LAW GRADUATES and NEW TECHNOLOGY COURSES[1]

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ABSTRACT

Extent of technological innovation has influenced the legal profession just like in any other field. Although law is not a trade or technology discipline, it quickly adapts itself to changes in technology through the sectors it provides legal services. Universities try to meet the legal profession's technology education demands. While every law student is not expected to gain advanced technological skills, he or she still needs to keep up with artificial intelligence, internet law or legal technology. Artificial intelligence (AI) manifests itself as a part of new philosophy of law. Universities that cannot concentrate on technology courses at the undergraduate LLB curriculum, organize some additional private law courses to overcome their existing deficiency. In this article, the importance of legal technologies (LegalTech) and the systems that try to ensure their inclusion in education will be evaluated.

Keywords: Philosophy of Law, LLB, Schools, FinTech, LegalTech, IP Law

HUKUK MEZUNLARI VE YENİ TEKNOLOJİ EĞİTİMLERİ

ÖZET

Teknolojik yeniliklerin kapsamı her alanda olduğu gibi hukuk mesleğini de etkilemiştir. Hukuk bir ticaret ya da teknoloji disiplini olmasa da hizmet verdiği sektörler aracılığıyla teknolojideki değişimlere hızla uyum sağlamaktadır. Üniversiteler hukuk mesleğinin teknoloji eğitimi taleplerini karşılamaya çalışmaktadır. Her hukuk öğrencisinin ileri teknolojik beceriler kazanması beklenmese de yapay zekâ, internet hukuku ya da hukuk teknolojisine ayak uydurması gerekmektedir. Özellikle de yapay zekâ, yeni hukuk felsefesinin bir parçası olarak kendini göstermektedir. Lisans LLB müfredatında teknoloji derslerine ağırlık veremeyen üniversiteler, mevcut eksikliklerini gidermek için bazı ek özel hukuk dersleri düzenlemektedir. Bu makalede hukuk teknolojilerinin (HukukTek) önemi ve eğitime dahil edilmesini sağlamaya çalışan sistemler değerlendirilecektir.

Anahtar Kelimeler: Hukuk Felsefesi, LLB, FinTek, HukukTek, IP Hukuku

INTRODUCTION

"The intersection of law, politics, and technology is going to force a lot of good thinking."

- Bill Gates, *The Essence of Bill Gates Life* (Singh, 2018)

The law profession, based on ancient Greek and Roman civilization, has changed unexpectedly with technological developments and evolved in a new direction by being influenced by computer science. Today, many traditional professions including the profession of law are in flux by technology. The need for some professions is diminished and many professions started to disappear when internet, blockchain, artificial intelligence and IoT (Internet of Things) came into our lives. For example, as online banking developed further, compared to the previous system the need for the number of bank employees has drastically decreased and many bank branches have been shut down. Due to the development of artificial intelligence, 200,000 people are expected to lose their jobs in US banking sector in the coming 10 years (Liu, 2019). Similarly, more and more bank customers prefer internet banking now and an average of sixty bank branches are being shut down every month in UK (BBC, 2018).

On the other hand, the advancement in technology has created brand new business areas. For example, previously unknown but newly emerged business areas such as computing specialists, social media managers, digital marketers, energy engineers, software and app developers, drone operators, and YouTube content creators are the new professions created by technological development (Vilbert, 2019). Indeed, the common opinion expressed by experts attending the IFTF workshop in March 2017 is, '85% of the jobs that today's learners will be doing in 2030, haven't been invented yet' (IFTF, 2017).

Technological change also affects the legal services quite a lot. New areas such as Legal Technology (also known as LegalTech) has come out. There is no universally accepted definition for LegalTech yet, but it has already been described by different authors as follows, "LegalTech is broadly as technology and software used in the legal profession" (Bues et al., 2017). "LegalTech refers to the use of technology and software to provide legal services (Goodman, 2014)". LegalTech can be defined as providing technology-based legal services.

