change both the practice and delivery of law. In his book *“The End of Lawyers?: Rethinking the Nature of Legal Services”*, expert Richard Susskind states that the legal industry is in the midst of

substantial disruption and the current trend will result “[in] the emergence of a legal industry that will be completely strange to the current formation” (Caserta et al, 2018). Though this disruption is widely mentioned in the bibliography, the size and nature of its impact are still a bone of contention between experts. What is undeniable, is that technology has already disrupted the traditional legal sector and is set to disrupt it even further. (Replogle, 2017)

3.2. The digital transformation of industries through technological advancement

Bloching et al. (2015) interpreted digital transformation as “the continuous interconnection of all business sectors and the actor-side adaptation to the requirements of the digital economy”. (Bloching et al., cited in Rachinger et al, 2018)

Having introduced the term digital transformation, we can now focus to the specifics of the legal sector in greater depth. Firstly, we will be discussing the difficulties presented in achieving the digital transformation of this sector in particular. Next, we will be looking into the factors that ultimately contributed to the initiation of this transformation.

Digitalization is affecting many industries, but the differences in each instance are important. First, digitalization was introduced to the manufacturing industries. The digital transformation of the production process resulted in the replacement of workers performing simpler, repetitive tasks with machines. This was not the limit. Technology also had the potential to infiltrate and transform industries that base their value on intellectual capital, such as the professional service industries. In the field of medicine, it is commonplace nowadays to seek medical advice on the internet, or for doctors to use the immense power of artificial intelligence when conducting diagnostics. Similar profound transformations have occurred in the banking and finance industries.

While digital transformation affected many service industries, it didn't affect them in the same manner, due to their respective particularities and characteristics. In the case of the legal services sector, change has been rather slow, due to noteworthy resistance. This resistance came both from skeptics involved in legal academia, but also law firms themselves.

In the academic circles, there has been exhaustive debate surrounding the difficulty of inserting technologies such as A.I. in a social discipline as ambiguous and as dependent on human argumentation, as the law. Philip Leith is one such notable skeptic, who would often argue against legal futurists like Richard Susskind. (Cunningham et al, 2018)

In order to better understand why law firms were resistant to technological transformation, it is vital to consider their value creation mechanisms and their motivations. The legal sector is knowledge intensive, meaning that the main capital for value creation is the professional's knowledge, experience and expertise. Due to this, most law firms had based their profit formula on the billable hour of expert legal advice. This system, allowed law firms to enjoy high profitability and to self-regulate the prices in legal services, since they had control of the sole capital. It is understandable that law firms would want to maintain the status quo and would be reluctant towards the transformation of the industry through technology. (Corrales et al, 2019)

The technological conservatism of law businesses stood firm for decades, but is now being threateningly challenged, by the need for cost effectiveness, the emergence of tech-savvy competition and most importantly, shifting client expectations. As computational power increases rapidly and technology becomes exponentially cheaper, it is getting harder for legal firms to ignore the many advantages it has to offer. As clients became more informed, they have begun to demand the provision of cheaper services and more fee transparency. At the same time, disruptive legal tech startups, have started to offer a wider variety of innovative services, aided by technology. (Cunningham et al, 2018) The shifting landscape of the legal services market has started to convince law firms that there is significant potential for value creation from digital technologies, and firms are increasingly willing to invest in that potential.

The adoption of automation in the legal sector, as well the as the growth of the market will lead to an increasing number of total legal services provided in the future. Whether this enormous quantitative leap will come hand in hand with an equivalent qualitative leap, in terms of the quality and integrity of professional legal services – is, of course, another difficult discussion, for another time.

4. Liberalization

Historically, the legal services market has been notoriously restrictive. Across different countries there are similar laws and regulations in place, permitting only specialized lawyers to provide legal services. These limitations protect the interests of the client, ensuring that only properly educated and trained specialists will be representing them. At the same time, these limitations provide clients with significantly fewer choices, while stifling competition; the main driving force of innovation. For years, a number of critics and reformers pushed for a relaxation on the regulations governing who can offer legal services.

In England, the breakthrough came with the Legal Services Act of 2007, which permitted the founding of legal businesses by non-lawyers, called “alternative business structures”. While U.S. jurisdictions have not yet consented to similar developments, the American Bar Association and States acquiesced, as many innovative startup companies like LegalZoom have gradually developed new technologies and offer new competitive legal services. (Kerikmäe et al, 2018) It is predicted by Richard Susskind (2017) that within ten years, many more Western jurisdictions will be following in these footsteps, incentivized by increased market pressure from liberalized countries, gradually causing a "ripple effect around the world."

4.1 Legal Process Outsourcing

As it is in most business sectors, the flux in the legal sector has been characterized by tensions between the more traditional providers of legal work and alternative suppliers. Due to the historically high comparative cost of services, legal professionals have long been wary of the potentially negative impact of the emergence of competitors, willing to offer services at cheaper cost. In the last few years, various alternative suppliers have found their way into new fields of legal practice, sometimes as a result of liberalization. (Replogle, 2017)

This development, has led many law firms to engage in strategies that retain their status as the central player in the industry, but achieve a reduction in the cost of services to remain competitive. The most commonplace organizational strategies applied is: Legal Process Outsourcing. Legal Process Outsourcing essentially describes the subcontracting of legal work from high cost locations to lower cost locations, where labor costs are reduced. To date, countries such as India, Chile, Hong Kong and the Philippines, have been popular outsourcing destinations. (Caserta et al, 2018).

4.2 Alternative Legal Service Providers

Alternative Legal Service Providers are businesses that offer legal services but are not traditional law firms. According to Replogle (2017), they often take advantage of cutting edge technology and process management and they aim compete with traditional firms by: reducing costs, offering alternative billing models and providing innovative technological process solutions. We will be looking into the subject of Alternative Legal Service Providers in greater detail, in the chapter “**The Evolving Face of the Participants in the Current Legal Services Market**”.

The findings of this chapter suggest that, according to industry experts, the factors that have impacted the legal market transition relate to liberalization, which has facilitated more competition on the supply side, the “more-for-less challenge”, which has led to the increased commoditization of legal work and lastly, the digital transformation of the industry, which has shifted the potential for value creation towards the streamlining of legal work through the implementation of technological solutions.

Chapter 2: The Evolving Face of the Participants in the Current Legal Services Market

2.1 Search strategy

The review for this chapter was individually conducted online, with the use of specified Boolean search operators, to achieve more relevant and explicit results. For this second section of the paper, the goal was to pinpoint and describe the participants in the legal tech services market, determine their current activity and also look into how their roles and the services they provide could evolve in the future. Based on this goal, the most important keywords were separated into the following groups and then used to conduct the research in various combinations.

Boolean Search Components

Group 1 (G1) Words relating to legal tech

Legal tech OR

Law tech OR

Legal technology OR

Legal informatics OR

Legal services OR

Legal services market

Group 2 (G2) Words relating to the participants

Stakeholder* OR

Lawyer* OR

Client* OR

Customer* OR

Government* OR

Startup* OR

Start up* OR

Start-up* OR

Big Firm* OR

Law Firm* OR

Medium Firm* OR

Small Firm* OR

Business OR

Judge* OR

Investor* OR

Service provider* OR

Alternative service provider* OR

ALSP*

Group 3 (G3) Words relating to the future

Future

Innovation*

Change*

Transformation*

Disruption*

New

Disruptive innovation*

Sources with Boolean search strategies

4. Information technology databases

IEEE Xplore	http://www.ieee.org/ieeexplore
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Boolean search strategy

G1

G1 AND (G2 AND G3)

G1 AND G3

Limits

Search will be restricted to the abstract and title, where relevant (.ab, ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

5. General purpose scientific databases

Science Direct	https://www.sciencedirect.com/
JSTOR	https://www.jstor.org/
Springer Link	https://link.springer.com/
SSRN	https://www.ssrn.com/index.cfm/en/

Boolean search strategy

G1 AND (G2) OR (G2 AND G3) OR (G2) OR (G3)

G1 AND G3

Limits

Search will be restricted to the abstract and title, where relevant (.ab, ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

6. Grey Literature

Google	http://www.google.com
Google Scholar	https://scholar.google.com/
Google Books	https://books.google.com/
BASE	https://www.base-search.net/
Semantic Scholar	https://www.semanticscholar.org/

Boolean search strategy

G1 AND (G2) OR (G2 AND G3) OR (G2) OR (G3)

G1 AND G3

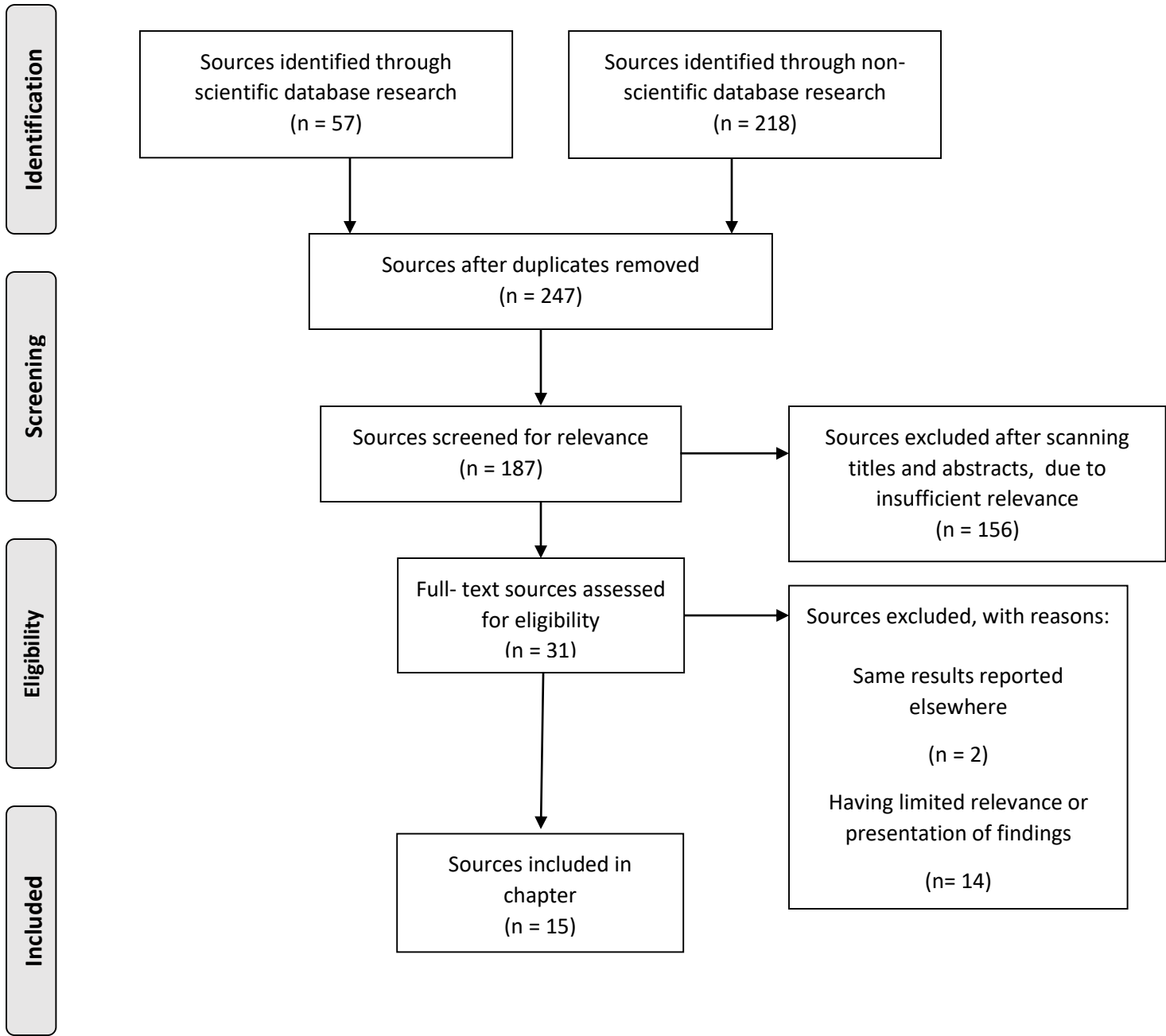
Limits

Search will be restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

PRISMA Flow Diagram



Prisma Flow Diagram 2: Search Strategy for the Evolving Face of the Participants in the Current Legal Services Market

