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EUROPEAN UNION'S LEGAL LANDSCAPE AND ARTIFICIAL INTELLIGENCE

Abstract

The aim of this article is to analyze the European Union (EU) legal landscape in the context of artificial intelligence (AI) and highlight how it is evolving to deal with the dynamic discipline. The exercise becomes important in the wake of growing relevance of AI in economy. Though scholars continue to evaluate the existing legislative framework in the sense whether it can accommodate issues arising out of advancing AI, it is not doubtful that reforms and changes would have to be introduced in order to regulate AI for the benefit of all stakeholders. The most important question in this regard becomes what principles would guide AI policy and law making.

Keywords: Artificial Intelligence, European Union, Regulation, Law, Economy

Introduction to AI and the legal context

According to European Commission, AI are the "systems that display intelligence behavior by analyzing their environment and taking actions- with some degree of autonomy- to achieve specific goals."[2] EU acknowledges that AI is capable of improving on its own by using data and thus leading to automated decision making.[3] In other words, AI entails 'decision making' and 'implementation' by machines on the basis of plethora of data in manner that human behavior can be approximated.[4] Constant surveillance of people in order to garner more and more data to improve AI in order to make it work for their benefit has raised data privacy concerns.[5] There are also many philosophical[6] and existential[7] questions that have arisen in the domain. While some say that machines cannot be made to think like human minds,[8] there are also those who do not hesitate in associating mental qualities to machines[9].

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2 European Commission. (2018). *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions on Artificial Intelligencefor Europe*, COM(2018) 237 final, available at https://ec.europa.eu/digital-single-market/en/news/communication-artificial-intelligence-europe (last visited 30 November 2018).

3 Ibid.

4 Katz Yarden, "Chomsky Noam on where artificial intelligence went wrong,"*The Atlantic*, November 2012, available at https://www.theatlantic.com/technology/archive/2012/11/noam-chomsky-on-where-artificial-intelligence-went-wrong/261637/.(last visited 30 November 2018).

5 Arno R.Lodder and Ronald Loui, "Data Algorithms and Privacy in Surveillance: On Stages, Numbers and the Human Factor,"In *Research Handbook of Law and Artificial Intelligence*, eds. Barfield, Woodrow, and Ugo Pagallo(eds.),(Edward Elgar Publishing, 2018); also see Eduard FoschVillaronga and Peter Kieseberg and Tiffany Li, "Humans Forget, Machines Remember: Artificial Intelligence and the Right to Be Forgotten,"*Computer Security & Law Review*34 no. 2(2018):304-13.

6 John McCarthy, "Ascribing Mental Qualities to Machines," In*Philosophical Perspectives in Artificial Intelligence,*ed. MartinRingle (Harvester Press, 1979);Selmer Bringsjord and Naveen SundarGovindarajulu, "Artificial Intelligence,"*The Stanford Encyclopedia of Philosophy* (Fall 2018 Edition), Edward N. Zalta (ed.), available at https://plato.stanford.edu/archives/fall2018/entries/artificial-intelligence/ (last visited 30 November 2018).

7 Allan Dafoe andStuart Russell, "Yes, We Are Worried About the Existential Risk of Artificial Intelligence," MIT Technology Review2 November 2016, available at https://www.technologyreview.com/s/602776/yes-we-are-worried-about-the-existential-risk-of-artificial-intelligence/.(last visited 30 December 2018).

8 John Randolph Lucas, "Minds, Machines, and Gödel," *Philosophy* 36 (1961):112-137.

9 McCarthy, *Philosophical Perspectives in Artificial Intelligence.*

AI is the fourth industrial revolution after steam engine, invention of electricity, digital computer.[10] It is speculated to bring in exponential economic growth resulting from soaring productivity and increasing output.[11] Consequently, there is plenty of evidence that AI is increasingly being used in economy.[12] The economic implications of AI involve high stakes.[13] In addition to this, AI is projected to solve the world problems.[14]

