

International Bar Association President's Task Force on the Future of Legal Services

Phase I - Drivers for Change in Legal Services

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Drivers for Change

Outcomes

Appendix 1 and Table 1 - Drivers of Change Spreadsheet and Tree Diagram

Appendix 1 - Drivers for Change Spreadsheet, contains both the bibliography used in this study and the drivers for change identified in the literature review. The structure of this spreadsheet is as follows:

- ✓ 1st column: Author
- ✓ 2nd column: Year of publication
- ✓ 3rd column: Set of keywords
- ✓ 4th column: Data base
- ✓ 5th column: Type of document
- ✓ 6th column: Country or region to which the document refers
- ✓ 7th column: Title of the work
- ✓ 8th column: Journal, volume and issue of the work when appropriate
- ✓ 9th column: Internet link
- ✓ 10th column: Access date
- ✓ 11th column: Theoretical or conceptual framework
- ✓ 12th column: Research questions, hypotheses or objectives
- ✓ 13th column: Methodology
- ✓ 14th column: Drivers for change identified in the work

Table 1- Drivers for Change Tree Diagram, shows a hierarchically organized and categorized list of drivers for change in legal services. This document is based on column 14th of Appendix 1.

Methodology

To generate **Appendix 1**, we first conducted a research on various databases by “anding” 10 population terms (Legal profession, Lawyer, Legal services, General Counsel, Law firm, Law school, Bar Association, Law Society, Court, Professional Service Firms) with 7 impact terms (Future, Change, Trend, Progress, Innovation, Disruption, Quality).

The inclusion criteria was the following:

1. Search results limited to English language, but not limited to country of origin.
2. Timeframe of the search limited to documents published between January 2010 and August 2017, to capture the most updated studies that considered drivers of change in the legal profession.
3. A full range of methodologies is considered.
4. Study sample limited to the legal profession and main operators within the legal profession.
5. Limited to documents including drivers for change with a significant impact in the population sample.
6. Search terms Included in title.

The abovementioned keywords and inclusion criteria was then used to search into 9 databases: Taylor & Francis Online, Wiley Online Library, Emerald, HeinOnline, SSRN HLS CLP Research Paper Series, Stanford LS Legal Design reading list, SLS Codex publications, SpringerLink. We also used Google to conduct a general search using the expression “future legal profession report”.

The search produced 417 documents (see **Appendix 2**). After a first revision of the titles and abstracts of the documents shown in **Appendix 2**, a total of 137 documents were excluded from the final spreadsheet (**Appendix 1**) by the research team.

Table 2. Number of included references by searched database

	Included Refs
Taylor & Francis Online	76
Wiley Online Library	6
Emerald	2
HeinOnline	88
Google	70
SSRN HLS CLP . Research Paper Series	25
Stanford LS Legal Design reading list	6

SLS Codex publications	4
SoringerLink	2
QATD: Open Access Theses and Dissertations	0
Other	1

As shown in Table 2, a total of 280 documents were finally selected and included in the Spreadsheet for qualitative analysis (see Appendix 1): 180 academic journal articles, 47 reports, and 53 other documents (white papers, Websites, research papers, books, legal press, and other). Moreover the majority of this documents were published between 2015 and 2017 (14,6% 2017; 20,7% 2016; 12,5% 2015; 16,1% 2014; 11,8% 2013; 10,4% 2012; 8,9% 2011; 3,9% 2010; 0,7% 2009).

Firstly, the documents were classified and read by the research team.

Secondly, the most relevant drivers for change with an impact in the future of legal services - referenced in each document - were identified and conceptualized (see last column of Appendix 1).

Thirdly, the identified drivers for change were classified using the inverse tree diagram methodology.

A tree diagram - also called systematic diagram, tree analysis, analytical tree, and hierarchy diagram - starts with one item that branches into two or more, each of which branch into two or more, and so on. It is a well known quality tool used to break down broad categories into finer and finer levels of detail. Usually the tree diagram moves thinking step by step from generalities to specifics. It is also used to help a team move from specifics to generalities, as it has been the case in this study.

In order to build our inverse tree diagram, firstly the drivers of change included in Appendix 1 were classified by conceptual similarities, thus walking from the specifics to the generalities. Due to the difficulty entailed in managing and viewing the wide amount of drivers of change identified, the data was exported and hierarchically organized using the Mindjet Mindmanager software (see Table 1 - Drivers of Change Tree Diagram).

Table 1, includes 5 hierarchical levels of categorization, allowing the reader to move from the broadest categories of forces driving change (level 1) into progressively finer levels of detail (levels 2 to 5). The levels have been organized by colors:

Blue: First level

Black: Second Level

Dark grey: Third level

Light grey: Fourth level

Lightest grey: Fifth level

Table 1 - Drivers for Change Tree Diagram

EMERGENCE OF NEW FORMS OF VALUE CREATION
Unmet clients' needs and expectations
Corporate clients
Client demands changing at an accelerated rate
increased clients' sophistication
Clients' increased buying power
More for less: Clients demanding more efficient legal services
Increased dissatisfaction with billable hour
Increased demand for alternative fee arrangements
Increased focus on process improvement
Increased in sourcing of legal services and unbundling of legal tasks
Increased use of technology
Increased demand for cross national and cross border legal advice
Increased complexity of the regulatory environment
Need for regulatory and global compliance advice
Ability to communicate
Increased availability: lawyers are expected to be available 24/7
Alternative dispute resolution
Consumers
Access to justice gap
Growth of unmet legal needs
Poor and middle income unmet legal needs
Under-representation for minorities or disable people

Difficulty to obtain legal representation

Difficulty to find a lawyer

Complexity of the legal system: consumers' lack of understanding

Obstacles for low and moderate-income individuals to navigate civil legal problems

Cost of the business model

Unaffordable legal services;

Need for faster and cheaper answers to complex questions

Increased innovation to assist the public

Traditional ways of legal services delivery increasingly unachievable

Inadequate public sourcing of the legal system

Funding reductions for legal assistance

Funding reductions for legal aid in civil and family cases

Funding reductions for aid for family court services

Dysfunctionality of the adversarial court system

Fiscal pressures impact on legal assistance

Funding reductions for legal aid

Inadequate resources in the criminal justice system

Reduction of volume of legal representation cases in family courts

Lack of focus of the profession and the academy on public service

Increasing erosion of the rule of law

Justice gap; two-tiered justice system: big law vs small practices/public services

Research gap

Global concern

Public access to the justice system remains a challenge in Canada

Unequal access to justice in the US

The problem of inadequate access to justice is cronic and unabated

Emergence of innovators to provide solutions

Increased role of non-lawyers in solving consumers legal problems; self-help

Development of alternative methods to resolve family issues through research and collaboration

Limited profit law firms

Do it yourself trend

Ordinary consumers are the real leaders in the adoption of legal tech

Customers' widespread access to legal information

Growth of self-represented consumers

Explosion in self-representation in both transactional and litigation work

Market; increasing number of pro se litigants

No sense of need to involve lawyers

Concern with low quality of self-representation relative to professional representation

Need for self-help assistance

Emergence of self help centers

Growth of online legal aid

People searching answers to legal questions online

Self-help rather than hiring lawyers

Increased interdisciplinary research to develop a framework for the design and delivery of self-help material

Emergence of legal design

Rise of research on the nature and implications of thinking like a non-lawyer to solve legal problems

Development of self-help material to improve justice gap

Increased pressures on traditional models

Lawyers' loss of market power

Types of lawyers less affected: oral advocates highly specialized lawyers; counselors; companies

Types of lawyers most affected: journeymen lawyers

Competition in costs from tech based alternative business structures

Shrink of the lawyers' knowledge monopoly

Decrease in lawyers' services demand

Economic crisis

Deterioration of the financial performance of the legal profession

Slow growth at the top

Downsizing

Poor law firm financial performance

Decreases in demand for commercial legal services

Collapse of law firms and bleak employment

Economic recessions effect on legal job market

Effects of the 2008 economic crisis on employment

Accelerator effect in changes

Income of solo practitioners has plummeted

Mid tier full service law firms squeezed

Growing segmentation within the market for law firm services

Increased transparency of lawyers' work

Online reviews; increased information regarding legal services providers increased transparency and risk of inaccuracy deterring lawyers' reputation

Pressures on the business mix and organization

Increasing partner-associate ratios; changes in business mix more routine work to finance leverage increased use of contract lawyers

Increasing challenge to the professional partnership model

Increasing segmentation of legal services providers

Declining effectiveness of the traditional leverage model

Erosion of the traditional law firm franchise/disaggregate approach

Increased fixed costs

Pressure to increase efficiency

Increasing size and scope of global law firms and in house departments

Increased complexity of the legal system

Increased complexity of the global corporate law firm ecology

Increasing blurring together of traditional categories of knowledge and organization

Blurring boundaries amongst disciplines

Uncertainty about the future of global economy

Legal services reconfigured

Employee led market

Emergence of new jobs

The legal knowledge engineer

The legal technologist

The legal hybrid;

The legal process analyst

The legal project manager

The online dispute resolution practitioner

The legal risk manager

Ongoing innovation

New areas of work and new roles due to technological developments

Oversupply of lawyers and law students

Professional development gap

Excess supply of legal graduates in australia

Decrease in high-end positions

Increase in the number of legal professionals;

Shrinking opportunities for placement in law firms

Decline of employment in routine occupations due to job automation

Relatively good employability of law graduates during the recession

Continued need of high quality lawyers

Rise of demand for specialists

Legal representation in court remains domain of lawyers

New market for craft-oriented lawyers

Growing specialization

Growth of boutique, specialist and focus firms

Growth of specialized lawyers

Changes in the remuneration model

Increase in salaried lawyers

New Human Resources Management (HRM) practices

Increase use by law firms of contract lawyers staff lawyers and part time lawyers

Labour arbitrage

New ways of working

More commercially focused law firms

Due to increased external funding opportunities

New ways of pricing, structuring practices, managing projects, and engaging with clients

Shift from personalized individual labor to standardized and systematized production

Standardized and systematized production

Solo and small law firms: increased commoditization of practices such as leases, wills and incorporations

Routinization of many legal tasks

New areas of work and new roles due to technological developments

Fixed fees, value pricing and greater transparency

Law firms to set up flat-rate boutiques with radically different firm structures

Innovators provide fixed prices

Innovators do not use time based billing

Time-based billing; billable hour budgets lawyers working environment pressures performance indicators ethical behavior

Negative effects of time-based billing on lawyers

Virtual and remote work

More expansive leverage mode

Clear focus on core practices

Growth of legal project management

Increased disaggregation of legal tasks

Unbundling

Opportunity for a new focus on supply chain management

Increased importance of consistency and quality assurance

Total quality quest

Need for supervisory staff

Both companies and firms under increasing pressure to develop metrics of quality

Increased application of design principles in legal contexts

Emergence of centers of excellence

C-level support and leadership

Increasing investment

User-centered experience innovation

Application of design principles; gap between production of legal services and clients needs for systematic integration of processes and information

Emergence of the data driven law practice

Need to master massive bodies of data

Change in the demand for legal services and the role of the legal profession

Technology as a force multiplier

Technology replaces aspects of lawyers' work and improves lawyers' productivity

Increase of the speed of interaction with clients

Repetitive and structured legal work performed by technology

Technology has the capability to supercharge lawyers' abilities

Increased flexibility at work

Rise of technologies supplanting or augmenting activities of practicing lawyers

New ways to access case law and information

New ways to interact with clients

Emergence of new billing practices; new communication with clients; protection of client information in the cyberspace

Prediction of legal value; improved billing management

E-discovery changing the practices of large commercial litigation

Large law firms have set up e-discovery units and emergence of independent service providers

Document generation; computer-based services will routinely generate the first draft of most transactional documents

Brief and memorandum generation

Improved research tasks

Lawyers' are embracing new legal tech

Technological approaches to the management of legal complexity: machine learning; development of systematic solutions to manage complexity

