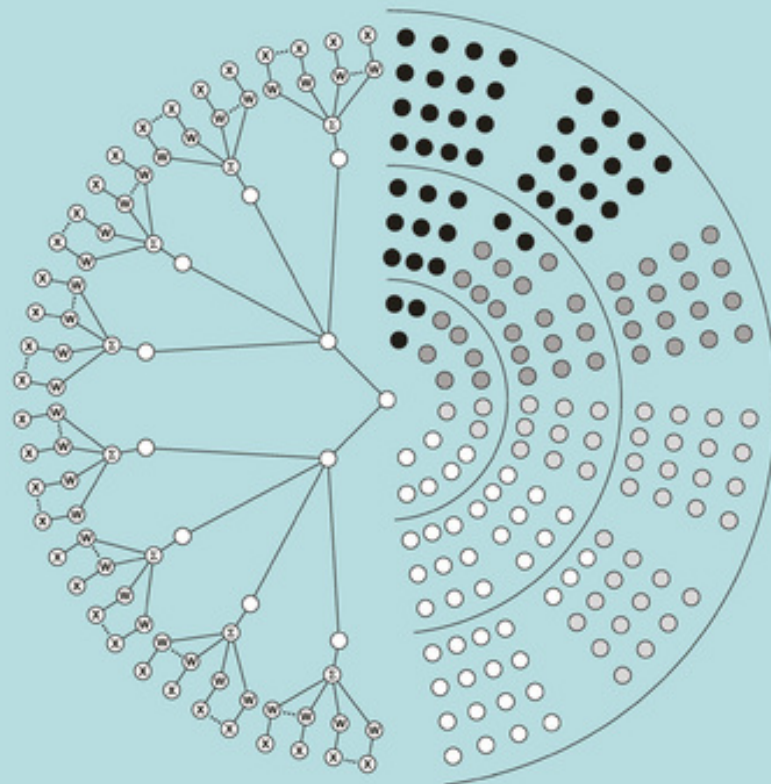


Andreas Sudmann (ed.)

THE DEMOCRATIZATION OF ARTIFICIAL INTELLIGENCE

Net Politics in the Era of Learning Algorithms



[transcript] AI Critique | KI-Kritik

Djeffal, Christian (2019). AI, Democracy, and the Law, transcript. In: Sudmann, Andreas, The Democratization of Artificial Intelligence, S. 255-284.

AI, Democracy and the Law

Christian Djeffal

Digital technologies are in the process of reconfiguring our democracy. While we look for orientation and guidance in this process, the relationship between technology and democracy is unclear and seems to be in flux. Are technology and democracy mirroring each other?¹ The internet was first hailed as genuinely democratic technology and ultimate enabler of democracy. It is now often perceived as a major threat to democracy. The story of artificial intelligence (AI) might turn out to be quite the opposite. While there are many reflections on AI as a threat to or even as the end of democracy,² some voices highlight the democratic potentials of AI.³ As is often the case, the research results depend on the premises underlying the research. This chapter is based on the assertion that technologies and media shape human affairs to a large extent, but that technology in turn is also shaped by human choices and decisions. There is a huge potential to endanger, game or even abolish democratic processes. On the contrary, there might also be opportunities to further democracy. Therefore, the extent to which AI impacts democracy is subject to the paths that are chosen in research, development and application of AI in society.

The main purpose of this chapter is to highlight the room for choice in the construction of AI and its impacts on the future of democracy. It will also inquire into how law and jurisprudence relate to these questions. From this perspective, current impacts of AI on democracy have an important indicative function. But in the face of further possibilities of inventions and regulative measures on different levels, they are only precursors to what will and should be possible. In that sense, this chapter is also an attempt to deal with developments and inventions we cannot yet grasp. The main argument is that it might be possible to influence them nevertheless. Therefore, the chapter will reflect on the possibility and necessity to democratize AI from a legal and jurisprudential perspective. It will then look at different ways to democratize AI.

1 On this question see Hofmann (2018).

2 Hofstetter (2016); O'Neil (2016).

3 Helbing (2019); Ennals (1987).

I. Democratizing AI: Possibility and Necessity

A. Understanding the Openness and the Power of Artificial Intelligence

In order to understand the relationship between artificial intelligence and democracy, it is necessary to clarify the concept of AI. The concept's crucial aspect lies not in a clear-cut definition of AI but in its openness. AI is a very broad concept indeed, and this might be the reason why this concept has outperformed other ideas, such as cybernetics, and is today the general term used in science, politics and the economy. Artificial intelligence is a term denoting a research question that inspires a whole sub-discipline of computer science today. This research question has been summarized as follows: Can systems solve complex problems independently?⁴ The openness can already be seen in the initial definition of the term from 1955 in a grant proposal to the Rockefeller Foundation:

We propose that a 2-month, 10 man study of artificial intelligence be carried out during the summer of 1956 at Dartmouth College in Hanover, New Hampshire. The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it. An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves.⁵

It is clever to frame a grant proposal in a way that encourages the imagination of those reading it. The way AI was used here does exactly that. The first aspect regarding the openness of AI that can be derived from this definition is that AI is a research question. It is not a theory offering explanations. It is not a general hypothesis or an idea framing certain aspects in a particular manner. The general research question of whether systems can solve complex problems independently is based on certain conjectures, but those are reduced to a minimum. The fact that AI is a question might also explain the longevity of the term. AI has seen so many ups and downs that commentators speak about "AI winters" and "AI summers."⁶ As long as the general research question underlying AI is not solved in a manner that cannot be improved, it will continue to be interesting for AI researchers. Another aspect of the openness of AI relates to its basic assumptions. Comments by John McCarthy, one of the grant applicants and important figures in AI research, suggest that the term AI was coined to avoid the assumptions made in cybernet-

4 Mainzer (2019: 3).

5 McCarthy/Minsky/Shannon (1955).

6 Sudmann (57).

ics research and to get around the influence of Norbert Wiener.⁷ While Wiener certainly made great contributions to the field of computer science and touched upon many important questions of AI that are still relevant today, he did so from another perspective. His idea of cybernetics, commonly held among many other important colleagues, is a general theory with strong assumptions. In contrast, the term AI has traditionally accommodated quite different views. One general disagreement has been termed as the strong and weak AI hypothesis.⁸ The strong AI thesis departed from the idea that AI can either replicate or even surpass human intelligence. In contrast, the weak AI thesis only requires machines to act as if they were intelligent. It focusses generally on certain specific problems to be solved.

