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THE FUTURE OF LEGAL EDUCATION: DO LAW SCHOOLS HAVE THE RIGHT TO BE CONSERVATIVE?

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ABSTRACT

This article explores how emerging technologies should shape legal studies, recognizing that the new technological era requires a new generation of tech-savvy lawyers who possess specific technology-related skills and knowledge. The article builds on analysis of the future of work through the lens of the International Labor Organization Centenary Declaration, followed by an analysis of the right to education, leading to the formation of a theoretical justification of the legal duty to adapt the legal education curriculum to a

technology-driven future. This article exposes the existing state of the legal education curriculum with a systematic analysis of the existing Law & Tech master's programs at leading universities worldwide. This research demonstrates that relatively few (9.8%) leading world universities offer specialized Law & Tech master's programs. This clear underdevelopment of the Law & Tech curriculum suggests that deeply embedded conservatism in legal education might be violating the rights of future lawyers – the right to work and the right to education, in particular.

KEYWORDS

Right to work, right to education, legal education, Law & Tech, LegalTech

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INTRODUCTION

More than fifty years ago, Isaac Asimov predicted, with the punctilio of accuracy, that robots would be neither common nor very good in 2014, but they would exist.[1] Indeed, artificial intelligence (AI) and robotics are not science fiction anymore, as they are present in households and workplaces throughout the world. As Klaus Schwab [2] eloquently warned, the technological revolution will fundamentally alter the way we live, work, and relate to one another. Indeed, in its scale, scope, and complexity, the technological transformation is unlike anything humankind has experienced before. It is already obvious that technology is a permanent, structural change, leading to unprecedented legal challenges.

Legal issues surrounding technological advancements may be analyzed through the lens of Frank H. Easterbrook's "law of the horse," assuming "that the best way to learn the law applicable to specialized endeavors is to study general rules,"[3] thus neglecting the need for new specific regulations and fostering the application of historically evolved and deeply embedded legal principles and thus adapted rules. However, legal systems tailored to regulate the "horse" issues and real-world behavior already cannot cope with the novel challenges of technological innovations, demographic shifts, environmental and climate change, and globalization, among many others. Thus, concurring with Lawrence Lessig's commentary,[4] the potential of the horse law to regulate the most sophisticated technologies seems to be overestimated. Therefore, existing legal systems and rules originally intended and designed for human-to-human (*in personam*) and human-to-machine (*in rem*) processes, cannot work well in a novel machine-to-human and machine-to-machine environment.[5] Accordingly, this new era requires a new generation of tech-savvy lawyers who possess specific, technology-related skills and knowledge.

Moreover, the rapid development of legal technologies (LegalTech), powered with AI, has already caused and continues to drive market shocks to the legal profession.[6] Ribstein[7] argued that these challenges would result in the death of the

[1] Isaac Asimov, "Visit to the World's Fair of 2014," *N.Y. Times* (Aug. 16, 1964) // http://www.nytimes.com/books/97/03/23/lifetimes/asi-v-fair.html.
[2] Klaus Schwab, "The Fourth Industrial Revolution: What It Means, How to Respond," *World Economic Forum* (Jan. 14, 2016) // https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/.
[3] Frank H. Easterbrook, "Cyberspace and the Law of the Horse," *U. Chi. Leg. F.* 207 (1996).
[4] Lawrence Lessig, "The Law of the Horse: What Cyberlaw Might Teach," *Harv. L. Rev.* 113 (1999).
[5] Vladislav V. Fomin, "AI in the Context of Regulation of Smart Technology Services," ATEITIS workshop presentation at Vytautas Magnus University, Kaunas, Lithuania (Sep. 21, 2018).
[6] Darryl R. Mountain, "Disrupting Conventional Law Firm Business Models Using Document Assembly," *Int. J. L. Info. Tech.* 15 (2006) // https://doi.org/10/djkxjr.
[7] Larry E. Ribstein, "The Death of Big Law," *Wisc. L. R.* 2010, no. 3 (2010) // https://doi.org/10/fznz5c.

big law business model. Boston Consulting Group and Bucerius[8] suggested that the business of law will require fewer general support staff members, junior lawyers, and generalists—and more legal technicians and project managers. Susskind and Susskind[9] also argued that the introduction of AI means that fewer people will be required to do less skilled, routine work, thus resulting in technological unemployment of lawyers. Kerikmae[10] agreed that the business model of many law firms will face a considerable paradigm shift since the work provided by law firms in the form of billable hours, in fact, largely consists of services that do not require superior legal education, but involve mere data processing, and thus they may be performed by means of legal technology. Clearly there is a high risk that lawyers with higher education are and will be continuously replaced by cheaper and faster technological solutions.

To turn the risks of developments in law and legal practice to opportunities, there is a growing demand for a new generation of lawyers with interdisciplinary Law & Tech training, and for the new generation hybrid professions a demand for legal technologists and legal project managers, to name just a few.[11] Simply put, the future of the legal profession requires rethinking the form and content of legal education. The unpredictable, but certainly significant, impact that new technologies will have on law and society raises the question to what extent new technologies should be integrated into legal studies and whether higher education institutions, or even the state, incur an obligation to digitize the legal curriculum. Therefore, issues of identification of the gaps in current legal education, methods of infusion of technology-related outcomes throughout the curriculum, exposure of the best practices and optimal architecture of Law & Tech study programs, among others form an important interdisciplinary research agenda for the future of legal education and the legal profession. However, within this research field, there is a lack of both legal reasoning to support such changes and systematic research on the state of the curriculums of Law & Tech studies offered by the leading universities.

Recognizing these challenges, this article contributes to the scientific discussion on how emerging technologies should shape legal studies. For this purpose, our general aim herein is to formulate a theoretical justification for the

[8] Christian Veith, *et al.*, "How Legal Technology Will Change the Business of Law," Boston Consulting Group and Bucerius Law School (2016) // https://www.law-school.de/article/new-study-how-legal-technology-will-change-the-business-of-law/.
[9] Richard Susskind and Daniel Susskind, *The Future of the Professions: How Technology will Transform the Work of Human Experts* (Oxford University Press, 2015).
[10] Tanel Kerikmäe, Thomas Hoffmann, and Archil Chochia, "Legal Technology for Law Firms: Determining Roadmaps for Innovation," *Croat. Int. Rel. Rev.* 24 (2018) // https://doi.org/10/gfwp5q.
[11] See, for example, Richard Susskind, *The End of Lawyers? Rethinking the nature of legal services* (Oxford University Press, 2008); Richard Susskind, *Tomorrow's Lawyers: An Introduction to Your Future* (Oxford University Press, 2013).

legal duty to adapt legal education curricula to a technology-driven future and to expose the existing state of the legal education curriculums in the world's best universities.

