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The present document contains the report of M. Kulesz, entitled " Culture, platforms and machines: The impact of Artificial Intelligence on the diversity of cultural expressions"

Culture, platforms and machines:

the impact of artificial intelligence on the diversity of cultural expressions

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KEY MESSAGES

Artificial intelligence (AI) can help to empower numerous creators, make the cultural industries more efficient and increase the number of artworks, which is in the interest of the public.

However, there are still very few artists and entrepreneurs that know how to use tools such as machine learning. In addition, the commercial logic of the large platforms may lead to increasing concentration of supply, data and income and to the impoverishment of cultural expressions in the long term.

In a tech world dominated by the United States and China – and to a lesser extent by Europe, Israel, Canada, Japan and the Republic of Korea – there is a risk of fomenting a new creative divide, which would result in the increasing decline of developing countries.

The lack of inclusion of culture in national AI strategies – in both the North and South – could mean that countries no longer have any cultural expressions of their own, which would end up damaging the social fabric.

It will be essential to develop strategies that go beyond a merely abstract code of ethics and design public policies to ensure that AI systems – and the actors that exploit them – are auditable and accountable.

Far from settling for a marginal role in the discussions on AI, the creative sector must claim its place with greater vigour.

Introduction

"Any sufficiently advanced technology is indistinguishable from magic."

Arthur Clarke

Artificial intelligence (AI) is dominating the headlines at the present time. This technology promises to revolutionize areas as wide-ranging as transportation, medicine, education, finance, defence and manufacturing. When it comes to evaluating its long-term effects, the general consensus is that AI and automation will create more wealth and simplify a vast array of industrial processes, but at the same time could lead to an increase in inequality, discrimination and unemployment.[1]

However, in international forums, the impact AI might have on culture is rarely discussed. This omission is inexplicable, particularly if we consider the fact that AI is already being used to produce songs, stories and paintings – often of surprising quality – which raises important questions about the future of art, the remuneration of artists and the integrity of the creative chain, among other issues.

The disconnect that persists between AI and culture in such debates is all the more striking given that cultural expressions play a key role in the way in which current algorithms and automated applications work. Although, as a scientific discipline, AI has been around for decades – having been formally introduced by Alan Turing in the 1950s – the current hype focuses on a specific branch of AI known as machine learning. This tool is used in countless everyday applications, such as search engines, online translation services, spam blockers and virtual assistants. In the machine learning model, the machine is fed with enormous amounts of data – the input – which it processes using algorithms, to enable it to recognize patterns, make predictions or execute an action – the output.[2] Now, a huge portion of the data that serves to train these machines is the fruit of human creativity, namely: millions of songs, videos, texts and photographs. The machines' diet, then, is largely made up of cultural expressions.

Moreover, it should be noted that the true pioneer in AI and automation has been culture, rather than science. Already in the *Iliad* there were mentions of automatic tripods, fashioned by the god Hephaestus to carry out his tasks. The word "robot" in the sense of a humanoid device appeared for the first time in the satirical drama *R.U.R.* (1920), by Czech playwright Karel Čapek. Then came *I, Robot; 2001: A Space Odyssey*; *Terminator* and *The Matrix* along with hundreds of other works that envisioned different aspects of the relationship between human beings and their creations. A conflictive relationship, in which technologies are not content with playing the subordinate role assigned to them – indeed, it is worth pointing out that in Czech, "robot" means "slave", and nowadays we call our computers "servers". In fact, since we are talking about meanings, it should be noted that the very etymology of many words associated with AI – and technology in general – bear the unmistakable imprint of culture: "artificial" literally means "made with art", while "technology" comes from the Greek "téchne", which refers to the skill of the artisan.

Far from settling for a marginal role in the discussions on AI, the creative sector must, then, claim its place with greater vigour. If it fails to do so, the negative

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1 Cf. UNESCO – World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) (2017: 19 ff).

2 For a brief introduction to the evolution of AI since the 1950s, see National Science and Technology Council (2016: 5 ff).

consequences would affect not just the sector itself, but the entire social fabric. It is precisely when culture is excluded from the equation that control is lost: it is at that point that the "servers" to whom we delegate our data become too powerful. We are not referring here to the machines themselves, which in reality are devoid of will, but to those who control them. Ultimately, the challenges posed by AI – at least in its current configuration – have nothing to do with machines magically coming to life, but rather with the possibility of the big tech players wielding too much influence.

In this article, we will examine the impact of AI on culture, focusing on the situation as it relates to artists, the creative industries and the public, in both the Global North and South, at a time when the large Internet platforms are taking over bigger chunks of the value chain. What changes will ensue for artists, creative entrepreneurs and the general public? What will happen in terms of the diversity of cultural expressions, gender equality and fundamental rights? What role do governments, the private sector and civil society organizations need to play in order to consolidate a rich, diverse and plural cultural ecosystem?