Given the fact that AI is something that the world has never witnessed before to this advanced level and there exist huge and yet unexplored potential in the field, especially in the context of world economic growth and major challenges faced by the international community, the field is heavily unregulated. Though some have argued that AI should be left unregulated,[15] regulations are deemed important for many reasons.[16] There is a need to regulate AI.[17] It becomes important in the background of all the concerns being raised regarding the field.[18]

The fundamental question in this regard is whether AI would be subject to what is referred to as 'law'.[19] There is reason for framing the question or the issue the way it has been framed in the preceding sentence and the same is hinged on the ambiguity as to whether an 'intelligent' entity that is not-human would allow itself to be governed or regulated by laws made by humans. This gives rise to various problematic areas with regard to how to regulate AI.[20] Whereas the AI discipline is unconventional in vast dimensions and to such an extent that it is making policy and law makers contemplate ushering in totally new regulatory regimes, the majority of academia on the jurisprudential side is groveling at the proposition whether the existing legislative framework can be interpreted to accommodate the evolving nature of AI and the implications thereof. The impact in the field of justice and judicial system is assessed to be huge.[21]

Jurisdictional Context

10 Yang Qiang (first Chinese chairman of the International Joint Conferences on Artificial Intelligence), interviewed by Wang Chao on "The Fourth Revolution,"2018, available at https://en.unesco.org/courier/2018-3/fourth-revolution.(last visited 30 November 2018).

11 Anton Korinek&Joseph E. Stiglitz, "Artificial Intelligence and Its Implications for Income Distribution and Unemployment," in *The Economics of Artificial Intelligence: An Agenda*, eds. Ajay K. Agrawal, Joshua Gans, and Avi Goldfarb(National Bureau of Economic Research, Inc., 2018); Ray Kurzweil, *The singularity is near: when humans transcend biology*(New York: Viking, 2005); Karl Marx, "*The Fragment on Machines*,"– from *The Grundrisse* (pp. 690-712) available at http://thenewobjectivity.com/pdf/marx.pdf. (last visited 30 November 2018); Martin Ford, *Rise of the robots: technology and the threat of a jobless future* (Basic Books, 2015).

12 Jason Furman and Robert Seamans, "AI and the Economy" Working Paper 24689 in NBER Working paper Series (2018), available at http://www.nber.org/papers/w24689 (last visited 30 November 2018).

13 See Philippe Aghion, Benjamin F. Jones and Charles Jones, "Artificial Intelligence and Economic Growth," in *The Economics of Artificial Intelligence: An Agenda,* eds. Ajay K. Agrawal, Joshua Gans, and Avi Goldfarb (National Bureau of Economic Research, Inc., 2018).

14 Will Knight, "Could AI Solve the World's Biggest Problems?," *MIT Technology Review,* 12 January 2016, available at https://www.technologyreview.com/s/545416/could-ai-solve-the-worlds-biggest-problems/(last visited 30 November 2018); PWC Report, "Fourth Industrial Revolution for the Earth," January 2018, available at https://www.pwc.com/gx/en/sustainability/assets/ai-for-the-earth-jan-2018.pdf. (last visited 30 November 2018).

15 Etzioni Amitaiand Etzioni Oren, "Why Regulating AI Is A Mistake," *Forbes,* January 2017, available at https://www.forbes.com/sites/ciocentral/2017/01/09/why-regulating-ai-is-a-mistake/#5fd91adb2be3. last visited 30 November 2018).

16 See Matthew D. Adler, "Regulatory Theory" in *A Companion To Philosophy of Law*, ed Dennis Paterson, (Cambridge U. Press, (Forthcoming)available at https://ssrn.com/abstract=1553781.(last visited 30 November 2018).

17 Finale Doshi-Velezand Mason Kortz, *Accountability of AI Under the Law: The Role of Explanation.* Berkman Klein Center Working Group on Explanation and the Law, Berkman Klein Center for Internet & Society working paper (2017), available at http://nrs.harvard.edu/urn-3:HUL.InstRepos:34372584 (last visited 30 November 2018).