Accordingly, the first part of this article addresses the policy and legal requirements for the content of education, arguing that there is a legal duty to change legal studies curriculums through the lens of the future of work, in general, and the right to education, in particular. The second part addresses the methodological issues of the systematic review of Law & Tech master's programs in the world's best universities, providing a description of the materials, methods, and results of such an inquiry. The third part of this article provides a discussion on the state of legal education curricula and compatibility with future of work and right to education arguments. This article concludes with the warning that deeply embedded conservatism in legal education might be violating the rights of future lawyers, and accordingly, it provides a call for immediate action.

1. THEORETICAL JUSTIFICATION FOR THE MODERNIZATION OF LEGAL STUDIES

The significance of the legal profession goes beyond the concept of work, which in itself is considered to be the "essence of humanity"[12] and one of the fundamental human rights. In the course of their working lives, most people have a significant and perhaps unparalleled opportunity of developing relationships with the outside world.[13] However, especially in the case of a person exercising a liberal profession (e.g., a lawyer), his work in that context may shape his life to such a degree that it becomes impossible to know in what capacity he is acting at a given moment of time.[14] Putting this differently, in most cases, law is not a "job"; it is a way of life. Deficiencies in legal education, therefore, might affect the ability of future lawyers to develop relationships with the outside world to a very significant degree and create serious difficulties for them in terms of earning their living, with obvious repercussions on the enjoyment of their private lives. Thus, deficiencies in legal education may lead to professional limitations and consequently might limit enjoyment of the right to work and the right to private life. Moreover, deficiencies in legal education might go beyond these harsh consequences and extend to innocent third parties (e.g., clients) through wrongful judgement, advice, or

[12] Dominique Méda, "The Future of Work: The Meaning and Value of Work in Europe," *ILO Research Paper* No. 18 (2018).
[13] *Sidabras and Džiautas v. Lithuania*, Eur. Ct. H.R. 395 (2004); *Niemietz v. Germany*, 251 Eur. Ct. H.R. (ser. A) (1992).
[14] *Supra* note 13: *Sidabras and Džiautas v. Lithuania*.

mismanagement of legal practice, however honest or justifiable any mistakes might be.

The transformative changes in the world of work driven by technological innovations, demographic shifts, environmental and climate change, and globalization, as well by persistent inequalities that have a profound impact on the nature and future of work and on the place and dignity of people in it, are well embedded in the International Labor Organization (ILO) Centenary Declaration.[15] According to the ILO, it is imperative to act with urgency to seize the opportunities and address the challenges to shape a fair, inclusive, and secure future of work with full, productive, and freely chosen employment and decent work for all, which is fundamental to sustainable development that puts an end to poverty and that leaves no one behind.[16]

To address these issues, the ILO has committed its constitutional mandate to inter alia (i) promoting the acquisition of skills, competencies, and qualifications for all workers throughout their working lives as a joint responsibility of governments and social partners to address existing and anticipated skills gaps; (ii) paying particular attention to ensuring that education and training systems are responsive to labor market needs, taking into account the evolution of work; (iii) enhancing workers' capacity to make use of the opportunities available for decent work; and (iv) developing effective policies aimed at generating full, productive, and freely chosen employment and decent work opportunities for all, and in particular facilitating the transition from education and training to work, with an emphasis on the effective integration of young people into the world of work.[17] Accordingly, the ILO has called upon all members to work individually and collectively to strengthen the capacities of all people to benefit from the opportunities of a changing world of work through inter alia effective lifelong learning and quality education for all.[18] This ILO call to rethink and, where necessary, reinvent lifelong learning and quality education for all is a powerful message to governments, employers, and employees, looking forward into the next century of work.

Notably, this ILO commitment was made despite the controversial debate on the impact of technologies on the workplace, as almost unanimously observed by numerous ILO research papers.[19] Of course, one might object that the impact of

[15] International Labour Conference, "ILO Centenary Declaration for the Future of Work," 108th Session of the International Labour Conference (Jun. 21, 2019) // https://www.ilo.org/global/about-the-ilo/mission-and-objectives/centenary-declaration/lang--en/index.htm.
[16] *Ibid*.
[17] *Ibid*.
[18] *Ibid*.
[19] See for example Dominique Méda, *supra* note 12; also Thereza Balliester and Adam Elsheikhi, "The Future of Work: A Literature Review," *ILO Research Department Working Paper* No. 29 (2018); Irmgard Nübler, "New Technologies: A Jobless Future or a Golden Age of Job Creation?" *ILO Research Department Working Paper* No. 13 (2016).

technologies on the legal or any other profession is highly exaggerated and too speculative to justify a serious need to review the learning curriculum. However, there are at least two answers to that objection. First, skepticism seems quite premature given the great (unprecedented) technological advances and future prospects in robotics, AI, and computer science. Second, it is irresponsible and even negligent to abstain from discussing investments in precautions, when the magnitude of harm resulting from major tech incidents may be devastating, and the probability of such accidents cannot be fully ruled out in advance.[20] This is especially true, as noted before, in the field of liberal professions, and it should be flagged due to the harsh consequences of such skepticism on the private lives of future lawyers and society. Thus, the demand to rethink and reinvent legal education follows from the constitutional mandate of the ILO, although not only from that source.

With the ILO paying close attention to education, as shown above, another major argument comes from an analysis of the closely related, although independent from the ILO, commitment to the right to education. This fundamental right is established in international law, particularly in human rights instruments, which lay down its concept, definition, and essential elements.[21] The right to education is commonly defined as a combination of positive and negative rights. The negative rights approach stems from the classical notion of human rights as defensive rights of an individual against the state; it prohibits or prevents the state from interfering with an individual's freedom of education. The positive rights approach imposes obligations on states to provide education; this reflects the so-called second generation[22] of human rights approach. Although the right to education is an internationally recognized right, the level of its implementation and application differs widely among countries due to extreme disparities in their historic, cultural, and economic backgrounds. Despite the different national levels of protection of the right to education, it is universally agreed that education in all its forms and at all levels must demonstrate four interrelated and essential features:

[20] The calculus of negligence, also known as the learned hand formula, is an algebraic formula ($B = PL$), according to which liability turns on the relation between investment in precaution (B) and the product of the probability (P) and magnitude (L) of harm resulting from the accident. If PL exceeds B, then the defendant should be liable (*United States v. Carroll Towing Co.*, 159 F.2d 169 (2d. Cir. 1947)).