The 2005 UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions and all the work carried out by its organs may provide an essential framework for the consideration of these issues. In particular, the Operational Guidelines on the implementation of the Convention in the digital environment[3] and the 2015 and 2018 editions of the UNESCO Global Report *Re|Shaping Cultural Policies* offer an invaluable conceptual basis for structuring the analysis.

This presentation will be divided into three parts. I) We will begin by examining the impact of AI on the cultural value chain, in order to identify opportunities and challenges, particularly the possibility that the large platforms may exploit AI to create a "perfect bubble" around users. II) We will then go on to describe the current state of play on AI at the global level, to highlight the salient points arising from the national strategies and point out a number of risks, such as the emergence of a "creative divide" between the North and South. III) This will be followed by a discussion of several aspects related to the ethics of AI, in particular the question of bias and the need to incorporate new stakeholders with a view to developing public policies on AI. Finally, in the conclusion, we will provide a series of recommendations and closing remarks.

I) AI and the creative chain

As suggested in the 2018 Global Report, the widespread incorporation of digital tools, and in particular the emergence of large digital platforms, have profoundly transformed the structure of the cultural value chain. [4] We are seeing a shift away from a pipeline-like system, in which each link – creation, production, distribution, access – processes a good or service and passes it on to the next, toward a network or platform-type model, in which the set of nodes interact in real time. In such an arrangement, an innovation like AI will tend to exert a simultaneous influence across the entire chain, rather than just affecting a single link. We will now move on to describe the main

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3 Adopted by acclamation in June 2017, these operational guidelines offer clear principles and practical recommendations for designing and developing policies and measures to promote and protect the diversity of cultural expressions in the new technological environment. A highly dynamic and changing context, which today is marked by AI, but tomorrow may be dominated by the Internet of Things, Blockchain, Quantum Internet or any other technology. Cf. UNESCO (2017).

4 Cf. Kulesz (2018: 73 ff).

opportunities and challenges that may emerge as a result of introducing AI throughout the creative chain.

1. Machine learning: huge advantages for artists, the creative industries and the public

Experimentation with machine learning is currently on the increase and shows the enormous potential offered by this modality in the field of music, film and literature. For example, in 2017, the American artist Taryn Southern presented her album project *I am AI,* put together with the aid of various machine learning tools – AIVA,[5] Amper,[6] Google Magenta[7] and IBM's Watson Beat.[8] In a similar vein, in 2018, the musician Benoît Carré released the album *Hello World,*[9] the fruit of collaboration between fifteen well-known artists and the Flow Machines system, developed by Sony CSL.[10] Algorithms have even been involved in the creation of movie scripts, as in the case of *Sunspring* (2016), directed by British filmmaker Oscar Sharp. Also, in March 2016, a short novel co-written by Hitoshi Matsubara – a professor at Future University in Japan – and a machine made it past the first round of a national literary prize.[11]

As a number of these artists have recognized, AI does not necessarily replace human beings. In fact, works produced in a purely automatic fashion tend to appear a little odd to the public, who fail to establish empathy with a machine devoid of intent. Hence the need for a degree of manual intervention to ensure the work is aesthetically accomplished.[12] This would appear to indicate that the most effective formula is collaboration between human being and machine: so, far from doing away with artists, AI can enhance their capabilities.

Another point to be highlighted is that AI lowers entry barriers and makes it possible for many more people to compose symphonies, make movies and write novels – even without too much expertise in any of art forms. Taryn Southern puts it like this:

> *"For songwriters who don't play instruments or who have to work with a human collaborator, it can be quite freeing and liberating to do this, because you don't need any knowledge of instrumentation to make a great song — you just need to have a good ear."*[13]

Furthermore, AI enables the creators of the past to be brought back to life. *The Next Rembrandt*[14] project – the product of collaboration among ING, Microsoft, the Rembrandt House Museum and other institutions – set about digitizing the works of the Dutch master and, thanks to the application of AI, was able to "distill the artistic DNA from his work" in order to then create a new painting that could well have been done by the artist himself.

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5 www.aiva.ai.
6 www.ampermusic.com.
7 https://magenta.tensorflow.org.
8 www.ibm.com/case-studies/ibm-watson-beat.
9 www.helloworldalbum.net.
10 www.flow-machines.com.
11 Cf. Jozuka (2016).
12 Corbett (2018).
13 Plaugic (2017).
14 www.nextrembrandt.com.