The above review produced the following fifteen results as the most relevant, telling and crucial sources of information regarding shifting roles of the various participants in the legal services market. The results are listed below in **Table 2**. In addition to the sources, the figure lists the legal sector participants discussed in each source. The collective expertise of the below sources provided the primary context for the selection of the participants studied in the following chapter. Additional information providing greater embellishment, was also found in other secondary sources and included in the below chapter.

Table 2. Participants in the Current Legal Services Market

	Big Law Firms	Small/ Medium Law Firms	In- house Legal Departments	ALSP	Start Ups	Lawyers	Clients	Governments	Judges	Investors
Sanger, 2019	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Veith et al, 2016	✓	✓				✓				
Dzienkowski, 2014	✓									
A.B.A., 2016			✓		✓					
Thompson Reuters, 2019				✓						
Wilkins et al, 2019				✓						
Linna, 2016					✓					
McGinnis et al, 2014					✓					
Cunningham et al, 2018						✓	✓			
Susskind, 2017						✓			✓	
Fenwick et al, 2018						✓				
Cohen, 2018							✓			
Peruginelli, 2019								✓		
Pivovarov, 2019										✓

2.2 The Evolving Face of the Participants in the Current Legal Services Market

A crucial aspect of understanding the current legal market, is exploring the legal market participants individually, in order to achieve a more detailed picture of the effects of the shifting legal landscape in each of them.

Based on the categories of participants suggested in the bibliography shown in the above matrix, we will be looking into: clients, governments (regulators), enforcers (judges), investors and we will be subdividing legal providers into: Big Law firms, small/medium sized firms, in-house legal departments, alternative legal service providers, startups and lastly, individual lawyers. The research method resulting in the below findings has been described in the preceding section “Search Strategy” and the primary sources per finding have been mapped in the preceding **Table 2**.

Big Law firms

The rapid changes in the legal services market have started to affect Big Law firms in various ways. The big recession of 2008, resulted in diminished demand for high cost legal aid, something that Big Law firms are renowned for. Many of the top global law firms were faced with drastic revenue decreases, forcing them to consider solutions to drive down costs.

One of those solutions, was the reconsideration of their billable hour pricing model. By that point, alternative pricing models that incorporate fixed prices and fees based on measurable deliverables had already made their way into other service industries, such as accounting and consulting. It was therefore a matter of time, before we could find examples of law firms, such as Clearspire and the VLP Law Group, adopting alternative pricing models. Another option to reduce cost, would be changing the cost structure from one based exclusively on lawyers’ wages to one incorporating investment on technology. Investing in legal tech solutions can result in achieving economies of scale in two ways. Firstly, technological solutions can streamline and speed up the workload, thus achieving greater efficiency. Additionally, the added cost of using an existing tech solution is marginally zero for every subsequent use. (Dzienkowski et al., 2014)

Perhaps the biggest effect of the changing legal landscape for Big Law, was the emergence of more competition. One of those competitors is boutique small firms that have infiltrated the bespoke legal services market. Another important competitor is alternative legal service providers that penetrated markets with more relaxed regulations. Many corporate clients have often used the services of accounting firms, banks, multidisciplinary practice firms or management consulting firms to resolve legal matters. Lastly, the rising number of Legal Tech startups offering innovative legal services, is a newer form of competition that could steadily gain more ground. Aided by the usage of cutting edge technology, they have the potential for lower marginal costs and can thus offer competitively cheaper services.

Looking into the future, the greatest challenge of all for Big Law, will be to meet client's shifting needs and expectations. Large corporations (Big Law's most common clientele) will continue to demand "more for less": better and multidisciplinary services and greater fee transparency, for less money. To satisfy those demands, many Big Law firms may have to gradually revisit their value proposition and offer a greater scope of services, to remain competitive. Besides undertaking traditional tasks, such as advice regarding litigation, they could branch out to offering legal project management services, legal analytics and decision- support solutions. Another promising practice is outsourcing management: handling the outsourcing of standardized, routine legal tasks to alternative service providers with lower labor costs, while handling the more bespoke legal work in-house. (Veith et al, 2016)

Conclusively, Big Law firms are faced with important challenges stemming from shifts in the legal services landscape. The most daunting challenge, will be meeting clients' changing demands while faced with rapidly growing, sophisticated competition.

Small/ Medium Law Firms

Smaller size law firms find themselves in a precarious position, when contemplating the future legal services landscape. They are facing the highest risk of partial or complete replacement by technological solutions. There are two important reasons for this:

Firstly, smaller size firms usually handle mainly standard, simpler cases. It is a common prediction among experts that routine, standardized tasks, relating to incomplex legal cases will be the easiest tasks to automate.

Secondly, because of these companies' smaller size and profit margins, they usually cannot achieve the necessary economies of scale to compete with new legal tech providers. They also usually do not employ specialized, tech savvy staff that can assist them in the implementation of proprietary legal tech solutions.

Despite these setbacks, there are ways for smaller businesses to survive in the competitive legal services market and ride the waves of disruption to their advantage. They will need to differentiate themselves from their competitors by finding their niche and investing in technology, in an effort to streamline processes, minimize costs and boost efficiency and productivity. In order to accommodate these changes, they will need to adjust their value proposition.

Instead of handling standard, routine cases they can focus on a smaller, more specialized field of law and take up bespoke, personalized legal tasks. By combining specialization with a competitive fixed-price revenue model, they can gain an advantage over larger companies that still employ the traditional system of billable hours. Using the support of affordable legal technological solutions, such as Software as a Service (SaaS), smaller firms can streamline increased caseloads with minimal added expenditures, gaining a competitive advantage. (Veith et al, 2016)

In- house Legal Departments

In-house legal departments, began formulating in the 1990's, in an effort to minimize company expenditures that accumulated from constantly relying on outside legal aid, even for standard tasks. With the expansion of in-house departments, businesses only outsourced the more complex, specialized tasks, while processing the simpler tasks internally.

In-house legal departments will have to adapt to the new legal landscape, by looking for ways to incorporate new skills and know-how. According to Susskind, there should be three main future competences of in-house departments that are often overlooked today.

The first, is legal risk management. This entails protecting the company from liabilities stemming from actions of non-legal personnel. Prevention is key in avoiding exposure to risk, so in-house lawyers need to work proactively, putting in place processes and procedures and conducting audits and risk reviews. The second competence is knowledge management; that is using the collective legal know-how of the company to prepare standardized procedures, such as template documents thus increasing efficiency and building a superior institutional legal memory that can surpass the merits of any individual company lawyer.

The third competence is the one that in-house departments are mostly concerned with, and that is meeting the “more for less challenge”. Managing to provide more legal services at a reduced cost, will initially require that departments spend less on outsourced legal work. One way to reduce spending, is to resort to alternative fee arrangements and not the standard of the billable hour. A difference in pricing, however, will only be the tip of the iceberg, as legal departments will eventually have to think of alternative ways of sourcing legal work, altogether. Outsourcing legal work to companies in less costly regions is one of many options that is gaining more traction. (Commission on the future of legal services, Report on the Future of Legal Services in the United States, ABA, 2016)

Alternative Legal Service Providers

Just a few years ago, the Alternative Legal Service Provider (ALSP) market, was still in its infancy. Today, the sector shows signs of rapid, promising progress. In just two years, revenues for ALSPs have grown by 12.9%, an increase that can be attributed to both the elevated total number of providers, but also the revenue growth of individual providers.

Law firms have already begun to take advantage of the benefits of ALSPs, by collaborating with them in their respective areas of expertise. Many larger firms establish partnerships with multiple service providers simultaneously, to broaden their scope of services they can offer to their clients. The top three areas of collaboration between the two parties are: litigation and investigation support, legal research, and regulatory risk and compliance services.

They key to ALSP’s fast success and constant ascension of the legal value chain, is their strong reliance on innovative technologies, allowing them to take on different and complex legal tasks. Some providers offer these technology- enabled solutions through the use of third party technology, while others are developing proprietary systems.

According to the Thompson Reuters 2019 Report on Alternative Legal Service Providers, titled “Alternative Legal Service Providers 2019: Fast Growth, Expanding Use and Increasing Opportunity”, the ALSP industry can be subdivided into five main segments:

- The Big Four : the four largest accounting and audit firms, that also offer competitive legal services
- Captive Legal Process Outsourcers: law firms’ owned legal service units that operate in lower cost regions
- Independent Legal Process Outsourcers: independent collaborators that offer legal services to law firms, but are not owned by them
- Managed Services Providers: a company that manages part of a customer company’s infrastructure, usually on a subscription basis
- Contract and Staffing Services: provide individual lawyers to companies and law firms on a temporary basis

For all the talk about the many strides and growing scope of services of ALSPPs, it is important to ponder their more distant future, as it is predicted by David B. Wilkins and Maria José Esteban Ferrer, in their article “*Taking the “Alternative” out of Alternative Legal Service Providers: Remapping the corporate legal ecosystem in the age of integrated solutions*”. The distinctions between “traditional” and “alternative” providers might not hold up as well in the future. In recent years, the rise of software driven competition and the constant amount of new software solutions is blurring the lines between “traditional” and “alternative” providers and giving the edge to the ones that will have the best resources to develop and implement software solutions in the long run.