Law firms increasingly relying on big data

Increase in the amount of data in the legal world

Big data applications

Shift in law firm's resource distribution: increased investment in technological innovation

Law firms increasingly investing resources in technology

Increased use of technology in legal service delivery

Increased investment in artificial intelligence, robot lawyers, predictive coding and expert systems in Australia

Increased use of predictive search in discovery

Law firms are increasing investment in cloud and mobile computing

Trend towards shared value creation

Shift from traditional legal silos to networked ecosystems; strategic alliances between tech companies, law firms, other legal services providers, and clients

Focus has shifted from the dominance of left-brained, rational, logical analysis, to right-brained values such as relationships, emotions, collaboration, connectivity, creativity, holistic analyses of matters and problems, problem-solving and multidisciplinary practice;

Need for collaboration to integrate collective expertise in PSFs (Reemergence of multidisciplinary practices (MDPs))

Need for regulatory and global compliance advice

Emergence of legal tech ecosystem

Collaboration between various fields of knowledge;

Greater interaction amongst lawyers

Larger inhouse practices are rewarding client-centered services

Deploy of client-facing teams

Intensification of the trend towards the integration of law into a wider category of business solutions

Multinational collaboration; alignment with the client's global strategy and accountability for country-specific issues

Increased competition

Attractiveness for external investment in the legal market

The fragmented nature of the market

Law firms' lack of differentiation and understanding of consumer needs

Increasing market size and potential profit margins

Increasing willingness of clients to disaggregate/unbundled legal services; growing willingness of clients to substitute top law firms with lower-cost providers; expanding opportunities to use technology

Top firms willing to cede lower margin work;

Reemergence of multidisciplinary practices (MDPs)

Growth of MDPs

Under-representation for minorities or disable people

Integrating law into a wider category of business solutions

Globalization; big 4 penetration into the emerging markets of Asia, Latin America, and Africa

Increased liberalization of the regulation of the legal profession; pure multidisciplinary practices implicitly or explicitly allowed in many markets worldwide

English and french legal professions; mdps allowed

UK 2007 Legal Services Act

Barriers to innovation in the legal profession

Gaps in the regulation of auditor independence

Evolution of the big four business model; fully integrated solutions model

New entrants

Demand for alternative or nontraditional legal services providers is increasing;

Uberization of the legal services market

Increasing competition from non-lawyer service providers

Growth of unregulated legal service providers;

Growing size of the alp market

Targeting mid market

Motivations for using alps: cost savings and specialized expertise

Concern about quality of alps' service

Disputes resolved in alternative ways

Alternative Legal Providers (ALP) services cheaper and faster

Use of off-shore lpos

Market;

Market; increased reliance on non-lawyers for legal work

Alternative business structures

Non lawyers offering legal services

Business models; emergence of legal startups

Legal services competition

Consequences of trends and driving forces; competitive pressure

Variety of law firms

ALPs categorization

Paperless practices; networks of firms; in house practices; outsourcing and in sourcing work; freelance lawyers; temporary staffing solutions; legal hubs part law/part technology firm; online and virtual firms; alternative fee arrangements; multidisciplinary practices; legal consultants; hybrid legal solutions

Technology alps

Rise of legal technology startups

Increased market share consolidated tech companies

Dual role of legal tech companies

Increased competition for high margin work

"LEGAL TECHNOLOGY" DEVELOPMENT AND INNOVATION

Multiple legal tech categorizations

Developed legal tech sub-industries

Legal research, e-discovery, contract management, and lawyer networks

Early stage legal tech sub-industries

Blockchain and ethereum legal transactions

1.0 applications: tech empowers lawyers within current system

Computer-assisted legal research, document production, practice management, and early e-discovery

2.0 applications: tech replaces increasing # lawyers within current system

Machine learning approaches in e-discovery (often including predictive coding) that are eliminating document review jobs; systems that combine word processing with expert systems to create contract document assembly tools that laymen can use to create contracts

3.0 applications: radical redesign or full replacement

Smart or computable contract

Legal information retrieval, help find legal information more efficiently

Legal search technologies, e-discovery technologies, contract analysis, contract management systems

Legal infrastructure technologies, systems and platforms that help connect stakeholders

Lawyer match-making platforms/networks

Computational law technologies

Smart or computable contract

Support process solutions

Law firm case-management and back office work

Substantive law solutions

Technologies that support/replace lawyers in core legal tasks

Mature technologies increasingly used in the legal industry

Cloud computing, apps for lawyers, smart forms and templates, legal research tools, video screens, legal expert systems, artificial intelligence, online dispute resolution systems;

Growing garage-culture in the legal market

Reinventlaw, lawtechcamp, new and emerging legal infrastructures conference, lexthink; the forum on legal evolution, stanford codex future law, harvard conference on disruption in the legal profession and other related conferences, meetups, and hackathons showcase just some of the innovations that are being generated in the legal marketplace; lwow

Emergence of 3 areas of data-centric research

Case oriented: predictive analytics

Document oriented: information extraction; automated summarization (i.e. Deep learning); predictive retrieval and form completion

Corpus oriented; focuses on the properties of entire collection of legal texts

Potentially disruptive legal technologies

Automated document assembly

Relentless connectivity

Electronic legal marketplace

E-learning

Online legal guidance

Legal open-sourcing

Closed legal communities

Workflow and project management

Embedded legal knowledge

Online dispute resolution

Intelligent legal search

Big data

AIbased problem-solving

Emergence of legal tech with the potential to disrupt the way lawyers and courts operate: automated document assembly, relentless connectivity, electronic legal marketplace, elearning, online legal guidance, legal open sourcing, closed legal communities, workflow and project management, embedded legal knowledge, online dispute resolution, intelligent legal search, big data, artificial intelligence problem-solving

Five areas of law are immediately ripe for replacement: discovery, search, legal forms, briefs and memoranda, and legal analytics

Technological innovation

Advanced search functions

Machine learning

Data analytics

Data analytics

Conversation assembly and automation

Mass document search

Document assembly and automation

Smart contracts computable contracts data oriented contracts

Computational law introduces simplicity in complexity

Ethereum - blockchain based platforms - the future of global commerce

Blockchain; big data and robo adviser's dynamism of the financial services sector at the intersection of financial services and technology

Increased development of legal Apps

Drawing on expert systems design principles

Automation of knowledge work; artificial intelligence expert logic

2016 is the year of software applications Apps

The combination of the development of the world wide web, the reduction of costs of data storage, and the increase in computational power have change the nature of artificial intelligence and law applications, both in scope and availability

Machine intelligence; artificial intelligence

Disruptive impact of machine intelligence end of lawyers monopoly redundancy of lawyers jobs new legal jobs new entrants increased efficiency reduction of litigation

Increases efficiency and cost

Emergence of low-cost alternatives and low incentive by clients to fund the training of associates

Applied to discovery both replacing work product and improving the lawyering experience

Machines thinking deeply

Use of predictive analytics results in reduction of cases going to trial by providing better estimates of cases outcomes and values

Artificial intelligence might make lawyers redundant; digital technology moving into areas where judgments are made

Trend towards increased capacity and reach

Time savings in contract drafting and due diligence

Smart contracts applied in simple trades

Assisted contract analysis

Document review in litigation and global investigation

Increased interest in automated processing and understanding of legal texts by the industry, the government, the courts and the public

Based on a common cognitive framework that humans use to inform their decisions; trained by human experts to interpret a corpus of data

Machine learning addresses lawyers core activities

Computational law introduces simplicity in complexity; computational law encodes and disseminates rules through the internet

Internet, cloud computing

Cloud computing has simplified and improved case related communication and collaboration

Emergence of web-based legal services

Internet as a legal resource; emergence of legal help web sites

Enabling commoditisation of legal services, web-based delivery, streamline process and harness bpo

Emergence of online alternative providers of legal services; increased access to legal information through the internet

Explosion in size and sophistication of information technology will exponentially multiply ability to generate, access and process information

Legal search

Current legal search technology changes law practice

Efficiency and cost improvements

Emergence of legal technology platforms for legal research

Artificial intelligence developments in bankruptcy law provide significant contributions to legal research - time reduction

Search technology in its early stages

Shift from keywords to semantics

Accelerating pace of legal technology development and innovation

Exacerbated by globalization

Role of the global south

From grateful receiver of technologies to producer

Increased computing power at lower cost, cloud computing, developments in the internet and consumer behavior

Increased interest in legal technology worldwide

Global nature of technology

Global nature of technology will put pressure on domestic regulation (US)

Globalization of the law

Increased homogeneity

Challenge for law firms and lawyers

Learn to manage tech systems and embrace the potential of information technologies

Clients developing tech solutions to previously chargeable legal advice

Rise of legal complexity

Disruption of labor markets

Disruptive competition and managing complexity

Adoption and development of legal tech vary across different types of law firms and countries

Big law competitive advantage

Big law firms are leaders in adoption of legal tech

National competitive advantage

USA leader in legal startups and software providers;

Germany lags behind with relatively few legal startups and tech providers

Lack of trust in online resources

In South Africa 1/3 of law firms do not trust free online resources such as google

Emergence of new areas of law due to technological innovation

Impact of new technologies in the law

Different technologies spawned new legal specialties

Need technology-specific legal responses

Synergy between technology and law

Increased digitalization of the judiciary

Shift of the legal system to electronic transactions

Will require change in law firms' work processes

Procedural reform in the US

Impact of legal innovation (technology innovation) in de facto procedural reform

Solutions approach to legal problems; use of predictive search result in lower and more symmetric discovery costs

Reduce costs and increases speed of discovery in litigation

Chinese judicial reform

Incorporation of information and communication technology

Emergence of intelligent court systems due to developments in internet and cloud technology

Video calling and video conferencing technologies

Increased relationship between neuroscience and law

Increasing use of neuro-scientific evidence in courts, both by prosecution and defense;

Reshape case resolution procedures by moving legal process online

Judges increased commitment with technology offering practical benefits

Fiscal constraints driving innovation in courts

Lack of resources

Increased use of technology to streamline court services

Growth of online dispute resolution

Limits and challenges of legal technology

Solutions need to be created with expertise and oversight

Ethics at the core

Need to balance the integration of substantive expertise and information technology expertise

Technology cannot replicate human creativity and innovation

Machines need pattern recognition

Emergence of new regulatory, ethical and practice issues

Confidentiality and security risks

Unintended practitioner -client relationships

Supervision risks

Conflict of interests risks

Need to protect clients' information

Unlikely for legal tech to replace lawyers completely

Protection of clients' information

Emergence of cyber security compliance systems and standards

Emergence of technology gap

Wealthy vs disadvantaged

Artificial intelligence raises ethical and regulatory issues

Evolving threats to data privacy

Consumer vulnerability to powerful political and commercial interests

Need to balance opportunities and risks

Tech solutions more responsive than legal solutions

Privacy implications of network-based technologies; artificial intelligence based technologies

Evolution of the data protection

Data protection regulation in the EU

Blurring barriers between private and public life

Slow adoption of technological improvements by lawyers

Still imperfect and ad-hoc process

Analyzing and interpreting the resulting data is still an evolving process

Inhouse

Investment in technology does not yet rank highly on the priority list of clos (inhouse departments)

Law firms' concerns

Concerns over data security and privacy have slowed down the development of cloud and mobile computing amongst commercial law firms

Cultural resistance to innovation

Lawyers' fear the rise of machines: technological unemployment / automation anxiety

The traditional partnership full profit distribution model is a barrier to investment in technology

New ways to finance investment in technology will emerge

Increase in law firm partnerships with non-law firms as a solution to technological challenges

Legal industry lags other professional services industries

Slow implementation of available tech

Competitive disadvantage with other professional companies in cloud computing

Need for a balanced regulatory environment regarding tech innovation

Need to protect society from the risks inherent to technological development

REGULATORY INNOVATIONS AND GAPS

Regulatory global trends

Shift to proactive regulation

Increased collaboration between law societies and the academy

Comprehensive, systematic approach

Increasing debates on alternative business structures

Impact of technology on law practice and lawyer regulation; cloud computing virtual law offices outsourcing