Another aspect of the openness of AI is that it does not relate to a single technology but to a whole set of technologies.⁹ At the moment, technologies of machine learning¹⁰ are considered to be either state of the art or even “real AI.” Artificial neuronal networks, for example, fulfil certain tasks such as image recognition. They are trained on the basis of a great amount of training data, which is labelled so that the mathematical models underpinning the learning may continuously be adapted and improved. In contrast, generative adversarial networks improve themselves in an adversarial manner without the input of human training data. There are still many general ideas and architectures that might have been more popular in the past, such as decision trees, or that might become more popular in the future, such as evolutionary AI. Since AI is open for new approaches and breakthroughs, AI research continues to be a moving target. Systems that represented state-of-the-art-AI at one point in time do not qualify as being truly intelligent later. Different technologies require different resources. While AI is sometimes associated with big data applications that rely on training or analysis of huge amounts of data, big data is not a necessary requirement. There are also small data applications or applications that do not require significant training data at all. The resources vary accordingly. Artificial neural networks need large amounts of training data, sufficient memory space to store this data and enough power to compute it. It is especially important to note that the training data has to be annotated by human beings. Whether it is the interpretation of x-rays, skin cancer detection or crosswalk recognition in the context of automated driving, the data to train deep neural networks is dependent on human input. Large pools of human resources were even more crucial with the old expert systems popular

7 McCarthy (1989).

8 For a discussion see Russell/Norvig/Kirchner (2012: 1020).

9 Gasser/Almeida (2017: 59).

10 For overviews from different perspectives see Shalev-Shwartz/Ben-David (2014); Sudmann/Engemann Goodfellow/Bengio/Courville (2016).

in the 1990s. Experts had to design decision trees in many cases, which would then assist other people.

Furthermore, the general purposes of AI are also open. While it is often assumed that AI is synonymous with automation, there is indeed a disagreement about whether the goal of AI is rather augmentation than automation. While automation relates to the replacement of humans by machines, augmentation focusses on human-machine interaction in order to amplify human capabilities. This augmentation paradigm proved to be influential in different areas of computer science. Even the earliest research agenda by its most influential proponent Douglas Engelbart shows that there is a clear link to the research agenda of artificial intelligence:

By “augmenting human intellect” we mean increasing the capability of a man to approach a complex problem situation, to gain comprehension to suit his particular needs, and to derive solutions to problems. Increased capability in this respect is taken to mean a mixture of the following: more-rapid comprehension, better comprehension, the possibility of gaining a useful degree of comprehension in a situation that previously was too complex, speedier solutions, better solutions, and the possibility of finding solutions to problems that before seemed insoluble. And by “complex situations” we include the professional problems of diplomats, executives, social scientists, life scientists, physical scientists, attorneys, designers—whether the problem situation exists for twenty minutes or twenty years. We do not speak of isolated clever tricks that help in particular situations. We refer to a way of life in an integrated domain where hunches, cut-and-try, intangibles, and the human “feel for a situation” usefully co-exist with powerful concepts, streamlined terminology and notation, sophisticated methods, and high-powered electronic aids.¹¹

The systems capable of such an automation are to be “sophisticated” and able to deal with complexity. Those systems are to be combined with human intelligence. They are not intended to replace it. So, the general aim of artificial intelligence is also open regarding augmentation and automation. This openness in the general aim in the relationship of AI and humans is reflected in the variety of purposes for which AI systems can be used. The set of technologies described by the term AI are so called general-purpose technologies (GPTs). While the concept of GPTs has mainly been applied in economics,¹² it fits well as a category for analyzing social impacts of technology. The many purposes for the use of coal and steel have been captured in the phrase “swords to ploughshares.” Maybe the same might

11 Engelbart (1963: 1).

12 Rousseau (2009).

be said about AI, which can fuel lethal autonomous weapon systems as well as assistive care robots. In order to understand AI, the comprehension of the general-purpose nature of the respective technologies is of the utmost importance. The technologies comprising AI are neither exclusively tied to certain risks and challenges nor to certain opportunities and advantages. There are many counter-intuitive examples for this proposition, but data protection and privacy are again very illustrative in that regard. AI systems can certainly be a threat to privacy and data protection as they allow the extraction of a lot of personal information. One interesting aspect is AI-powered shadow profiling. This means that people are profiled without any significant activity of their own. The information is provided by people around them. Circumstantial evidence, such as search queries from other persons in a social network, allow smart systems to reconstruct a profile of a person within that network and collect relevant personal information, without them having personally revealed anything. However, AI can also help to serve as a privacy enhancing technology. There is, for example, a general push for chatbots that learn the privacy preferences of a person in a short and simple conversation and then go on to adapt the privacy preferences in all networks and online-services the person uses. The purposes of AI systems can, therefore, both enhance and threaten privacy. As will be shown, the same is true for other principles and values such as democracy.

Aspect of Openness	Alternatives
Research question	Weak AI thesis, strong AI thesis
Technologies	Machine learning technologies (artificial neural networks, generative adversarial networks), good old-fashioned AI
Resources	Data, common sense, computation...
Aims of use	Automation vs. augmentation
Purposes	General purpose technologies: can go many ways regarding purposes like transparency and data protection

Table 1: Dimensions of Openness of AI

The importance of this openness can be appreciated to a fuller extent when recognizing the ways in which democracy can be shaped by technology. Firstly, there are different understandings and constructions of the meaning of democracy. While there is a common thread of self-government of a people, there are differing

views on how this self-government is to be exercised. Democracy is constituted in actual practices in society. Technology has always played a huge part in the actual practice of democracy. Democracy and technology are intertwined. “Democracy is not enacted and then mediated. It is preformed through acts of mediation. Technologies of mediation are and always have been inherent in the social enactment of democracy.”¹³ One, therefore, can go as far as tying practices of the use of certain technologies to specific ideas of democracy.¹⁴ The use of technologies configures democracy. In the case of AI, being a set of general-purpose technologies, this configuration is generally open. Democracy is a process rather than a fixed and attainable state. It has to be constantly realized, using means like technological innovation, institutions, markets and competition, law and administration.¹⁵ In the face of this openness, it is interesting to look at current and potential uses of AI in the context of democracy.