LegalTech's history goes back to the 1970s. The first significant development in LegalTech was the launch of LexisNexis "the little red terminal" - the UBIQ, which broke ground in 1979 by providing online resources for case law (Ridwan, 2019). Thanks to this program, lawyers had been able to follow current developments and jurisprudence in case law. In the 1980s, several studies were conducted on legal expert systems. Some of the legal expert systems are available for public use, while others are not. Expert systems were developed as first wave and second wave in these periods. First wave systems are designed to perform all tasks, second wave systems are designed to perform certain tasks (Leith, 2010). Legal expert systems are originally considered as second wave systems (Greenleaf, 1989). The development of LegalTech gained momentum later on with artificial intelligence, data increase and changes in internet technology.

The number of LegalTech initiatives financed by venture capitals has accelerated ten times in 2016 compared to 2011 and this number is still on the rise (Andreae, 2017). LegalTech hubs have also been installed in Silicon Valley, New York, Toronto, and London.

LegalTech start-ups can be divided into four categories: start-up companies offering legal services online, online 'matching' platforms that connect lawyers with clients, start-ups engaged in legal research activities and blockchain companies that function as intermediaries for lawyers (Fenwick et al., 2017). Along with the advances in technology, new categories are also expected to come up. Especially with quantum computers, the acceleration of transformation in legal profession is expected to increase exponentially. Due to quantum computers' processors, the software will run very quickly.

In near future, developments particularly in machine learning will cause changes in the following five categories within the field of law; (1) discovery, (2) legal search, (3) document generation, (4) brief and memoranda generation, and (5) prediction of case outcomes (McGinnis et al., 2014). Today there are LegalTechs running in many areas such as drafting legal documents, managing legal workflows, classifying, and analyzing legal documents, measuring legal performance, and structuring legal workflows (Gresbrand, 2020). These developments in the LegTech industry will revolutionize the legal sector. By means of LegalTechs lawyers will not have to search, find and analyze legal texts for long hours. They will have the chance to use their time more efficiently. LegalTechs will be competent enough to carry out fast and successful processes such as compliance and due diligence which require keen attention and time. However, there is an ongoing significant problem, lawyers' competency and courses conducted on technologies in universities that will revolutionize their profession are not compatible yet.

In our study, we examined under three titles how LegalTech will affect lawyers who are not trained in technology. Initially we evaluated how technology will affect the legal services. Secondly, insufficiency of technology education in law schools is assessed, and in the third topic, we researched the existing lessons in law and technology.

1.   THE EFFECT OF TECHNOLOGY ON LEGAL SERVICES

Before addressing the deficiencies in education on LegalTech, better to emphasize the importance of LegalTech learning. LegalTech will lead to radical changes in the legal profession. These changes will affect numerous factors in legal profession. Much like other professions, there is competition among lawyers in the field of law too. Significant changes have occurred in legal sector in the past 10 years. Large accounting firms, legal process outsourcing companies (LPOs) and legal technology providers have recently entered the legal service industry. Changes in clients' demands and expectations shifted law firms' that want to maintain their competitive power attention from traditional business models to legal innovation (Vogl, 2016). Especially with the globalization, lawyers have crossed the country borders and started to provide legal services globally. Providing technology-based legal service in this process will provide a prominent competitive edge to lawyers who provide global legal services.

Technology will also reduce the cost of legal services. Along with the developments in computer technologies, there have been important developments in the legal sector too. The initial noteworthy development is the entry of the systems such as west law into the life of jurists by which the court decisions are scanned and indexed.

Previously while investigating a case, the research stage used to require a lot of labour and time. When automation systems that summarize court decisions and find precedent decisions participate in the process, it has now become shorter and inexpensive (National Commission, 1966). Decreasing law practice costs will serve well to middle-, and low-income groups. The legal services offered by classical lawyers are very costly as they require labour intensity and great amount of time to be performed. Ability to provide these legal services by LegalTech will reduce these costs and ensure that the middle-, and low-income groups may also receive legal services (McGinnis et al., 2014).