Gap between practice and regulation

Cross-border regulatory spillovers

Shift from lawyers' regulation to entity regulation

External regulation; state-led reforms

Balance between consumer protection, innovation and regulatory oversight

Categorization

De Jure

Self-regulation vs co-regulation; legal work vs lawyers; ex ante vs ex post; geographically vs virtually; outcomes based regulation vs rules; the use of regulatory objectives and purpose statements; globalization impact

De facto

Lawyers increasingly working outside boundaries of law firms

De localization of corporate counsel

Increase rely in non-lawyer employees for law related work

Regulatory gaps in emerging markets

Increasing critical voices to the regulatory status quo

Both clients and law firms

Barrier to innovation

Limits access to legal services

Relaxation of the laws

Critical voices regarding ownership and management restrictions

Constitutional vulnerability of restrictions governing the organizational form of law practice

Lack of trust in online resources

Mismatch between national practice of law and state-based or regional based regulation

Regulatory innovations

USA

The expansion of non-lawyer training and licensing in high need areas

Regulation and training of limited license legal technicians

Emergence of new paraprofessional roles; trend towards the emergence of paraprofessional brands for routine legal services

France

Regulation of other providers of legal advice

UK and Australia

Consumer focus

Alternative business structures including multidisciplinary practices

Liberalization of law firm structures; incorporated legal practices without restriction of ownership

New roles of other (non lawyer) regulated and unregulated legal services providers

Managed based regulation

Principles-based regulation and co-regulation

GLOBALIZATION AND SHIFT OF ECONOMIC POWER

Geographical expansion of Western law firms

Unprecedented level of expansion in the early 21st century

Rapid expansion of global firms into asia pacific

Symbolic value of law firms' presence in china; growth of outpost offices

Increased lawyers' mobility

Role of law firms in creating the structures of global markets

Challenges

Global weakening of the anglo-american model of large law firms and in-house counseling

Complex social process at the local-global boundaries

Slow expansion of elite UK law firms into Africa and Central & South America

Gap between financial results and need for global expansion

Challenges to providing seamless global legal advice

Geographical expansion of MDPs

Particularly in the emerging markets of Asia-Pacific, Africa, and South & Central America

Shift of economic power to emerging economies

Growing power of emerging economies in the global legal market

Globalization; shift of economic and political power to the BRICS emergence of corporate legal elite in the BRICS growing law firm elite in the BRICS greater relevance of legal counsel

Cooperation between China and Taiwan

China adjusting and shaping international rules

Increased market share of legal process outsourcers in emerging markets

Globalization of economic activity and shift in the locus to emerging economies

Common trends in the impact of globalization in emerging economies; India Brazil China

Growth of the Chinese corporate legal sector

Global integration of the legal profession

Global impact of emerging markets elites

Research gap

New challenge for the liberal world

Impact of BRIC legal elites on the global legal profession

Different trends of the impact of globalization in China; less to disrupt in China

Uncomparable scale and reach of Chinese domestic law firms

Active role of the state in expanding corporate legal sector in China;

Low degree of professional self-regulation in China;

Limits to homogenizing global forces; unique forms of legal practice can be locally perpetuated status of Indian grand advocates based on non-transferable reputational capital

Increased growth and importance of Indian corporate law firms and corporate lawyers

SKILLS MISMATCH AND LEGAL EDUCATION REFORM

New challenges in legal education

New economic and political context for law schools

Increased costs of legal education

Increasing price of legal education

"cost of public legal education increasingly supported by students

Access to legal education;

Unlikely to resource careers advice;

Disruption in legal education

Proliferation of it applied to grad education

Excess supply of law students

Increased global competition amongst law schools

Increase in the number of institutions and increased information available for students

Increased growth and importance of chinese corporate law firms, law schools and lawyers

Increased pressure on law school business model

Institutional strategies: downsizing, organizational alliances; opportunities for scholarship on the legal profession

New skills' demand

Legal education gap impact on law schools financial situation

US law school focus on employability skills

Important role of law schools in the production of lawyers

Critical voices regarding traditional teaching methods and increased claims for legal education reform

Inefficiency of the traditional legal education method

Disconnection between legal education and the actual practice of law;

Growing concerns on the utility of law school

Scarcity of development programs focused on millennial

Immobility of family law in legal education;

Social claims for legal education reform

Professional development gap

Increased misalignment legal education / professional development and the realities of the marketplace;

Widening skill gap: education vs practice

Professional identity gap

Need for increased professionalism amongst law students; little appreciation of legal ethics and professional identity amongst law students

Need for increased professionalism amongst law students

Concerns claimed about the production of lawyers with low commitment to professional responsibility

Need to increase sensitivity to ethical issues arising in practice

New entrants lacking vocational and on the job training

Shift from traditional legal professionalism to a narrow view based on technical competence and adherence to the rules

Uncertain meaning of today's legal professionalism;

Legal education reform: influence of regulation in tomorrow's legal education

The Legal Services Act (2007)

Growth of debates about educational and regulatory reform worldwide;

New skills' demand

Interpersonal and interdisciplinary skills

Interdisciplinary experience;

Business skills/entrepreneurship + basic accounting and finances;

Accounting and financial statement analysis corporate finance

Economics has shown to be financially rewarding major for lawyers

Entrepreneurship

Lawyers expected to be multidisciplinary problem-solvers;

Increasingly multidisciplinary

Multidisciplinary and collaborative legal education; solutions approach

Need for an expansive breath of knowledge as advisors

Ability to anticipate legal problems

Competitive advantage of skills in science and technology

Ability to bridge the gap between law and tech

Dispute resolution in electronic environments

Process analytics

Modeling and organizing big data

Multi-jurisdictional skills

International and cross-border law

Communication skills

Commercial and social awareness

Management skills

Project management

Practice-related skills

Gap between theoretical and practical knowledge;

Adaptability to change

Innovation in legal education architecture: emergence of new disciplines and new programs

Trend towards lifelong learning in the full range of technical, professional, and network building skills

Creative and innovative assessment methods

Law schools vaulted into the online world

Law schools' increased international approach

Increased law schools' focus on employability

Shift in legal education from one size fits all to diversification (different paths for different legal jobs)

Market reality nonlawyers providing legal services

Emergence of legal services not dependent of fully formed legal skills

Emergence of different paths in legal education;

Social work student integration

Increased complexity of legal knowledge; increased legal doctrines to master

Emergence of innovative courses and programs

Study of current and future trends in legal services increasingly present in grad and post grad programs

Emergence of legal tech courses in law school

Teaching analytic principles through the development of legal Apps

Law school sponsoring incubator programs

practice oriented legal education

active learning techniques

trend towards interdisciplinary education

Increasingly corporate oriented focus

Management courses

Mindfulness meditation; programs to increase well being

Design of new programs to address new legal jobs

Emergence of programs addressing consumer needs

Increased globalization of legal education

Impact of globalization in legal education;

Trend towards the implementation of changes in legal education increased focus on training and licensing non-lawyers

Worldwide heterogeneity of legal education

Legal education shifting to a global context

Global influence US and UK legal education

Americanization of legal education

Americanization of foreign law students resulting from degree programs at elite law schools meant for foreign students

Higher education in the United States has experienced increasing interest from international students,

Despite the us centric regulatory approach to legal education foreign law schools and international law graduates have an increase influence on the u.s. regime. Instead of pursuing recognition and legitimacy directly from the council, these global actors now advance their interests along secondary paths where they seek legitimation

Shift to monocentric modes of education and paths of entry into the profession

Re-professionalization as a result of the growth of large law firms and regulation

Shift of knowledge power from US/UK to Asia Pacific

Upward march of asian universities and the downward movement of some of the UK's universities in the world league tables

Increased influence of elite law students in the architecture of elite legal education (India)

Decreased enrolment in US/UK

Decrease of law school admissions in the US

Downsizing us law schools

Global economic downturn; decline in law school enrolment

Brexit negative impact enrolments in the UK

Decline in state subsidies for public law schools in the US

Increasing law graduates and law schools in Australia

Law schools' resilience despite fall in applications and unemployment

CHANGING DEMOGRAPHICS AND VALUES

New demographic mix

Changes in gender and race distribution

Majority women lawyers

Increased gender and race diversity in law schools

Increase in gender and race diversity in law firms

Changes in generational distribution

Incorporation of millennial

Millennial influence: collaboration, civic mindness and technology

Aging population (baby boomers) prolonging retirement

Increased urbanization and aging population

Increased importance of professional career satisfaction and well being

Decrease in the attractiveness of a career in law

Top students shying away from law school

Young talent questions the law as a right professional choice

Increased job dissatisfaction

Due to skills development gap

Diversity and inclusion gap persists in law firms

No reflection of the diversity of public

Excluded lawyers due to discrimination

Traditional business models act as barriers to diversity and inclusion

"gender and race bias"

Difficulty to balance work and family life

Innovation has the potential to enhance the personal well being of the profession

Difficulty for minority legal service to network/to find mentors

De facto exclusion persists

Barriers to diversity based on tradition

Discrimination (exclusion) of students with the weakest credentials

Few women lawyers in top positions and women leaving the profession in alarming numbers

Poor results of law firms' diversity policies

Trend towards a bias awareness approach

Assessment based in meritocracy as a barrier to diversity at the law firm partnership level

Greater gender inequalities in China relative to the US and the UK

Client-led diversity and inclusion initiatives

Positive effects of a feminist legal practice

Greater availability of flexible work

New clients' values

Increasing general counsel scrutiny of law firm practices

Supplier diversity initiatives including legal services

The call for action movement in the us; corporate clients expectations of diversity

Concern with lawyers and law school students healthcare & well being

Law practice becoming increasingly stressful

Increasing healthcare issues due to developments in the legal profession

Risk of suffering mental pathologies

High psychological dysfunctions in lawyers and law students

Distress and risk of depression in law students and lawyers

Psychological distress, substance abuse, or job dissatisfaction

Lawyers' and law students' reluctance to seek help for mental health issues

Innovation has the potential to enhance the personal well being of the profession

Most Cited Drivers for Change

Outcomes

Table 3 and Figure 1 - Drivers for Change by Number of Citations in Database

Table 3 and Figure 1 illustrate the Drivers for Change in legal services cited in the 271 documents of the Quantitative Analysis database. The list of these Drivers for Change has been elaborated using the Tree Diagram of Drivers for Change (see Table 1) , consisting of a curated list of 41 expressions. To check whether or not these expressions were cited in the articles we added similar terms to each general term (if needed). The list of expressions and its similarities is as follows:

- Legal profession ethics: professionalism, professional identity, legal ethics, ethics, ethic, values
- Economic crisis: economic downturn, downturn, low growth, pressure on price, price pressure
- Globalization: globalisation
- Innovation
- Competition
- Disruption: disruptive
- Technology: tech
- Quality
- Skills: skill
- Inhouse: in-house, general counsel, CLO, Chief legal Officer
- Demographics: demographic, demography, changes in demographic power, millennial, generation
- Aging population: aging lawyers, age
- Diversity: gender, women, woman, race
- Wellbeing: work life balance, work-life balance, work/life balance, healthcare, health care, work satisfaction
- Employability: employment, unemployment, oversupply of lawyers, excess capacity
- Client empowerment: client need, client demand, clients needs, clients demands, clients expectation, client expectation, consumer empowerment, consumer need, consumer demand, consumers needs, consumers demands, consumers expectation, consumer expectation, client, consumer
- Social structure: social power
- New types of jobs: new jobs, new legal jobs, new roles, new areas of work
- Non-lawyer: nonlawyer, non lawyer, law related position, law related job