B. Empirical Insights

While general purpose technologies like the internet or AI can play out very differently, they are usually described in a particular way. The discourse on the internet and democracy began by hailing the potential beneficial effects of the internet on democracy.¹⁶ Regarding AI, it seems to be the other way around: it is mainly regarded as a threat to democracy. AI is seen to have the potential to obstruct established democratic processes like elections and votes. There is also a fear that AI takes over decision making in many contexts. In order to paint a more nuanced picture, one has to appreciate the contingency of the technology and how it can be used in very different ways. The literature on the internet today recognizes its positive and negative effects on democracy.¹⁷ The contingency of the internet means that “like every medium before it, from the alphabet to television, [it] is shaped by the ways that society chooses to use its available tools.”¹⁸

The general-purpose nature of AI is also reflected in its relationship with the democratic process, especially in the context of elections. In this regard, AI is generally perceived as a threat. There have been several attempts to influence elections through automated systems that preformed different tasks. Fake news are spread in the context of elections to block and obstruct political discourse and to target voters on a granular level in order to engage or disengage them from

13 Coleman (2017: 27).

14 Bozdag/van den Hoven (2015).

15 Irrgang (2002: 173).

16 Pernice (2016).

17 For an overview see Ceron/Curini/Iacus (2017: 6).

18 Coleman (2017: vii).

voting.¹⁹ One of the activities that has been fueled by AI and other digital technologies is micro-targeting. Micro-targeting denotes attempts to influence the behavior of people based on personal profiles and actions that are grounded in specific features of that profile. Those profiles provide specific information about certain persons; people can then be targeted individually through social media advertising instead of being addressed as part of a group with political posters or TV commercials. These actions can range from attempts to influence or obstruct democratic discourse to influencing or obstructing the actual decision-making of individuals. While the first micro-targeting efforts were used for canvassing campaigns, in which humans went door-to-door in order to influence the electorate, AI can also play a role in actions based on granular profiles of certain people. There have been several reports about the use of such technologies. Whereas the elections in the United States and Brazil and the Brexit vote have made the news, their use has also been debated in states like Switzerland and Austria.²⁰ AI systems can enhance the possibilities of micro-targeting on different levels. AI can help with the extraction of information by crawling the web and analyzing other sources of unstructured data. AI systems can also help to profile people. Furthermore, AI systems can automatically address persons based on their profiles through different channels like social media. Several aspects of these campaigns using micro-targeting are problematic.²¹ First, the respective data has often been collected from public sources, in some instances illegally. This violates the respective persons right to data protection if the data was collected and used illegally. It also violates their right to personal autonomy, in that they are being influenced based on the collected data. Opting out of micro-targeting is not yet an option. What is more, micro-targeting can also be used for purposes of manipulation. Research on the topic also mentions the possible beneficial impacts—such as ensuring that voters receive the information that is relevant for them.²² This could also make specific topics more relevant for elections and enhance the importance of certain groups, particularly when they are spread out and not organized.²³ Therefore, AI could help those conceived to be weak and less powerful to obtain more and better information.²⁴

19 Bodó/Helberger/Vreese (2017: 3).

20 Eidgenössischer Datenschutzbeauftragter/Konferenz der schweizerischen Datenschutzbeauftragten (2018); Der Standard (2019).

21 A mapping of the threats can be found with Zuiderveen Borgesius/Möller/Kruikemeier/Ó Fathaigh/Irion/Dobber/Bodo/Vreese (2018: 87) On the same page, they collected reference on privacy and manipulation trends.

22 Zuiderveen Borgesius/Möller/Kruikemeier/Ó Fathaigh/Irion/Dobber/Bodo/Vreese (2018: 84ff).

23 Ibid.

24 Ennals (1987: 14).

This shows again the general-purpose nature of AI and the difficulty of putting it into one box. Micro-targeting can be detrimental, but it can also be beneficial to democracy. Yet, the applications existing today are only a preliminary view of what could be possible. Technological improvements, but more importantly also creative and innovative uses of the technology could lead to an even more profound impact of AI solutions on democracy. AI solutions can be something genuinely new or turn existing possibilities upside down. One example would be to empower voters through targeting and profiling candidates. A smart search engine could help to identify information concerning how parties or candidates think about certain issues. Empowering voters even further, one could come up with AI systems that predict future government behavior. One could try to compute the probability that parties or candidates act on certain promises. Indeed, it seems to be not entirely impossible to predict the likelihood of the question of whether certain promises will be kept in the future. This would be a use of profiling in a completely different way. While such a profiling of candidates and parties raises a series of problems and issues, it shows that the use of AI can vary greatly and also support voter empowerment. It could open their decision-making potential as opposed to narrowing it. Whereas there is currently great concern for using AI in the context of elections and votes, the future impact of AI is in fact open.

C. Law and Technology: Limitation, Motivation, Design

The law and technology have a multi-faceted relationship. This relationship can be broadly summarized in three functions: limitation, motivation and design. The impact of law on the relationship of technology and democracy will be explained along these lines. The law can add to the democratization of artificial intelligence in different respects. To include all these functions in the picture is particularly important since they highlight different perspectives that are best suited to create a full picture of the challenges and opportunities of AI in relation to democracy.

1. Legal Limits and Democracy

Human rights limit the use of AI, especially by public authorities. Human rights also trigger the need for democratic justification. Thereby, they further limit the possible uses of AI. The function of the law as limit to technology is possibly its best-known function. Legal obligations stemming from data protection, for example, limit the use of technology in several respects. Data protection law can ban the use of training data in machine learning, because there may be no legal grounds for such use or existing allowances do not cover the respective purpose. For instance, under the EU General Data Protection Regulation (GDPR) data pro-

cessing has to be justified according to Art. 6.²⁵ Systems taking automated decisions have to comply with Art. 22 GDPR. This provision allows such decisions only when the requirements in sections 2 and 3 are met.²⁶ Sections 2 and 3 refer to decisions based on contracts, statutes or explicit consent.

2. Motivation

The law can also motivate the use of technology in different forms. This motivation can relate to “the development, advancement and application of technology by the administration or even make it compulsory.”²⁷ There are different ways in which democracy as a legal principle can motivate the use of technology and AI specifically. Looking into international instruments about democracy, one can spot questions of technology in different contexts.²⁸ In human rights law, there are several rights that point to democratic governance. Some human rights instruments explicitly point to the crucial importance of technology in order to enhance democracy.²⁹ One area in which this is of particular importance is the inclusion of persons who are not yet able to effectively participate in democratic procedures and democratic discourses. The United Nations Convention on the Rights of Persons with Disabilities, Art. 4 para. 1 (g) obliges “to undertake or promote research and development of, and to promote the availability and use of new technologies, including information and communications technologies, mobility aids, devices and assistive technologies, suitable for persons with disabilities, giving priority to technologies at an affordable cost.” This is an example of a progressive human rights clause that motivates states and other actors to employ technologies in order to further human rights. Many AI technologies help persons with disabilities, especially blind and deaf people. These technologies also empower their respective users to participate in democratic discourse. Therefore, Art. 4 para 1 (g) has an effect on people’s democratic inclusion.