[21] *The Universal Declaration of Human Rights.* General Assembly (1948, resolution no. 217 A.), art. 26, sec.1; *European Convention for the Protection of Human Rights and Fundamental Freedoms, as amended by Protocols Nos. 11 and 14*, Council of Europe (4 November 1950), First Protocol, art. 2; *UNESCO Convention against Discrimination in Education* (1960), arts. 1-3; *International Covenant on Economic, Social and Cultural Rights*, UN General Assembly (1966, resolution no. 2200A (XXI)), art. 13, sec.1; *Convention on the Rights of Persons with Disabilities*, United Nations (2006), art. 24; *UNESCO Recommendation on Adult Learning and Education* (2016); UNESCO, "The 2030 Agenda for Sustainable Development and the SDGs"; and others.

[22] Jost Delbrück, "The Right to Education as an International Human Right," *German Yearbook of International Law* 35 (1992): 92.

availability, accessibility, acceptability, and adaptability.[23] The so-called framework of the four 'A's is continuously used to evaluate whether an individual education system is in compliance with universally applied international standards of education and to elaborate on the content of the right to education.

Availability requires that educational institutions and programs are made available in sufficient quantity through the establishment and funding of schools and the provision of basic facilities such as buildings, sanitation facilities, safe drinking water, human resources (including their education and training), and educational materials.[24] Accessibility requires non-discriminatory, physically and economically accessible education.[25] Acceptability is linked to the form and substance of education, the guarantee of minimum standards (of quality, safety, and health), and respect for diversity and the language of instruction.[26] Adaptability requires flexibility within the content and the process of learning so that it can adapt to the changing societies and communities and it is compatible with the needs of learners within their diverse social and cultural settings.[27]

The latter two, acceptability and adaptability, are especially relevant to the discussion on the role of technology in the future of legal education. The modern debate on whether and how digital technologies transform educational process and our future in general forces us to re-evaluate the form and substance of legal studies. Acceptability and adaptability require quality standards and a systematic flexibility in education that cater to the needs of transforming societies. Therefore, it becomes essential to determine the concept and the scope of quality and flexibility in education. Quality can be measured and evaluated through a set of standards. It is suggested that it is mainly created and maintained by the interplay between teachers, students, and the institutional learning environment.[28] Quality can be achieved by ensuring a learning environment in which the content of programs, learning opportunities, and appropriate facilities are fit for the purpose of preparing students for active citizenship, preparing them for their future careers, supporting their personal development, strengthening advanced knowledge, and incentivizing research and innovation.[29] Leaving other, not less important elements of the notion of quality aside, this paper focuses on the design and accreditation of

[23] UN Committee on Economic, Social and Cultural Rights (CESCR), "General Comment No. 13: The Right to Education (Art. 13 of the Covenant), Paragraph 6" (December 1999) // http://www.refworld.org/docid/4538838c22.html.
[24] *Ibid*.
[25] *Ibid*.
[26] Katerina Tomaševski, "Human Rights Obligations: Making Education Available, Accessible, Acceptable and Adaptable," *Right to Education Primers* 3 (2001) // https://www.right-to-education.org/sites/right-to-education.org/files/resource-attachments/Tomasevski_Primer%203.pdf.
[27] UN Committee on Economic, Social and Cultural Rights (CESCR), *supra* note 23.
[28] "Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)" (2015) // https://enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf.
[29] *Ibid*.

study programs. Study programs are expected to provide students with both knowledge and (transferable) skills, which will influence their personal development and which students will apply in their future careers.[30]

The necessity of creating an educational landscape that is flexible and that provides learners at all stages with specific and general skills to face the challenges of a modern workplace is also reflected in a variety of EU policies.[31] In these policies, the EU explains why European educational systems should make timely transformations to harness the potential of digital technologies. They set out the standards with which modern and innovative educational models should comply. Such compliance guarantees implementation of the principle of adaptability and protection of the right to education. It is globally recognized that all levels of education need to readjust and exploit the full potential of new digital technologies[32] so that learners can develop the skills the markets require.[33] However, the relatively slow pace at which higher education institutions change and adapt in light of fast-paced technological developments raises serious concerns. Educational institutions and the policies they reflect are still perceived as very conservative, resistant to change, and reluctant to innovate.[34]

However, their apparent unwillingness to engage with new technologies is not necessarily a result of their principled unwillingness to engage with technological change. Obvious inactivity and institutional resistance to technological innovation may simply be a result of a lack of knowledge, skills, technical support, and financial support, which is necessary to modernize the form and substance of educational processes. A huge gap exists between a modern and forward-looking

[30] *Ibid*.

[31] *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on A Digital Single Market Strategy for Europe* (COM/2015/192 final) // https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52015DC0192; *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on A Renewed EU Agenda for Higher Education* (COM/2017/0247 final) // https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52017DC0247; *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Digital Education Action Plan* (COM/2018/022 final) // https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:22:FIN; European Commission, "A concept paper on digitisation, employability and inclusiveness. The role of Europe" (2017) // http://ec.europa.eu/newsroom/document.cfm?doc_id=44515.

[32] "Shaping Digitalisation for an Interconnected World," G20 Digital Economy Ministerial Declaration, (2017) // https://unctad.org/meetings/en/Contribution/dtl_eWeek2017c02-G20_en.pdf.

[33] The learners are expected to acquire much deeper technological knowledge and skills than just the basics. Digital competence entails the "confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society." It involves "information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking" (*Council of the European Union Recommendation 2018/C 189/01 on Key Competences for Lifelong Learning* (May 22, 2018) // https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&from=EN).

[34] Rafael L. Bras and Richard A. DeMillo, "The leadership challenges for higher education's digital future"; in: James Soton Antony, Ana Mari Cauce, and Donna E. Shalala, eds., *Challenges in Higher Education Leadership* (New York and London: Routledge, Taylor & Francis Group, 2017); OECD, "Innovating Education and Educating for Innovation: The Power of Digital Technologies and Skills" (2016) // https://doi.org/10.1787/9789264265097-en.

approach of the "fit for the digital age"[35] education systems displayed by the relevant EU policies and the actual capacities of educational systems to harness technological potential. Accordingly, the modernization of national education systems in the EU through innovative approaches to the form and substance of education has been recognized as a key priority of several initiatives[36] under the policy umbrella of the Europe 2020 strategy.[37] Stressing the need for change in the way education and training systems adapt to the digital revolution, the strategy encouraged the Member States to tackle the lack of essential digital skills amongst European citizens.