In addition, works produced using AI may represent a new source of remuneration for their creators. Indeed, the painting *The Count of Belamy*, generated using algorithms by the French collective Obvious Art[15] went on sale for 10 thousand euros and was acquired by the collector Nicolas Laugero-Lasserre.[16]

AI can also constitute an advantage for the creative industries, especially when it comes to reducing costs and increasing efficiency. A film production company, for instance, could save hundreds of work hours by incorporating machine learning into special effects retouching.[17] AI can also be used by publishing houses that need to assess the narrative impact of a novel[18] or by fashion companies seeking to produce personalized models for each of their clients.[19] In terms of distribution, automatic algorithms can also help online stores to recommend products more effectively.

If we take into account the fact that AI technologies are easily scalable, we could see an unprecedented explosion of artworks take place in the next few years. This could benefit the public, who would thereby be able to access a far wider range of cultural goods and services.

2. AI, creativity and the large platforms: the risks of the "perfect bubble" around users

However, the use of AI is not without its challenges. To begin with, the system for registering artistic compositions – which is still carried out manually in many countries – does not appear to be ready for the exponential increase in the number of works that new technologies may bring about.

In addition, although these tools can encourage the entry of new creators – in particular those that dominate programming and digital media – traditional artists, who do not usually have the technical knowledge to experiment with machine learning, are left worse off. At the same time, the growing role played by AI as a creation tool could even end up making those artists who are familiar with such innovations more dependent on third-party IT solutions.

Successive improvements in AI-assisted creation could also lead to increasingly perfect works and make it impossible for the public to know whether they have been thought up by a human being, a machine or a combination of the two. This could spur a rapid increase in "fake art" and works that are devoid of identity, values or meaning.

In fact, the large platforms are already investing in projects to create cultural expressions using algorithms on a large scale. In mid-2017, Spotify hired François Pachet – a global expert in the application of AI to music production, who had previously worked on the Flow Machines system. In response to this news, sector analysts wondered whether Spotify might not be planning to offer its users automatically generated music, which would save the company a fortune in royalties.[20]

Questions also arise with regard to copyright: who owns a work created using AI? The first answer might be: the artist who came up with the idea – like Taryn Southern, in the case of *I am AI*. It is undeniable that this person should be recognized,

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15 www.obvious-art.com.

16 Escapasse (2018).

17 For example, thanks to the software Arraiy (www.arraiy.com).

18 By using tools such as StoryFit (www.storyfit.com).

19 As Stitch Fix does (www.stitchfix.com).

20 Ingham (2017).

particularly if they had any manual involvement in the output produced by the machine. But what about the programmer who designed the algorithms? Sometimes it is the artists themselves that develop the software, but very often that software belongs to other people or companies. And what about the original works that served as input for the machine? In the case of a classical painter like Rembrandt, whose works are already in the public domain, extracting his creative personality and translating it into algorithms that will enable new pieces to be created does not seem to pose too many problems in terms of copyright or royalties. But what happens in the case of contemporary artists?

In some instances, these issues have been settled by assigning AI itself the status of composer, as SACEM has recently done with regard to the algorithm AIVA.[21] However, this approach opens up new challenges of its own. For a start, it is difficult to grasp how a machine could be a copyright holder, if by definition it is incapable of benefiting from its creations – something that only individuals or companies could do. Ultimately, giving an AI the chance to register its own works merely enables private companies – the owners of the AI or the data that served as input – to become *de facto* authors of works of art – something that until now has been a right exclusive to individuals. In terms of creativity, this would make companies the ones that dominate the scene, through automata artists with the potential of a Borges or a Picasso, and mean that flesh and blood individuals would play second fiddle or, worse still, serve simply as new input for machines.

When it comes to the creative industries, there are really very few that have the in-house skills to take advantage of these innovations. So, as happens in the case of individual artists, we must ask ourselves whether the creative industries might not lose autonomy, since key parts of their internal functioning and their productivity would be overly dependent on often far more powerful third parties, with whom they would be unable to negotiate.

The fact is that, while AI may encourage the emergence of independent start-ups in the new applications market, it is the large platforms that have the best chance of seizing control of this segment. These technological giants are financially robust enough to be able to offer services at very low prices, or even free of charge. At first these services are used by a certain link in the chain, but then later, thanks to the data collected and the application of AI, that link gets gobbled up by the platform itself. This would have a severe destabilizing effect on the traditional creative sector in terms of jobs.