3. Design

Another function of the law is to structure and guide the design process. The law sets design goals, it shows how to balance different goals and even highlights possibilities to solve issues on the technical level. A good example for that is the privacy by design clause in Art. 25 sec. 1, which provides as follows:

25 Art. 6 provides that processing of data is only lawful if its requirements are met.

26 Abel (2018); Martini (2018).

27 Djeflal (2019: para 16).

28 This research is based upon the collection of documents by Ehm/Walter (2015).

29 See for example ga-Res. 68/164. Strengthening the Role of the United Nations in Enhancing Periodic and Genuine Elections and the Promotion of Democratization, United Nations A/RES/68/164, adopted by the General Assembly on 18 December 2013 (70th plenary meeting).

Taking into account the state of the art, the cost of implementation and the nature, scope, context and purposes of processing as well as the risks of varying likelihood and severity for rights and freedoms of natural persons posed by the processing, the controller shall, both at the time of the determination of the means for processing and at the time of the processing itself, implement appropriate technical and organisational measures, such as pseudonymisation, which are designed to implement data-protection principles, such as data minimisation, in an effective manner and to integrate the necessary safeguards into the processing in order to meet the requirements of this Regulation and protect the rights of data subjects.

Art. 25 section 1 entails a direct obligation to include privacy considerations into the process of designing or adopting an application. It is, however, also possible to have rather indirect obligations. It has recently been claimed that constitutional principles such as human rights, the rule of law and democracy also should be included in the process of designing AI.³⁰ This would further the law's function to influence technologies at a very early stage. These obligations also have to be applied by those developing the systems directly. In order to meet those obligations, several methodologies have been invented in different domains. While there are different standardization processes regarding constitutional values, there is yet no specific standard in dealing with AI and democracy. To date, nothing specifies a general obligation to include the principle of democracy into the design of AI.³¹

D. Legal Reasons and Lessons for the Democratization of AI

This section sketches the main legal reasons for democratizing AI as well as some learnings from the relationship of law and democracy. Democracy as a principle is enshrined in the constitutions of many states, be it implicitly or explicitly; it is also a basic value for international organizations such as the Council of Europe.³² Such a constitutional principle demands its realization in the public sphere. Apart from this very general democratic requirement, there are more specific lessons that can be drawn from the way that law functions. Three insights will be discussed in greater detail below.

30 Nemitz (2018).

31 Current value-sensitive design standards can be found with the respective ISO projects and in IEEE's P7000 series.

32 See for example the preamble of the statute of the Council of Europe from 5 May 1949, ETS No. 001.

1. Justification

As mentioned above, human rights add another layer to the limitation of technology. They set absolute limits on the behavior of public authorities and force them to realize human rights. Human rights are also tied to democratic decision-making. Whenever a measure touches upon human rights, it can only be lawful when there is a democratic justification underpinning it. The Covenant on Civil and Political Rights uses the phrase “rights shall not be subject to any restrictions except those which are provided by law.” Meanwhile, the European Convention on Human Rights uses the phrase “in accordance with the law.” This means that restrictions of human rights must be provided by law.³³ In order to qualify as a justification, the impact must be described by law in a manner that is understandable for the individual. The law here is a proxy for a democratic *ex ante* decision-making. Any impact upon human rights must be preceded by a democratic decision allowing for the precise impact and providing for safeguards for excessive and arbitrary uses. Another example is the Charter of Fundamental Rights of the European Union which provides that “[a]ny limitation on the exercise of the rights and freedoms recognized by this Charter must be provided for by law.”³⁴ This provision makes the need for democratic justification explicit. In the absence of such a justification, a measure is necessarily unlawful. The law is a vehicle to enforce human rights. It is also a medium for democratic decisions. This strong link between human rights and democracy mediated by the law also affects the relationship between AI and democracy. Whenever AI systems have an impact on human rights, their use is to be justified.

This necessity for democratic justification does only depend on the fact that the human capacity to make decisions affected by an AI system. Democratic justification is not only triggered by specific human rights. The need for justification of AI systems certainly applies to so-called automated decision systems (ADMs) that are often in the focus of academic attention. This is only one among many ways in which human rights can be at issue. When AI is used as a watchdog for IT security or for maintenance of critical infrastructure, it is crucial for realizing human rights. While the right to privacy and self-determination might be the most obvious examples of such impacts, other subtler influences also need to be considered. For example, ADMs are frequently regulated, but this regulation never applies to recommendation systems. Yet, these recommendation systems can have substantial impacts on human rights. Highlighting the interdependence between artifi-

33 See for example the explanation by Greer (1997: 9).

34 Charter of Fundamental Rights of the European Union, OJ C 326, 26.10.2012, p. 391-407. The relationship between legal democratic justification and human rights is not as universal in every human rights instrument. The universal human rights covenants, for example, require legal democratic justification only in certain cases.

cial intelligence and human rights, there is a rather clear criterion for the need of democratic determination. This is not the “power” of a machine to decide, but the impact on human rights. The interrelation between human rights and democracy can limit the public use of AI systems. If there is such a relationship, democratic justification is necessary—irrespective even of how human rights are affected.

2. Supremacy

Tied to this necessity for democratic justification issues impacting human rights is the idea of the supremacy of legitimate democratic decisions. This concept has found its expression in the idea that the norms made by the organization with the highest democratic legitimacy take precedence over other norms. Therefore, many jurisdictions which regard parliament as the highest democratic authority rely on the “sovereignty of parliament” and regard parliamentary laws as taking precedence over all other legislative acts. Other jurisdictions describe a normative hierarchy in which the constitution is at the top and acts of parliament in the second place. While constitutional law derives its legitimacy from the *pouvoir constituant*, statutory law relies on the legitimacy of parliament and yet other norms stem from actors with less legitimacy. Higher norms take precedence over lower norms, in cases of conflict, lower norms are either rendered invalid or inapplicable. The hierarchy of legal norms is generally grounded in different levels of democratic legitimacy.³⁵ In cases in which technology has normative force, this general idea would require that the law as a proxy of democratic decision takes precedence over functional requirements of technology and must actually guide democratic decisions.³⁶

3. Democratic Rebalancing

From a legal point of view, the notion of democracy is open. While there are many ways to understand and construct what democracy ought to mean, constitutional law is generally open towards the multiple understandings and theories of democracy. This openness allows the law to adapt to different contexts and different situations, especially when changes and reforms are at issue. Such reforms can happen on different levels, but they always change prior democratic processes and sometimes even the notion of democracy itself. One pattern that can be discerned from the way in which courts deal with these issues could be described as the mode of rebalancing. Courts remain flexible and open towards changing existing

35 From a legal positivist standpoint, it would also be possible to arrive at the same conclusion arguing with validity. One would then have to argue that the basic reason for validity is democracy.