18 The United Kingdom, Department for Digital, Culture, Media and Sport, "Consultation Outcome on the Center for Data Ethics and Innovation Consultation,"20 November 2018, available at https://www.gov.uk/government/consultations/consultation-on-the-centre-for-data-ethics-and-innovation/centre-for-data-ethics-and-innovation-consultation#the-centres-role-and-objectives. (last visited 30 November 2018).

19 Paulius Čerkaa, Jurgita Grigienėa, Gintar Sirbikytėb, "Is it possible to grant legal personality to artificial intelligence software systems?"*Computer Law & Security Review* 33, no. 5(October 2017): 685-699; Nathalie Nevejans, "European civil law rules in robotics- Study" European Parliament (2016), available at http://www.europarl.europa.eu/committees/fr/supporting-analyses-search.html (last visited 30 November 2018).

20 See Eztioni Oren, "How to Regulate Artificial Intelligence,"*The New York Times*, September 1, 2017, available at https://www.nytimes.com/2017/09/01/opinion/artificial-intelligence-regulations-rules.html.(last visited 30 November 2018)

21 European Commission for the Efficiency of Justice (CEPEJ) Conference on "Artificial Intelligence at the service of Judiciary" (Riga, Latvia, Council of Europe, 27 September 2018), available at https://www.coe.int/en/web/cepej/justice-of-the-future-predictive-justice-and-artificial-intelligence. (last visited 30 November 2018).

The world is witnessing AI race.[22] All the major economies of the world are investing heavily in developing AI regimes suitable to their respective political, social, economic and cultural environment.[23]EU Member States (MS) are competing amongst themselves and the rest of world in the AI ethics standard setting race.[24] The strategies developed by the United States[25], Canada[26], China[27], Japan[28], Singapore[29], and South Korea[30] are perhaps some of the most important given the relevance of these countries in the world economy and the level of technological development[31] achieved. In Europe, the lead was taken by the United Kingdom[32] and Finland[33], followed by France[34],[35] Sweden[36], Italy, Estonia[37], Denmark[38], Austria[39] and Germany[40] have also made significant progress in

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22 Terence Tse, "Why we should be worried about the global AI rat race," ESCP Europe Business School, 15 November 2018, available at https://www.escpeurope.eu/news/why-we-should-be-worried-about-global-ai-rat-race. (last visited 30 November 2018).

23 See also European Commission, "The Age of Artificial Intelligence"European Political Strategy Centre, EPSC Strategic Notes 29, (March 2018) available at https://ec.europa.eu/epsc/sites/epsc/files/epsc_strategicnote_ai.pdf. (last visited 30 November 2018).

24 Peter Teffer, "Analysis, EU in race to set global Artificial Intelligence ethics standards," EU Observer, April 25, 2018, available at https://euobserver.com/science/141681. (last visited 30 November 2018).

25 Executive Office of the President, National Science and Technology Council Committee on Technology, "Preparing for the Future of Artificial Intelligence," Office of Science and Technology Policy, October 2016, available at https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf(last visited 30 November 2018).

26 Government of Canada, "Pan-Canadian Artificial Intelligence Strategy," Canadian Institute for Advanced Research,2017, available at https://www.cifar.ca/ai/pan-canadian-artificial-intelligence-strategy (last visited 30 November 2018).

27 The People' s Republic of China, "New Generation Artificial Intelligence Development Plan,"The State Council, July 2017, available at https://flia.org/notice-state-council-issuing-new-generation-artificial-intelligence-development-plan/ (last visited 30 November 2018); Jeffery Ding, "Deciphering China's AI Dreams- The context, components, capabilities, and consequences of China's strategy to lead the world in AI", Future of Humanity Institute, University of Oxford, March 2018, available at https://www.fhi.ox.ac.uk/wp-content/uploads/Deciphering_Chinas_AI-Dream.pdf (last visited 30 November 2018).

28 Artificial Intelligence Technology Strategy Council, Japan"Artificial Intelligence Technology Strategy,"March 2017, available athttps://www.nedo.go.jp/content/100865202.pdf(last visited 30 November 2018).

29 Prime Minister's Office, Singapore, "AI Singapore,"May 2017, available at https://www.nrf.gov.sg/programmes/artificial-intelligence-r-d-programme. (last visited 30 November 2018).