In the medium and long term, AI may allow large platforms to intervene simultaneously in all nodes of the creative chain and generate works based on user behaviour, in order to maximize consumption. These technological players would not only create their own songs and novels, but physical goods as well, such as articles of fashion – a sector that the Web giants have taken very seriously indeed. Amazon and IBM are developing tools to create and produce clothing designed using AI.[22] And as part of its *Arts & Culture* division, Google has launched the project *We wear Culture,*[23] which is a searchable archive composed of tens of thousands of fashion items digitized

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21 "AIVA is the first AI" (2017). Along similar lines, Saudi Arabia granted nationality to a robot in 2017, while in New Zealand a robot will run for prime minister in 2020. Cf. Soudoplatoff (2018: 35).

22 Cf. Knight (2017), Del Rey (2017) and Bain (2016).

23 https://artsandculture.google.com/project/fashion.

in collaboration with over 180 museums and other institutions – a database that in the future could prove indispensable when it comes to designing new garments.

If this trend were to continue, the stage would be set for a "perfect bubble" around users, which would lead to an unprecedented level of concentration in the creation, production and distribution of cultural goods and services. In such a scenario, cultural expressions would have economic value, but they would convey neither identity nor meaning. There would no longer be any place, then, for works that are conceived with future generations in mind or for great artists that are misunderstood in their own time. Art would become just another disposable consumer good and the sum of individual creativities would end up in the hands of a just few companies that are global leaders in AI.

II) AI: a new cartography

In the previous section, we looked at the impact of AI within the creative chain. However, the effects of these changes are not felt in the same way in different regions of the world. We will now briefly present the main forces at play, focusing on both the countries of the global North and South. These trends will have a long-term effect on both culture as well as the possibility of achieving sustainable development.

1. The major powers

At present, the global leaders in AI are, unquestionably, the United States and China. In the case of the United States, the energy of its tech companies – particularly Google, Amazon, Facebook, Apple, Microsoft and IBM – the vitality of its university research and the abundant availability of private capital have all been key factors in making the country a pioneer in the field. Although this process was undertaken without the need for direct state intervention, since at least 2016 there have been voices calling for greater coordination, without which it will be difficult to maintain the current leadership position.[24]

The reality is that, for the United States, that early mover advantage is already being eroded due to the great strides made by China. The Asian nation has its own innovative tech giants – Baidu, Alibaba, Tencent, among others – a large network of research laboratories and extensive access to capital – both private and public. In July 2017, the Chinese government presented its plan to make the country the first global centre for AI by 2030 and build a market worth 150 billion dollars, in areas such as health, defence, surveillance and transportation.[25]

The European Union, for its part, can boast important research centres, plenty of AI start-ups and an active policy aimed at consolidating the digital single market. However, no digital titans comparable to those in the United States or China have so far emerged on the continent, owing, among other reasons, to lower availability of private funds. Faced with the risk of "missing the train", the EU released a communication on AI in April 2018,[26] containing various recommendations for

[24] Cf., for example, National Science and Technology Council (2016) or the parliamentary proposal – introduced in late 2017 – to create a Federal Advisory Committee on the Development and Implementation of Artificial Intelligence ("Future of Artificial Intelligence Act", 2017). Eric Schmidt himself, the former director of Google (Alphabet), urged the United States to "get [its] act together as a country" to develop an AI strategy that involves both government and private industry, in order to be able to compete against China (Vincent, 2017).

[25] Cf. Ding (2018).

[26] Cf. European Commission (2018a).

leveraging opportunities and tackling the challenges posed by this technology, which – according to the document – will transform society and industry as profoundly as electricity did. The proposals seek to shore up the European data ecosystem, modernize the education and training systems, prevent a brain drain, mobilize new investments and establish an ethical and legal framework for AI that is aligned with European values and the EU Charter of Fundamental Rights. In addition, May 2018 saw the entry into force of the General Data Protection Regulation (GDPR), which sets up a framework for the collection and conservation of personal data and, among other matters, establishes the right for European citizens to be informed of the logic underlying the algorithms used to process their data (Article 15.1.h) and prohibits decisions affecting them from being taken in a purely autonomous manner by a machine (Article 22.1).

There are several countries in Europe that have designed their own AI strategy.[27] France, for example, presented its plan, entitled *For a Meaningful Artificial Intelligence,* in March 2018.[28] The core aims of the program are to: reaffirm the role of the State in preventing Europe from becoming a digital colony of the global platforms, apply AI to health, ecology, transport and defence, foster data commons,[29] invest in creating interdisciplinary AI institutes and in supercomputers, increase the number of experts and set up an ethics committee to examine the effect of this technology on society.

Also in 2018, the UK House of Lords published its national policy document *AI in the UK: ready, willing and able?*[30] Based on the fact that it would not be realistic to aim for global leadership in a context clearly dominated by the United States and China, the report highlights the opportunity for the UK to become a key player in the ethical use of AI. Among other recommendations, the text proposes setting up an AI Council, launching initiatives to prevent automation from perpetuating social inequalities, organizing international conferences on the ethical implementation of AI, promoting research and training, facilitating data exchange and proactively reviewing the use and potential monopolization of data by large platforms operating in the UK.