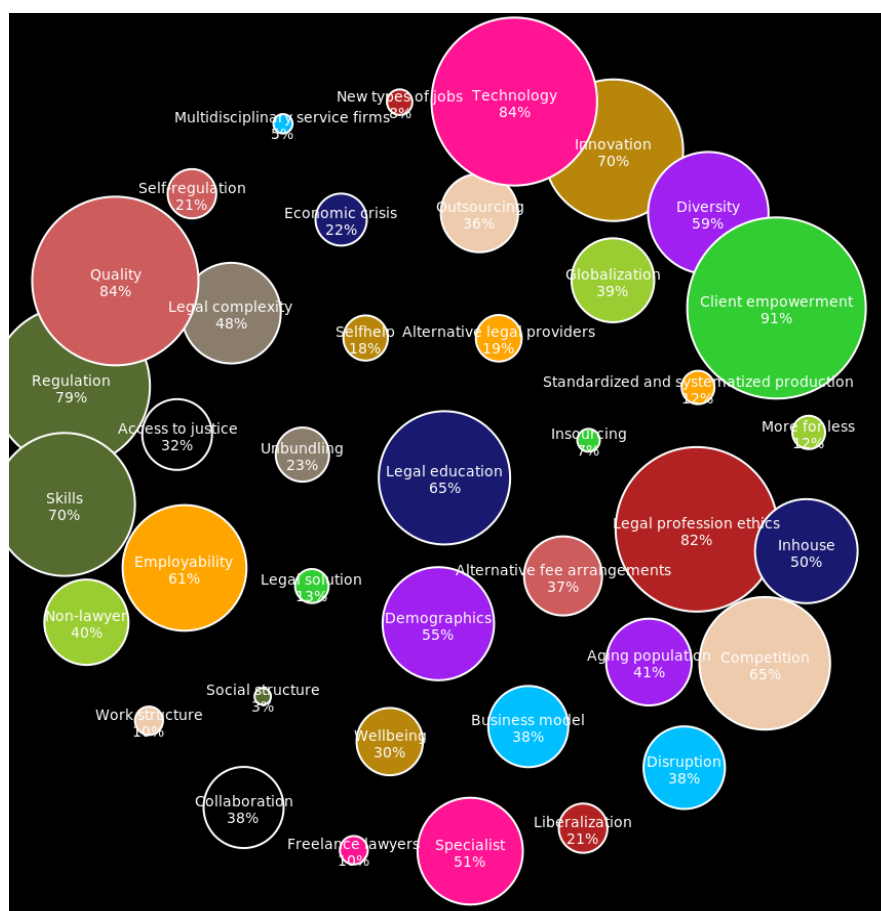
- Work structure: ways of working
- Outsourcing: off-shore, out-source, out-sourcing, legal process outsourcing
- Freelance lawyers: contract lawyers
- More for less: MORE-FOR-LESS, value for money
- Regulation
- Self-regulation: selfregulation, self regulation
- Liberalization: de-regulation, deregulation
- Business model: business organization
- Standardized and systematized production: standardized production, routinization, commoditization
- Insourcing
- Alternative fee arrangements: fixed fees, billing, value pricing, alternative fee arrangement, AFA , AFAS
- Legal complexity: complexity
- Legal solution: business solution
- Legal education: law school, higher education
- Access to justice
- Selfhelp: self-help, self help, self representation, self-representation, selfrepresentation
- Collaboration
- Multidisciplinary service firms: multidisciplinary professional service firms, MDP
- Specialist: specialisation, specialization
- Unbundling: disaggregation
- Alternative legal providers: alternative legal provider, new entrant;new legal services providers, new legal service providers, legal startups, legal start-ups, alternative business providers, alternative business provider, ALP, non-law-firm providers, non-lawyer legal startups, new providers of legal services, lower-cost provider

Table 3 is organized in 3 columns:

- ✓ 1st column: Name of the Drivers for change
- ✓ 2nd column: Number of documents citing each driver for change.
- ✓ 3rd column: Percentage of works in our database citing each driver for change.

Figure 1 shows the percentage of works in our database mentioning each driver for change. Each bubble represents a categorized force, the size of the bubble represents the percentage of works citing each particular driver for change, and the colors have been randomly displayed.

Figure 1 - Most Cited Drivers for Change



Methodology

To generate Figure 1 and Table 3 we start off the 271 files available for the Quantitative Analysis. The first step is to convert the files into a capable format of machine reading by python. We will use txt.

Secondly, a text file was created, containing each of the elements from the above list. This text file is read with a python's language code which generates the list of the Drivers for Change. Using text mining through a package of python called NLTK (Natural Language Toolkit) a program code was compiled, which counts how many times each term of the list (or one of its synonyms) is cited in the Quantitative Analysis database. It will only be considered one mention per article, so if the Driver for change is referenced more than once only the first time will count as the citation.

The program generates a text file in which writes the author of the work and all the drivers mentioned. In second place it counts how many citations each has.

With the information of this text file Table 3 was elaborated, and also Figure 1 using Python's igraph package.

Table 3 - Most Cited Drivers for Change

Drivers for Change	# times cited	Percentage
Client empowerment	246	90,8
Quality	228	84,1
Technology	227	83,8
Legal profession ethics	222	81,9
Regulation	215	79,3
Skills	191	70,5
Innovation	189	69,7
Legal education	177	65,3
Competition	176	64,9
Employability	166	61,3
Diversity	161	59,4
Demographics	148	54,6
Specialist	139	51,3
Inhouse	135	49,8
Legal complexity	130	48,0
Aging Population	110	40,6
Non-lawyer	108	39,9
Globalization	106	39,1
Disruption	104	38,4
Collaboration	102	37,6
Business Model	102	37,6
Alternative fee arrangements	99	36,5
Outsourcing	98	36,2
Access to justice	87	32,1
Wellbeing	82	30,3

Outsourcing	98	36,2
Access to justice	87	32,1
Wellbeing	82	30,3
Unbundling	63	23,2
Economic crisis	60	22,1
Self-regulation	56	20,7
Liberalization	56	20,7
Alternative legal providers	52	19,2
Selfhelp	50	18,5
Legal solution	34	12,5
More for less	33	12,2
Standardized and systematized production	33	12,2
Work structure	26	9,6
Freelance lawyers	26	9,6
New types of jobs	22	8,1
Insourcing	18	6,6
Multidisciplinary service firms	13	4,8
Social structure	9	3,3

Most Cited Legal Technology

Outcomes

Table 4 and Figure 2 - Types of Legal Technology by Number of Citations in Database

Table 4 and Figure 2 illustrate types of legal technology mentioned in the 271 documents in the database, and the number of documents in which each type of legal technology appears mentioned. The list of these technologies was based on the Tree Diagram of Drivers for Change (see Table 1), consisting of a curated list of 24 expressions. To check whether or not these expressions were cited in the articles we added similar terms to each general term (if needed). The list of expressions and its similarities is as follows:

- Big data
- Blockchain
- Bitcoin
- Computable contract, smart contract, assisted contract analysis
- Legal help web, Internet as a legal resource
- Artificial intelligence, AI
- Online legal guidance
- Cognitive technology, cognitive computing
- Compliance system
- Digital technology
- Document automation
- Outcome prediction, predictive search, predictive analytics, predictive coding
- Cloud computing, cloud technology, internet technology
- Machine learning, machine intelligence
- Automation of legal work
- Ethereum
- Data security, cybersecurity, data privacy, information privacy, data protection, confidentiality, data storage
- Robot lawyer
- Online dispute resolution
- Computational law
- Legal analytics, e-discovery

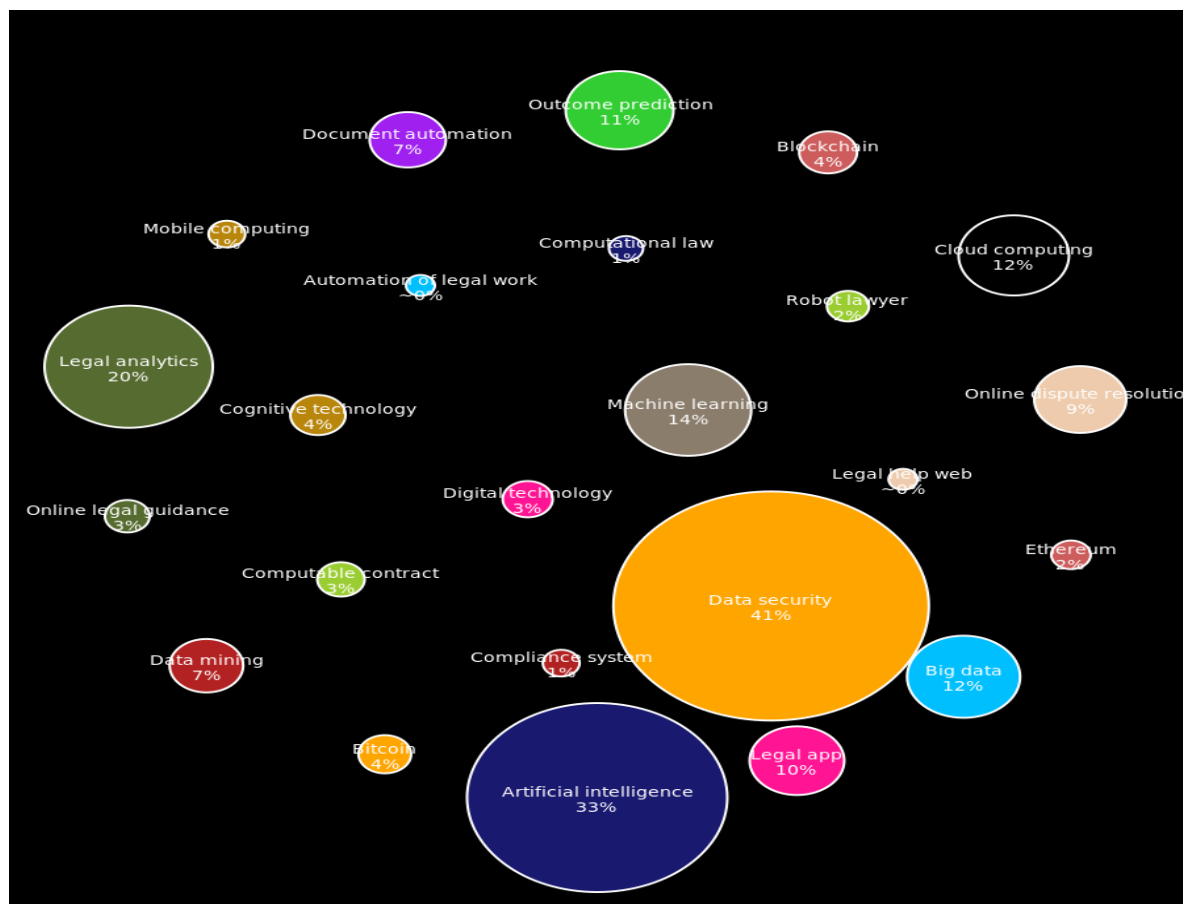
- Data mining, text mining, intelligence legal search, computer-assisted legal search, legal search technology, mass document search
- Mobile computing
- Legal app

Table 4 is organized in 3 columns:

- ✓ 1st column: Name of each legal technology
- ✓ 2nd column: Number of works citing each legal technology
- ✓ 3rd column: Percentage of works that mention each legal technology.

Figure 2 shows the percentage of works citing each Legal Technology. Each bubble represents a type of legal technology, the size of the bubbles represent the percentage of works mentioning each technology, and the colors have been randomly displayed by the program.

Figure 2 - Most Cited Legal Technology



Methodology

To generate Figure 2 and Table 4 we start off the 271 files available for the Quantitative Analysis. The first step is to convert the files into a capable format of machine reading by python. We will use txt.

Secondly, a text file was created, containing each of the elements from the above list. This text file is read with a python's language code which generates the list of the Legal Technologies. Using text mining through a package of python called NLTK (Natural Language Toolkit) a program code was compiled, which counts how many times each term of the list (or one of its synonyms) is cited in the Quantitative Analysis database. It will only be considered one mention per article, so if the Legal Technology is referenced more than once, only the first time will count as a citation.