By the help of technology, legal services can be performed more effectively. It is a known fact that errors due to human factor can always occur while providing legal services. Lawyers may miss some essential points especially when analyzing documents. It is likely that such errors may have profound consequences for clients. However, it is possible to reduce this error margin through LegalTechs. In 2014, Professor D. M. Katz and his colleagues developed an algorithm to estimate the results of the US Supreme Court cases (Katz et al., 2014). This algorithm, while analyzing court decisions, obtained 70% accuracy for 7,700 decisions from 1953 to 2013 (Sobowale, 2016). If the technology in this research can be developed furthermore, it is possible to obtain even up to 100% accuracy.

Technology also helps to save time. For example, Kira Systems, a machine learning based program allows jurists to analyze contracts, other documents as well as analyze texts. So, due diligence or contract preparation process is faster and compliance of client transactions with the law can be checked quickly (Kira Systems, 2020). Thanks to LegalTech, a better quality and efficient legal service can be offered to clients with less cost. This may provide lawyers a significant competitive advantage. Lawyers who cannot improve themselves on LegalTech will not be able to cope up with the new processes and will be helpless against LegalTech utilizing law firms.

2. TECHNOLOGY EDUCATION DEFICIENCIES IN LAW SCHOOLS

Digital technologies such as coding and LegalTech are increasingly surrounding the law practice. The digital transformation which we are going through, will not destroy advocacy but it will change the practices. It is predicted that legal services will be equipped with technology support in future. Lawyers are also getting prepared for this technology. The biggest issue lawyers are facing is, they do not get a comprehensive LegalTech education in universities.

Lawyers who have been trained with traditional methods in the current legal education program, graduate devoid of agility and capacity of innovate which falls short to fulfil the needs of 21st century lawyers (Fenwick et al., 2017). Therefore, it would be beneficial to make radical changes in the legal education program in USA.

Due to digital transformation, while performing their profession lawyers will need other additional skills than they learned in law faculties (Fenwick et al., 2018). Especially corporate clients demand uses of technology for lawyering and law practice from lawyers (Pistone, 2015, p. 589). However according to general acceptance, the basic skills desired to be acquired in the existing law school education are precision, in-depth analysis and syntheses, substantive legal knowledge, and policy considerations" (Fenwick et al., 2017, p. 5). Technology and innovation are not listed in these capabilities which denotes an important deficiency. The rapid development in LegalTech is going to eliminate some skills which have turned out to be dysfunctional. For example, spending long hours for a comprehensive transaction and high time billing process for the time spent now can be done in a short time via computers that can scan and analyze the transactions quickly. (Pistone, 2015, p. 589). Lawyers who can use technology will be more popular than lawyers who conduct in-depth analysis for long hours.

Law students should learn LegalTech not only to practice their own profession but also to support other disciplines as well. By learning basic mathematical principles for coded technology solutions in law, students will be able to evaluate the efficiency of legal applications and they can also provide support to software developers of LegalTech (Fenwick et al., 2017, p. 38). While the developers code the law programs, the lawyers will explain the law explicably to them so they can understand the content better. For this, lawyers also need to be knowledgeable about software, coding, and algorithms. It is seen that this need is noticed and met in some universities today. For example, 'Master of Laws (LLM) in Law, Technology, and Entrepreneurship' program in Cornell Law School is designed to support software developers (Cornell Tech, 2020). In case of not providing sufficient LegalTech education to students in law faculties, graduates cannot move on to new job areas, moreover software developers and lawyers cannot cooperate either.

Amending the education system can be considered to keep up with the LegalTech change. Case method is the accepted educational pattern in law schools in USA. The case method was first used between 1870-1895 by C. C. Langdell, the Dean of the Harvard Law School (Dhar et al., 2018, p. 182). In this method, instead of providing material to law students for direct learning, examples of the implementation of a law are explained and it is left to students to realize which law is used (Conneally, 2016). Traditional legal education based on the Langdell method which has been practiced in USA for more than one hundred years 'is a decidedly academic, or cognitive, model of legal education centered on legal doctrine and case law with varying degrees of elective opportunities to attain practical and professional competence' (Spencer, 2012).