Start Ups

Daniel W. Linna Jr. defines a Legal Startup as “*a newly formed organization providing innovative products or services to improve legal service delivery. “Innovative” is applied*

broadly to include innovative products and services or innovation in legal service delivery.” (Linna, 2016)

The legal tech startup industry was virtually nonexistent a decade ago, but is currently growing by leaps and bounds. There is little research that assesses the financial impact of legal startups, but looking at the number of legal startups on AngelList, a website for startups and their angel investors, supports the notion that there is significant investment increase. In 2009, fifteen legal startups appeared on AngelList. In 2020, over 1,100 legal startups are listed with an average valuation of \$ 4,7 M.

This great increase in legal tech companies, clearly shows that there are serious incentives involved.

According to the 2016 “Report on the Future of Legal Services in the United States”, by ABA’s Commission on the Future of Legal Services, legal startups have tapped into the following market segments:

1. Business to consumer, including small businesses—for example, finding lawyers, lawyer ratings, and lawyer matching; do-it-yourself legal tools; law for small transactions, such as a simple contract; form documents; document automation/assembly; dispute avoidance/ management; collaborative law; and litigation finance.
2. Business to business—this includes many of the items listed under business to consumer as well as legal supply chain management; billing data analytics; legal temp services and contract lawyers; legal process outsourcing; compliance; contract management; risk management; and online dispute resolution.
3. Business to lawyer/law firm/legal departments— this includes many of the items listed in the above categories as well as lawyer marketing, legal research, crowdsourcing, analytics, legal education and training, law practice management, client intake/conflicts, time/billing, virtual legal team tools, lawyer recruiting, project management, knowledge management, e-discovery tools, vendor marketplaces, and trial/transactional tools.

The emergence of so many legal startup companies, can be sufficiently substantiated, when looking at the many contributing factors:

1. Unmet Demand

In 2015, it was estimated by American Bar Association President, William Hubbard that 80% of the U.S. population didn't have sufficient access to the provision of legal services. This large percentage encompasses a significant number of people from the middle class and, according to one expert, equates to a \$45 billion untapped market. Broadly speaking there are two groups that comprise this unmet need market **a.** people who cannot afford legal services and **b.** people who do not realize that the issue they are facing is legal or can be remedied by legal action. Studies have shown approximately 87% of households that are facing a legal issue do not seek legal assistance.

The phenomenon of refraining from seeking legal help is not confined to individual clients. According to a marketing study by Decision Analyst, commissioned by LegalShield, nearly 60% of small businesses that had experienced a significant legal event did not solicit the services of a lawyer.

The significant size of this untapped market certainly works as an incentive for startup companies to try to fill this gap, emboldened by their competitive pricing and technological capabilities.

2. Legal departments want more for less

As mentioned in previous chapters, a strong driver for change in the legal sector has been the pressure to lower the cost of legal services, especially within corporate legal service departments. Many legal departments have sought out, not only lower prices, but also greater transparency and higher quality services. This shift is beneficial to startups, giving them the opportunity to be the supplier of those services.

3. A Growing Ecosystem with Cheaper and Better Technology

A legal startup ecosystem has emerged over the last decade and is showing great promise. There is a growing number of participating startup companies, a growing investment interest and an increasing relaxation of government regulations and barriers. A major component of the flourishing ecosystem is the rapidly increasing capabilities and decreasing cost of technology, which has made it easier for innovative startups to launch.

The rapid acceleration of computer power can be described according to “Moore’s Law”. “Moore’s Law” was a prediction made in a 1965 paper, by co-founder of Intel Gordon E. Moore that states that the number of transistors that can be fitted onto a computer chip doubles approximately every two years, while the cost of computers is halved. (Merriam-Webster.com Dictionary, 2020)

This prediction remains accurate today, as confirmed by researchers, and has furthermore expanded to describe the exponential growth in the fields of information storage and telecommunications. The explosive increase in broadband capacity and spatial storage capacity have provided fertile ground for the rise of “big data”, that we will be discussing in the following chapters. (McGinnis et al, 2014)

It is undeniable that the advances in processing power and storage are vital components of the technological innovation in the legal sector, as it is in many other industries.

Lawyers

The important changes in the legal landscape have greatly impacted clients’ demands and expectations. Understandably, clients have come to aim for less expensive, accessible services and greater fee transparency. As a response to these market pressures, firms have turned to the use of technology as the most promising way to achieve long term profit out of a fixed cost asset. The increased presence of technology in the legal sector will offer some exciting opportunities for flexible, tech-savvy and entrepreneurial lawyers, but at the same time limit opportunities for those that don’t possess the necessary skills to adapt to the new market conditions.

As has been mentioned before, technological solutions are mainly applied to streamline and standardize simple, entry level tasks and procedures. The most noticeable long term consequence of this, is that fewer junior lawyers will be required to take over these same tasks, as their compensation will exceed the cost of the technological solution. This means the junior lawyers and “generalists” are facing the biggest risk of becoming obsolete through the advancement of automation. On the flip side, expert lawyers that can take over more complicated, bespoke legal tasks will continue to be in demand for the more challenging legal cases. (Cunningham et al, 2018)

As the amount of technological standardization increases, the specialization of the legal professional will be expected to change and adapt to the new reality. Most lawyers of the future will be required to have expertise in both the practice of law and also systems engineering and management. Another sought after skill, will be legal process analysis. It has become common for firms to decompose legal tasks into smaller processes and outsource the processes to multiple providers, in an endeavor to minimized cost. A legal process analyst will be required to identify the optimal way to subdivide each task and outsource each resulting subsection.

Consequently, the increasing amount of decomposition and multi-sourcing of legal services, will also inflate the demand for lawyers skilled in the discipline of project management. This expertise will be invaluable in overseeing and budgeting process outsourcing projects and finally, bringing the pieces back together to form a completed service for the client.

As it is with many tech-heavy sectors, legal tech providers will need to constantly innovate, to remain relevant and competitive. Lawyers that have a good grasp on cutting edge technologies and can use this to design and deliver new services, will undoubtedly enjoy great commercial success.

Finally, according to expert Richard Susskind the most urgently needed category of lawyer for the future, is the “Legal Risk Manager”. In most in-house legal departments, there is a strong inclination to foresee and thus altogether avoid legal problems, rather than having to resolve them. Despite this preference, there are no sufficient systems, processes and personnel dedicated to avoiding legal problems. As stated by Susskind, future legal service will be more proactive, rather than reactive, with focus on identifying and preempting legal risk. (Susskind, 2017)

The digital transformation that will disrupt the legal sector, will provide lawyers of the future with countless opportunities, but demand of them a new, different set of skills and capabilities. In order to be able to supply the market, legal education institutions will have to change their curriculums and invest in developing the technological and business acumen of prospective lawyers. Useful disciplines to expand to, would be database management, statistics, analytics and digital communications (Veith et al, 2016).

As stated by Fenwick et al. in the 2018 Discussion Paper “Legal Education in a Digital Age: Why 'Coding for Lawyers' Matters”, it will also be crucial for lawyers of the future to develop coding skills/know how, to assist them in participation in discussions around legal tech. The legal businesses will most likely rely heavily on code-based products and services in the long term and aspiring lawyers will need to learn to understand the language of the future.

Clients

Clients of legal services come in many shapes and forms. They can be large corporations, in-house departments that seek to outsource demanding legal work and lastly, individual consumers. Among those greatly varied examples, we can find some common denominators; namely a common set of demands. What is it that clients want from legal service providers?

According to Deloitte’s “Future Trends for Legal Services Report” (1999, cited in Legal Mosaic 2018, p. 23), legal buyers are mostly concerned with: (1) doing more with less; (2) global compliance; (3) the speed of business; and (4) using technology appropriately. Client needs do not go unnoticed by providers. Many are investing in providing a more client-centric delivery of legal services. Deloitte has invested \$350 M in “Deloitte University”, a program dedicated to advancing client interests and cultivating personnel know how in serving clients.

One of the biggest issues that individual clients face, is insufficient access to justice. This is not limited to the low income portion of the population, but also affects a significant percentage of moderate income individuals. A relevant study conducted in the United States, revealed that more than 100 million Americans are facing difficulties relating to the delivery and access to legal services. The most promising answer to the calls for improved legal service delivery, is technological innovation.

Technological solutions that achieve new levels of automation e.g. through the usage of artificial intelligence, are starting to make some legal services more affordable and thus more accessible to clients. A good example of this that has been mentioned previously, is the lucrative field of document automation, where software tools make use of pre-

existing templates and data to assemble a new legal document. As cited in the “Legal Services Corporation’s Report of the Summit on the Use of Technology to Expand Access to Justice” and the “United Kingdom Civil Justice Council Online Dispute Resolution Report for Low Value Civil Claims”, a number of civil legal aid organizations have developed web or mobile applications that can provide affordable or even free legal resources to the public, such as readily-available legal information or assistance in locating a lawyer with a specific expertise (Report on the Future of Legal Services in the United States, 2016). The availability of all those resources allows the end user unlimited choices and an unprecedented opportunity to make informed legal decisions by comparing costs, availability, expertise and quality of service (Cunningham et al, 2018)

The digital transformation of the legal services sector, has caused a great paradigm shift towards customer-centricity. It has incentivized providers and also equipped them with the tools to improve their operations and provide faster, cheaper and more flexible services. The ability to harness all these amazing new technologies, in a business sense, is a means to an end: becoming more competitive by improving customer experience.

Governments

The legal tech sector has shown promising growth globally, but this growth is not evenly distributed geographically. Between 2012 and 2018, \$ 3.81 billion dollars have been invested in legal tech in the USA. Comparably, less than \$ 200 million has been invested in Europe and less than \$ 100 million in Canada. This discrepancy, is not limited to the amount of investments. Different national government regulations, indicate different attitudes towards innovation in the legal sector.

As mentioned in a previous chapter, in the UK, the Legal Services Act of 2007 authorized the founding of legal businesses by non-lawyers, called “alternative business structures”. In the U.S., the development of numerous innovative startup companies was not restricted, but rather met with reluctant acceptance by the States. On the contrary, the introduction of the European Regulation 679/16 (GDPR), reveals a level of skepticism towards automated processes and their usage of personal information. This could greatly complicate the implementation of A.I. driven legal solutions, such as document automation, or more importantly Cloud technologies, since client data stored in the cloud

will require comparatively elevated protections, as required by the GDPR regulation. (Peruginelli, 2019)

Judges

Judges are very important figures in the legal world. Nevertheless, there is little to no mention of judges in the scientific bibliography concerning Legal Technologies. This may largely be due to the fact that, according to Susskind, it is neither possible nor desirable for computers to take over the work of judges.

There are, however, many examples of work conducted by judges that would greatly benefit from the introduction of technology in the long run. A good examples of this would be using the steadily developing advances in Document Automation to streamline the assembly of legal documents or other paperwork that judges are responsible for. A large portion of this paperwork involves standard, repetitive wording, making the use of automation a legitimate future solution.

An area that shows great promise but has suffered from little progress, is “e-working”. We are using this term in the broader sense, to mean “technology-based workflow or project management to streamline and enhance standard process, and electronic case files for better management of the documents themselves”. There has been little technological advancement in the areas of court management and administration, where most systems are antiquated and most documentation is paper-based (Susskind, 2017).