In light of the importance the EU assigns to the integration of digital skills and the use of digital technologies in education, it seems appropriate to conclude, preliminarily, that proper implementation of the right to education would require the horizontal integration of digital technologies into the educational process. However, the theoretical foundation of the right to education raises certain doubts about the validity of this assertion. In the light of the classical notion of the right to education, the unwillingness to tackle the opportunities and challenges brought about by technological developments could be seen as resistance to over-specialized and overly technology-oriented education. Delbrück argues that the notion of education is not restricted only to "technical" aspects of learning skills indispensable in a modern civilized society, but rather that it has a broader meaning, i.e., "the intellectual, spiritual, and emotional development of the human being, of his or her intellectual, spiritual, and emotional potential" (in German this process and state is referred to as *Bildung*).[38] Education in the sense of *Bildung* is a prerequisite for an individual to understand the world and to discover personal identity as a human being.[39] The choice of higher education institutions to preserve the conservative *Bildung*-approach to education is a possible reflection of a consensus that education must empower the human being to be a part of society

[35] Council of the European Union, "European Council meeting conclusions" (EUCO 14/17, 2017) // https://www.consilium.europa.eu/media/21620/19-euco-final-conclusions-en.pdf.
[36] *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on A New Skills Agenda for Europe. Working Together to Strengthen Human Capital, Employability and Competitiveness* (COM/2016/0381 final) // https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016DC0381; *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Youth on the Move. An Initiative to Unleash the Potential of Young People to Achieve Smart, Sustainable and Inclusive Growth in the European Union* (COM/2010/477 final) // https://europa.eu/youthonthemove/docs/communication/youth-on-the-move_EN.pdf; *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on A Digital Agenda for Europe* (COM/2010/245 final) // https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF.
[37] *Communication from the Commission Europe 2020. A Strategy for Smart, Sustainable and Inclusive Growth* (COM/2010/2020 final) // https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF.
[38] Jost Delbrück, *supra* note 22: 94.
[39] *Ibid*.

and to develop personality and identity, "ideas inherent in the notion of human dignity."[40] The origins of this academic tradition of a liberal arts and sciences education can be traced back to the medieval European university. Liberal arts can be described as the model of education that "aimed at imparting general knowledge and developing general intellectual capacities in contrast to a professional, vocational, or technical curriculum."[41] Education in this sense is not a utilitarian concept in the service of societal and economic development, but is a process of self-fulfillment encouraged and facilitated by educational institutions.

It should also be borne in mind that the role of the tradition of liberal arts and sciences education in Europe has been subject to constant change over time. The curriculum of the early European universities was organized to focus on the education of the "whole" person and to enable the development of "well-rounded" individuals.[42] However, the spread of the Humboldtian tradition with its strong emphasis on the scientific disciplines resulted in relatively, some would argue excessively, narrow areas of study.[43] The re-emergence of liberal arts education in Europe[44] was a response to the need to reconsider the continuous trend on specialized undergraduate education. Instead, this counter-trend can be interpreted as a call for diversity, flexibility, and interdisciplinarity in education with the aim of overcoming the disadvantages of too early and excessive specialization.[45] This gives rise to the question whether the emergence and widespread use of new technologies in legal studies could be understood as a (new) element in the tradition of liberal arts, and whether it could support a multidisciplinary and flexible approach that could successfully prepare the learner for the future labor market and, most importantly, future life.

However, the inclusion of technological skills and knowledge in legal education can also be seen as a further step in the direction of an overspecialized and narrow subject education, which will eventually lead to a loss of traditionally humanistic educational values. Most likely the answer depends on the scale of application of innovative technologies in and for legal education and whether enough room is left for diversity and a broader set of competences (i.e., creativity, reasoning, critical thinking and entrepreneurial skills[46]). Such an approach is also supported by EU

[40] *Ibid*.
[41] Encyclopedia Britannica // https://www.britannica.com/topic/liberal-arts.
[42] Marijk van der Wende, "The Emergence of Liberal Arts and Sciences Education in Europe: A Comparative Perspective," *Higher Education Policy* 24 (2011): 234 // DOI: 10.1057/hep.2011.3.
[43] *Ibid*.: 250.
[44] This article suggests that the re-emergence of liberal arts started around two decades ago and it continuously developed in line with the Bologna Process.
[45] Marijk van der Wende, *supra* note 42: 234.
[46] European Commission, "Reflection Paper on Harnessing Globalization" (COM/2017/240 final) // https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2017%3A240%3AFIN; European Commission, "Reflection Paper on the Social Dimension of Europe" (COM/2017/206 final) //

policy makers who advocate for the teaching of skills that cannot be replaced by a machine[47] (also referred to as uniquely human skills[48]) and encourage the pursuit of an education policy that fosters an understanding and awareness of responsible and critical application of new technologies.[49]

This leads to the conclusion that the realization of the right to education today requires a fair balance between traditional legal subjects and skills and an appropriate role for new technologies in legal education. Furthermore, it would be difficult to find strong arguments for a model of legal education, and education in general, that would completely exclude technological change and its opportunities from educational policies and curricula. Education must reflect and react to technological developments not only in subject-specific courses, but also in all educational contexts, including legal curricula. The role of technologies in education is predetermined by the scope of technological development which went from being merely a specialization to a background condition of everyday life. With this in mind, the transformation of labor markets in the future requires careful consideration when designing study programs. Emerging technologies play an increasingly important role and foster the debate about technological impacts and implications on the future of human life and work. Although it is still uncertain whether many of the ambitious goals that are being forecast today will actually be realized by emerging technologies, this unprecedented technological change cannot be ignored.

2. MATERIALS, METHODS, AND RESULTS

Typically, systematic reviews offer syntheses of the existing scientific literature.[50] However, the applicability of this reviewing logic has been applied in

https://eur-lex.europa.eu/resource.html?uri=cellar:cea6403b-2b4c-11e7-9412-01aa75ed71a1.0017.02/DOC_1&format=PDF.