Case method is generally applied together with Socratic method. In Socratic method, students learn the law by answering a series of tough questions designed. In this wise, students can develop the skill of critical analysis (Dhar et al., 2018, p. 183).

However, today's vitally important technology literacy or coding training are not given in this law education system. LegalTech knowledge and competence are not in the career goals of law schools. For example, Berkeley Career Centre stated that for good advocacy the person should have effective communication skills, being a researcher, capable of thinking critically and analytically, ability to rapidly analyze and organized large amounts of complex materials (BCC, 2020). These skills are no longer crucial for lawyers of future. Thus, with the change in technology, enormous number of complex materials will be analyzed by artificial intelligence-based software. So, in the near future lawyers who cannot use this software will look like people who cannot use MS Excel or MS Word today. Lawyers of future should understand and use technology, because lawyer of future will be radically different from the lawyer of present. Doubtless that lawyers will provide legal services to their clients and solve their complex problems in future as they do today. However instead of traditional methods, they will provide consultancy services using IT based technologies during this process (CBA, 2013, p. 21).

The curriculum of law schools is based on law lessons. ABA has not set the compulsory courses to be taught in law schools. However, learning outcomes established by Article 302 in ABA Standards and Rules of Procedure for Approval of Law Schools are as follows,

A law school shall establish learning outcomes that shall, at a minimum, include competency in the following:

(a) Knowledge and understanding of substantive and procedural law,

(b) Legal analysis and reasoning, legal research, problem-solving, and written and oral communication in the legal context,

(c) Exercise of proper professional and ethical responsibilities to clients and the legal system, and

(d) Other professional skills needed for competent and ethical participation as a member of the legal profession (ABA, 2020).

In the first year of many law schools, courses such as Civil Procedure (The Federal Rules of Civil Procedure), Constitutional Law (United States Constitution, especially Fifth and Fourteenth Amendments, and the Commerce Clause), Contracts (Article 2 (Sales) of the Uniform Commercial Code and Restatement (Second) of Contracts), Criminal Law (General Common Law, Model Penal Code, and State Criminal Statutes), Property (General Common Law and Restatement of Property), Torts (General Common Law, Restatement (Second) and Restatement (Third) of Courses such as Torts), Legal Research (Use of a Law Library, LexisNexis, and Westlaw) are compulsory. Following the first year, students are free to choose courses and take law courses in different fields of legal study, such as administrative law, corporate law, international law, admiralty law, intellectual property law, and tax law (Law school, 2020). Among them, courses that teach innovation, digital transformation and LegalTechs are generally not existing. On the other side, the changes in technology incapacitate the traditional law education in our day.

As a matter of fact, 87% of law graduates who participated in Kaplan Bar Review survey of 712 law school graduates from the class of 2013 stated that, considering the changing employment environment and the legal profession of the future, essential reforms should be implemented in the US legal education system (Schaffer, 2013).

It can be said that technology is not referred in American bar exams. In MBE exam, which is the component of UBE, there are questions from seven subject areas such as Civil Procedure, Constitutional Law, Contracts, Criminal Law and Procedure, Evidence, Real Property, and Torts (NCBE, 2020). There is no assessment for technology knowledge in Multistate Essay Examination (MEE) and Multistate Performance Tests either (Pivovarov, 2019a). For this reason, many lawyer candidates are studying their law courses with classical lawyering skills to pass the bar exam. Lawyer candidates do not care much about studying technology since technology is not an exam subject. However, technology is changing the law profession of the 21st century disruptively.