Other countries that are highly dynamic in terms of AI include Israel – which has 40 times more AI start-ups per capita than the USA[31] and important research centres – Canada – which in March 2017 launched its pan-Canadian AI strategy, endowed with CA $ 125 million –[32] Japan and the Republic of Korea – which are promoting robotics in order to improve productivity, mobility and health.[33]

2. The countries of the South: heading towards a "creative divide"?

Now, in a context in which even major powers such as France or the UK recognize their limitations vis-à-vis the rise of US and Chinese tech companies, what will become of the countries of the South?

In an era dominated by AI, it is clear that the development models implemented by these nations in the past will be unlikely to work for much longer. Indeed, if the new raw material is data, and if jobs are lost to automation, then being blessed with

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27 An overview of the main initiatives carried out by the countries of the continent can be found at European Commission (2018b).

28 Villani (2018).

29 That is, the availability of data shared by the entire community.

30 House of Lords Select Committee on Artificial Intelligence (2018).

31 Cf. ASGARD (2018).

32 Cf. House of Lords Select Committee on Artificial Intelligence (2018: 47).

33 *Idem* (158).

abundant natural resources or boasting low labour costs will prove less decisive in the future.[34]

India is perhaps the only country in the South that has announced an explicit AI agenda:[35] dubbed "AIforAll", the strategy seeks to focus on applications related to health, education, agriculture, smart cities and smart mobility, as well as encouraging public-private collaboration and consolidating a data marketplace. As highlighted in the Indian report, this approach could be replicated in other developing nations, which face similar challenges when it comes to using AI: the lack of a long-term strategy for investment in AI, poor connectivity, a low level of government engagement in AI research, a constant brain drain, a shortage of data and reduced commercial viability for domestic start-ups.[36]

In such a context, there is an urgent need for the countries of the South to draw up a strategy to actively adopt AI. This is a point made by Kathleen Siminyu, a data scientist at Africa's Talking and co-organizer of the Nairobi Chapter of Women in Machine Learning and Data Science:

> *"We need to make sure that Africans are not just recipients of advances in artificial intelligence but shapers and champions as well."*[37]

Countries that do not invest in AI or do not have their own strategy will simply end up using the services provided by large global companies, without any possibility of implementing their own solutions. The technological concentration and the "perfect bubble" described in the previous section would see the artists and producers of the South gradually lose their autonomy and capability. If that were to happen, the future designers of African clothing would not be Cameroonian or Nigerian creators, but rather machine learning experts living in Silicon Valley or Tianjin. The North/South digital divide would then become an irreversible creative divide.[38]

3. AI, culture and sustainability

That said, it should be pointed out that AI strategies are necessary, but not sufficient in themselves. Strikingly enough, culture plays no role at all in any of the current national agendas – in either the North or the South. The imperative of economic growth and geopolitical competition means that no region wants to "miss the train" and that efforts to integrate AI at all costs are concentrated in those areas considered most urgent such as health, agriculture, transport, education, defence, finance and manufacturing.

While it is true that these agendas attempt to take into account local priorities and values – which in a sense reflects cultural concerns – in no case do they consider the impact AI will have on music, literature and film, the needs of local artists and creative entrepreneurs, or the risk that may be posed by societies having to import all of their culture. The problem is that, even if a country adopts a state-of-the-art policy on robots, smart mobility or drones, if it fails to include culture in the equation, then it would create an unsustainable state of affairs. Put simply, technologies solve problems, but they do not provide meaning – only culture can do that. And, in terms of social cohesion, what

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34 Cf. Web Foundation (2017b: 8).

35 National Institution for Transforming India (2018).

36 Cf., for example, Endeavor (2018: 5), which focuses on the situation in Latin America.

37 Siminyu (2017).

38 The expression "creative divide" is used here to denote a – hitherto unseen – situation of increasing inequality between the North and the South in terms of the possibilities open to artists and creators.

will be the impact for countries – in both the North and South – of having no cultural expressions of their own?

III) AI, ethics and public policy

As we have seen in the previous two sections, AI is an extremely powerful tool, whose effects will be increasingly felt in the creative value chain and the development strategies of all countries. In this third section, we will examine the possible impact of AI on ethics, fundamental rights and the public sphere.