Investors

In tech heavy businesses, investment can truly be the cradle of innovation. In the legal tech sector, 2018 was a tipping point: according to Forbes, a new record for investment with a surprising 713% investment growth rate.

At the spearhead of this growth was e-Discovery, one of the most popular investment destinations in the whole industry, even though is not a common process outside of common law jurisdictions. We will be looking at the service of e-Discovery in greater detail, in the chapter “Law Tech Types and Technologies”. A second, leading branch of legal technology was legal research; that is research on legal documents using the advantages of technological advancement. (Pivovarov, 2019)

While the future of legal tech investment is hard to predict, it is understandable that e-Discovery, Legal research and Document Automation have a bright future, since they are services that are by nature easier to automate due to the amount of repetitive, standardized processes they incorporate.

From the findings of this chapter, it is evident that the adoption of legal technology has disrupted the traditional structures of the legal market, resulting in a competitive environment that demands reduction of cost and result timeframes and the adoption of innovative technologies to streamline processes and drive down average cost. To face current market needs and competition, traditional firms must adopt innovative legal technologies and invest in their further development or they will fall behind the new generation of Legal Tech start-ups and ALSPs. The market has shifted towards customer-centricity to appeal to the increased demands of legal service recipients, that currently enjoy better access to legal resources and information, making them better-informed.

Chapter 3: Legal Tech Types and Technologies

3.1 Search strategy

The review for this chapter was individually conducted online, with the use of tailored Boolean search operators. For this section of the paper, the goal was to identify the Legal Tech Types and Technologies currently affecting the legal services market. Based on this goal, the most important keywords were separated into the following groups and then used to conduct the research in various combinations:

Boolean Search Components

Group 1 (G1) Words relating to legal tech

Legal tech OR

Law tech OR

Legal technology OR

Legal informatics OR

Legal services OR

Legal services market

Group 2 (G2) Words relating to legal tech types

Type*

Category

Categories

Taxonomy

List*

Group 3 (G3) Words relating to current or future transition / transformation

Future

Innovation*

Change*

Transformation*

Disruption*

New

Disruptive innovation*

Digital Transformation*

Group 4 (G4) Words relating to individual legal services

Research

Litigation*

Compliance

Advice

Discovery

Dispute resolution

Education

Management

Document*

Contract*

Sources with Boolean search strategies

7. Information technology databases

IEEE Xplore	http://www.ieee.org/ieeexplore
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Boolean search strategy

G1 AND G2

G1 AND G3

G1 AND G4

G1 AND G3 AND G4

Limits

Search will be restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

8. General purpose scientific databases

Science Direct	https://www.sciencedirect.com/
JSTOR	https://www.jstor.org/
Springer Link	https://link.springer.com/
SSRN	https://www.ssrn.com/index.cfm/en/

Boolean search strategy

G1 AND G2

G1 AND G3

G1 AND G4

G1 AND G3 AND G4

Limits

Search will be restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

9. Grey Literature

Google	http://www.google.com
Google Scholar	https://scholar.google.com/
Google Books	https://books.google.com/
BASE	https://www.base-search.net/
Semantic Scholar	https://www.semanticscholar.org/

Boolean search strategy

G1 AND G2

G1 AND G3

G1 AND G4

G1 AND G3 AND G4

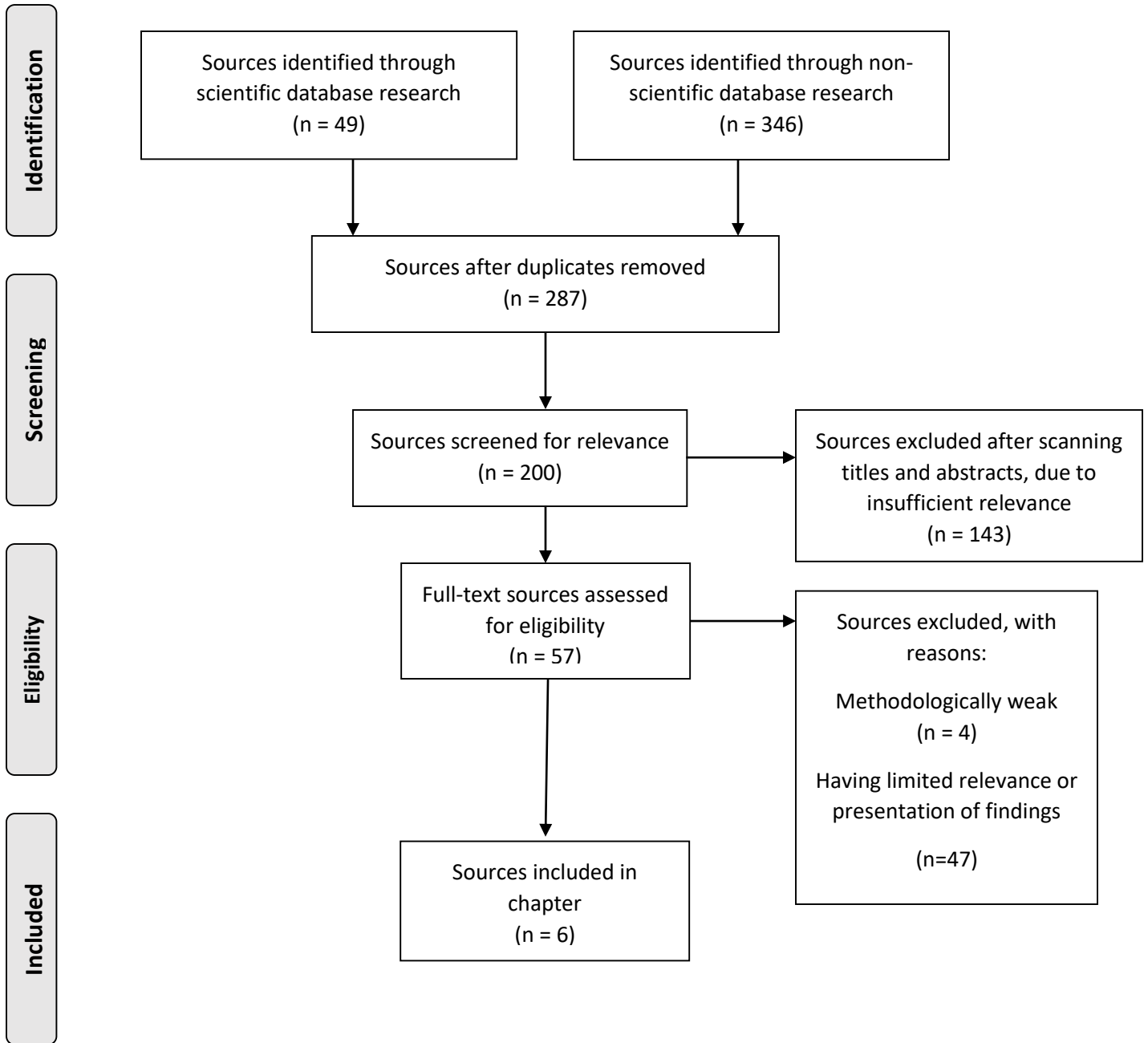
Limits

Search will be restricted to the abstract and title, where relevant (.ab,ti.)

Articles dated between January 01 2005 and January 31 2020 inclusive will be included.

No restriction by article type. Language is restricted to English.

PRISMA Flow Diagram



Prisma Flow Diagram 3: Search Strategy for the Legal Tech Types and Technologies

The above review produced the following six literature results as the most relevant, telling and crucial sources of information regarding the current available Legal Tech types and technologies identified in the services market. The results are listed below in **Table 3**. In the below matrix is a collection of the categories of the Legal Tech types and Technologies named in the sources selecte. Additionally, the figure explicitly lists the categories of Legal Tech types and technologies in each source, making it easy to discern which categories are universally included in all sources and where there is lack of consensus among experts. The below findings have been enriched by information found in other secondary sources, listed in the bibliography.

Table 3. Legal Tech Types and Technologies

	Praduroux et al., 2016	Kerikmäe et al., 2018	Susskind, 2017	Cunningham et al., 2018	Wilson, 2016	Legaltechlist, 2019
Marketplace	✓	✓	✓		✓	✓
Document Automation and / or Assembly	✓	✓	✓	✓	✓	✓
Practice Management	✓	✓	✓	✓	✓	✓
Legal Research	✓	✓		✓	✓	✓
Predictive Analytics / Machine Prediction	✓	✓	✓	✓		
Electronic Discovery	✓	✓	✓	✓	✓	✓
Online Dispute Resolution	✓	✓	✓			✓
Data Security Technologies	✓	✓				
Relentless Connectivity			✓			
Legal Education / E-Learning			✓			✓
Online Legal Guidance			✓			
Legal Open Sourcing			✓			
Legal Question Answering			✓			
Closed Legal Communities			✓			
Embedded Legal Knowledge			✓			
Expert Systems				✓		
Legal Analytics				✓		✓
Blockchain				✓		

Semantic Web Technologies				✓		
Contract Management					✓	
Contract Review					✓	
Compliance						✓

3.2 Legal Tech Types and Technologies

In the process of describing the legal tech services market, it is crucial to look into the current Legal Tech Types and Technologies that are transforming the sector. For the purposes of this research we will be describing the Legal Tech Types and Technologies observed in the relevant categorizations by experts of the field. With this goal in mind, the present chapter will provide a thorough analysis of the Legal Tech types and technologies from gathered literature, as seen in the matrix included in the Research Strategy. In most categories, examples of successful or up-and-coming companies that currently utilize these types of services and technological solutions will be included.

Marketplace

In a 2017 Forbes article, Richard Kestenbaum defined an online marketplace as “*a website or app that facilitates shopping from many different sources. The operator of the marketplace does not own any inventory, their business is to present other people’s inventory to a user and facilitate a transaction. eBay is the ultimate example of an online marketplace, they sell everything to everybody. There are many other types.*”

In the case of the Legal sector, there are three prevalent types of online legal marketplaces (Damasceno, 2019):

- Legal Advice marketplaces, connect individuals or businesses with lawyers for the provision of legal advice, either online or offline.
- Legal Services marketplaces, connect individuals or businesses with lawyers for assistance in basic legal services, usually relating to the drafting or review of legal documents, such as contracts, notifications, agreements or wills.
- Legal Outsource marketplaces, connect lawyers, law firms or legal departments with other legal service providers with the purpose of providing assistance in specific legal projects.

Richard Susskind mentions some of the important benefits of electronic Legal Marketplaces in his 2017 book “Tomorrow's Lawyers: An Introduction to Your Future”. Online Legal Marketplaces, provide clients with the ability to share information on

lawyers' services and performance, as well as with price comparison systems. Price comparison systems are characterized as especially "disruptive" for lawyers, since they used to benefit from the clients inability to compare prices as a means of choosing between alternatives.