Today, lawyers are expected to use technology while preparing for a case, providing counselling or solving legal problems. While providing these legal services, lawyers insisting on solving problems based on traditional legal tool kit may create tragic outcomes in 21st century (Fenwick et al., 2017, p. 380). The deficiencies in traditional methods fall short to meet the current legal needs of the society. Lawyers need to be trained in technology to learn the role of the future lawyers. Also, compared to past, the amount of information has increased exponentially. It will be difficult to access and analyze correct information in a short time with the traditional lawyering methods. In this period, with traditional methods most probably lawyers will make evaluations involving big or small mistakes and the legal service provided will be insufficient. However, if lawyers can use the available technology, thanks to computers, lawyers can make accurate evaluations (McGinnis et al., 2014). Therefore, it is necessary to acquire the basic education on technology and lawyer candidates should be evaluated with exams for their technology knowledge. There is no assessment for technology in bar exams today. If technology knowledge which is strategically important for legal profession cannot find a place in bar exams, this will eventually stray lawyers away from the technology. Then only candidates who are particularly interested in technology will follow technological innovation with their personal efforts.

A missing LegalTech education may also result in lawyers' incapability of meeting their clients' demands. In the face of rapidly increasing technological developments and innovation worldwide, clients will request solutions to many problems that cannot be solved within the current scope of the legal framework. Law schools should face this challenge which lawyer candidates will come across in the future's legal market and start to train the lawyer candidates accordingly (Fenwick et al., 2017, p. 379). Unfortunately, there is still no comprehensive education on LegalTech in the curriculum of many law schools. Since classical universities do not provide trainings to their students for innovation and technology during the 4-5-year period of study, these undergraduate students are obliged to attend additional courses in universities that include innovation curricula such as Stanford Law School, Pritzker School of Law and Harvard Law School (Pivovarov, 2019a).

The real consequences of not being trained in technology will be experienced by those who have graduated from law faculties long ago. According to the survey conducted by McKinsey in nine countries, approximately 40% of employers stated that the biggest issue in not finding a job is because of lacking the adequate skills (Mourshed et al., 2014). The same problem may apply to lawyers who are already practicing law as well. Many lawyers competent in law will not be able to comply with future's law profession as they cannot cope up with the changes in technology. These lawyers will lose their competitive power over time. As a matter of fact, the future attorneyship profession will be carried out with artificial intelligence (A.I.) based systems. Contracts, compliance services and case law reviews will be performed with these smart systems. Likewise, blockchain technology will significantly change the profession of law.
Lawyers who cannot catch up with the change will fall behind just like as if they are lawyers using the typewriters in computer age.

The main reason for lawyers to lag behind the technology is the intensive law courses in law faculties, and also candidates are subjected to be tested only for questions regarding the law in bar exams. At present, graduate lawyers are only able to eliminate this deficiency with certificate programs, postgraduate education, and continuous education programs.

3. LAW AND TECHNOLOGY

It is not possible for every law student to know legal technologies deeply since law firms do not fully benefit from technological support yet. There is no one set of Legal Technology solutions which most firms use that would justify teaching at undergraduate level (Ireland et al., 2020). Since law schools are not commercial schools, running all courses completely technological would not make much sense. Yet still, law faculties may choose some focus points for themselves (Ireland et al., 2020).

New concepts and applications that are emerging every day are introducing the technology into the legal sector more and more. According to a study (Berriman, 2019), 40% of Americans, 35% of Germans, 30% of British and 20% of Japanese will lose their jobs in the 2030s due to automation. As a result of these developments in automation, technology turns out to be a metaphor of fear as well as a metaphor of support.

Many graduate lawyers who are not trained with a sufficient level of technology in law schools are facing the consequences today while practicing the law of 21st century. LegalTech has started to change the field of law and legally trained lawyers without technological skills are in a difficult situation in face of this change. These lawyers should attend additional LegalTech trainings. LegalTech training can have two basic forms: ''awareness-raising'' and "teaching technology-based advocacy". In the awareness-raising process, it is aimed for lawyers who are unaware of technology, to obtain knowledge about LegalTech. Considering that the average age of lawyers, judges, magistrates, and other judicial workers in USA is 46.5 (Data USA, 2018), it turns out that most lawyers are not so familiar with LegalTech.