1. The importance of creating an ethical framework for AI

Ethical considerations are playing an increasingly important role in the debate on AI. The fact is that automated applications are becoming more prominent in all areas of social life and there is a growing risk that, due to the way they have been built, these systems will make decisions that could negatively affect a great many people. Indeed, the design of the algorithms, and even the selection of the data that make up the input for the machines, can conceal gender, race and other biases and thus amplify the prejudices of those who designed the application. This could lead to discrimination against certain groups or to selective censorship of content.

A case in point is the international beauty contest *Beauty.AI,* which in 2016 invited participants from all over the world to send their photographs to be judged by an automatic system: out of a total of more than 6,000 people from 100 countries, almost all of the 44 winners turned out to be white – only one was dark skinned. This merely showed that the dataset used to train the machine did not contain enough people of colour and, therefore, was biased.[39]

Algorithms can also reinforce gender stereotypes. This is quite obvious in the case of automatic translation systems, many of which operate based on machine learning. If we translate the expression “O bir bilim adamı” – which in Turkish means “he/she is a scientist”, without defining the gender – into English, Google Translate comes up with “he is a scientist”. Now, if we translate “O bir hemşire” –“he/she is a nurse” – Google gives us “she is a nurse”. So the machine appears to believe that certain occupations and jobs are carried out by men and others by women. We can also find gender biases in search engines: for example, if we Google “successful person”, the images section will show mostly photos of men celebrating, and very few women.[40]

In recent years, these types of challenges have been extensively debated. It has been private foundations and even the large platforms that have insisted on the need to draw up an ethical code covering AI application programming, in order to prevent biases and other dangers. The most noteworthy declarations and manifestos in this area include the Asilomar Principles (Future of Life Institute),[41] the Toronto Declaration (AccessNow Foundation), [42] the Global Initiative on Ethics of Autonomous and Intelligent Systems (Institute of Electrical and Electronics Engineers),[43] the tenets of

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39 Cf. Levin (2016).

40 Cf. Vleujgels (2018).

41 www.futureoflife.org/ai-principles.

42 www.accessnow.org/the-toronto-declaration-protecting-the-rights-to-equality-and-non-discrimination-in-machine-learning-systems.

43 https://standards.ieee.org/develop/indconn/ec/autonomous_systems.html.

the Partnership on AI (a foundation made up of large platforms),[44] Google Principles on AI[45] and the DeepMind Ethics and Society principles.[46] The general agreement is that AI must be designed in the most transparent and explainable way possible,[47] while maintaining a human-centric, non-discriminatory and socially beneficial approach.

2. Is it possible to create an ethical framework for AI without mentioning culture?

However, this consensus view on what needs to be done from the ethical standpoint may be somewhat simplistic. First of all, in a sense, biases are impossible to completely eliminate. For a start, the input data are by definition limited and therefore the selection will always show a bias, no matter how abundant the information available. Moreover, any technology serves to solve a specific problem for a particular group of people, and – like culture – necessarily bears the mark of its creators. Therefore, by calling for programmers themselves to be proactive and eliminate all possible biases from IT developments, many codes of ethics are asking for something that is unfeasible. Indeed, leaving aside intentionally malicious biases, no one can be fully aware of their own stereotypes, whether personal or cultural – unless they are pointed out to them by a third party.

What is more, in the machine learning variant known as “deep learning” – which operates using artificial neural networks – it may prove extremely difficult, even for the computer scientists who designed the technology, to understand how and why the machine has reached a certain output. Consequently, many of these systems end up becoming veritable black boxes whose functioning may prove to be opaque and unpredictable. In such cases, there is very little that could be done in terms of transparency and explainability, and another type of control is clearly called for.

In addition, the risk of discrimination and censorship does not derive solely from the way in which AI systems have been designed or fed, but also from the way in which companies integrate them into the user experience. For example, it is quite telling that virtual assistants tend to have women’s names, such as Cortana, Alexa or Siri. This has nothing to do either with the algorithms or the data or the programmers. Instead, it has to do with the gender stereotypes prevalent in the tech industry – in this case, with women being seen as little more than glorified secretaries, in a male-dominated sector.

Once again, what may be missing from the discussion is a cultural perspective. Besides a few fleeting references to “cultural diversity” that can be found in the texts of The Global Initiative on Ethics of Autonomous and Intelligent Systems and the Asilomar Principles, documents on ethics for AI tend to overlook the variable of culture, which means that the directives contained therein are more often than not mere declarations of intent without concrete application in a world characterized by heterogeneity. Indeed, how are we to understand the expression “socially beneficial AI”? According to what values? For what groups of people? Under what conditions? And at what time? Would an application that in the short term makes users’ lives easier but in the long term leads to supply concentration be considered beneficial or not? In short, who would define what constitutes this social benefit, on the basis of which algorithms would have to be designed? At any rate, if culture – in all its richness and diversity – is not explicitly

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44 www.partnershiponai.org/tenets.