One of the pioneer companies in the legal marketplace category, is "Priori". The platform connects corporate counsel to lawyers from multiple legal disciplines. The platform also uses cutting edge technology to provide solutions to streamline the legal workflow, such as an online legal document database. (<https://www.priorilegal.com/about-priori-legal>, n.d.)

Electronic Discovery

The legal sector is currently in a state of flux, but is also expected to undergo further transformation, as technological solutions of interest are constantly evolving. Some legal areas have already undergone technological transformation to a greater extent: Electronic Discovery is a prime example. Traditionally, discovery was a very labor intensive process, during which groups of lawyers would have to manually go through documents in search of information considered relevant to litigation. Since the process of searching for relevant keywords in large volumes of information is time-consuming but also rudimentary and highly repetitive, the process was one of the first to be streamlined through automation. (Alarie et al., 2018)

Electronic Discovery, or simply e-Discovery is the process through which computers search through document databases for keywords that lawyers have defined as marks of relevance. The process utilizes artificial intelligence by applying general methods of machine search to the review of legal documents. Another technology that has significantly impacted e-Discovery, is predictive coding. Using predictive coding algorithms, the user can look at a sample of the whole document and determine the document's relevance. Although predictive coding is still in an embryonic stage and often produces imperfect results, some courts have already approved its usage in the Discovery process. With the passage of time and the evolution of information technology, e-

Discovery solutions are expected to become cheaper, more efficient and, as a result, more ubiquitous. Technology Assisted Review (TAR), is already recognized and accepted by the High Courts of Ireland and the UK and, in 2016, the Supreme Court of Victoria (Australia) ordered the use of TAR techniques to assist in reducing the time and expense of manually reviewing discovery material. Since 2018, The UK Home Office has also been utilizing related technological solutions in the context of digital forensic investigations and associated criminal investigations (Cunningham et al., 2018).

According to Forbes (Pivovarov, 2018), e-Discovery is one of the most popular investment destinations in Legal Tech, so it is no surprise that many companies choose to get involved. One of the companies that received the largest investments in 2018 is Exterro: a company that develops and improves software for e-Discovery. The company's clients mostly belong in one of four groups: small- and medium-sized businesses, law firms, legal departments, and corporate IT specialists. The company also already boasts giants like Microsoft, Visa and Starbucks among its clientele.

Expert Systems

Expert systems are computer programs that are designed, trained and fine-tuned to function at the level of human experts in specific fields. The training of these systems is performed using information from past cases but the systems also continue to learn while being used, usually under the supervision of a human expert that can adjust the input and output accordingly. Expert systems are widely used in a variety of disciplines like medicine, finance or accounting to automate simpler tasks, reduce required man-hours and thus reduce costs. They are especially useful in the legal field, where the immense amounts of information that practitioners have to deal with, renders a purely human workforce impractical.

In the legal field, expert systems are currently mostly used for simpler tasks, such as contract drafting: i.e. the user is guided through the process through a series of questions, while simultaneously receiving tips and strategy advice through the systems (Carneiro, 2012). Another common application is in the field of Legal Research, where expert systems allow the user to find relevant legal data and process it, acting like “intelligent

search engines”. (Peruginelli, 2019) or even repositories of expert knowledge that can be put to use in answering questions in a faster, more cost-effective fashion. Expert systems can even provide lawyers with a simple way to build legal self-help applications to be used for within their organizations, since they are more reliable at diffusing existing legal knowledge and codifying expert advice.

An example of an expert system put to use, is the development of the “Data Law Center”, by US law firm Akerman LLP. Data Law Center is an “*intelligent legal product that will enable our clients to remain on the front line of business critical data laws by extending their in-house capabilities and improving business efficiency*”.

For a monthly service fee, the company’s clients are given access to a database on U.S. data privacy and security laws and regulations and timely analysis of risk areas to identify exposure. This service is highly competitive, since it can reduce legal fees by more than a whopping 80%. It is important to note that while the expert systems in Akerman are predicted to be able to resolve up to 80% of customer queries in the near future, the remaining percent would still require human interference. This doesn’t make the workload that expert systems can execute any less impressive; but it still highlights that even for the most sophisticated technologies, in some cases human intervention is still and is predicted to remain a necessity for the near future. (Cunningham, 2019)

Legal Research

Legal Research has been a traditionally time consuming task that involves searching for the law by combing through precedent. Since this task is highly specific and repetitive, it was a perfect candidate for machine automation. Computerized legal research was initiated as early as the mid-1960s, when the Ohio State Bar Association tried to create an electronic system to sort through legal opinions. Since hardware and software processing capabilities continued to thrive, computerized legal research soon replaced the less efficient manual research from casebooks.

The current “Big 2” in the world of legal research are LexisNexis and Westlaw, both implementing Natural Language Processing techniques. (Baker, 2018) According to philosopher Charles Morris, language is divided into three components: syntax,

semantics, and pragmatics. When placing these components in the context of automated text processing for legal research, one can think of syntax as processing at word level, semantics as processing at concept level, and pragmatics as processing at the action or narrative level. These concepts are presented in ascending order of complexity. Currently, the syntactical approach is the one most frequently used in technological solutions, as it has produced the most visible results of all three.

The greatest weakness of the syntactical approach is that while it recognizes the repetition of keywords it fails to perform interpretive tasks, so in the context of the legal field it cannot comprehend legal interpretation. (Sheppard, 2015) The only way to achieve legal interpretation through artificial intelligence, is for the technology to advance enough to process semantics in addition to keywords.

According to McGinnis (2014), semantic legal research will allow lawyers to input natural language queries to computers, and the computers will respond semantically; that is, the computer may not bring up results that contain the keywords used in the query, but the results will nevertheless be highly relevant in terms of concept and meaning. This great leap the technological capability is far from science fiction: we are already beginning to see startup companies taking steps in winnowing data in an effort to make cases more conceptually tractable. This would allow machine intelligence to exploit deeper pattern recognition to provide a kind of semantic search. Many companies, including LexisNexis, are already taking steps in this direction.

Moreover, the field of Legal Research is evolving in some other promising directions. In the future, machine intelligence will have the ability to calculate the strength of precedent. As of now, through a process called network analysis, technological solutions can make evaluations on the strength of a precedent by calculating how many other cases rely on it. A recent start-up company provides a search function that can connect legal briefs to the results of cases in particular courts. These innovative services will not only assist lawyers in unearthing precedent, but also in evaluating the strength of precedent in the context of a specific case, court or even judge.

According to McGinnis (2014), the current prediction is that legal semantics research that can make evaluations on the strength and best uses of precedent, will come in the next ten

to fifteen years. This time frame will ultimately depend on the future developments in the field of search technology in general. As powerful as a semantic search will be, it is still no more than the first phase of the improvement of legal search, with many more still to come.

Relentless Connectivity

According to expert Richard Susskind (2017), “relentless connectivity” is one of the important disruptive types of Legal Tech that can fundamentally challenge the current legal landscape. In using this term, Susskind collectively refers to all technological systems that “*prevent lawyers from completely disengaging from their clients and workplace*”.

With the advancement of smartphones, tablets, high resolution video conferencing software and social media, all professionals are increasingly more visible and more engaged to their clients, employers and colleagues, even outside of working hours. This will in turn increase the expectation that lawyers be constantly available to their network of contacts, even in their downtime. This expectation will increasingly take its toll on both the working and social lives of lawyers, and many other professionals.

Legal Education

The great advancement of Legal Tech will undoubtedly result in changes regarding legal education. This subject is of great interest to legal experts and is frequently brought up in the Legal Tech bibliography.

Starting from law schools, one of the ways that Legal Tech innovation will affect education is in regards to the curriculum. Sensing the shift in the market, many law schools have taken steps to provide students with knowledge about innovation in legal services delivery, by offering technology training and investing in the development of the students’ practice-related competencies. Some law schools already offer courses on e-discovery, outcome prediction, legal project management, process improvement and document automation. Additionally, some law schools provide law students and recent law graduates with access to incubators that encourage them to engage in rigorous innovation. (ABA’s Commission on the Future of Legal Services, Report on the Future of

Legal Services in the United States, 2016). The changes do not stop at curriculum content– the advancement of technology could also affect the manner in which the lectures are conducted. The techniques involved start from online lectures and webinars, which are already relatively widespread, and extend to the much more sophisticated use of simulated legal practice and virtual legal learning environments. (Susskind, 2017)

Another important aspect, is the advancement in academic Legal Informatics, though the establishment of sophisticated academic projects by renowned academic institutions, such as Stanford’s “CodeX”, Georgetown’s “Iron Tech Lawyer”, Suffolk’s “Institute on Law Practice Technology and Innovation” and Chicago-Kent’s “Center for Access to Justice and Technology”. (Praduroux, 2016).

The changes in legal education will not stop at law schools, but will also extend to the work environment. Law firms will also have to educate legal practitioners on how to extract maximum value from available technologies, especially the ones being utilized by their firm. Susskind (2017) predicts that we will be seeing a shift from “just in case” training (providing training, in case it proves useful in practice), towards “just in time” training (training provided with the aid of interactive, multimedia tools that is tailored to a specific need).

Legal Analytics

Legal analytics is “the management process of extracting actionable knowledge from data to legal leaders and decision-makers” (Cunningham, 2018). The insights extracted through this process can be put to multiple uses, including but not limited to: the optimization of legal strategy, billing, resource management and financial operations. While these applications of analytics are noteworthy, the most important advantage of analytics is the emerging potential to predict the length, cost and result of a case. The subsection of Legal Analytics that endeavors to unlock that potential is known as “Predictive Analytics”. Predictive Analytics is the most widespread and talked about area of Legal Analytics, since dependable outcome predictability would allow litigators to make better decisions, while simultaneously reducing risk and uncertainty. These advantages have facilitated the rampant demand and adoption of this technology. We will also be looking at it next, in greater detail.

Predictive Analytics

According to Praduroux (2016), Predictive analytics is “the analysis of data through statistical or mathematical techniques that results in meaningful relationships being identified in the data. These results can then be used for better prediction of future events and better decision-making. Predictive modeling of litigation management provides the information needed at the beginning of a juridical process to improve it.” Law, by nature a discipline that requires large collections and analysis of data, is a good conductor to predictive analytics. Large sets of legal data (case facts, precedent, past case outcomes) can be looked over, in search of patterns. Machine learning then looks for regularities in those patterns and then uses them to make a prediction about the likely outcome of a court case.

Although the implementation of Predictive Analytics might seem futuristic, it is already a reality. In the lucrative field of patent law, a new company called “Lex Machina” can already make predictions about case outcomes, after gathering data from thousands of instances of past patent litigation. Another example is the development of a model of U.S. Supreme Court decision-making that can predict future case outcomes more effectively than a set of Supreme Court experts.

According to McGinnis (2014), there is also a noteworthy possibility that the rise of Predictive Analytics could affect the number of cases that go to trial. Since the case value will be predicted with better accuracy, parties will be more partial to settling, in an effort to also avoid the added legal fees and uncertainty that come with litigation.