The program generates a text file in which writes the author of the work and all the technologies mentioned. In second place it counts how many citations each has.

With the information of this text file Table 4 was elaborated, and also Figure 2 using python's igraph package.

Table 4 - Most Cited Legal Technology

Legal Technology	# times cited	Percentage
Big Data	33	12,2
Blockchain	12	4,4
Bitcoin	10	3,7
Computable Contract	8	3,0
Legal help web	1	0,4
Artificial Intelligence	89	32,8
Online legal guidance	7	2,6
Cognitive Technology	11	4,1
Compliance System	4	1,5
Digital Technology	9	3,3
Document Automation	19	7,0
Outcome prediction	31	11,4
Cloud computing	32	11,8
Machine learning	38	14,0
Automation of legal work	1	0,4
Ethereum	5	1,8
Data security	110	40,6
Robot lawyer	6	2,2
Online Dispute Resolution	25	9,2
Computational law	3	1,1
Legal Analytics	54	19,9
Mobile computing	4	1,5
Data mining	18	6,6
Legal app	26	9,6

Most Cited Legal Technology Companies and Legal Solutions

Outcomes

Table 5 and Figure 3 - Legal Technology Companies and Solutions by Number of Citations

Table 5 and Figure 3 is a summary of the legal technology companies mentioned in the 271 documents for Quantitative Analysis, and the number of works mentioning each particular technology company. The list of these companies has been obtained from the Stanford Law School Codex TechIndex database, consisting of a curated list of 702 companies “changing the way legal is done”.

Table 5 is organised in 3 columns:

- ✓ 1st column: Name of each company
- ✓ 2nd column: Legal Solution
- ✓ 3rd column: Number of works citing each company

Figure 3 shows the legal technology company mentioned at least in 3 works. Each bubble represents a legal technology company, the size of the bubbles represents the percentage of works citing each company, and each colour stand for the type of legal solution provided by the company:

- Marketplace [blue] (160 companies): Find the adequate lawyer for the client
- Document Automation [Red] (187 companies): All type of document management
- Practice Management [Green] (130 companies): Law firms management
- Legal Research [Purple] (56 companies): Ease Legal Information Management
- Legal Education [Pink](35 companies): To provide Legal Professional Education
- Online Dispute Resolution [Grey](22 companies) : Legal Dispute or conflict resolution
- E-Discovery [Orange] (39 companies): Law firms trading legal information management
- Analytics [Yellow] (68 companies): Big Data analysis
- Compliance [Brown] (5 companies): Compliance programs

Methodology

To generate Figure 3 and Table 5 we start off the 271 files available for the Quantitative Analysis. The first step is to convert the files into a capable format of machine reading by python. We will use txt.

Secondly, a text file was created, containing all the companies from the Stanford Law School Codex Techindex and the legal solution offered by the company. To avoid mistakes on text mining, the companies "Fixed", "Obvious", "Cited" and "Clause" have been removed from the list, since these words did not appeared as proper nouns. This text file is read with a python's language code which generates the list of all companies. Using text mining through a package of python called NLTK (Natural Language Toolkit) a program code was compiled, which counts how many times each company of the list is cited in the Quantitative Analysis database. It will only be considered one mention per article, so if the company is referenced more than once only the first time will count as the citation.

The program generates a text file in which it writes the author or authors of the work and all the companies mentioned. In second place it counts the number of works in our database mentioning each company.

With this second information Table 5 was elaborated. For Figure 4 we have used python's igraph package. We have only included those companies of Table 5 that have been mentioned in at least 3 different works.

Moreover, the most cited legal tech companies were searched on the Internet in order to obtain a self-description of the services offered and the main technology used:

1) **Ross** [Legal Research]: has 32 citations. The world's first artificially intelligent attorney, developed by the company Ross Intelligence.

Technology: Artificial Intelligence. Powered by IBM's technology.

Objective: Substitute the Legal Research job. Done better, faster and more accurately.

2) **LexisNexis** [Legal Research] has 28 citations. LexisNexis Group is a corporation providing computer-assisted legal research as well as business research and risk management service.

Technology: Big Data analysis: Data intensive supercomputer built on our own high performing computing cluster (HPCC). Hosts over 30 terabytes of content on its 11 mainframes. Large volume of published case opinions dating from the 1770s to the present.

Objective: LexisNexis is a leading global provider of legal, regulatory and business information and analytics that help professional customers make more informed decisions, increase productivity and serve their clients better.

3) **Thomson Reuters** [Legal Research] has 25 citations. Thomson Reuters provides professionals with the intelligence, technology and human expertise they need to find trusted answers. Business answers for today's tech companies.

Technology: Artificial intelligence. The Internet of Things. Blockchain tech and distributed ledgers.

Objective: We are dedicated to bringing you insights around today's key global business topics – from increasing risk and regulatory complexity to transformative technology and business models.

4) **LegalZoom** [Documents Automation] has 13 citations. LegalZoom.com, Inc. provides personalized online legal solutions for families and small businesses in the United States.

Technology: Internet webpage that uses artificial intelligence to provide legal documents. Attorney network for specific needs and Legal App, with Cloud content management layer and Box Governance for security and data retention management.

Objective: Affordable approach to law. LegalZoom provides the legal solutions you need to start a business, run a business, file a trademark application, make a will, create a living trust, file bankruptcy, change your name, and handle a variety of other common legal matters for small businesses and families.

5) **Rocket Lawyer** [Document Automation] has 10 citations. RocketLawyer provides individuals and small to medium-sized businesses with online legal services—including incorporation, estate plans, legal health diagnostics, and legal document review.

Technology: attorney network by access to legal advice through Rocket Lawyer On Call® attorneys and easy-to-complete legal documents. Through and Internet Platform Employers pay a flat fee and get access to an online administration portal as well as reporting on how many employees have activated their membership with Rocket Lawyer. HR managers can add newly hired employees to their Legal Benefits account and remove former employees

Objective: Our mission is to make the law affordable and simple enough for everyone to to benefit from the protections of our legal system.

6) **Axiom** [Marketplace] has 20 citations. Find the best lawyer.

Technology: AxiomAI – a program that leverages Artificial Intelligence (AI) to improve the efficiency and quality of contracts work. The firm will be shaping how state-of-the-art techniques in machine learning can be applied to contracting work.

Axiom's Information Technology team is responsible for providing our 2000-person strong global computing community with a secure, effective, available, responsive and sustainable computing environment. Axiom must integrate itself within our customers' computing ecosystem.

Objective: We're on a mission to transform business 'as usual' into business 'as it should be' through the intelligent execution of legal services at a global scale. Global lawyer's company.

7) **DISCO** [Practice Management] has 16 citations.. Our work is split between interim advertising agency projects and client project management.

Objective: he focus is to dramatically reduce the time, burden, and cost of identifying evidence in legal document review sometimes referred to as TAR (Technology Assisted Review)

Technology: Automate document classification using Artificial Intelligence, , deep learning platform, DISCO AI. Applies latest advancements in both machine learning and cloud computing to solve the complex data analysis challenges presented in the practice of law. DISCO, a native cloud technology, has the advantage of massive GPU compute-on-demand to power the latest machine learning technologies and algorithms, such as Google's Word2Vec and a series of Convolutional Neural Networks (CNNs), to deliver higher levels of classification accuracy, faster than ever previously seen in the legal space.

8) **Lex Machina** [Analytics]: 15 citations. Lex Machina mines litigation data, revealing insights never before available about judges, lawyers, parties, and the subjects of the cases themselves, culled from millions of pages of litigation information. We call these insights Legal Analytics®, because analytics involves the discovery and communication of meaningful patterns in data.

Technology: Lex Machina announced today the launch of Legal Analytics® for trademark and copyright cases, affording lawyers in these specialties for the first time ever, insights into the behavior of district court judges, opposing parties, and opposing counsel, enabling them to gain competitive advantage in trademark and copyright litigation.

Objective: Delivered as Software as a Service, Lex Machina creates structured data sets covering districts, judges, law firms, lawyers, parties, and patents out of millions of pages of legal information. Legal Analytics allows law firms and companies, for the first time ever, to predict the behaviors and outcomes that different legal strategies will produce, enabling them to win cases and close business.

9) **Neota Logic** [Practice Management]: has 12 citations. Neota Logic, creators of a leading artificial intelligence (AI)-driven platform for the intelligent automation of expertise, documents, and business processes.

Technology: NLS consists of an AI-powered platform and comprehensive toolset that allows professionals to rapidly build and deploy application solutions that automate their expertise, increasing productivity, improving client satisfaction and creating new business opportunities. With AI-powered applications built from NLS, businesses and professionals can at last benefit from the accurate, unbiased expertise of the best professionals on their best day, every day. Combining process management, document automation and cognitive reasoning tools, our platform allows the expert to rapidly build applications, making their services instantly available to clients.

Objective: Neota Logic is re-imagining the way professionals provide their services with AI-powered applications that intelligently automate expertise, workflow, and documents.

List of the 702 Companies obtained from the Stanford Law School Codex TechIndex, and analysed in this research study:

'Abe,' 'AdviceScene,' 'AdviseHub,' 'advocado,' 'Advocatalog,' 'Arrest SOS,' 'AttorneyFee,' 'Avvo,' 'BackStartup,' 'Bluetree Legal Connect,' 'Bridge US,' 'Briefed,' 'CaseHub,' 'Congo,' 'Corporate + Startup Law,' 'Corporize,' 'Counsel on Call Services Inc,' 'CrowdLaw,' 'DealSheet,' 'Derecho24,' 'DocketHero,' 'EasyLaw.in,' 'EsqSocial,' 'ExpertBids,' 'EzVsa,' 'Fair Document,' 'FlatLaw,' 'Foundee,' 'FreelanceLaw,' 'Get Lawyer App,' 'Forced Labour Abolition Group (FLAG),' 'Hire an Esquire,' 'Hoip,' 'Esq.me,' 'Justice Bid,' 'JusticeBid,' 'InLaw.Me,' 'Inolyst,' 'ipnexus,' 'Law Mixer,' 'Law Scout,' 'LawAnswers,' 'JammedUp,' 'Jurisweb Interactiva SL'