36 See for example Schulz/Dankert (2016) It is important to note, however, that such a hierarchy must be based on democratic legitimacy and not on a formal distinction of primary and secondary rules.

processes, but they require active steps that would rebalance the situation from a democratic standpoint. This rebalancing can mean that there are measures that effectively democratize the new institutional arrangements. Two examples from other contexts can illustrate this. In the process of European integration, there were many treaty revisions creating new competences or transferring competences from the national to the European level. The German Federal Constitutional Court had to deal with creation and transfer of competences on several occasions. In its famous Lisbon judgment, the court allowed for a transferal of competences, but it also required institutional arrangements in the German legal order, enabling the legislature to effectively play a role in European politics. So, while it agreed to supranational power transferals, it only did so on the condition that the national legislature could influence politics at the higher level.³⁷ In another case, the Constitutional Court of Baden-Württemberg had to deal with a transferal of powers from the collegiate of professors to the president of a university. The court allowed for this transferal of power, but only on the condition that the president become accountable to the collegiate of professors, which in practice meant that a democratic election process had to be created.³⁸ These cases show that changes and reforms with an impact on democratic processes are—from a legal standpoint—not to be evaluated in a binary fashion of “yes” or “no.” Changes sometimes require democratic rebalancing. If there are disputes on how to rebalance those changes democratically, those disputes can ultimately be resolved in legal proceedings. These questions of rebalancing play an important role when actions and decisions are delegated to AI systems on a greater scale. Instead of arguing that this would be undemocratic, the question is rather whether this delegation to AI systems can be rebalanced. This flexible view present in different democracy cases also has the potential to shift the relationship between AI and democracy. Instead of asking whether AI should be democratized, the question is how it can be democratized and whether the respective measures are enough.

II. How to Democratize AI

If there is a need to democratize AI, how can it be put into practice? An instrumental approach to that question would first look at instances in which there are democratic choices and secondly at ways in which these decisions can be made. As

37 BVerfG, Judgment of the Second Senate of 30 June 2009—2 BvE 2/08—paras. (1-421), http://www.bverfg.de/e/es20090630_2bve000208en.html para 273ff.

38 Landesverfassungsgericht Baden-Württemberg, judgment 14.11.2016, 1 VB 16/15, obtainable at https://verfgh.baden-wuerttemberg.de/fileadmin/redaktion/m-verfgh/dateien/161114_1VB16-15_Urteil.pdf p. 43ff.

in every other democratic decision, there are different tools ranging from the ordinary processes of parliamentary deliberations and decisions to more direct versions of democratic participation. Each method might have specific advantages in a certain setting. Such a democratic toolbox could contain the following elements among others:

- ordinary parliamentary processes to debate and regulate artificial intelligence
- use of specialized parliamentary committees to determine certain issues
- empowerment of experts to make certain decisions according to preconfigured principles
- direct involvement of citizens regarding certain questions through
 - participatory methods
 - sortition: involving groups of randomly selected citizens in order to fulfil an office or make certain decisions
 - random sample voting: in order to vote on specific questions, a representative sample of the population is selected

For the sake of understanding the range of choices to be made about technologies and specific technical artefacts, it is helpful to distinguish between different layers analytically, despite the fact that the interrelations between the different layers are obvious. Focusing on specific choices regarding technical artefacts, there are choices that are rather technical and others that are rather social. Therefore, a distinction is to be made between a social and a technical layer. Furthermore, some decisions are not made with a view to a specific artefact but rather regarding a technology. These choices are situated in a layer of governance. On every layer, there are specific questions to be outlined.

A. Technological Layer

1. Design Choices

An important step in the democratic determination of technology is understanding the choices that are made in the course of inventing or applying a technology. Many design choices are made in the development. Some design choices are made intentionally, some have important consequences. From a democratic perspective, one must understand and highlight specific choices. These choices relate to architectures, applications and all other features of the technologies used. Whenever there is an alternative, there is a choice. Understanding choices also requires a democratic mindset that is open to several possibilities without automatically preferring certain outcomes. Computer scientists especially, who are trained to achieve specific goals such as efficiency, regularly do not see behind the choices that maximize their preferred value.

In order to appreciate choice in the case of machine learning, questions of optimization are very interesting.³⁹ Machine learning systems are optimized to attain certain goals, they receive feedback and adjust their model accordingly. In many cases, the goals towards which a model is optimized are not set in stone but rather contingent. An algorithm that distributes children to certain schools within an area can be optimized according to different goal functions: One could be the shortest way to school. Another would be the safest way to school. Yet, one could also define other goals such as a good mix of students in school from an ethnical or economic perspective. Such choices often result in trade-offs. They require an active choice. One trade-off that has become better known as of late is the choice between using data and being able to understand discrimination. Machine learning models are often trained on data that contains implicit biases—at the same time, training data may not contain explicit references to age, gender or other criteria. Thus, the decisive information is not present and it becomes impossible to understand whether there is bias in the data and consequently also in the algorithm and whether remedies are possible. Yet, including more data, e.g. age or gender, impacts the right to privacy and data protection. Especially in possible cases of discrimination, it would often be necessary to use special categories of personal data, such as data revealing racial or ethnic origins, that is heavily protected under many data protection regimes.⁴⁰ Therefore, it is necessary to weigh privacy and data protection against fairness in this regard. Another trade-off can happen when it comes to weighing transparency and accuracy. It is possible that some algorithms have higher scores than comparable alternatives but are based on models so complex that they are not intelligible for humans. There is an increasing awareness in the computer science community that choices are not only made in the process of using existing technologies but also in the process of research and development. In the same way that privacy enhancing technologies were invented, new communities have sprung up doing research to improve AI in specific directions. One example is the ACM Conference on Fairness, Accountability, and Transparency (ACM FAT), that looks specifically at new research on fairness, accountability and transparency in socio-technical systems. Similar conferences or tracks on AI panels show how research and development can also be specifically directed towards certain aims. Again, there is an element of choice even when it comes to creating or improving technologies. In this case, these choices can be exercised by researchers, but also influenced by funding agencies. An element of choice is often present at different stages.

39 Haferkamp (2017).

40 See for example Art. 9 GDPR.

2. The Principle of Designability

Scholars and institutions have called for the inclusion of democracy by design in the context of AI.⁴¹ In line with the idea of value-sensitive design, democratic values should be included in the design process. Not only are design choices to be made in a democratic manner, the very way in which the application operates is to be democratic. Yet, this general idea encounters several difficulties. One problem is that there are varying concepts of democracy and they can play out quite differently in the design of an application.⁴² One way to structure the different forms of democratic legitimacy is to divide them into input, output and process legitimacy. Technical requirements can be quite sophisticated. Depending on the context in which the AI application is used, democracy can involve very different actors as well: in the smart city context, democratic decisions will often require decision making or participation by the municipal population. In national settings, it will be more about involving parliament in decisions. For these reasons, the assertion of democracy by design means a lot of uncertainty for developers. What would be needed from a technical perspective is a principle that developers can grasp and one that supports democratic values in design processes without prejudging certain understandings of democracy.