[47] *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Artificial Intelligence for Europe* (COM/2018/237 final) // https://ec.europa.eu/digital-single-market/en/news/communication-artificial-intelligence-europe; *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Building Trust in Human-Centric Artificial Intelligence* (COM/2019/168 final) // https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:0168:FIN.

[48] Microsoft, "Future Computed. Artificial Intelligence and Its Role in Society" (2018) // https://blogs.microsoft.com/uploads/2018/02/The-Future-Computed_2.8.18.pdf.

[49] European Commission High-Level Expert Group on Artificial Intelligence, "Ethics Guidelines for Trustworthy AI" (2019) // https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai.

[50] Sarah M. Yannascoli, *et al.*, "How to Write a Systematic Review: A Step-by-Step Guide," *U. Penn. Orth. J.* 23 (2013); Rory J. Piper, "How to Write a Systematic Literature Review: A Guide for Medical Students," *National AMR, Fostering Medical Research* 1 (2013) // https://sites.cardiff.ac.uk/curesmed/files/2014/10/NSAMR-Systematic-Review.pdf.; David Moher, *et al.*, "Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 Statement," *Systematic Revs.* 4 (2015) // doi: 10.1186/2046-4053-4-1and others.

the very practical fields of legal analysis[51] or in simulations and technology in legal education. [52] The strategy of this research has been built by adopting the framework of a PRISMA statement and a step-by-step guide as suggested by Yannascoli and others.[53] This search has been performed in an ethical manner. All information was obtained lawfully from official websites of universities. All information has been double checked and reported accurately. Since no one was interviewed during the search, confidentiality and privacy issues are irrelevant.

The search of universities offering law studies was conducted using the database of *Times Higher Education* World University Rankings (2020),[54] which claims to be "the only global university performance table to judge research-intensive universities across all of their core missions: teaching, research, knowledge transfer and international outlook." Indeed, these carefully calibrated and weighted performance indicators provide trustworthy comparisons. The selection of universities for systematic analysis' process is generalized in Figure 1.

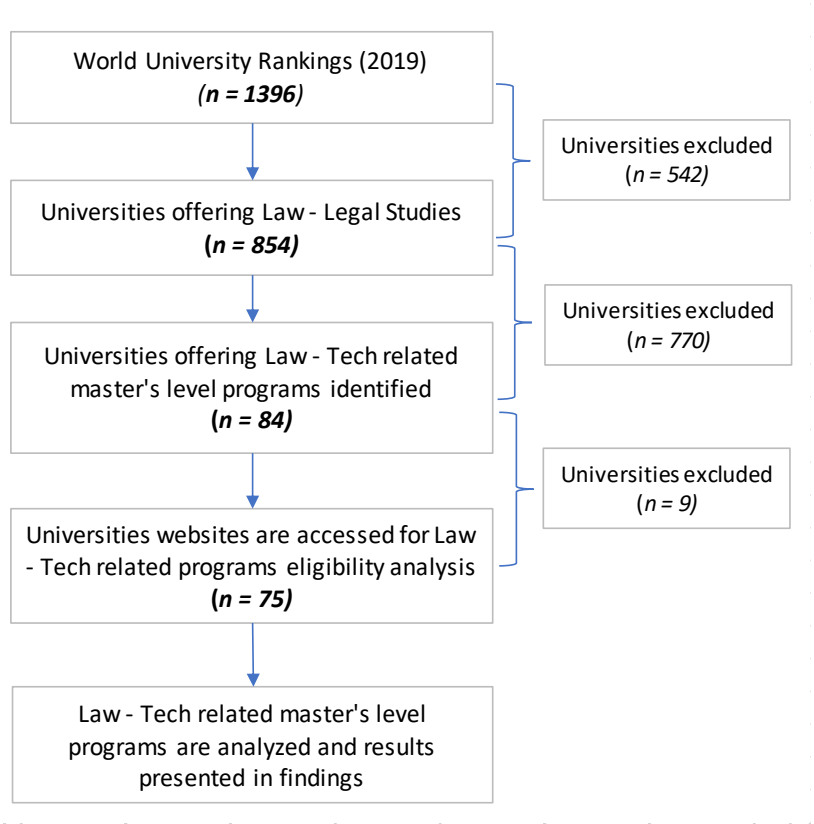

Figure 1. Map of universities in the selection process for systematic analysis.

[51] William Baude, *et al.*, "Making Doctrinal Work More Rigorous: Lessons from Systematic Reviews," *University of Chicago Law Review* 84 (2017).
[52] Paul Maharg and Emma Nicol, "Simulation and Technology in Legal Education: A Systematic Review and Future Research Program"; in: Caroline Strevens, *et al.*, eds., *Legal Education. Simulation in Theory and Practice* (Ashgate, Farnham, UK, 2014) // https://doi.org/10.13140/RG.2.1.1911.3129.
[53] Sarah M. Yannascoli, *et al.*, *supra* note 50.
[54] Data collected from October 26, 2019 to November 4, 2019 from "Times Higher Education World University Rankings" (2020) // https://www.timeshighereducation.com/world-university-rankings/2020/world-ranking#!/page/0/length/-1/sort_by/rank/sort_order/asc/cols/scores.

The World University Rankings list a total of 1,396 universities globally.[55] These universities were filtered by subject "law", thus excluding 542 universities from analysis. We accessed the official websites of each remaining university and we screened master's or other postgraduate legal studies programs'[56] names for tech-related keywords.[57] This selection process excluded another 770 universities, resulting in a list of 84 Law & Tech-related master's programs offered by the world's best universities. We accessed all these programs for eligibility analysis. In total, nine universities were excluded on a convenience basis due to the undisclosed or unreadable (due to language constraints) program or curriculum descriptions. This selection stage completed the list of the 75 best universities worldwide, offering 79 Law & Tech programs. The geographical spread of the world's best universities offering law studies and the selected universities offering Law & Tech programs are presented in Figures 2 and 3.