'JustiServ', 'Kabuk Law', 'Lateral.ly', 'Laterally', 'LegalClick', 'LegalYou', 'LawDeeDa', 'Lawdingo', 'LAWfone on Demand', 'Lawger', 'Law-Gives', 'LawGo Inc', 'LawKick', 'Lawnearme.com', 'Lawpolis', 'LawStud.io LLC', 'LawTake', 'LawTrades', 'LawVisors', 'LAWYA', 'LawyerFair', 'LawyerLinx', 'LawyerMatch', 'LawyerUp', 'LawZam', 'Legal Hero', 'Legal Line', 'LegalCafe', 'LegalReach', 'LegalTap - On Demand Legal', 'Legify', 'Lexdir', 'Lexoo', 'Lexstart', 'Lig Technologies Ltd', 'MiAbogado', 'MisAbogados.com', 'MyLawBid', 'MyLegalCoverage, Inc. (MLC)', 'myRight', 'Openlegal', 'Quicklegal', 'Plum Law Jobs', 'PUSHTOSTART', 'Quegal.com ~ A question of legal \xe5\xa8', 'RSVP Law', 'Speedy Counsel', 'Sanza', 'Rightly', 'StartDireito', 'Structured Market', 'Task Central', 'Temple Bright', 'The Expert Institute', 'Top Class Actions', 'Ubiquitous Legal Technology', 'Virtual Law Direct', 'Virtual Writing Lab', 'wireLawyer', 'Axiom', 'Yuristiya', 'X2X Community', 'Excellara', 'Custom Counsel', 'Resume Launchpad', 'Habeas Corp.', 'Axiom Legal', 'Impera', 'Lexoo Ltd', 'CitizenshipWorks', 'Legal Pas-sage', 'CrowdDefend', 'CrowdJustice', 'Get Legal Counsel', 'Gust', 'ZeekBeek', 'ZeeBeek', 'Wire Lawyer', 'Law on the Web', 'Access Solicitor', 'LawGo', 'Lawurli', 'Lawyered', 'Legal Equalizer', 'Legal Linkup', 'Legal.io', 'Lawbooth', 'Local Lawyer', 'Legal Space', 'Should I Sign', 'Unbundled Attorney', 'LawTrades', 'Avostart.fr', 'IP Nexus', 'One400', 'Marktplatz-Recht', 'Common Company', 'legalstart.fr', '1Law', 'ClearAccessIP', 'Upcounsel', 'Foxwordy Inc', 'Asia Law Network', 'elAbogado.com', 'VortexLegal', 'MyMotionCalendar', 'MeilleursHonoraires.com', 'Justice Toolbox, Inc.', 'BurgieLaw', 'SKUANI Ltd', 'SKUANI Ltd', 'anwalt.de services AG', 'Crowd & Co', 'JustLegal', 'Priori Legal', 'AfterGo', 'AfterSteps', 'AirHelp', 'AlgoValue', 'Aluvion Law', 'ASCAPPE', 'Ascent', 'BizAbroad Xpress', 'Blackletter', 'Blue J Legal', 'Business Integrity', 'CapMail', 'Captain Contrat', 'CaseRails', 'Chapter 11 Dockets', 'Checkr', 'Claim Kit', 'Clausehound', 'ClauseMatch', 'ClearContract', 'ClearN-DA', 'Clearpath Immigration', 'Clerky', 'CliXLEX', 'ClosingFolders', 'Contract Cloud', 'Contractually', 'ContratosApp', 'Cooley', 'CourtSide EDX', 'Credit Swarm', 'Crowdfunding Compliance Center', 'Dealcircle', 'Dent', 'DiligenceEngine', 'DivorceMate Software', 'doAgree', 'Docasaurus, Inc.', 'DocNav', 'Docracy', 'Document Technologies Inc', 'DraftLaw', 'E-Nact', 'EasyNDA', 'EchoSign', 'Effective decision', 'eQuib-bly', 'eShares', 'everplans', 'FindMySong', 'HotDocs', 'iNation', 'InCloudCounsel', 'Inkdit', 'Horizon', 'iplInstruments', 'Kira', 'Korbitec', 'Lar21', 'LawDeal', 'Legal Simplicity', 'LegalCrunch', 'LegalCrunch!', 'LegalFacil', 'LegalInc Corporate Services', 'LEGALIX', 'LegalZoom.com', 'Leg\xcc_timo', 'Leg\xe5\x90timo', 'Lexigual', 'My Exit Strategy', 'LexSpring', 'Lexvisors', 'Logikcull', 'LucanDOCS', 'MapYourProperty', 'NextChapter', 'Daniel Stachowiak', 'Pantentory', 'PasteLaw', 'PayMyTrustee', 'Pbworks', 'Peppercorn', 'phraseup*', 'Planned Departure', 'Purediscovery Corp', 'Otonomos', 'PactSafe', 'Ontario Small Claims Wizard', 'Quicklysign', 'RETiDoc', 'PitchCast', 'Rnovo', 'RocketLaw-yer', 'Shake', 'Shoobx', 'Mystacks, Inc.', 'Snapterms', 'SourceHOV LLC', 'Stampery', 'RightsFlow', 'Shortsaleopedia', 'SavvyDox Inc', 'Sup-portPay', 'Suralink', 'Syngrafii', 'Tapdix', 'Startup Documents', 'Terminis', 'TermSheet', 'Ticket Warrior', 'Swarm', 'Trustarte', 'Trustatom', 'Turner', 'VaultSwap', 'VentureDocs', 'VerdictAdvantage', 'VIDITURE.INC', 'TrademarkNow', 'VisaEase', 'VR-Mail', 'WeConsent', 'Wevorce', 'WhichDraft', 'Willow', 'Writora', 'accreditation.io', 'WeedTraQR', 'Gadfly Legal Technologies', 'Autriv Software Development', 'Loudr', 'CarBack', 'Contract Live', 'Etherparty', 'ContactRoom', 'Docasaurus', 'DocEx Legal', 'Esquify', 'Infinate', 'Kesteven', 'Killer Kontracts', 'Iron-clad', 'LawGeex', 'Legitimo', 'Concord', 'Counsl.co', 'Law4TW', 'ContractRoom', 'Estate Guru', 'flightright', 'Civil Soot', 'DirectLaw', 'Upsolve', '123recht.net', 'Legalstart.fr', 'Clause', 'ClientSide', 'CommonAccord', 'Wizdocs', 'iubenda', 'DocAssemble', 'LEVERTON', 'Traklight', 'Start-ing Legal', 'eLakitoimisto O\xdc', 'Surukam Analytics', 'LawDroid', 'Doxbi', 'Closing Folders Inc', 'SimpleCitizen', 'Lawyaw', 'Monax', 'Le-galese 2.0', 'Advobot', 'Microsystems', 'Doctual Ltd', 'Bootstrap Legal', 'Legalist Online On Hukuk Hizmetleri A.S.', 'NextLex Inc', 'LAWPP, LLC', 'Specifio', 'iDisclose', 'LawHawk Limited', 'Road to Status, LLC', 'Precisely', 'AgileLaw', 'AppealTrack', 'Arachnys', 'Align Matters', 'Attor-ney's Back Office, Inc.', 'Big Time Software Inc', 'BleuAcre', 'Capture.IT', 'ping, Inc', 'Caseflow', 'Caselinq', 'Clio', 'ClearView Social', 'Cicayda', 'CosmoLex', 'CourtReader', 'CS Disco', 'Depot Services, Inc', 'GhostPractice', 'Crypho', 'Instadocket', 'DISCO', 'EasyIntake', 'eDepoze', 'Em-erald Technology Valuations LLC', 'Esq. Safe', 'experdocs', 'FactBox', 'Firmex', 'Firmzen', 'HoudiniEsq', 'Indexed IO', 'Infotems', 'ImpactGRC', 'IVIZE Services Inc', 'Kinso', 'Last5', 'Lawcus', 'Lawyerfy', 'Legal Flow', 'Modus', 'Lemontech - Thetimebilling', 'Lexicata', 'LegalLogs', 'Linte', 'Litigator Technology', 'LegalTrek', 'LiveOffice LLC', 'Logickull', 'Lynx Workflow', 'matterBase', 'MyCase', 'Office Network Online',

'RecordLogix', 'NetLex', 'plainlegal', 'Quolaw', 'RealPractice', 'Reorg Research', 'RION Corp', 'RocketMatter', 'Smokeball', 'TenderScout', 'TrackMyLeads', 'TitanFile', 'TECKpert', 'Heureka', 'Virtual Payment Systems', 'Voltaire', 'Vindula', 'Tunnel X, Inc.', 'Clault', 'Workproducts Inc', 'WorthIT Legal', 'XMLAW', 'Zapproved Inc', 'Avvoka', 'Block Notary', 'ZoundsHearing.com', 'Virtual Viewbox', 'Verinvest Corporation', 'TopicLogic', 'TeamPatent', 'SecureSend', 'Rpost', 'AgileLaw, LLC', 'Alt Legal', 'Avvoka', 'CaseFleet', 'CaseGlide', 'Clockimizer', 'Lawfty', 'CuroLegal', 'Intake 123', 'Intellinx', 'IQTell', 'Wordrake', 'Law Ruler', 'LawStudio', 'LexBlog', 'LegalServer', 'Foundation Software Group', 'Obolus', 'Judgment Pay', 'Beamium', 'Innography', 'DocuSign', 'Effects', 'Legal OnRamp', 'Seal Software', 'TurboPatent', 'SmartContract', 'NovusLaw', 'Legaler', 'Everlaw', 'Compensation2Go GmbH', 'Neota Logic', 'Allegory Law', 'Merus, Inc.', 'LawTap', 'nubbius', 'Doxly', 'Mobile Helix, Inc.', 'CASEpeer', 'Bill4Time', 'Atrium', 'Synergist.io', 'Codify Legal Publishing', 'Casetab', 'Practice League Legaltech Pvt. Ltd', 'AI Patents', 'Caseflex', 'BriefMine', 'Casetext', 'Justia', 'Court Listener', 'DATY', 'DroidLaw', 'Global-Regulation.com*', 'Hubbard One', 'Intelligize', 'IP Shark', 'Ipselex', 'Juridicus', 'Jurify', 'Judicata', 'Karnov Group Denmark A/S', 'Lawful.ly', 'ModusP', 'Mootus', 'Nymity', 'Ratchet Technology', 'Push Legal', 'rangefindr', 'Ravel Law', 'qodeo', 'SubroFlash', 'The National Law Review', 'vLex', 'VoiLaw', 'Tyche', 'Bestlaw', 'blueJLegal', 'Free Law Project', 'Doctrine.fr', 'BookLawyer', 'openlaws gmbh', 'Witnex', 'Lex.be', 'LexisNexis', 'Thomson Reuters', 'Google Patents', 'Ross', 'Co/Counsel', 'Elementary IP', 'PacerPro', 'Deftr', 'Knomos', 'Weblaw AG', 'FAQ Recht', 'Tologix Expert Systems Inc', 'RPX', 'Lawsnote', 'Fastcase', 'INTELLEX', 'Patentfield Inc', 'Ampulse', 'ApexCLE, Inc.', 'contnu', 'iPleaders', 'LawMeets', 'LegalEZ', 'Legalswipe', 'New Media Legal Publishing, Inc', 'Quimbee', 'RainmakerVT', 'Snap Law', 'Startup Quest', 'AdaptiBar', 'Apex CLE', 'Lawbrery', 'Certifact', 'ChartaCourse', 'Digital Currency Council', 'Hotshot', 'Lawline', 'LawSchoolProfs', 'LawToons', 'Legal Interactive Services', 'Legal Talk Network', 'SeRiouS', 'NuLawLab', 'Law Genius', 'LawSpot', 'Code for America', 'LawMoose', 'NavForward', 'DoNotPay', 'Nyaaya', 'Airport Lawyer', 'Center for Computer-Assisted Legal Instruction', 'Arbiclaims', 'coparently', 'JusticeBox', 'Swiftcourt', 'WayToSettle', 'ZipCourt', 'Block Notary', 'Fair and Square', 'Jury Box', 'ClaimCast', 'Pactanda', 'Cryptonomica', 'DivorceSecure', 'yurJURY', 'BidSettle', 'Modria', 'Court Innovations Inc', 'Conflicteam', 'Court Innovations Inc', 'eJust', 'LegalOne Inc', 'Ashem', 'Ategra Computer Technology', 'Audiocasefiles', 'Audvi', 'Beeline Reader', 'BernieSez', 'Bhavnnani Technologies', 'Bitproof', 'Caldeco', 'CellBreaker', 'Picture It Settled', 'Foresight Legal', 'GPSOX', 'Lawditor.com', 'Lucolo', 'Manzama', 'Mark43', 'MBLOK', 'Mimecast', 'MyCourthouse', 'NOTARY 4 ROTARY', 'Patexia Inc', 'PSS Systems', 'AssistMyCase, Inc', 'NextPoint', 'kCura', 'Lexbe', 'NextGen Reporting', 'DTI Global', 'Prolorem', 'Epiq Systems', 'Discovia', 'Bend Law Group, PC', 'GoldFynch', 'LLM, Inc', 'IntelLease Inc', 'Evichat', 'Catalyst Repository Systems', 'eDCaseMAN', 'AssistMyCase', 'Brightleaf', 'counselytics', 'Contractlytics', 'Counterfeit.Technology', 'LegalRisk.io', 'EasyDataMaps', 'eBrevia', 'FiscalNote', 'Gracular', 'HaystackHQ', 'Juristat', 'Jurispect', 'Legal Chrome', 'Legalshine', 'LegalSifter', 'Lex Machina', 'metricson', 'Nventi', 'Pramata', 'Restructuring Concepts', 'RiverGlass, Inc', 'Sky Analytics', 'UniCourt', 'Viewabill', 'Access Family Law', 'ClearstoneIP', 'DataNovo', 'IPStreet', 'jEugene', 'Workshare Transact', 'RAVN Systems', 'XRef Software Solutions', 'Beagle.ai', 'Legal Robot', 'MyCourtCase', 'Pr\xe9dictice SAS', 'Lit IQ', 'Premonition Analytics', 'Legal Miner', 'Octimine Technologies', 'Compendor GmbH', 'Docket Alarm', 'Patnav', 'Lex Quantus Analytics', 'SimpleLegal', 'Valcu Inc', 'Everchron', 'loom analytics', 'Paper Software', 'PredictGov', 'Helm360', 'Vijilent', 'Vigilant', 'Immuta', 'HourVoice', 'NORMDECS', 'Legal IT Group', 'Intraspexion Inc', 'Risk Genius', 'Legal Insights', 'TechOne', 'LegalOptics', 'MaxVal', 'ThreadKM', 'Justly, Inc', 'MeWe.Org', 'Libryo Ltd', 'i-Wisdom Business Partners', 'Dataprise'