My suggestion to address this challenge would be to formulate a design principle of designability. The principle of designability is aimed at translating general democratic values into design in a general and workable manner. It ought to have at least two tiers that need to be addressed by developers: The first tier is the changeability of the system. The second tier is its intelligibility. Different ideas of democracy rely on the idea that they are open and flexible to different forms of change: changes in government, changes in opinion after an informed discourse and so on. This is particularly the case if there is uncertainty about how a decision plays out in practice. In such a situation, changeability is a requirement for democratic participation. Yet, such changeability has to be enhanced by design. This can be done by choosing a specific architecture or using specific methods. Considering that machine learning entails the possibility to adapt, it is changeable by definition. Another tier for designability is the intelligibility of the system. Intelligibility is not used in its general sense in computer science, that is the possibility to understand the logic behind a given system's actions. Intelligibility must be constructed democratically. A general target here could be that a system is intelligible for all people affected by the actions of the system. While not everybody will in effect decide upon whether and how to employ the respective AI system, the ideal would be that everybody should have the chance to. This standard of in-

41 See for example Nemitz (2018); Die Bundesregierung (2018: 33, 44); High Level Expert Group on Artificial Intelligence (19).

42 Bozdag/van den Hoven (2015).

telligibility can be rather narrow in the case of systems that are targeted only at a specific group of people. In contrast, generally applicable AI systems should meet general standards of intelligibility. Therefore, the tier of democratic intelligibility fits in with current discourses on transparency. Yet, in the context of designability, intelligibility is not limited to specific actions or decisions made by the system. The people affected by the system have to understand it and the choices underlying it. They have to know whether and how the system can be changed. Like any design principle, designability will hardly ever be achieved fully. But it can point developers in the right direction. While intelligibility points to the possibility of democratic deliberations, the tier of changeability indicates the possibility of change and opens up potentials to effectively govern the technical artifact.

B. Social Layer

AI is not only designed on the technical level, many social constructions surrounding AI systems play a crucial role.⁴³ These social constructions are not inevitable, they are the fabric of choices and assumptions that are shaping technology and society at the same time. The law is a mechanism that can make socio-technical choices subject to democratic determination.

1. Understanding Impacts

It is important to appreciate the social impact of technology, but also to understand that the recognition of such impacts are social constructs themselves. Recently, different methods to assess the impacts of AI have been proposed.⁴⁴ Impact assessment is a prerequisite for uncovering choices on the technological level. Sometimes, the respective choices only become apparent and understandable when the social impacts are known. The discussion about fairness in AI took off when several researchers criticized discriminatory effects of algorithmic systems. The same is true for transparency. To learn about the consequences of technologies before harm and damage occurs is far from easy. As the history of technology shows, the knowledge about the consequences of technologies often comes too late. The discovery of radiation is a telling and sad example, since many of the scholars discovering this technology did not know about its dangerous effects and later died from cancer. It took some time to understand the effects. In many other instances, the causal relationship between technology and impact was not as apparent or more contested. In these instances, the law has profound effects on the social construction of technology.

43 Stamper (1988).

44 Reisman/Schultz/Crawford/Whithattaker (2018); ECP (2018).

Firstly, human rights law can provide for a consensus that a certain consideration is worthy of protection. In order to know what constitutes an impact, one has to construct a value that is to be protected. The law can create a consensus of what that is. The right to privacy is a good example of a right that has been invented through deduction in an evolutionary manner from other legal institutions.⁴⁵ Once there is an agreement on what is to be protected as human right, a special protection is in place. As has already been shown, this protection entails the need for democratic justification of decisions affecting human rights. Another important feature of the law is its ability to recognize and balance impacts in a holistic manner. Impacts are not negative by definition. They can equally be beneficial. While it is important to be critical towards new developments and to understand new dangers and disadvantages, it is as important to appreciate the benefits and potential opportunities. In order to assess the impacts of technologies, it is crucial to have all of the future possibilities in mind. This is also true from a human rights perspective. As shown above, technologies also have the potential to further human rights. Therefore, the consequences have to be weighed against each other. In order to assess such situations in legal proceedings, several jurisdictions have developed a proportionality test.⁴⁶ It is a practical way to assess a measure holistically and to structure the argument in a way that allows for many considerations and to weigh them against each other. It also arrives at practical conclusions that are communicated to those affected by the decisions. The principle of proportionality actually allows for a socio-technical evaluation on different levels.

2. Designing AI through Social Construction

Yet, there is an even wider sense in which the impacts of AI are socially constructed. This applies to a large part of the influence of AI systems. Especially in the case of data analytics, there can be different goals and aims: to discover certain correlations, to discover probabilities of certain actions or to actually show probabilities of how certain alternative actions might play out.⁴⁷ While it is true that those systems can have profound normative effects, such effects often stem from the social construction of the system instead of being falsely pinpointed as inherent in the technology. Whereas big data analytics tools compute certain probabilities, for example, the meanings of those probabilities and the role they should play is actively constructed.⁴⁸ One illustrative example is the misuse of scores for cred-

45 See one early argument in Warren/Brandeis (1890).

46 Klatt/Meister (2012).

47 On this basis a distinction is made between descriptive, prescriptive and descriptive analytics by Hoffmann-Riem (2017).

48 See for example Schlaudt (2018).

itworthiness as a reliability score for employees.⁴⁹ It is obvious that a system that is designed to compute the probability of a person repaying debts is not made to assess the respective persons reliability when it comes to the job. Yet, the choice to use the system in another context is by no means a choice that has anything to do with the design of the system. It is rather a social choice for a transfer to a different social context.

The same holds true for the use of certain probabilities. In many instances, the law shows how probabilities have completely different meanings in different contexts. In police and security law, there are also different probability requirements that are formulated from a social perspective. Measures that have low impacts on human rights have to meet a lower probability threshold, while measures with higher potential impacts have to meet higher probability standards. It is an active choice, and a democratic decision, to link a specific competence of the authorities to a certain probability.