Conclusively, the future looks bright for this type of Law Tech: it is expected that Legal Analytics will soon be built into at least half of all business analytics software. What’s more, some experts deduce that Predictive Analytics could go on to systematically reduce or even completely displace human experts in the field. On the flipside, some also raise concerns around the fact that predictive algorithms may be effective at identifying patterns and regularities, but they have no understanding of causality of phenomena, or the legal reasoning behind them. Only time will tell how much this technology can ultimately be trusted, and whether making these predictions could turn them into self-fulfilling prophecies (The Law Society of England and Wales, 2017)

Practice Management

Legal Practice Management is the use of software solutions to help legal professionals streamline processes. The end goal is the optimization of workflow, collaboration and productivity, by facilitating the automation of suitable processes. Practice and case management software provides attorneys with solutions in managing client and case information, contacts, calendars, meeting information, documents and billing. (Kerikmäe et al, 2018)

A comprehensive review of the processes carried out in a law firm or legal department can quickly identify plenty of candidates for automation: namely repetitive, common, standardized and transactional processes. Even if some of those processes have been outsourced, it can be sensible to bring them back in-house, since automation could make them cheaper but will also reduce any jurisdictional data risks. Although the legal sector has a smaller proportion of “transactional” work compared to financial services, the average costs are relatively higher and the impact of inaccuracy greater, which makes process automation an attractive prospect that large law firms and legal departments should be looking at closely.

One of the ways in which process management can be streamlined, is through the use of Robotic Process Automation (RPA). This term describes a new type of software that replicates the transactional, rules-based work that a human being might do; essentially a software ‘robot’ that doesn’t require any human intervention. Robotic Process Automation (RPA) comes with a seductive set of advantages: it removes the risk of human error, is estimated to bring companies between 20% to 40% in cost savings, will repeat every process exactly the same way 100% of the time and logs the actions it performs, thus ensuring complete auditability. (The Law Society of England and Wales, 2017)

Although the field of Practice Management is not among the most lucrative in the Legal Tech market, there are still examples of well-established and fast growing companies that specialize in it. One of them is “Practice League”, a start-up providing a unified platform

that facilitates the end to end streamlining of business operations, while at the same time maximizing legal efficiency and cost-effectiveness. Through the use of Artificial Intelligence, Blockchain and Secured Cloud the platform provides seamless and instant exchange of data, execution of processes and predictive management with real-time visibility and control. (<https://practiceleague.com/index.html>, n.d.)

Online Dispute Resolution

Disputes are a universally common occurrence, so it is understandably important that the methods to resolve them should become increasingly fast, sophisticated and efficient.

Dispute Resolution can generally be divided into two main tendencies:

1. **Judicial Dispute Resolution:** the dispute is resolved in court, through litigation. The plaintiff and the defendant present their case and the outcome is ultimately decided by either a judge or jury. The resolution of disputes in court has significant drawbacks. It is often very costly and drawn-out. Additionally, court rooms are a competitive arena where both parties exhaustively pursue their individual interests, disregarding the interests of the other party. This tendency delays the achievement of a mutually satisfactory result, and makes a compromise more unlikely. The important drawbacks of dispute resolution through litigation, contributed to the fast adoption of Alternative Dispute Resolution. (Carneiro et al, 2012)
2. **Alternative Dispute Resolution:** is the resolution of a dispute without resorting to litigation. The common forms of Alternative Dispute Resolution are:
 - a) **Negotiation**—where a mediator attempts to help the parties build a dialogue and reach a mutually beneficial agreement. It is common in divorce cases.
 - b) **Mediation**—where an independent third party attempts to build a dialogue leading to an agreement. The agreement is subsequently put in writing and becomes a binding contract.
 - c) **Arbitration**—both parties agree to present their case to an unbiased third person and agree in advance to comply with the findings.

- d) Early neutral evaluation—where a ‘neutral’ person, hears each parties’ case and presents a non-binding assessment.
- e) Adjudication—is a contractual or statutory procedure for swift dispute resolution, provided by a third party and often set to a strict timetable.

Online Dispute Resolution (ODR), is the usage of technology to facilitate the resolution of disputes, using negotiation, mediation, arbitration, or even a combination of all three.

ODR can either be fully automated or involve varying degrees of human intervention.

The principal technological solutions of interest applied to ODR are:

- Artificial Intelligence (AI)
- Internet of Things (IoT)
- Big Data Analytics
- Blockchain Technologies

ODR systems are characterized as “first” or “second” generation, depending on the extent of the involved technologies’ capabilities. First generation ODR systems enable relentless connectivity between parties, through instant messaging, forums, video and phone calls and also expedite access to relevant legal information. The second generation of ODR systems do not only enable communication, but also assist in idea generation, planning, strategy definition and decision making, mimicking the cognitive capabilities of the human experts. Of course, while advancements in A.I. already show great promise, most of these capabilities will be available to a greater extend in the future. (Barnett et al, 2017)

According to Barnett et al. (2017), the three principal areas of activity for ODR are as follows:

1. Consumer ODR

A Consumer ODR platform, is “an interactive website offering a single point of entry to consumers and traders seeking to resolve disputes out-of-court which have arisen from online transactions”. These platforms have many functions, including: allowing consumers and traders to submit complaints by filling in an electronic form and attaching

relevant documents. These complaints are in turn transmitted to an entity competent to deal with the dispute concerned and offer an electronic case management tool. Some of the most well-known platforms include:

- The eBay Resolution Centre— a pioneer ODR platform, built in the 1990s, that resolves disputes between ecommerce parties.
- Modria.com—a cloud-based platform on which businesses and public bodies can build their own custom - made ODR services. It supports many of the previously mentioned alternative dispute resolution methods, including: negotiation, mediation and arbitration.

2. Judicial ODR

Judicial ODR is the usage of technology to facilitate arbitrated dispute resolution through a hearing that takes place outside of the courtroom. The parties are brought together and a neutral third party is assigned to produce a ruling. Examples of Judicial ODR services are:

- Money Claim Online (MCOL)—the UK HM Courts & Tribunals Service Internet based service for claimants and defendants.
- SmartSettle—a service that applies techniques from game theory to resolve disputes. SmartSettle utilizes a six step process, overseen by a facilitator: (a) parties are informed of the process and agree to the guidelines, (b) parties identify their interests in the dispute, (c) the demand and value are rated by both parties, (d) the software proposes a settlement, (e) the software subsequently amends the settlement based on negotiation (f) the parties sign the settlement agreement.

3. Corporate ODR

Corporate ODR systems facilitate the resolution of disputes regarding major multi partner corporate projects or financial contractual disputes. This discipline is still in its infancy but could prove to be lucrative, considering the frequency of emerging conflicts in multi-party corporate projects and contractual finance matters. A core principle in using a

Corporate ODR system is that the involved parties should agree before the commencement of the project that any resulting disputes will be referred to the system.

The mediation algorithm of a Corporate ODR does not rule in absolutes, is does not decide who is right or wrong, but rather aims to pinpoint areas of consensus and compromise. (Barnett et al, 2017)

Data Security Technologies

In the paper titled “Legal Tech Start-ups: State of the Art and Trends” (2016), Praduroux et al (2016) define Data Security Technologies as these “intended to protect confidentiality of data that is exchanged in client/server data transfers. Fundamental to these technologies is the use of proven, industry-standard encryption algorithms for data protection.”

By the writers’ own admission, this is not strictly a legal technology category, as it mostly relates to the discipline of Computer Science. Nonetheless, legal practitioners come into contact with significant amounts of confidential client or company information so it is vital that legal technological solutions ensure the privacy, security and confidentiality of all data and transactions. With the enforcement of the GDPR regulation in Europe, the maximum penalty for a data security violation is set at 4% of worldwide revenues of the offending organization, making the protection of sensitive information even more imperative.

According to Forbes (Press, 2017), these are some of the most prominent data security and privacy technologies that firms must learn to utilize:

- Cloud data protection (CDP): Encryption of sensitive data before uploading it to the cloud with the enterprise maintaining the keys. Sample vendors: Bitglass, CipherCloud.
- Tokenization: Randomly generating a value (“token”) and using it to substitute sensitive data, such as bank account or social security numbers. After tokenization, the mapping of the token to its original data is stored in a hardened database. Sample vendors: CyberSource (Visa), Gemalto, MasterCard.

- **Big data encryption:** Using encryption to protect data in relational databases as well as big data platforms from cyber-attacks and accidental data leaks. Sample vendors: Gemalto, IBM, Micro Focus (HPE).
- **Data access governance:** Allowing organizations to map where sensitive data exists, as well as the required access permissions, to ensure better data management and the identification of sensitive stale data. Sample vendors: Core Security, Varonis.
- **Consent/data subject rights management:** Managing customers' and employees' consent and rights over their personal data shared with a company, aiding the company in modifying personal data as necessary. Sample vendors: BigID, ConsentCheq, Evidon, IBM.
- **Data privacy management solutions:** Platforms that help streamline privacy processes and practices, supporting privacy by design and meeting compliance requirements. Sample vendors: Nymity, OneTrust, Proteus-Cyber.
- **Data discovery and flow mapping:** Scanning databases to identify sensitive data, classifying it and making appropriate decisions on how to store, archive and protect the data. Sample vendors: Active Navigation, IBM, Varonis.
- **Data classification:** Looking through databases to identify data that matches predefined patterns or custom policies. Many tools also provide automated classification of the findings, to prioritize data in regards to importance and sensitivity. Sample vendors: AvePoint, Boldon James, GhangorCloud, Microsoft (Azure Information Protection)
- **Enterprise key management (EKM):** Key management solutions that implement the storage, renewal and retirement of encryption keys on a large scale across many types of encryption products. Sample vendors: Dyadic, IBM, Thales e-Security.
- **Application-level encryption:** Allows the data to be encrypted at the moment of generation, before it has been stored in a database, thus ensuring better protection and access by fewer authenticated users. Sample vendors: Gemalto, Micro Focus (HPE), and Thales e-Security.

Of course, while there are multiple security solutions available, cost is certainly a discouraging factor to their adoption. For Bolin (2018), the adopted security solutions should be decided in accordance with the size of the law firm. Small firms often lack in know-how, as well as in financial resources to secure pricey security protections. It is therefore vital that they invest in training their staff and implementing inexpensive policies, such as encryption. Medium firms, having more resources, can invest in strict “bring your own device” policies, consultations from information technology advisors and purchase cyber security insurance. Lastly, large firms have significantly greater resources, thus more data security capabilities. They can afford more specialized security training, pay information technology specialists to preempt any present cyber-attack threats and seek out available security certifications that will help them stand out from competitors.

Legal Open Sourcing

According to Susskind (2017), the open source movement could also have an intriguing effect in the legal field. He considers the possibility of a mass online collaborative movement to collect and share legal data, such as documents, checklists or flow charts.