45 https://blog.google/topics/ai/ai-principles.

46 www.deepmind.com/applied/deepmind-ethics-society/principles.

47 A system would be transparent if it allows experts to understand how it works. And it would be explainable if it is capable of describing how and why it came up with a particular output.

included in the equation, then what ends up happening is that it reappears in the form of biases.

3. It is not just an ethical framework that is needed but also public policies

This is not to say we should give up trying to achieve better AI. However, we have to acknowledge that the debate about the ethics involved should not just focus on the concerns put forward by private foundations and the large platforms but must also incorporate the views of a broad spectrum of local stakeholders, from all sectors, in both the North and South. And instead of being limited to abstract recommendations, declarations on AI should include concrete proposals, many of which have already been outlined by multilateral organizations. In that regard, the principles and objectives of the 2005 UNESCO Convention, as well as the Operational Guidelines on the Implementation of the 2005 Convention in the Digital Environment and the UN Sustainable Development Goals could serve as an exceptional guide.

If such a path is not followed, there is a risk that the debate on AI and fundamental rights will be monopolized by private interests. Many of the current declarations seem to presuppose that the large platforms will be able to self-regulate and self-limit – despite the fact such a hypothesis is unrealistic, particularly in light of the Cambridge Analytica data scandal.[48] The codes of ethics proposed by the large platforms may serve as a set of basic guidelines for the work done by their programmers, or as a presentation of their corporate values, but they are nowhere near sufficient to establish solid, sustainable and culturally diverse governance of AI.

At this point, it is essential that we introduce the factors of auditability and accountability – which has to do not only with ethics, but also with the legal and public interest-related aspects of AI. While transparency and explainability are difficult to achieve in cases such as that of deep learning, what could be developed are mechanisms to audit the outputs of an AI, in the same way that the effects of a new drug are measured before launching it onto the market.[49]

At any rate, we should avoid falling into the trap of thinking that the algorithms themselves are responsible for any unintended consequences. If it would be strange to pay an AI royalties, as we saw in section I), then it would not make much sense either to hold it accountable for breaches of ethics. In any case, what kind of punishment could be meted out to a machine?

The guilty parties are never the technologies but rather the people that exploit them. So, instead of being limited to a mere code of ethics – which at best can provide a partial list of good practices, but not accountability – in the future, it will be vital to create multi-stakeholder processes that enable the formulation of policies and measures to safeguard the public interest and establish clearer degrees of responsibility in cases where the use of technology produces unintended consequences.

Conclusions

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48 Cf. Harris (2018).

49 One possibility would be to send successive inputs to measure the type of outputs produced by the machine, as one programmer did to obtain metrics about the political videos recommended by the YouTube algorithm (see Lewis and McCormick, 2018).

AI is an extremely powerful tool, but the initial optimism aroused by any new technology should not lead to false hopes. It is true that AI can help to empower numerous creators, make the cultural industries more efficient and increase the number of artworks, which is in the interest of the public. However, there are still very few artists and entrepreneurs that know how to use tools such as machine learning. In addition, the commercial logic of the large platforms may lead to increasing concentration of supply, data and income and to the impoverishment of cultural expressions in the long term. In such a context, the public sector will be in danger of completely losing agency on the creative scene.

Furthermore, in a tech world dominated by the United States and China – and to a lesser extent by Europe, Israel, Canada, Japan and the Republic of Korea – there is a risk of fomenting a dual divide, technological and creative, which would result in the increasing decline of the countries of the South. In addition, the lack of inclusion of culture in national AI strategies – in both the North and South – could mean that countries no longer have any cultural expressions of their own, which would end up damaging the social fabric.

On top of this, many private foundations and even the large platforms have promoted ethical declarations and principles on AI, in order to reduce the algorithmic biases that harm certain groups of people and to achieve the greatest social benefit. However, these efforts raise a number of problems. First of all, pursuing total transparency and explainability in the deep learning variant may prove to be an extremely complex task. But the most serious challenge is that the perspective of culture does not play a central role in these ethical declarations, which makes it difficult to move forward in a specific direction – indeed, a “socially beneficial AI” is often a nebulous concept with no concrete application. Given that any technology is applied in order to fulfil the purposes of a particular group of people, it will not always be possible to eliminate biases, since they are really part and parcel of cultural differences. Such biases and stereotypes are not only embedded in the data or in the algorithms, but also in the way in which companies and users interact with the machines. Therefore, it will be essential to develop strategies that go beyond a merely abstract code of ethics and design public policies to ensure that AI systems – and the actors that exploit them – are auditable and accountable.