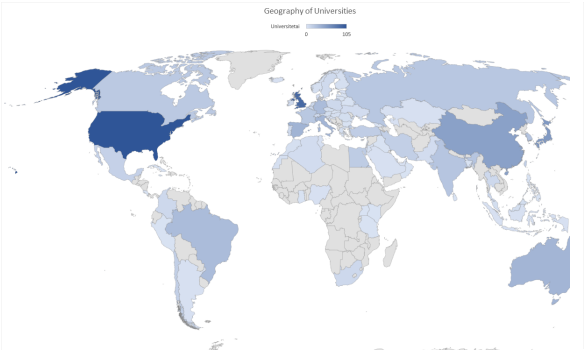

Figure 2. Geography of universities

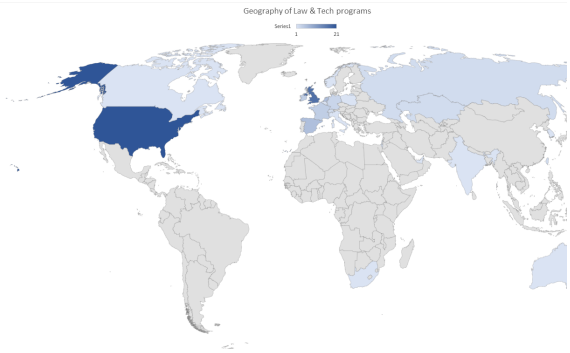

Figure 3. Geography of Law & Tech programs

Almost half (n = 37) of the selected Law & Tech master programs are offered within the top 200 universities, with 13 of these programs offered by the top 50 universities. The general distribution of Law & Tech programs throughout various ranking intervals is shown in Figure 4.

[55] *Ibid*.
[56] Bachelor's or other first step legal programs are excluded, assuming that in most cases, national or federal regulations determine the content of the legal curriculum, which universities are obliged to follow, and therefore they have little or no freedom of choice. Second (master's) level universities typically have more freedom, and therefore this level is more suitable for the analysis of universities' (not states') practices.
[57] E.g. keywords like technology, digital, information, space, telecommunication, innovation, e-law, legal tech, cyber~, electronic, intellectual property, IT, ICT, and IP.

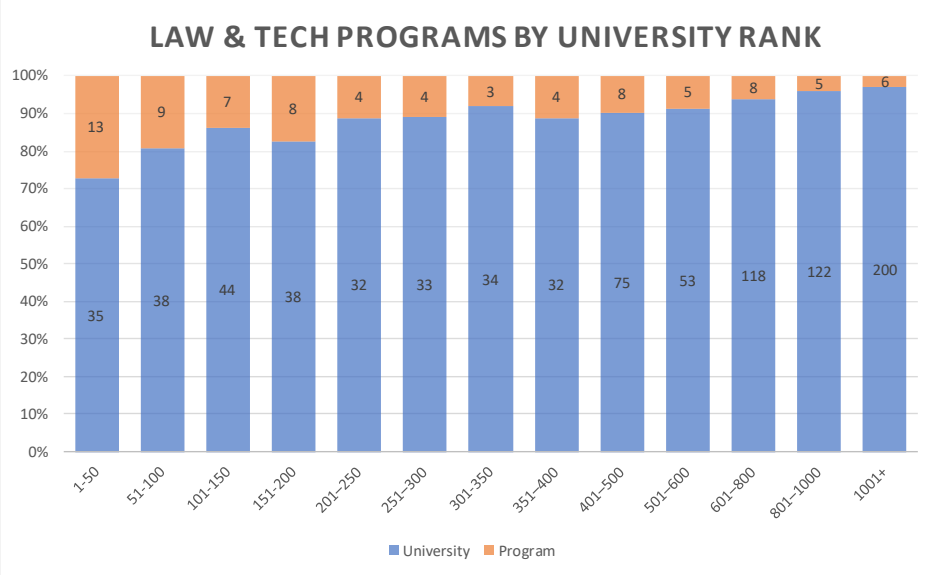

Figure 4. Distribution of Law & Tech programs by university rank

Further analysis of the curriculums on the official websites of all 79 Law & Tech programs revealed the list of 1,431 subjects taught therein. Based on the names and descriptions of these subjects, we manually grouped them into 25 broad topicality groups and sorted them by frequency of appearance within the analyzed programs (Figure 5). The variety of choices led to a need for inquiry into the variables that affect the choices of Law & Tech program structures and curriculums, which is a separate topic for future research.

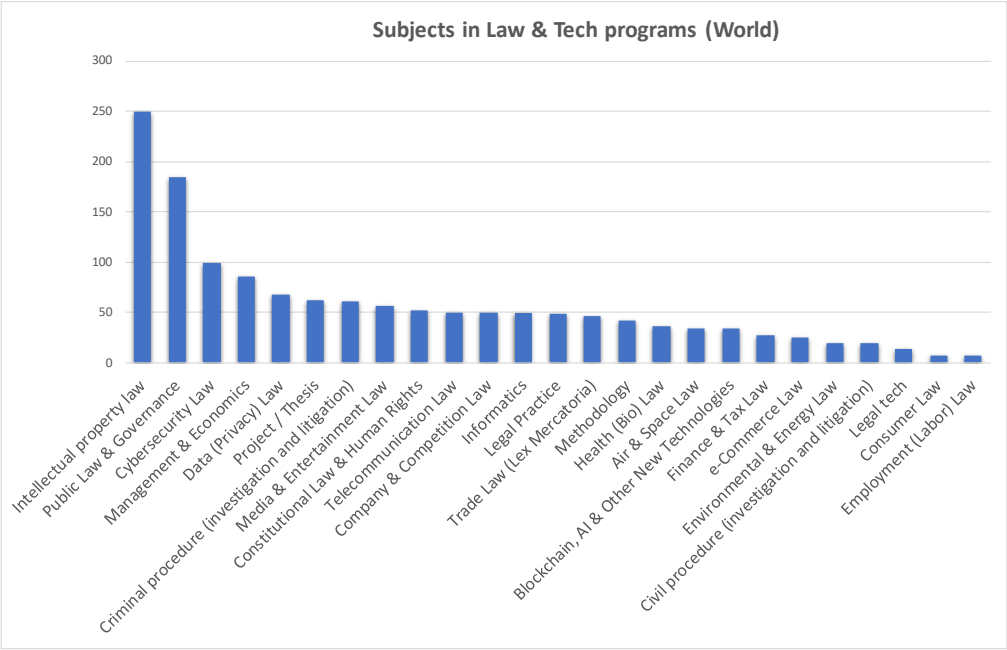

Figure 5. Frequency of topic appearance within the selected Law & Tech master programs