This vision has already taken form in some cases; a notable example is Cornell University’s Legal Information Institute, where helpful legal information has been freely available since 1992. Another more current example is OpenLaw: a company that aims to create a comprehensive open source ecosystem that increases access to justice. OpenLaw constitutes a bridge between the legal industry and blockchain technology, by providing blockchain-based applications and services with easy access to agreements available on their network. (<https://lib.openlaw.io/web/default/solutions>, n.d.)

Semantic Web Technologies

On a similar note with open sourcing endeavors, Semantic Web technologies are also a step in the direction of more data access for legal practitioners. These technologies define and interconnect data in a way similar to that in which traditional web technologies define and interconnect web pages. In the traditional Web, web pages are connected to each other and can be explicitly linked using HTML links. The Semantic Web provides

the same function, limited to data: it allows data to be shared through a linked data network. One of the primary benefits of Semantic Web technologies, lies in their potential for linking and integrating data from multiple sources, allowing the user to retrieve information along all of those different sources. (Evans et al., 2013)

In the context of the legal market, the Semantic Web offers important resources, such as documents and files, which can be identified, interlinked and accessed. The open data movement mentioned above, in conjunction with the potential of Semantic Web Technology, can transform the way that legal content is accessed, shared, distributed, edited and enforced. Knowing the importance of data to the individual lawyer, but also to the law firm, Semantic Technologies allow them to have access to lots of information and share it. Another clear benefit, is that this collection of data exists integrated in the “pockets” of the Semantic Web, solving storage issues and making it more manageable. (Cunningham et al, 2018)

Embedded Legal Knowledge

According to expert Richard Susskind (2017), “Embedded Legal Knowledge” is another promising type of Legal Tech of the future. This technology is still in its infancy and is not yet widely applied to the legal sector, but Susskind recognizes the notable potential. According to his prediction, legal rules will have the ability to be embedded with our systems and processes. An example of this, would be an intelligent car that warns the driver that the car won’t start unless they pass a built-in breathalysing test. Or an intelligent building that monitors the obedience to temperature and environment conditions stipulated by safety regulations and sounds and alarm in case of a violation. Perhaps the most interesting example, is that of a self-executing contract that can automatically initiate provisions, bypassing human involvement.

The advantage of an embedded system is the user doesn’t need to take any action – actions are automatically generated by software. In the context of the legal sector, this technology could prove to be substantially disruptive, since any self-executing software that can monitor legal compliance makes a lawyer’s involvement obsolete.

Compliance

With the term compliance, we refer to conformity to a rule; that can be a law, a policy, a regulation or a standard. In the legal sector, compliance generally refers to regulatory compliance, a company's or organization's aspiration to take the necessary steps and precautions to be in compliance with relevant laws, policies, and regulations, thus mitigating risk. (Lin, 2016)

In-house legal and compliance teams are continually put to the “more-for-less” challenge, expected to deliver more with dwindling resources. Legal teams need to be at the forefront of strategic work, ensure compliance with continuing regulatory change and manage risk. In a professional world characterized by increasing data volume and complexity, legal teams steadily discover how technology can assist in meeting those challenges. As a consequence, financial services and the legal and compliance functions of large companies are forecast to be among the leaders of the digital and data-driven revolution.

In response to the need for technological aid with compliance, a range of regulatory technology (RegTech) solutions has emerged, aimed at resolving both complex and simple regulatory or compliance issues. These solutions help companies and organizations constantly monitor relevant laws and regulations and keep track of changes. The businesses that can identify the solutions that will provide added value and facilitate long-term cost savings, will gain significant competitive advantages in the market. (O'Connell, 2020)

One of the most prominent RegTech solutions of interest is Libryo. Libryo is a Software-as-a-Service (SaaS) with a dynamic data structure. The regulatory data is made available via a platform where the user can search by topic and browse section-specific regulations, and any changes to legislation are quickly reflected. The platform can achieve this by using machine learning, specifically natural language processing (NLP) to look through volumes of legal content and pinpoint specific legal obligations. The Libryo Platform can provide this service for any type of regulation, in any country, and is unique in its ability to service multinational enterprises. (<https://libryo.com/faq/>, n.d.)

Closed Legal Communities

Closed legal communities, are private online social networks, where law industry professionals can come together to discuss and exchange knowledge and experience. For some, these communities could have notable impact, especially for the industry professionals that will find ways to take advantage of the opportunities and overcome the pitfalls. (Susskind, 2017)

Closed Legal Communities can be potent gathering points for practitioners qualified within very specific to form sophisticated, qualified networks where they can share best practices, know-how, news and opinions. These platforms provide industry participants with a unique opportunity to build up relationships amongst each other and network. This gives them access to new potential clients. Even if the exposure does not lead to any immediate collaborations, by showcasing their expertise, skills, and knowledge, they can set themselves apart in the market and be front of mind in the future when potential clients are contemplating future collaborations. (Holmes, 2017)

Online Legal Guidance

An exclusively B2C service, Online Legal Guidance is offered to clients through online systems that provide legal information, legal guidance and legal advice online. These services can be provided and charged in a multiple ways. (Susskind, 2017)

Some Online Legal Guidance Systems, offer answers to clients questions through a dialogue box contained on a website. The customer can ask a question and is provided answers in exchange for a fee, simulating the actual consultation process, without forcing the client to leave the comfort of their home (Brescia et al, 2015). In other cases, "Free Legal" startups can provide legal information, or legal guidance free of charge. Some even gather the necessary legal information through crowdsourcing. Docracy, is an example of such a Free Legal startup that uses a "freemium" business model: offering services free of charge to attract customers to other fee-based services and products. (Linna Jr, 2016).

Online Legal Guidance is not limited to start ups, since several larger and more established law firms have adopted Interactive Legal Advisers and Online Legal Advice services. The Interactive Legal Adviser provides customers with appropriate legal

answers after having completed extensive online questionnaires. Additionally, Online Legal Advice is provided by a group of lawyers, either by telephone or email, often for a fixed price per incident. Another provider of Online Legal Guidance, can be non-profit organizations: Pro bono net, a US non-profit organization, partners with legal aid organizations in an effort to curb issues of access to justice, especially among lower income communities. Pro bono net has created LawHelp: an online resource that guides low-income people in the process of finding free legal aid. LawHelp “provides referrals to local legal aid and public interest law offices, basic information about legal rights, court forms, self-help information, court information, links to social service agencies, and more in your state”.

The ability to offer legal advice and guidance online, has definite benefits for clients: it provides greater fee transparency, can be more cost-effective than seeking out a traditional consultation and there is no need to leave the confinements of their homes. On the providers side however, the effects are more dubious. As most technological advances, online legal services have the potential to change the dynamics of the legal field.

If clients can have the alternative of free legal advice online, or advice offered for lesser cost compared to the traditional consulting process, then this alternative could become increasingly preferable. Some experts go as far as to allege that these technologies aid in the commoditization of legal work and they could potentially devalue it. As more will begin to flock to new low-cost on-line legal services, they could likely aid in a shift towards a legal market that is gradually underbidding itself, thus fostering the already growing dynamic of surplus because of an increasing over-production of lawyers in many countries. (Caserta et al, 2018)

Legal Question Answering

“Legal Question Answering” is one of the types of technology characterized by Susskind (2017) as potentially disruptive for the legal sector. Question answering (QA) is “a branch of computer science devoted to the development of systems that automatically respond to questions put by human users in everyday (natural) language.”

A perfect example of the QA technology put to work, is IBM's Watson, a question answering computer system. Watson's capabilities were famously showcased in 2011, when Watson beat former *Jeopardy!* champions Brad Rutter and Ken Jennings.

Watson is a computer system powered by "DeepQA", a type of technology that uses both natural language processing and deep learning. First, Watson analyzes the input question to determine the precise meaning. Next, it generates many candidate answers, analyzing each answer through hundreds of algorithms to determine the best candidate.

Although currently mostly confined to computer science, Deep QA is predicted to infiltrate other important sectors. In the case of the legal sector, while there is no current equivalent to Watson, Deep QA could potentially be applied in areas like Legal Research and Online Legal Guidance. For the time being, Deep QA's ability to look through immense amounts of data and mine them for facts and conclusions, could prove useful when gathering facts to build legal arguments. Yet in order to train an AI system like Deep QA to satisfactorily answer a legal question, it would have to not only present facts, but also provide arguments to support the answer's validity and value, in other words provide legal reasoning. While this might not yet be possible today, for many experts it could be possible in the future, through the advancement of cognitive computing. Law and AI researchers are already developing computational models that will identify information pertaining to legal arguments and collect it, thus moving forward from legal information retrieval, to the next step of legal argument retrieval. (Ashley, 2017)

Contract Management

Contract Management refers to a company's management of its contracts with other parties: customers, vendors, other companies, partners or employees. Contract management includes multiple functions such as: keeping track of contract terms and deadlines, negotiating contracts, ensuring compliance with contract terms, and documenting modifications to contracts. (Linna Jr., 2016)

The process of contract management is of course timely and costly and requires great care and expertise, since failing to comply with contract terms could have important legal

ramifications. The process of Contract Management can nowadays be undertaken by specialized Contract Management digital solutions that help legal professionals keep track of their contracts, important contract set deadlines and decisive contract clauses. Those solutions typically offer the following features: secure contract information storage through use of cloud storage, tracking of deadlines and providing succinct summaries of the contract subject matter and the resulting contract obligations. (Damasceno, 2018)

Monax, is a pioneer company specializing in Contract Management services. Its features include:

- The creation of new, tailor-made contracts through templates
- Monitoring performance in contract compliance: Monax monitors performance and can enable automated actions required to ensure the timely fulfillment of contract obligations.
- Proving compliance: Monax can generate a series detailed contract reports that contain comprehensive evidence of the fulfillment of contract obligations, ultimately creating a continuous audit trail that is recorded on a blockchain, ensuring security and transparency. (<https://monax.io/features/>, n.d.).

Contract Review

In traditional contract review lawyers have to exhaustively look over contract terms to ensure that they do not shelter obscure legal obligations, legal exposures or any other liabilities that could cause risk. Additionally, the legal professionals that are involved with legal review, need to be well-informed and up to date with relevant compliance rules, to ensure mitigation of any risk stemming from breach of contract terms.

Looking through volumes of contracts that are often rudimentary and repetitive, is a process that could be automated through the use of appropriate technology. Technology can greatly speed up the processing of large amounts of information and provide some additional, helpful features, such as the option of quicker contract renewals, notifications when contract expirations are near or supplementary information, relevant to the contract terms. All of those functions can of course be performed by human experts, but the

involvement of technology greatly assists in making the process less time-consuming and costly.