Many of the risks posed by AI can thus be explained by the failure to factor into the equation the perspective of culture. Indeed, if local creativity, the cultural industries market, the viewpoint of actors from the South, the plurality of voices and meanings, among other key aspects, are not incorporated, then the difficulties will only increase.

In order to tackle the abovementioned challenges, it will be necessary to implement a comprehensive and coordinated strategy, which could be organized around the four core themes detailed below:[50]

1. Strengthening the cultural value chain

In order to consolidate the value chain in an era dominated by AI, it will be useful to address each one of its links or nodes, as well as the data ecosystem as a whole.

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[50] The following recommendations have been drawn based closely on the principles as well as the policies and measures presented in the Operational Guidelines on the Implementation of the 2005 UNESCO Convention in the Digital Environment.

First of all, in the area of **creation,** it will be necessary to design policies and measures to:

- Strengthen the skills of artists, in AI and related disciplines.
- Provide spaces dedicated to digital creativity and innovation in AI that enable artistic experimentation and collaboration such as incubators and laboratories.
- Encourage debate on copyright in the AI era, in order to ensure fair remuneration and adequate recognition for artists.
- Rethink the status of the artist in the age of AI, in order to bolster it.
- Provide a more agile process for electronic legal deposit systems, for artists to register their works produced on a large scale using AI.
- Ensure women's participation as creators of AI.

In terms of **production**, it will be essential to:

- Promote training and R & D for creative industries working with AI.
- Prepare an AI toolkit for the creative industries.
- Encourage the emergence of economically viable local AI start-ups, and prevent the formation of monopolies or oligopolies in this field.

To strengthen **distribution**, it will be necessary to:

- Promote the development of a new market for art made with AI.
- Make sure that AI and automatic algorithms guarantee sufficient visibility and discoverability for local cultural goods and services.
- Update antitrust laws in the digital environment and monitor mergers and acquisitions that place the diversity of suppliers at risk.

With regard to **access**, it will be helpful to:

- Encourage public cultural institutions to use AI tools to provide better access to diverse cultural expressions.

As an issue that cuts across the entire chain, the consolidation of the **data ecosystem** is one of crucial importance. It would therefore be advisable to:

- Strengthen the capacity of States to produce data and cultural statistics, in cooperation with local and international organizations such as the UNESCO Institute for Statistics (UIS), the International Telecommunication Union (ITU), W3C and the Web Foundation.
- Promote an open data policy, designed to supply statistics and other relevant information to local players.
- Create mappings of AI projects in the national territory, especially those focusing on culture and the arts.
- Put in place prospective studies to analyze the impact of AI in the creative economy, not just in aggregated terms – rise in productivity, new business being created – but also in more detail: which jobs will be most likely to disappear or will be at risk, in which creative industries, when this may happen, what the transition will be like, among other issues.
- Ensure that large Internet platforms and AI projects (national and international) contribute to the sustainability of the cultural ecosystem, for example through data sharing.

2. Balanced flow of cultural goods and services

Bearing in mind that the wide-scale application of AI may bring about a “creative divide” and thus an imbalance in the flow of goods and services between countries of the North and South, it will be important to:

- Include the perspective of the countries of the South in the international forums on AI.
- Encourage cultural projects dedicated to AI, through the International Fund for Cultural Diversity (IFCD).

3. Integration of culture into sustainable development frameworks

If culture is not included in national AI policies, the sustainability of development may be at risk. It thus becomes essential to:

- Incorporate the principles and objectives of the 2005 UNESCO Convention into national AI plans.
- Involve ministries of culture in discussions on AI strategies.

4. Fundamental rights, ethics and public policy

In order to promote diversity and respect for fundamental rights, it will be vital to:

- Foster a high-level debate – governments, private sector and civil society – on the way in which algorithms, the datasets used as input and the wide-scale integration of AI-based solutions may affect equality of opportunities, particularly in terms of gender, race and religion.
- Guarantee that AI ethical frameworks take into account the principles and objectives of the 2005 UNESCO Convention, as well as the UN Sustainable Development Goals.
- Go beyond just issuing declarations on ethics and develop a public policy framework to ensure that AI applications with an impact on cultural and social life in general are auditable and accountable.

Technology will never offer a magic solution to anything, because, however much we insist on the intelligence of machines, they have no will of their own. The fact is that it is not machines that bring about change but rather the people who use them. If the cultural sector fails to act quickly, other players will step in to take its place – as the large platforms are already doing. If this trend continues, the current problems will only intensify. Culture will then run the risk of becoming, once and for all, just another commodity – lacking in identity, values and meaning. And such a shift may shake the foundations not just of the cultural sector, but of society as a whole.

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