There are numerous ways in which to construct the meaning of outputs of AI systems. The law not only makes this meaning explicit; it opens up the social construction of technology for democratic deliberation and democratic decision-making. The outputs of AI systems can be rendered illegal and irrelevant. They can be made subject to human oversight and human decision-making. Furthermore, they can be bestowed with the force of the law. In German law the assessment of civil servants, decisions must not be based on fully automated assessments of specific personality features.⁵⁰ The above-mentioned Art. 22 GDPR provides for a right of human oversight and makes fully automated decisions subject to human decisions. Yet, there are provisions clarifying that fully automated decisions do have the force of law. Take for example § 35a of the Federal Code of Administrative Procedure. The provision states: "An administrative act may be adopted in full by automatic systems, provided that it is authorised by a legal act and that there is no discretion or margin for assessment." This provision clarifies that there can be completely automated administrative acts, i.e. decisions with legal force for specific individuals or groups. This basically means that those systems can render decisions that have the force of law and can also be enforced. Two examples for such decisions are intelligent traffic systems that can automatically set speed limits or impose overtaking bans when there are dangers for the drivers due to wheather or traffic. Another example is fully automated speeding tickets issued from detection systems that automatically send the respective notices.

49 O'Neil (2016: 147-149).

50 See § 114 section 4 of the German Federal Civil Servants Law.

3. AI as Customary Law

AI systems can have real world impacts which depend to a large extent on a social construction that attributes these consequences to the system. This leads to the question of what the requirements of such acceptance should be. This question is currently addressed by the field of computational social choice.⁵¹ The hidden moral choices in the process of designing AI is one of the main motivations to engage with the interlaces of social choice and computer science. So, the proponents of computational social choice try to find criteria to design AI systems in a legitimate way. One feature that is striking with machine learning is that it is actually based on data that is often produced by those to whom the system applies. Research projects have, for example, used inquiries and simulations in order to obtain user data on how automated cars should react in specific situations.⁵² Yet, a democratic view on this ethical design focus reveals certain issues: The first problem is that different assumptions can lead to quite varied results, which might all have a claim to be ethical. Different ethical theories can even produce opposite results. Take for example utilitarianism and principled ethics. While certain actions detrimental to one person but beneficial for the majority could be regarded as ethical from a utilitarian perspective, they would be regarded as unethical from a principled point of view. In the end, it might be necessary to choose among many alternatives. To state that there is only one right and moral solution to be preferred over all other solutions is to discriminate against all other possible solutions. It neglects various approaches and different solutions to a single question. In such a setting, there is no room left for choice. Another question is whether artificial agents can genuinely make moral decisions or whether they are just simulating them. From a moral point of view, the question of actual judgement is paramount. This problem is tied to the question whether machines can actually think, which has attracted contentious reflection from Turing to Searle.⁵³

The basic argument of this section is that computational choice theorists should think in legal instead of moral terms. Building upon Kant, one could attribute actions with external effects to the law, while questions that remain internal are in the realm of ethics. AI systems often have profound normative effects. While most ethical considerations focus on output legitimacy, one could merge computation and law in a way that democratic input legitimacy is achieved through legal means. Machine learning applications are generally trained with data that represents the behavior of certain actors. While there is no general formalized rule about what the significance of such practice is, I would like to make the argument

51 Brandt/Conitzer/Endriss/Lang/Procaccia (2016) A overview of the literature regarding AI is given by Prasad (2019).

52 Awad/Dsouza/Kim/Schulz/Henrich/Shariff/Bonnefon/Rahwan (2018).

53 Turing (1950); Searle (1980).

that machine learning could—under certain conditions—be regarded as customary law. This would highlight computational and social choices that allow for a democratic expression through an AI system. Building upon an analogy from certain law-creating practices, it could be possible to formulate requirements for AI as a medium for democratic decisions.

Customary law used to play a very important role for the governance of certain communities that regarded specific practices as binding. Spurred by the increasing complexity of modern societies and the possibilities of new printing technologies, customary law lost much of its importance. It mainly relied on unwritten practices of smaller communities that formed over time. While courts in the common law countries continued to rely on once formed principles and turned them into arguments the judiciary could build on, one legal system in which customary law has retained its importance is international law. In international law, there is still a manageable number of participants whose practice can be qualified as custom. Several trends of digitization assist a new knowledge dimension that might lead to a revival of customary law in different areas. First, datafication opens new avenues to store and understand the behavior of certain actors. Big data represents the idea that huge amounts of data can be stored and analyzed. Secondly, trends like the internet of things allow for the collection of data in a constant, automated and ubiquitous manner. The internet of things signifies a trend of networked devices in different human environments. AI technologies can help to analyze and understand the data in a way that makes the practice comprehensible and understandable. Together, those technologies make actual practice of people visible.

However, the question remains as to whether this custom is meant to be generalized in human exchange. Scholars of computational social choice have thought about this issue and come up with criteria that were to be considered in the process of building an AI that represents practice. Baum, for example has developed with three general criteria:

1. Standing: Who or what is included in the group to have its values factored into the AI?
2. Measurement: What procedure is used to obtain values from each member of the selected group?
3. Aggregation: How are the values of individual group members combined to form the aggregated group values?⁵⁴

The requirements of customary law are in some sense complementary, in some sense different from the questions above. The formal criteria for the formation of

54 Baum (2017: 545).

customary law are a practice (*consuetudo*) and the belief that this practice is to be regarded as law (*opinio iuris sive necessitatis*). The practice must be consistent and general, even though this does not mean that the practice is uniform and universal.⁵⁵ The most important question regarding general practice in the context of customary law is whether there is sufficient representation. This is due to the fact that some actors remain tacit and do not engage in the practice. The second criterion is the so-called *opinio iuris*. That is the belief that the respective practice is based upon a legal obligation to act in that way. This criterion actually legitimizes the normative force of the practice. In order to fulfil the criterion of *opinio iuris*, data subjects must produce the data in the knowledge with the purpose of influencing a system that acts upon that data. This criterion makes the legitimacy of an AI system subject to a sovereign decision of users. The system simply learns what the practice of human beings is. It learns what the data subjects want the practice to be. In this setting, informational self-determination is not only the power of personal data; it is a conscious exercise of power through one's data. The data subject is not a resource from which personal data are extracted. In this setting, the production of data becomes a democratic act like voting.

C. Governance Layer

In order to analyze the impact of AI on democracy, it is not enough to look exclusively at specific systems. It requires an analysis from the macro level focusing on technologies or even AI as a whole. This is here denoted as the governance layer.