Table 5 - Most Cited Legal Tech Companies and Solutions

Name of the company	Legal Solution	# times cited
eDepoze	Practice Management	1
Mircosystems	Document Automation	2
Bussiness Integrity	Document Automation	1
Avvo	Marketplace	10
Axiom	Marketplace	20
Juristat	Analytics	3
Aluvion Law	Document Automation	1
PacerPro	Legal Research	1
BriegMine	Legal Research	1
Sky Analytics	Analytics	3
RAVN Systems	Analytics	3
Law on the web	Marketplace	1
CommonAccord	Document Automation	1
contnu	Legal Education	1
eJust	Online Dispute Resolution	3
AfterSteps	Document Automation	1
Wevorce	Document Automation	2
DoNotPay	Legal Education	2
Lawline	Legal Education	1
LegalYou	Marketplace	1
Clause	Document Automation	21
DiligenceEngine	Document Automation	2
NovusLaw	Practice Management	1
LegalTrek	Practice Management	1

Name of the company	Legal Solution	# times cited
eBrevia	Analytics	5
Willow	Document Automation	2
Ravel Law	Legal Research	8
CaseRails	Document Automation	1
Legal Robot	Analytics	2
RocketLawyer	Document Automation	10
Ross	Legal Research	32
iNation	Document Automation	5
DirectLaw	Document Automation	4
Lex Machina	Analytics	15
Cooley	Document Automation	7
Gust	Marketplace	3
Effective decision	Document Automation	3
NuLawLab	Legal Education	1
DISCO	Practice Management	16
LexisNexis	Legal Research	28
Center for Computer-Assisted Legal	Legal Education	4
Kinso	Practice Management	1
Custom Counsel	Marketplace	1
Bridge US	Marketplace	1
JustiServ	Marketplace	2
Shake	Document Automation	14
Clio	Practice Management	7
LawGives	Marketplace	1

Name of the company	Legal Solution	# times cited
Precisely	Document Automation	6
LegalZoom.com	Document Automation	13
Voltaire	Practice Management	1
Swarm	Document Automation	2
Legal OnRamp	Practice Management	5
Kira	Document Automation	5
Casetext	Legal Research	6
Startup Documents	Document Automation	2
LegalSifter	Analytics	1
LawGeex	Document Automation	1
Lexoo	Marketplace	1
Lawyered	Marketplace	2
counsellitics	Analytics	1
One400	Marketplace	1
Hubbard One	Legal Research	1
Brav	Online Dispute Resolution	12
CitizenshipWorks	Marketplace	1
Dent	Document Automation	3
Upcounsel	Marketplace	1
SimpleLegal	Analytics	2
Thomson Reuters	Legal Research	25
Docracy	Document Automation	3
Nymity	Legal Research	1
Concord	Document Automation	3
Fastcase	Legal Research	4

Name of the company	Legal Solution	# times cited
Neota Logic	Practice Management	12
Quimbee	Legal Education	1
SupportPay	Document Automation	1
MyCase	Practice Management	4
Modria	Online Dispute Resolution	6
ModusP	Legal Research	1
LAWYA	Marketplace	1
CliXLEX	Document Automation	1
Nventi	Analytics	3
ZeekBeek	Marketplace	1
Linte	Practice Management	1
Clerky	Document Automation	1
CuroLegal	Practice Management	3
HotDocs	Document automation	2
Impera	Marketplace	10
Judicata	Legal Research	8
Horizon	Document Automation	12
kCura	E-Discovery	2
RocketMatter	Practice Management	1
Mimecast	E-Discovery	1
Legal Space	Marketplace	1
LexBlog	Practice Management	1
Congo	Marketplace	2
Modus	Practice Management	5
Turner	Document Automation	11
Ascent	Document Automation	3

Most Cross Cited Authors

Outcomes

Figure 4 and table 6 - Academic Authors by Number of Citations in Database

Figure 4 and Table 6 illustrate the authors of our database who appeared cited by other authors in the database (Other authors, such as companies or bar associations have not been taken into account to build Figure 4).

Authors have only been counted as mentions when they are not themselves authors of the typing work, so we do not confuse a cited author and the author of the work.

Table 6 has 2 columns:

- ✓ 1st column: Name of the author (authors from our database)
- ✓ 2nd column: Number of works citing each particular author

Figure 4 shows the most cross cited authors, those who appeared cited in 10 or more works. Each bubble represents an academic author, the size of the bubble represents the weigh in percentage of papers in the database citing the author, and the colors the country of the authors' academic affiliation. Lastly, The direction of the arrows shows who is citing who.

Country of the authors' academic affiliation:

Blue: USA

Green: Australia

Red/Pink: UK

Grey: Canada

Methodology

To generate Figure 4 and Table 6 we start off the 271 files available for the Quantitative Analysis. The first step is to convert the files into a capable format of machine reading by python. We will use txt.

Secondly, a text file was created, containing all the authors of the 271 files available for Quantitative Analysis. This text file is read with a python's language code which generates the list of all authors. Using text mining through a package of python called NLTK (Natural Language Toolkit) a program code was compiled, which counts the number of works in the database referencing each author of the previously generated list. It will only be considered one mention per article, so if the author is referenced more than once only the first time will count as the citation.

The program generates a text file in which it writes the author or authors' of the work and all the authors mentioned. In second place it counts how many works references each author.

With this second information Table 6 was elaborated. For Figure 4 we have used python's igraph package. We have only included those authors of Table 6 that appeared mentioned in at least 10 different articles. Considering which of these authors' mention each other, the edges (arrows) have been added. The information regarding the country of each author academic affiliation was entered manually after a Google search of each referenced author.

Figure 4. Academic Authors by Percentage of Cross Citations

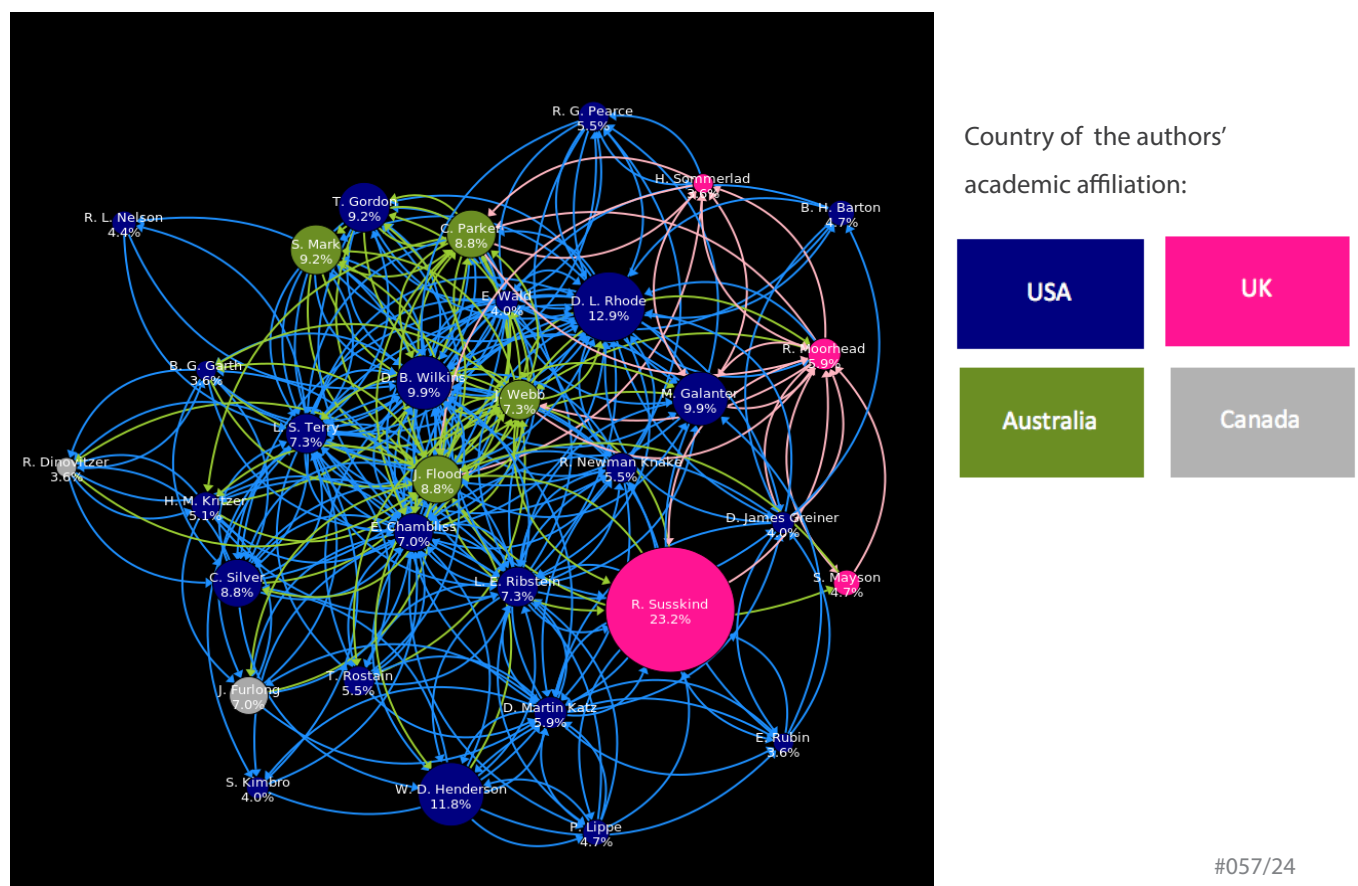


Table 6 - Cross Citations

Author	# times cited
A. Woolley	1
Abhinav Chandrachud	2
Adam Dodek	2
Alice Armitage	1
Alison Xu	1
Altman Weil	19
American Bar Association	101
Andrew Francis	6
Angela Laycock	2
Ariel Porat	1
Ashley Hallene	2
Austin Sarat	8
Axel Stein	1
Bart Verheij	1
Benjamin H. Barton	13
Bernard Marr	3
Bert-Jaap Koops	10
Boya Wang	1
Brian Simpson	1
Bruce H. Kobayashi	7
Bryant G. Garth	10
Bryon Fong	1
Canadian Bar Association Carole Silver	20
Carole Silver	24