This generation has already fallen behind the basic developments of our day such as internet, mobile technologies, and artificial intelligence. These lawyers should be made aware of LegalTechs, about what it is and what it will change. They should be informed about the scope of the legal sector's future.

Awareness raising can be done by Ministry of Justice, social media, and bar associations through various sources. The Ministry of Justice can refer lawyers to LegalTech. Campaigns can be organized to increase the use of LegalTech. Foundationally bar associations have a more significant role than the Ministry of Justice in that regard because bar associations can easily reach thousands of lawyers. To be a lawyer in thirty-two states of USA and District of Columbia, membership of the bar is mandatory (Keim, 2014). Considering this sphere of influence of bar associations, it is more likely to think that the most efficient awareness of LegalTech may come from bar associations. Bars can raise awareness of their members by organizing conferences or broadcasting over LegalTech.

Apart from all these, social media can also be used as a tool to raise LegalTech awareness of lawyers. According to a social media marketing survey of Attorney at Work, 93% of the participants use social media (Attorney at Work, 2017). According to the survey conducted by The ABA Legal Technology Resource Centre in 2018 with 4,000 ABA members from private practices, 79% of individual lawyers are taking place in one or more social networks for professional purposes (ABA, 2018). These numbers indicate how high the rate of social media usage is among the lawyers. LegalTech companies, bar associations and the Ministry of Justice can definitely raise awareness of lawyers through social media.

The second important process is the training of the graduate lawyers. Training is a more complicated process than awareness raising. Because it requires much more effort and time. Lawyers can apply to universities, colleges, and bar associations for LegalTech postgraduate education. Graduates and experienced lawyers can be trained on LegalTech especially with LLM or certificate programs. Universities carry out the most key role in the process of LegalTech education. Technology and law are two different disciplines. Only universities can establish the best structure that will bring these two disciplines together.

Since most lawyers are not trained as technologists, it is necessary to bring together lawyers with the technologists who are legal innovators (Vogl, 2016). Organizations such as CodeX (the Centre for the Legal Profession and the Legal Design Lab at Stanford) can collaborate between lawyers and technologists. For example, at CodeX (Stanford Centre for Legal Informatics), researchers, lawyers, entrepreneurs, and technologists work together to develop efficient LegalTechs and conduct research to spread them around the world (SLS, 2020a). Different courses are held within CodeX such as Exponential Innovations, A.I., and Law Bootcamp, Start-up Bootcamp for Ethical and Sustainable Development, Legal Entrepreneurship and Exponential Innovations (SLS, 2020b). Like in Stanford University, similar programs in law and technology are organized at about twenty-three universities in USA (see Fig 1).

Fig. 1: Examples of US Universities with LegalTech courses and programs

University & School	Unite
Berkeley Law, University of California	Berkeley Centre for Law & Technology
Brooklyn Law School	Brooklyn Law Incubator & Policy Clinic
Chicago-Kent College of Law	Centre for Access to Justice Technology
Columbia Law School	Lawyering in the Digital Age Clinic
Cornell Tech	Master of Laws in Law, Technology and Entrepreneurship
Cumberland School of Law	Law School
Duke Law School	Law Tech Lab
Georgetown Law	Program in Legal Technologies and Iron Tech Lawyer
Harvard Law	Centre on the Legal Profession
Indiana University Maurer School of Law	Centre on the Global Legal Profession
Levin College of Law, University of Florida	Artificial Intelligence, Technology, and the Law
MIT	Computational Law Research and Development
Miami Law School	LWOW
Michigan State University College of Law	LegalRnD Lab
New York Law School	Innovation Centre for Law and Technology
Northeastern University School of Law	NuLawLab
Northern Kentucky University	Lund Ford Academy for Law, Business and Technology
Northwestern Pritzker School of Law	Technology, Innovation, and Entrepreneurship Concentration
Stanford University	The Legal Design Lab
Suffolk University	Institute on Law Practice, Technology, and Innovation
University of Pittsburgh, School of Law	Intelligent Systems Program and the Innovation Practice Institute
Vanderbilt University Law School	Law and Innovation Program
Vermont Law School	Legal Innovation Centre Hofstra Law School

Universities such as Cornell Law School (New York), Northwestern Pritzker School of Law (Chicago), Suffolk University Law School (Boston) and UC Hastings College of the Law (San Francisco) are among the firsts that opened LegalTech courses. It is expected that the popularization of LegalTech will lead to an increase in the number of universities that attach importance to this education (Ward et al., 2019).