1. Framing

The democratic governance of AI is influenced by the way in which AI is framed. AI is regularly put in specific contexts or seen a certain way. Frequently, scholars talk about the ethics of AI,⁵⁶ another current is to talk about AI and human rights. While scholars discuss and analyze within one frame, there is relatively little discussion about the choice between frames. Yet, the frames do have significant effects. Take for example the choice between an ethical and a political frame.⁵⁷ The frames lead to completely different ways of thinking about technology. Compare stem cell engineering and the creation of a 5G network infrastructure. Stem cell engineering is predominantly construed as an ethical issue whereas the latter is commonly perceived as a political issue. Of course, there are many issues we would conceive of as being political in the context of stem cell research and there can be many ethical questions in building a 5G infrastructure. Constructivist

55 Crawford (2012: 23ff).

56 Mittelstadt/Allo/Taddeo/Wachter/Floridi (2016).

57 For this reflection see Djefal (2019).

scholars have highlighted that frames and theories influence the object of scientific inquiry. Therefore, it is an active choice to put AI in certain context and to inquire into the ethics or politics of AI or to look to the relationship of AI and human rights. This choice necessarily contains certain preferences that are inherent or follow from the frame that was adapted. Every frame also provokes some blind spots. Some aspects become invisible.

One attempt to generally describe the impact of AI on society is the concept of “algocracy.” This term contrasts other forms of government such as democracy or monarchy with a system in which power is (increasingly) exercised by automated systems.⁵⁸ The term algocracy is mostly used in a critical manner.⁵⁹ It highlights that algorithms are becoming more and more important when it comes to issues of governance. Instead of adding to the growing corpus of literature on this issue, I would like to highlight the constructivist nature of algocracy. This leads to the question of what is highlighted by this term and what is left out of the picture. Building on the basic insights from actor network theory (ANT), I argue that the frame of algocracy tends to blur and hide human agency. Algocracy highlights machine power but overlooks how humans impact the perceived automated actions. One of the basic arguments of ANT is to ignore the distinction between subjects and objects and to appreciate technology as part of the social in a network with human actors using it.⁶⁰ This analysis allowed the proponents of ANT to uncover the agency of technical artefacts. My basic argument is that this theory might today be used upside down in order to uncover human agency instead of machine agency. The theory of algocracy represents a critical part of the AI discourse that frames AI specifically as automated decision systems and looks at their increased power. With the focus on increasing ability and power of those systems, it is sometimes forgotten to reflect on how these systems are used and interwoven with human agency. As outlined above, there are many ways in which the social surrounding determines the design of AI applications. In many cases, the law is part of constructive efforts to bestow AI with normative force. A frame that is complementary to algocracy would not exclusively look at the fact that more and more decisions are delegated but at *how* they are delegated and *who* controls and influences the automated systems. As many proponents of ANT have argued, the focus would not be on a single class of actors but rather on their interrelation.

58 Yeung (2018).

59 Danaher (2016).

60 Latour (2000: 180).

2. Organizational aspects

Another way to impact the development and deployment of artificial intelligence is through organizational measures. Many of the recent AI strategies contain such measures. On the one hand, organizational changes are aimed at enhancing technological progress in the field of AI. New institutions are founded, either to engage directly in research and development, to fund such activities or to enhance the network of already existing organizations. The United Arab Emirates made headlines with a minister for artificial intelligence⁶¹ and the German government recently founded an agency for “innovation leaps” tasked with funding research and development for ground-breaking innovations and increasing implementation. On the other hand, newly founded organizations also exercise oversight over AI systems. In fact, there are indeed many organizations endowed with this task already. Organizations like the US Federal Drug Administration or its counterparts in Europe and elsewhere have engaged in the certification of AI systems that are considered to be medical products. There are also calls for more oversight institutions.⁶² Following examples in Canada, some states have founded AI observatories that aim to find out about the social consequences of AI. The future of work is one of the issues often addressed in this context.⁶³

Organizational change is not always expressed merely in new organizations. Sometimes, organizations change from within by adapting to new tasks. One important development in this regard is the question whether a new job profile is needed across organizations. Data scientists are one profile that is currently on the rise. Yet, some think that a completely new profile of algorithmists might be needed.⁶⁴ The idea behind this is to have people with specific technical skills so that an organization maintains agency when it must deal with AI systems. The interesting aspect of this idea is that expertise would also be available to organizations that have previously not been associated with technological expertise. The job profile of an algorithmist has the potential to democratize agency when it comes to questions of algorithms. Knowledge about AI systems would be generally available. A question separate from this specific profile would be the interdisciplinary mix of teams working on certain AI issues. If AI is used in specific contexts, there might be a minimum requirement of roles and perspectives that need to be present. Therefore, organizations developing, using or assessing AI systems should think about what the right mix of these teams would be. While computer scientists are a necessary component of such teams, they are never enough. All in all, organizational challenges and changes are a very good example of how algo-

61 Tendersinfo (2017).

62 Tutt (2017).

63 See for example Die Bundesregierung (2018: 26).

64 Mayer-Schönberger/Cukier (2013: 189-192); Hill (2015: 284).

rhythms impact their social surroundings and how changes in the socio-technical context of AI systems can effectively contribute to the respective governance.

III. Conclusions

The 1947 constitution of Bremen, an entity of the German federal state, contains a very interesting provision about the relationship between man and machine. The constitution states in Art. 12 section 1: “The human being ranks higher than machines and technology.” This provision addresses experiences from the process of industrialization, during which machines, technologies and the new possibilities of production gained importance. It is interesting that the founders of the constitution felt the need to remind the people and those in power of the fact that human beings should rank higher. During industrialization, this did not address the increasing capabilities of machines to act so intelligently that they may even be considered as persons. It was rather the fact that, as capacities of production, so much importance was conferred upon them. So, the basic idea was to argue for a human-centered view despite the huge social and economic importance of technical artefacts. This basic idea can also be translated to the process of digitization, in which machines engage in solving problems that require a degree of intelligence previously considered exclusively reserved for humans. One aspect of this normative centrality of human beings is their exclusive status as the bearers of human rights. Equally important is the aspect of effective self-determination of people in the face of technologies’ increasing possibilities. To rank higher does not only mean that humans must not be harmed by new technological possibilities. It means that people need to be in the driver’s seat. It can be understood as a call for effective self-determination on different levels.

If AI continues to fulfil the high expectations and has continued impacts on societal development, it will be even more important for an all-encompassing value-sensitive development. From the perspective of the constitution of Bremen, one necessary component would be to think about the democratization of AI. In order to do this, it will be crucially important to understand AI as a set of general-purpose technologies that can be used in very different circumstances and very different ways to achieve multiple tasks. While it is important to understand where AI currently threatens democracy, it is as crucial to appreciate its opportunities. To understand the openness of the use and potential of technology allows us to choose whether to develop the technology further and which path to take. When it comes to the democratization of AI, some general truths about democracy apply: Democracy is a process, not an achievable result. It can be lost very easily, and everyone must work for it continuously along the way. Once we stop striving for it, it is gone. From this perspective, AI is just another challenge that has the

potential to bring society closer to the ideal lying behind Art. 12 section of the Bremen Constitution, as well as many other democratic provisions: to meaningfully put people in the normative center of all public power.

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