Author	# times cited
Carroll Seron	6
Cassandra Wolos Pattanayak	8
Christine Parker	24
Christopher Kendall	1
Christopher Williams	9
Crispin Passmore	1
D. James Greiner	11
D. Ruschena	1
Dan Jackson	1
Dan Mangnan	1
Dan Morris	1
Daniel Martin Katz	16
Daniel Susskind	10
Daniel W. Linna Jr.	4
David B. Wilkins	27
David Edmonds	6
David M. Trubek	6
David Trubek	7
Deborah Jones Merritt	7
Deborah L. Rhode	38
Deloitte	20
Deryck Beyleveld	2
Dominic Carman	1
Donald Nicolson	5

Author	# times cited
EY	6
Edward M. Iacobucci	1
Edward Rubin	10
Edwards Phillips	2
Eileen Fry	1
Eli Wald	11
Elizabeth Chambliss	19
Emma Jones	1
Eric C. Chaffee	1
Fiona Westwood	1
Frank McIntyre	7
Frank Pasquale	4
Frederic S. Ury	2
Frederick Powell	1
Futures Commission of the Utah State Bar	2
Georgetown Law	32
Glyn Cashwell	1
H. W. Arthurs	1
H.K. Gardner	1
Han Somsen	2
Harry Surden	7
Henry Prakken	1
Herbert M. Kritzer	14
Hilary Sommerlad	10

Author	# times cited
Hodge Jones & Allen	3
Ian Kerr	1
Illinois State Bar Association	4
International Bar Association	9
J.Lee	2
Jeanne Pia Mifsud Bonnici	1
Jeffrey Allen	2
Jenny Crewe	1
Jesse Fried	2
Joachim J. Savelsberg	1
Joanne Clough	1
John Coates	3
John Flood	24
John O. McGinnis	3
Jonathan Gingerich	1
Jonathan Hennessy	1
Jordan Furlong	19
Joycelyn Pollock	1
Julian Webb	20
Julie Sobowale	1
Kahnke, M.	7
Kathryn Spier	2
Katrina Lee	3
Kevin G. Mulcahy	1

Author	# times cited
Kieran Tranter	3
Kingsley Martin	4
L. Karl Branting	2
Larry E. Ribstein	20
Laurel S. Terry	22
Laurence Etherington	2
Law Society of South Africa	1
Legal Services Board (UK)	1
LexisNexis	25
Lilian Corbin	1
Linda Haller	2
Lior Jacob Strahilevitz	1
Lisa Collingwood	1
Lisa Martin	2
Lyria Bennett Moses	5
M.DeStefano	1
M.Garcia	2
Magnus Eriksson	1
Marc Galanter	27
Margaret Castles	2
Margie Rowe	1
Maria Helen Murphy	2
Maria J. Esteban	1
Mary Jane Mossman	1

Author	# times cited
Micah W. Miller	2
Michael Froomkin	1
Michael Genesereth	1
Michael J. Trebilcock	4
Michael Mills	3
Michael Osborne	1
Michael Simkovic	9
Michael Skapinker	1
Michele R. Pistone	3
Mihaela Papa	5
Mireille Hildebrandt	4
Miso Kim	1
Morag Goodwin	4
N.Robinson	3
Nadezhda Purtova	1
Neta Ziv	4
New York State Bar Association	13
New Zealand Law Society	1
Nick Johnson	3
Nick Robinson	8
Nicole Black	1
Nigel Firth	1
Nolan M. Goldberg	2
Norberto Nuno Gomes de Andrade	1

Author	# times cited
Paul Lippe	13
Penny Childs	1
PwC	15
Rachel E. Stern	1
Raphaël Gellert	1
Raymond H. Brescia	7
Renee Newman Knake	15
Richard L. Abel	9
Richard Moorhead	16
Richard Susskind	63
Richard Wakeford	1
Richard Young	1
Robert Half Legal	1
Robert L. Nelson	12
Robin Feldman	1
Roger Brownsword	6
Roger Skalbeck	1
Rohan Havelock	1
Roland Vogl	1
Ron Friedmann	3
Ronald Leenes	4
Ronit Dinovitzer	10
Ross Hyams	2
Roy Strom	3

Author	# times cited
Russell G. Pearce	15
Said Business School	1
Sandra Clarke	4
Sara Charlesworth	1
Sarah Crofts	2
Sarah Kellogg	2
Sarah Thornton	1
Shannon Cunningham	3
Sharon Nelson	2
Sida Liu	8
Stanford Law School	17
State Bar of Michigan	4
Stephanie Kimbro	11
Stephen Cobb	1
Stephen Mayson	13
Steve Mark	33
Steven Vaughan	5
Su Li	7
Susan Daicoff	3
Susan Silbey	4
Swethaa Ballakrishnen	5
T.Schneyer	1
Tahlia Gordon	25
Tahlia Ruth Gordon	1

Author	# times cited
Tam Harbert	3
Tanina Rostain	15
Terence Halliday	5
Terri Mottershead	2
The ABA Commission on the Future of Legal Services	1
The Florida Bar	5
The Law Society of New South Wales	3
The Law Society of Upper Canada	11
The Melbourne Law School	1
Thomson Reuters Peer Monitor	3
Thomson Reuters	17
Umakanth Varottil	1
Virginia State Bar	12
W.H.Simon	1
William D. Henderson	32
William Robinson	1
William Smith	1
William Twining	6

Outcomes

North America	Europe
Asia Pacific	Africa

Methodology

To generate Figure 5 and Table 7 we start off the 271 files available for the Quantitative Analysis. The first step is to convert the format file pdf into a format capable of machine reading using python. We will use txt.

With the programming language python a code has been designed which generates a list of all the countries in the world adding Europe and the possible abbreviations of United States: US and USA, and also UK for the United Kingdom. Using text mining through a package of python called NLTK (Natural Language Toolkit) a program code was compiled, which counts how many times each country is cited in the Quantitative Analysis database. It should be noted that only one mention per article has been considered, so if the country is referenced more than once only the first time will count as the citation.

The program generates a text file in which it writes the author or authors of the work and all the countries mentioned. In second place it counts how many citations each country has.

With the information of this file Table 7 was elaborated. Considering only those countries of the table that have been mentioned in at least 10 different articles Figure 5 was elaborated, using the python's igraph package.

Table 6 - Most Cited Countries

Country	Continent	# times cited	Percentage
Canada	America	100	36,9
Lithuania	Europe	2	0,7
Cambodia	Asia	1	0,4
Swaziland	Africa	1	0,4
Palestine	Asia	1	0,4
Argentina	America	7	2,6
Bolivia	America	2	0,7
Cameroon	Africa	1	0,4
Ghana	Africa	2	0,7
Saudi Arabia	Asia	3	1,1
Slovenia	Europe	4	1,5
Guatemala	America	1	0,4
Bosnia and Herze- govina	Europe	2	0,7
Kuwait	Asia	2	0,7
Germany	Europe	48	17,7
Spain	Europe	23	8,5
Netherlands	Europe	30	11,1
Jamaica	America	3	1,1
Oman	Asia	1	0,4
Tanzania	Africa	1	0,4
Gabon	Africa	1	0,4
Monaco	Europe	1	0,4
New Zealand	Oceania	22	8,1
Yemen	Asia	1	0,4

Country	Continent	# times cited	Percentage
Pakistan	Asia	5	1,8
Albania	Europe	2	0,7
United Arab Emirates	Asia	4	1,5
India	Asia	95	35,1
Azerbaijan	Asia	1	0,4
Madagascar	Africa	1	0,4
Kenya	Africa	4	1,5
Belarus	Europe	1	0,4
Tajikistan	Asia	1	0,4
Turkey	Asia	3	1,1
Afghanistan	Asia	2	0,7
Ireland	Europe	31	11,4
Mongolia	Asia	1	0,4
France	Europe	47	17,3
Rwanda	Africa	3	1,1
Slovakia	Europe	3	1,1
Peru	America	8	3,0
Laos	Asia	1	0,4
Norway	Europe	7	2,6
Malawi	Africa	2	0,7
Benin	Africa	1	0,4
Cuba	America	3	1,1
Montenegro	Europe	1	0,4
Saint Kitts and Nevis	America	1	0,4

Country	Continent	# times cited	Percentage
Togo	Africa	1	36,9
China	Asia	61	0,7
Armenia	Asia	1	0,4
Dominican Republic	America	1	0,4
Ukraine	Europe	2	0,4
Barhain	Asia	1	2,6
Finland	Europe	10	0,7
Libya	Africa	1	0,4
Indonesia	Asia	5	0,7
United States	America	205	1,1
Sweden	Europe	13	1,5
Vietnam	Asia	8	0,4
Mali	Africa	8	0,7
Russia	Europe	24	0,7
Bulgaria	Europe	4	17,7
Mauritius	Africa	1	8,5
Romania	Europe	6	11,1
Angola	Africa	1	1,1
Portugal	Euroe	7	0,4
South Africa	Africa	21	0,4
Nicaragua	America	2	0,4
Liechtsnstein	Europe	1	0,4
Malaysia	Asia	3	8,1
Austria	Europe	8	0,4

Country	Continent	# times cited	Percentage
Mozambique	Africa	1	0,4
Uganda	Africa	5	1,8
Japan	Asia	39	14,4
Niger	Africa	6	2,2
Brazil	America	20	7,4
Guinea	Africa	3	1,1
Panama	America	3	1,1
Costa Rica	America	2	0,7
Luxembourg	Europe	7	2,6
Bahamas	America	1	0,4
Ivory Coast	Africa	1	0,4
Palau	Oceania	2	0,7
Nigeria	Africa	6	2,2
Ecuador	America	3	1,1
Bangladesh	Asia	4	1,5
Australia	Oceania	121	44,6
Iran	Asia	5	1,8
Algeria	Africa	1	0,4
El Salvador	America	1	0,4
Czech Republic	Europe	3	1,1
Chile	America	4	1,5
Belgium	Europe	10	3,7
Brunei	Oceania	1	0,4

Country	Continent	# times cited	Percentage
Thailand	Asia	2	0,7
Iraq	Asia	2	0,7
Sierra Leone	Africa	2	0,7
Georgia	Asia	32	11,8
Denmark	Europe	14	5,2
Poland	Europe	9	3,3
Moldova	Europe	2	0,7
Morocco	Africa	1	0,4
Croatia	Europe	2	0,7
Switzerland	Europe	14	5,2
Grenada	America	1	0,4
Chad	Africa	10	3,7
Estonia	Europe	4	1,5
Uruguay	America	3	1,1
Equatorial Guinea	Africa	1	0,4
Lebanon	Asia	3	1,1
Uzbekistan	Asia	1	0,4
Tunisia	Africa	1	0,4
Antigua and Barbuda	America	1	0,4
Dominica	America	1	0,4
Colombia	America	2	0,7
Taiwan	Asia	6	2,2
Cyprus	Europe	2	0,7
Barbados	America	1	0,4

Country	Continent	# times cited	Percentage
Qatar	Asia	2	0,7
Italy	Europe	27	10,0
Malta	Europe	2	0,7
Maldives	Asia	1	0,4
Venezuela	America	4	1,5
Israel	Asia	12	4,4
Iceland	Europe	7	2,6
Zambia	Africa	1	0,4
Senegal	Africa	1	0,4
Trinidad and Tobago	America	1	0,4
Zimbabwe	Africa	3	1,1
Jordan	Asia	45	16,6
Gambia	Africa	1	0,4
Kazakhstan	Asia	2	0,7
Philippines	Asia	6	2,2
Kyrgyzstan	Asia	1	0,4
Macedonia	Europe	2	0,7
Paraguay	America	3	1,1
Latvia	Europe	2	0,7
Hungary	Europe	4	1,5
Syria	Asia	2	0,7
Honduras	America	3	1,1
Mexico	America	22	8,1
Egypt	Africa	5	1,8

Country	Continent	# times cited	Percentage
Singapore	Asia	32	11,8
Serbia	Europe	2	0,7
United Kingdom	Europe	170	62,7
Greece	Europe	7	2,6
Sri Lanka	Asia	2	0,7
Namibia	Africa	1	0,4
Botswana	Africa	1	0,4
Europe	Europe	158	58,5

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