Professors at the Pritzker Law School (Northwest University) were interested in the possibilities to include technology in their class after a conference held at all faculties where they could try some technologies first-hand (Pivovarov, 2019a). As a result of the conference, they created the TEaCH Legal Competence Centre with modern classes equipped with large touch screens, video conferencing tools and the necessary software package, including Survey Everywhere, Nearpod, Solstice, Spark and Cisco WebEx. Michigan State University School of Law created the Legal RnD, which focuses on innovations in law. Cleveland-Marshall Law School has announced the launch of a new technology center that offers students new lessons in cyber security. In the Duke Law Tech Lab incubator, some companies have attracted investment in Legal Technology innovations. Harvard Law School Clinics has helped students learn about interviewing, representing clients in court, legal research, preparing policy, analyzing facts, and developing negotiation skills.

Fig. 2 Examples of US Universities with LegalTech Short Courses and Post-Graduate Courses

	Type of program	Subjects covered
Berkeley Law, University of California, USA	Law school academic offering in the J.D. program	Copyright, computer crime law, cybersecurity in context, cybersecurity law & policy, information privacy law, patent law, trademark law, regulated digital industries
Cumberland School of Law at Samford University, USA	Law school academic offering in the J.D. program	Apps, software/hardware, social media/marketing, security, and the obligation to be competent in technology
Suffolk University Law School, USA	Certificate program for legal professionals	Legal operation, improvement & management, 21st century legal services, design thinking for legal professionals, the business of delivering legal services, legal technology toolkit
Vanderbilt Law School, USA	Law school academic offering in the J.D. program (and in a non-academic workshop setting)	A.I., blockchain technology & cryptocurrency

Schools such as Berkeley Law, University of California, Cumberland School of Law at Samford University, Suffolk University Law School, and Vanderbilt Law School standout with courses which they have opened for graduate students. Some of them offer technology and legal education at PhD level, while others develop certificate programs, open to all. Fig. 2 displays the system gaps in terms of legal technology education. Training needs will increase as Legal Tech becomes more widespread. In this case, an increase in the number of training courses can be expected.

Due to an increasing number of LegalTech courses and practices students will graduate by learning the law profession of future and all possible project-based initiatives (start-ups). These students will not only gain advantages in terms of competition but also set the rules of future advocacy. In addition, working with other disciplines such as computer science may create new business areas for lawyers, newly emerged professions as mentioned above: Brand new business areas will develop further such as Legal Automation Engineer position which performs tasks such as creating legal documentation templates, automating contract forms, building electronic expert systems, and due diligence automation, Legal Project Manager (LPM) position responsible for developing the presentation of legal services, Legal Operations Specialist (LOS) position responsible for issues such as finances, staff development, external relations, innovation, the optimization of workflow, and the attraction of business-partners, Legal Technologist (LT) position that monitors LegalTech developments and practices, Legal Process Analyst (LPA) position which performs tasks such as improving the quality of legal services, reducing errors and introducing new business processes in the company (Pivovarov, 2019b). The number of hearings and jurisprudence conducted over internet will increase and companies will automatically be adapted to the new regulations with RegTech.