30 Mark Zastro,"South Korea's Nobel Dream,"*Nature* 534, no. 7605(2016): 19-22. South Korea, The Korean Ministry of Science, ICT and Future Planning, "Artificial Intelligence Information Industry Development Strategy, Mid-to Long-term Master Plan in Preparation for the Intelligent Information Society: Managing the Fourth Industrial Revolution," (2016) available at https://english.msit.go.kr/cms/english/pl/policies2/__icsFiles/afieldfile/2017/07/20/Master%20Plan%20for%20the%20intelligent%20information%20society.pdf. (last visited 30 November 2018).

31 See, Meghnad Desai, Sakiko Fukuda-Parr, Claes Johansson and FransiscoSagasti, "Measuring the Technology Achievement of Nations and the Capacity to Participate in the Network Age,"*Journal of Human Development*3, no. 1 (2010):95-122.

32 Though the Brexit deal has been endorsed by the EU, the United Kingdom is still far away from leaving the EU, effectively. Regardless, the economic cooperation between EU and the United Kingdom will continue.

33 Finland, "Finland's Age of Artificial Intelligence," Ministry of Economic Affairs and Employment, Helsinki 2017, available at http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/160391/TEMrap_47_2017_verkkojulkaisu.pdf(last visited 30 November 2018).

34 Cedric Villani, "*For a meaningful Artificial Intelligence. Towards a French and European strategy,*" Conseil national du numérique, 2018

35 European Commission, *EPSC Strategic Notes*.

36 Government Offices of Sweden,"National Approach to Artificial Intelligence,"Ministry of Enterprise and Innovatio, 2018, available at https://www.regeringen.se/informationsmaterial/2018/05/nationell-inriktning-for-artificiell-intelligens/.(last visited 30 November 2018).

37 Federico Plantera, ""Artificial intelligence is the next step for e-governance in Estonia", state adviser reveals," E-Estonia, September 2017, available at https://e-estonia.com/artificial-intelligence-is-the-next-step-for-e-governance-state-adviser-reveals/ (last visited 30 November 2018).

38 Denmark, "Strategy for Denmark's Digital Growth," Ministry of Industry, Business and Financial Affairs, 201, available at https://eng.em.dk/media/10566/digital-growth-strategy-report_uk_web-2.pdf(last visited 30 November 2018).

39 Austri, "Digitalisierung - ÖsterreichbekommteinenRoboter-Rat," APA OTS, 24 August 2017, available ahttps://www.ots.at/presseaussendung/OTS_20170824_OTS0052/digitalisierung-oesterreich-bekommt-einen-roboter-rat (last visited 30 November 2018.

40 Germany," *Eckpunkte der Bundesregierung für eine Strategie Künstliche Intelligenz*," 18 July 2018, available at https://www.

the direction. At one point in time, there were concerns that EU was losing ground to the United States (US) and China.[41] Europe's public and private sector is catching up and there is evidence of endeavors being made on the economy front of AI.[42] Even the United Nations is monitoring developments in the field.[43]The overall perusal of European AI landscape[44] and especially of EU AI policy[45] becomes important in order to identify the direction in which AI legislative framework is going to be shaped in.

In terms of AI, the world seems to be ruled by "Californian Ideology".[46] AI is advancing with mixed reactions and approaches from different stakeholders. Though a global policy becomes relevant in the context of how major players across the globe are coordinating in developing AI,[47] EU countries are at different levels of formulating the same. At the EU level, EU Commission adopted a communication on AI.[48] The communication primarily sets the background depicting AI not only making life easier but also extending help to humanity in solving the world's biggest problems like in the field of public health, cyber security, traffic related deaths and climate change. It further mentions the role of AI across various sectors of economy like energy, education, finance, construction. European industrial strategy incorporates AI into the whole process of industrialization.[49] It is pertinent to mention that, according to European Commission, the European industry should have access to single digital market and artificial intelligence is an issue that needs to be addressed by the EU initiatives.[50]The aim of European Union is to use AI for inclusive welfare of all.[51] Despite the race, cooperation is an integral feature of AI environment in European Union and is aimed at creating optimal opportunities and collective dealing of challenges.[52] EU is already funding IA projects dealing with health[53], industry[54] and culture[55].