Typically, many variations and interdisciplinary contexts are needed to deliver specific subjects within each topic group. For example, the intellectual property law domain contains more than 80 variations. Some aim at a classic training in general or in specific trademark, copyright, and design and patent laws. Some of these subjects focus on management, financing, or the business side of intellectual property, others focus on dispute resolution or jurisdictional aspects. Also, there are some niche subjects like "IP/IT Law and Health" (KU Leuven), "Digital Intellectual Property and LegalTech" (Swansea University), "Scientific Evidence and Expert Testimony: Patent Litigation" (Stanford University), or the like. Another very frequent subject group, Public Law & Governance, also includes more than 80 variations of subjects on general governance, public international law, EU law, and the like. This group also involves many tech-related subjects, for example, "Technological Keys of Electronic Administration" (Open University of Catalonia), "National Security Law" (Trinity College, Dublin), Digital Government (Leiden University), and others. Many subjects that appear less frequently are offered as elective courses or trained through various research groups, institutes, Law & Tech Labs, Legal Clinics, or other units. Many of the analyzed universities have one or several such units working within Law & Tech-related fields. Therefore, the Law & Tech study process in many cases is aligned with the research or clinical practice agenda at the university. Notably, topics related to Legal Tech and Informatics are obviously an underdeveloped part of the Law & Tech curriculum. Among the analyzed programs, only Swansea University offers a special program on "Legal Tech," and few subjects are offered in other universities.

3. HOUSTON, DO WE HAVE A PROBLEM?

A systematic review of Law & Tech master's programs revealed that relatively few (9.8%) of the leading world universities are offering specialized Law & Tech master's programs. That is, a lot of legal studies courses are still organized according to the conservative model. Usually this requires a lot of space for classical law studies, leaving relatively little space for studies (as an integral part) of certain other fields—philosophy, information technology, economics, and others. Of course, legal studies are peculiar in the sense that national or federal regulations often determine the content of the legal curriculum, which universities must follow to equip their students with the necessary knowledge to qualify for the regulated legal profession.

For example, in Lithuania the substance of legal education as a mandatory part of the legal education curriculum is determined by a decision of the Lithuanian

Constitutional Court[58] and certain statutory legal acts.[59] This conservative and traditional approach by which the legal curriculum is largely set by an act of the highest judiciary, which provides the national law faculties with a list of specific legal subjects, has been criticized for its inherent inability to recognize the need for a broader range of skills and competences necessary for a modern legal professional.[60] However, the prerogative of the court to design legal education can also be considered as the exercise of a responsibility to uphold certain quality standards of the legal profession by an organ of the state. Such involvement of the state in the educational process can be justified if enough freedom and discretion is left in the hands of the universities, as autonomous institutions, to design their educational programs. Higher education is entrusted with the mission to contribute to a nation's public, cultural and economic prosperity, to provide support and thrust for "a full life of every citizen … and [to] satisfy the natural thirst for knowledge."[61] Only an independent and autonomous university is capable of assuring high-quality teaching and research and ensuring continuous adaption to societal changes and advances in scientific knowledge. It is one of the aims and functions of education to enhance and develop human abilities.[62] Training in and of technological skills to reap the potential of learners cannot simply be ignored. This is not merely a utilitarian argument: the teaching of technology in education, and legal education in particular, is mandated by the human right to education and the future of work, as already explained in previous chapters.

Of course, conservative law school curricula provide students with the theoretical base they need to pass the bar, and therefore the small portion (9.8%) of offers on special Law & Tech master's programs signals: (i) overhype of the need of the technology domain for lawyers, (ii) underdevelopment of the legal education curriculum, or (iii) the dominant existence of alternative practices infusing technology-related outcomes throughout the curriculum, e.g., offering separate tech-related subjects or employing the benefits of research and clinical practices.

[58] *The Constitutional Court of the Republic of Lithuania Ruling on the Compliance of the Qualification Requirements of Higher Education in Law for the Persons Who Wish to Hold, Under Procedure Established by Laws, the Position of a Judge Approved by Government of the Republic of Lithuania Resolution no. 1568 "On Approving the Qualification Requirements of Higher Education in Law for the Persons Who Wish to Hold, Under Procedure Established By Laws, the Position of a Judge" of 4 October 2002 with Paragraph 1 (wording of 24 January 2002, 18 May 2004, 1 June 2006) of Article 51 of the Republic of Lithuania Law on Courts and Paragraph 1 of Article 5 of the Republic of Lithuania Law on the Entry Into Force and Implementation of the Law on Amending the Law on Courts* (2008, no.19/05).

[59] *Descriptor of the Study Field of Law, Approved by Order No. V-831 of the Minister of Education and Sciences of the Republic of Lithuania of 23 July 2015*.

[60] For more about the requirements for legal education and the legal profession in Lithuania, see Edita Gruodytė and Julija Kiršienė, "Legal Education in Lithuania: Guidelines for Quality Improvement in Accordance With the Bologna Process," *Inžinerinė ekonomika* 22 (2011): 360 // DOI: 10.5755/j01.ee.22.4.711.

[61] *Law on Higher Education and Research of the Republic of Lithuania*, Official Gazette (2009, no. 54-2140), Preamble.

[62] Jootaek Lee, "The Human Right to Education: Definition, Research and Annotated Bibliography," *Emory International Law* Review 34(3) (2019): 2 // https://ssrn.com/abstract=3489328.

Another possible explanation of the low proportion of Law & Tech programs might follow from the distribution of these programs amongst universities (see Figure 4). Assuming that the best universities attract the best funding and the best teachers, there is the possibility that the reason behind these low numbers of specialized programs is a shortage of specially trained teachers. However, this proposition is doubtful, since it does not explain the relatively small numbers within each ranking interval. Moreover, due to the high mobility of teaching and research personnel, increasing funding opportunities, and the private sector appetite for innovations, the argument that the world's best universities cannot build teaching teams seems more like an excuse than a valid explanation.

The "overhype" option should also be rejected due to the future of work and right to education arguments in Part 2 above. To support these arguments, the American Bar Association [63] also holds that law schools should offer more technology training and experiential learning, and they should develop practice-related competencies. The Law Society of England and Wales [64] adds that characteristics such as an entrepreneurial spirit, curiosity, creativity, and strategic thinking skills could assume far more significance in the education and recruitment of future lawyers. The FLIP report[65] also noted that in a changing environment, the skills and areas of knowledge likely to be of increasing importance for the graduate of the future include technology, practice-related skills (e.g., collaboration, advocacy/negotiation skills), business skills/basic accounting and finance, project management, international and cross-border law, interdisciplinary experience, and resilience, flexibility and ability to adapt to change. Walter[66] also identified six ways in which law schools may improve the curriculum to prepare law students for today's practice environment. They are to include more diverse experiential learning, to prepare students for transactional practice, to focus on the business side of law, to expose students to legal processes and case management requirements, to emphasize interpersonal and advocacy skills, and to require proficiency with legal technologies. Boston Consulting Group and Bucerius have noted that law schools can further serve the profession by teaching business, project management, and general tech skills. According to them, schools may need

[63] See ABA Commission on the Future of Legal Services, "Report on the Future of Legal Services in the United States" (2016) // https://www.americanbar.org/content/dam/aba/images/abanews/2016FLSReport_FNL_WEB.pdf; ABA Task Force on the Future of Legal Education, "Report and Recommendations" (2014) // http://www.americanbar.org/content/dam/aba/administrative/professional_responsibility/report_and_recommendations_of_aba_task_force.authcheckdam.pdf.