For all of its great benefits, technology assisted contract review also has understandable limitations. While artificial intelligence is very efficient in mundane work that requires word processing, it can't achieve the required level of legal interpretation that can often be vital when crafting or reviewing complicated legal contracts. This is not to say, that automated contract functions are not attractive to law firms. According to Cunningham et al (2018), during relevant research, a number of law firms indicated that contract analysis solutions are among the most useful supplementary tools. But still, automated contract review has not yet reach a point where human expert oversight is deemed unnecessary or superfluous. This distinction of course, applies to the use of technology in law in general: processes that require *sophisticated* legal interpretation, require the oversight if not the immediate involvement of a lawyer with relevant expertise, while the more routine tasks can be digitally streamlined autonomously. Nonetheless, the ability to achieve autonomous automation in contract review, still has a measurable impact for the legal sector, since it leads to a decrease in the number of legal professionals required, a shift in the role of the remaining legal professionals and further detachment from the structure and billable hour business model that traditional law firms had up until now.

Contract Review technology solutions are cloud based and utilize machine learning to efficiently review thousands of complex documents at a time and rapidly extract key provisions, generate contract summaries and analytical reports. One such solution is Cognitiv plus, a platform that can provide regulatory and compliance intelligence for company contracts, create natural language processing document intelligence workflows, thus accelerating contract review by up to 80%. (<https://cognitivplus.com/>, n.d.)

Document Automation and Assembly

Document automation is one of the most talked about types of Legal Tech, and regarded by some experts as one of the most disruptive. Traditionally, Document Assembly was a lengthy process that was charged by the hour. With the immense advancement in

technology, Document Automation platforms are available to assist individual clients and businesses in creating legal documents that are tailor made to their specific needs, for an affordable cost. Document Automation is not however limited to being a B2C service, since lawyers can also use those platforms to create intelligent templates, that they can in turn use in the provision of document assembly to their customers. (Damesceno, 2018)

In its most common form, document automation requires the customer to fill out some sort of form or questionnaire pertaining to the specifics of their current legal situation. Based upon the answers provided, the program can then automatically generate a document that serves in addressing the consumer's specified legal issues. Customers seem to have responded well to the document automation, mostly due to the lower cost, while lawyers, on the other hand, have shown some initial reluctance in adopting this technology for their own use, due to the fear that automation could prove to be unreliable and any mistakes present on the resulting documents could lead the lawyer to face dire consequences.

Despite lawyers' initial hesitation, the benefits of automation have begun to turn the tide. The biggest advantage that document automation technology can offer legal practitioners, is the ability to manage substantial amounts of workload, much quicker, leading to increased efficiency. Document automation first became popular in the sector of estate planning, especially since it reduced the cost of wills from hundreds of dollars, to approximately sixty-nine dollars per will and has since been adopted across the board. (Brescia et al, 2015)

There is currently a significant number of companies that offer document services, such as Rocket Lawyer, DocStoc, LawPath, Shake and Ironclad. Perhaps the most well-known is LegalZoom: one of the very first law companies with an online service presence, and one of the most successful, with an estimated worth of \$2 billion in 2019, according to Forbes. LegalZoom's main service is document assembly for a variety of purposes. (Pivovarov, 2019)

Blockchain

The Blockchain is “a decentralized and distributed cryptographic digital “ledger” that is used to record transactions. The principles underlying this technology allow people who do not know or trust each other to build a large digital record of “who owns what” that will enforce the consent of everyone concerned”. Essentially, the blockchain can be paralleled to a public database that can store and transfer both tangible assets (physical properties) and intangible assets (information). Another important trait of the blockchain is a verification system that ensures security and transparency of all records and transactions. “Each transaction is distributed across the entire network and is recorded on a “block” only when the rest of the network ratifies the validity of the transaction based on past transactions considering the previous blocks. Each block follows the other one successively and this is what creates the blockchain”. Due to these functions, the blockchain is regarded to have a very high level of trust. (Corrales et al, 2019)

Blockchain technology’s important assets could make it a game changer for many industries. By definition, law is a discipline that oversees large amounts of transactions, where transparency and validity are held in high regard. Understandably, the blockchain has the potential to transform the legal industry, by streamlining, re-engineering and securing transactional processes, without losing judicial authority. For the purposes of this paper, we will focus on the blockchain’s invaluable contribution to the creation of smart contracts, a promising innovative transaction function.

Smart contracts were introduced by computer scientist Nick Szabo and gained greater attention after the publication of his seminal paper in 1997. In the context of this paper, Szabo intelligently compared smart contracts to the process of purchasing an item from a vending machine, in that it involves the automated transfer of ownership of property of a confectionary item, upon the receipt of money. Fundamentally, a smart contract functions with the same principle: it is a computer program that verifies and executes its terms upon the occurrence of one or more predetermined events.

Smart contracts are constructed upon a cryptocurrency platform, i.e. a decentralized system for making transactions with virtual money, shared on the blockchain. The blockchain records these transactions chronologically and they are subsequently validated by the entire network of users, making the process transparent to all involved. Once a contract has been added to the blockchain, it can't be changed or manipulated and continues to operate in accordance with its programmed instructions.

As has been previously mentioned, smart contracts have significant advantages: they are automated and efficient, they ensure transparency and validation and lastly, they can provide anonymity to involved parties. For all their merits, it is important to also consider the many issues stemming from the attempt to implement, regulate and enforce these contract through the existing contract regulations.

Firstly, due to the network's anonymity, it would be hard to verify the identity of contracting parties in order to ensure that they possess contractual capacity and are not engaging in identity theft. Another issue would arise in the case of a contract coding error; it would be very hard to assign blame and liability. Lastly, contracts have to be legally certain in order to be enforceable. In the case of a smart contract, it would be hard to assess how a computer could interpret terms that are ambiguous, such as "reasonableness". (Giancaspro, 2017)

Conclusively, there are important advantages and disadvantages to consider regarding smart contracts. It would be wise for legal practitioners to try to keep pace as these pioneering technologies become more ubiquitous, regardless of their stance.

The collective findings of this chapter, make it evident that there is no universal consensus among experts, regarding what constitutes the important categories of Legal Tech types and Technologies. The deviation among the results per source, suggest that each expert defines those terms differently and therefore produces different results, thus we can conclude that there is strong need for greater study and understanding of the different types of Legal Tech, especially as its adoption grows.

Yet, there is strong expert consensus behind the prediction that over the next years, we will likely see further transformation of the legal sector through an augmented workforce that will include a combination of human experts, supplemented by a new generation of smart technologies, virtual assistants, algorithms and automated processes. The incorporation of all those new technological solutions, will fundamentally change traditional ways of operating for businesses and individuals. Through the introduction of new capabilities revolving around data management, connectivity, data access and data processing, legal businesses will be able to deliver smarter solutions, flexible resourcing and vastly different compensation practices. The ability of legal practitioners to keep up with these technological developments and harness their great potential will be a decisive factor in determining their success and longevity in the legal market of the future.

4. Discussion

This study examined the current state of the legal services market in the midst of a disruption by the rising adoption of innovative legal solutions. We proposed three research questions to achieve a more well-rounded understanding of the industry.

Firstly, we looked into the factors that impacted the transitioning legal market. The most important finding, was the crucial role of technology, liberalization and the “more-for-less” challenge in shaping the present and future of the sector. Technology presented legal providers with new kinds of solutions that could automate legal processes, saving on time and money. The client pressure for more legal work and less cost, incentivized providers to adopt these solutions in an effort to lower cost and to try and standardize legal work to make it easier to automate. This has led to a commoditization of legal work, making it more compartmentalized and easier to outsource. What’s more, the gradual liberalization of the industry has allowed alternative providers to penetrate the market, increasing competition.

Next, we looked into the participants in the legal services market and how the changing landscape and, essentially, the above mentioned factors have affected them and could continue to affect them in the future. The key word that could describe the future is

adaptation. The pressure for less cost and the availability of competitive technological solutions, will give providers that can achieve low costs through taking advantage of new technologies an edge.

Legal Tech start up companies and Alternative Legal Service Providers are enjoying advancement due to their bigger reliance on innovative technologies and more flexible pricing models. On the other hand, Big and medium law firms have faced more difficulties in remaining competitive due to their comparatively higher cost of legal work and relative technological conservatism. The degree of adaptation of cutting edge technologies and the cultivation and branching out into niche, marketable specializations such as Legal Process Analysis or Legal Risk Management will determine which providers will thrive and which will become obsolete. Regarding legal service recipients, technological solutions offer clients better access to legal resources and information, making them more knowledgeable and demanding. Another important observation, is the market's apparent shift towards customer-centricity, in an effort to appeal to the increased demands and improve customer experience through all these new technologically-assisted capabilities. In sum, legal technologies have empowered providers to innovate on their offering services, become more flexible on prices, and have partnerships with non-lawyers, and empowered clients to look through many different alternatives in pursuit of the one that better meets their needs.

Our third research question was in regards to the constantly rising number of new Legal Tech types and technologies. Looking through related bibliography, the proposed categories of Legal Tech types and technologies by experts in the field were noted and collected. Some findings were common across the board: Document Automation, Practise Management, Legal Research, Predictive Analytics and Electronic Discovery were named as noteworthy types of Legal Tech by all experts and were also the ones most frequently mentioned and discussed in the related bibliography, in general. The ubiquity and trending status of these categories is no accident. They all directly involve legal processes that have the best potential for automation, since they involve repetitive tasks and the processing of vast amounts of legal data, providing fertile ground for the implementation of artificial intelligence technological solutions. Looking beyond the four

common categories of Legal Tech types and technologies named by all experts, there is no consensus among the rest, which shows the need for further studying as the field grows and more related bibliography emerges. Consequently, Document Automation, Practise Management, Legal Research, Predictive Analytics and Electronic Discovery appear to be the most prominent types of Legal Tech that will significantly shape the sector and the available services provided in it.

5. Conclusion

The market for legal services is an early, yet crucial, stage in terms of the effect of disruptive technologies. This is a progress that at first sight appears daunting and threatening towards the future of the legal profession in its traditional sense. It appears that the legal providers with the most potential, will be the ones to realize that automatization is less the end and more a transition towards new ways of working and new kinds of services. Those who will quickly adapt to this new reality will have a definitive edge.

This study attempted to describe this transition of the current legal services market by answering the three complementary research questions mentioned above. In this sense, the present study differs from the previous literature in terms of its better inclusiveness and attempt to paint a more well-rounded picture. Still, there are also limitations worth mentioning. The main one is that the study offers an assessment of a collection of qualitative findings from all gathered bibliography, yet there is little quantitative information. The observations in this study, are to an extent subjective and open to different interpretations. The conceptual nature of the paper, and the limited prior research in this field, means that empirical studies are needed to increase our understanding of the multi-dimensional face of the current legal market.

Due to the innovative nature of the subject, there is limited research regarding the specifics of the implementation of artificial intelligence in legal services. As artificial intelligence will reach new levels of maturity in time, a potential subject for additional data-gathering and research would be the evolution of artificial intelligence from processing at word level (syntax), to processing at concept level (semantics). The study of this process would be of great interest, since it would chronicle a great leap in

technological capability, from processing keywords to achieving interpretation of context. This development would be transformative for every data-sensitive field, and especially Law, where the understanding of context and argumentation is vital and the new possibilities would be endless.

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