CONCLUSION

Most learning environments at all levels of education take advantage of technological developments (Keane & Linden, 2022). Internet, an invention of the 20th century, started to affect the field of law in the 21st century. The Internet has profoundly affected university education. The expectations of university students have increased. More than 80% of students said that getting a job was a key factor in their decision to attend university (Gora, 2022). The average (Qualifying Law Degree) undergraduates will meet up with new professions in near future:

- A.I. is taking over the workplace and many jobs.
- Along with areas such as FinTech, RegTech, LegTech and CyberTech that are developing at varying speeds, new A.I. applications will evolve for all functions subject to legal regulations such as banks, insurance, capital markets, exchanges, and universities.
- A.I. will not be used only for preparing a contract, but also will be utilized in areas such as understanding the outcome of a case, finding precedent cases, and calculating the possible financial compensation.
- A.I. applications will not only speed up the process and reduce costs but also will ensure more accurate results.
- A.I. will redesign the law profession.
- LegalTechs will have positive consequences such as increasing competition among lawyers, lowering costs and improving the speed and quality of legal services.
- Lawyers will provide higher quality services to their clients with a lesser cost.
- Processes like contract analysis and compliance which are time consuming and ticklish will be carried out by software working without a salary or overtime pay.

- Lawyers will only follow up the business processes and evaluate the outcome of the software.

Since software's probability of making errors are quite lower than the lawyers', it can be said that legal services will be much more qualified in 21st century. However, the fact that LegalTechs create fast and higher quality services at lower costs will increase the competition among the lawyers. Digitalization and automation will decrease the need for lawyers. Software can perform tasks quickly and free of charge without expecting a compensation. Such tasks are normally carried out by hundreds of lawyers and trainees in long working hours. Many lawyers will be out of a job due to these developments. On the other hand, LegalTechs will create contemporary job areas. Legal Automation Engineer, LPM, LOS, LT, and LPA positions are only some of them. Development in LegalTechs will increase the number of such positions. Lawyers who are not capable of using LegalTech can suffer sharply from disruptive changes in technology. Those who seize the opportunity will get new jobs and will be more successful than many well-known lawyers. LegalTech will enable lawyers not to work only as trial lawyers or consultants, but also have jobs in software companies which are considered the biggest initiative of the new century.

While these changes are taking place, the structure of the law faculties will also be affected. It will not be acceptable that the lawyer candidates graduating without technology knowledge and skills. This process has already sparked controversy. There are some concerns that such an emphasis on skills feeds into a neo-liberal narrative which could result in the law school becoming a 'trade school' focusing on 'technocratic, skills-based courses', thus threatening the plurality of approaches to law and legal education that have been developed. (Thornton, 2001). Law schools cannot have a mission like creating profitable jobs only. A notion that brings ethical, theoretical, and philosophical values should not be abandoned. Also, the emotional well-being of law students is important (Jones, 2017), otherwise schools can turn into trade schools.

Although there are courses and programs existing on LegalTechs in U.S. law education, a sufficient LegalTech training education could not be provided yet. As a matter of fact, no regulation has been made regarding the lawyers' knowledge, use and follow-up of technology in the standards of ABA and career centers of law faculties. Yet no questions regarding the ability to learn and use the technology are asked to lawyer candidates in the bar exams in USA. For this reason, many lawyers graduate without caring much about technological services. Lessons such as law technology, coding and artificial intelligence are very newly entering the curricular. For this reason, many graduates try to eliminate their lack of education in technology by attending courses after graduation.

The higher education sector needs to step up and fill the gap (Gora, 2022). Post-graduate technology education can be in the forms of awareness and technology training. Considering age average of lawyers, awareness of technology is particularly important. In the years when many lawyers had first started their profession, aside from internet and A.I, even computers were not so common yet.

For this reason, it will be appropriate to raise the awareness of the senior lawyers about the change, benefits, and harm that LegalTechs create. This awareness can be raised by Ministry of Justice, social media, and bar associations.

The second issue is practical training. New courses to be opened by universities and private institutions will be extremely useful for lawyers who did not have the opportunity to gain experience in LegalTech and its applications during university years. Thus, lawyers can improve themselves and adapt to technological change, explore different sectors, and catch up with the law profession of the new century.

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