[64] Law Society of England and Wales, "Artificial Intelligence and the Legal Profession – Horizon Scanning Report" (2018) // https://www.lawsociety.org.uk/support-services/research-trends/horizon-scanning/artificial-intelligence/.

[65] Law Society of New South Wales, "The Future of Law and Innovation in the Profession" (2017) // https://www.lawsociety.com.au/sites/default/files/2018-03/1272952.pdf.

[66] Katie Walter, "Six Ways Law Schools Can Make Students More Practice Ready," *Thomson Reuters* (2017) // http://www.legalexecutiveinstitute.com/six-ways-law-schools-students/.

to expand the mandatory curriculum beyond fields of substantive law by offering additional courses introducing case-management processes and legal technology. More specific legal-tech skills (such as database management, statistics, analytics, and digital communications) can be taught in electives and clinics throughout the course of the law degree. Executive-education programs can further foster ongoing learning by focusing on holistic legal project management, as well as on legal-tech literacy.

In sum, the evidence of the need for tech-literate lawyers in a tech-dependent world is overwhelming. Moreover, given the ILO concerns on the future of work and commitment towards education, and the context of right to education, cognitive apathy and skepticism on the need of technology domain for lawyers should be treated as a probable violation of future lawyers' rights. Of course, such an extreme conclusion may seem premature, given another probable explanation of such low numbers: alternative practices, which were not investigated in this article. However, as Koo[67] noted, a large majority of lawyers perceive critical gaps between what they are taught in law schools and the skills they need in the workplace, and appropriate technologies are not being used to help to close this gap. Canick[68] also agreed that despite the profound changes, legal education has never considered technological proficiency as a key outcome.

Accordingly, although alternative practices within universities were not investigated in this research, the abovementioned arguments and the growing body of recommendations, in the light of the future of work and right to education, lead us to argue that alternative practices are not enough. Assuming that all 90.2% of the world's best universities use alternative practices to infuse technologies into the legal curriculum, such "alternative" efforts are obviously insufficient to prepare lawyers for their future profession(s) in a cyber-dependent world, given the scale, scope, and complexity of technological transformations, and the importance of the quality of legal education for the private lives of future lawyers and their clients.

It seems, then, that the legal education curriculum is underdeveloped, falling short, and thereby violating future lawyers' right to education and consequently their right to work. So yes, Houston, we may have a problem. Education systems and the dynamic needs of future lawyers are disconnected, opening up a skills gap and creating challenges among young people who want to take up existing jobs.[69] However, nowadays law schools can make the most of the significant changes roiling the legal industry—a tighter job market, emerging technologies and the

[67] Gene Koo, "New Skills, New Learning: Legal Education and the Promise of Technology," *Berkman Center Research Publication* No. 2007-4 (2007) // http://dx.doi.org/10.2139/ssrn.976646.
[68] Simon Canick, "Infusing Technology Skills into the Law School Curriculum," *Cap. U. L. Rev.* 42 (2014).
[69] See Thereza Balliester and Adam Elsheikhi, *supra* note 19.

increasing use of legal process outsourcers—by turning them into opportunities to make law students better lawyers. [70] Universities and policymakers should anticipate these changes, taking advantage of digital technologies, to provide targeted support to individuals through the conduits of educational reform, vocational training, and promoting lifetime learning to close these skills gaps, especially in technical skills, such as science, technology, engineering, and mathematics, but also in communication, teamwork, and other soft skills. [71] Anticipation of future skills needs has therefore become a main policy recommendation to cope with the widening skills mismatch. But, more importantly, educational institutions should generate the knowledge base and the social capabilities that will allow the economy to create new jobs in new sectors.[72]

CONCLUSION

This research has systematically explored the existing Law & Tech master programs offered by the leading universities worldwide. The systematic multi-stage sampling process led to a list of 79 Law & Tech master's programs offered by 75 leading universities and the grouping of the more than 1,400 subjects offered in these programs. This research has demonstrated the underdevelopment of the Law & Tech curriculum. The relatively conservative character of legal studies, in the context of rapid technological development, can be seen as insufficient to prepare future lawyers for professional life.

However, does it suffice to conclude that the reserved and modest integration of innovative technologies into the form and substance of legal studies implies noncompliance with the principles of acceptability and adaptability, and thus violates the right to education and, consequently, the right to work? The data does not yet support such an extreme accusation. Deeply embedded conservatism in legal education might be violating future lawyers' rights. Therefore, governments and universities cannot ignore the obvious need of future lawyers for technology-related skills and knowledge.

This analysis has also revealed the need for further inquiry into (i) the alternative practices of technology-related skill infusion into the law curriculum, and (ii) variables that impact the choices of Law & Tech program structures and curriculums. Presumably, mapping university choices and analyses of variables for such choices will enable us to answer this important question, creating a positive duty for governments to rethink conservative requirements for legal training.

[70] Katie Walter, *supra* note 66.
[71] Thereza Balliester and Adam Elsheikhi, *supra* note 19.
[72] See Irmgard Nübler, *supra* note 19.

Moreover, such analyses should lead to the construction of optimal Law & Tech program models and they should set the key performance indices.

The interdisciplinary model of the Law & Tech Studies model should look beyond the pure content and management of study programs. It should also and equally address questions that relate to the relationships between learners and/or teachers and the use of communication, assessment, and feedback tools. The model must be situated in a regulatory environment and an educational ecosystem that enables future lawyers to maximize their career opportunities against a background of increasing uncertainty. These issues necessitate scientific research on the future of legal education that can be tested in an experimental setting. For a successful development of this model, it is imperative to forge new partnerships between academics, policy makers, businesses, Law & Tech communities, and society at large to foster improved education and training for future lawyers.

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