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bmwi.de/Redaktion/DE/Downloads/E/eckpunktepapier-ki.pdf?__blob=publicationFile&v=10(last visited 30 November 2018).

41 Laura Delponte,"*European Artificial Intelligence (AI) leadership, the path for an integrated vision*," European Parliament, Policy Department for Economic, Scientific and Quality of Life Policies Directorate-General for Internal Policies September 2018, pg. 6, available at http://www.europarl.europa.eu/RegData/etudes/STUD/2018/626074/IPOL_STU(2018)626074_EN.pdf (last visited 30 November 2018); Kai-Fu Lee, *AI Superpowers: China, Silicon Valley, and the New World Order*(Houghton Mifflin Harcourt, 2018).

42 Richard Milne, "Europe left playing catch-up in artificial intelligence," Opinion Inside Business, *Financial Times*, June 6, 2018, available at https://www.ft.com/content/a23a2426-6976-11e8-8cf3-0c230fa67aec.(last visited 30 November 2018).

43 United Nations. Centre for Artificial Intelligence and Robotics. Available at http://www.unicri.it/in_focus/on/UNICRI_Centre_Artificial_Robotics.(last visited 30 November 2018).

44 Charlotte Stix , "The European Artificial Intelligence landscape, "The European Commission, 2018; Charlotte Stix, "A survey of the European Union's artificial intelligence ecosystem," last modified in March 2019, available at https://docs.wixstatic.com/ugd/ff3afe_1513c6bf2d81400eac182642105d4d6f.pdf(last visited 30 March 2019).

45 *Thomas Kirchberger, "*European Union Policy-Making on Robotics and Artificial Intelligence: Selected Issues.," *Croatian Yearbook of European Law and Policy* 13(2017), available athttp://www.cyelp.com/index.php/cyelp/article/view/272/169. . (last visited 30 November 2018).

46 Richard Barbrook and Andy Cameron , "The Californian ideology," Mute, September 1, 1995, available at fhttp://www.metamute.org/editorial/articles/californian-ideology. (last visited 30 November 2018).

47 See Future of Life Institute, "Global AI Policy," available athttps://futureoflife.org/ai-policy/. (last visited 30 November 2018).

48 European Commission, Communication on Artificial *Intelligence, COM(2018) 237 final.*

49 European Commission, Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions on Digitising European Industry Reaping the full benefits of a Digital Single Market, 19 April 2016, COM(2016) 180 final at pp 4, 10; European Commission, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank on Investing in a smart, innovative and sustainable Industry A renewed EU Industrial Policy Strategy, 13 September 2017, COM(2017) 479 final, pp 2, 8-9.

50 European Commission, *Communication on Investing in a smart, innovative and sustainable IndustryCOM(2017) 479* final, at pp. 9.

51 European Commission, Communication on Artificial *Intelligence , COM(2018) 237 final.*

52 European Union, "Declaration of Cooperation of Artificial Intelligence," 10 April 2018. available at https://ec.europa.eu/digital-single-market/en/news/eu-member-states-sign-cooperate-artificial-intelligence(last visited 30 November 2018).

53 The MURAB (MRI and Ultrasound Robotic Assisted Biopsy) Project, available athttps://ec.europa.eu/digital-single-market/en/news/using-artificial-intelligence-detect-cancer-and-other-diseases. (last visited 30 November 2018).

54 The Aeroarms (AErialROboticsSystem integrating multiple ARMS and advanced manipulation capabilities for inspection and maintenance) Project, available athttps://ec.europa.eu/digital-single-market/en/news/aerial-robotics-systems-and-ai-make-checks-industrial-pipelines-safer. (last visited 30 November 2018).

55 Visual European search engine of the future, available at https://ec.europa.eu/digital-single-market/en/news/visual-european-search-engine-future. (last visited 30 November 2018).