Committee on Political Affairs and Democracy

Need for democratic governance of artificial intelligence
Rapporteur: Ms Deborah Bergamini, Italy, Group of the European People's Party

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Speech by Ms Birgit Schippers, Senior lecturer in Politics, St Mary's University College, Belfast
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Artificial Intelligence (AI) presents a challenge to democratic governance. This challenge stems from two interrelated issues. These are:

1. The specific technological capabilities of AI-based and AI-driven systems

2. The politics of AI usage

Developments in the field of AI have introduced novel technological capabilities that profoundly impact on the way we conduct our lives. These capabilities include the capacity for automated and increasingly autonomous decision-making by intelligent systems; and the capacity to make predictions and draw inferences about humans and human lives.

We can harness these capabilities to improve and enhance many aspects of our lives. But I am concerned that these capabilities also provide the tools to interfere with the procedures and processes of democracies and undermine democratic institutions. The use of AI, and its potential for abuse by States and state agencies, and by private corporations, poses a real threat to the institutions, processes, and norms of our rights-based democracies. It is a risk to the principles of good governance, as outlined by the Council of Europe.

AI's challenge to democratic governance

Democracy is a discursive practice. Participation in this practice, in democratic deliberation and decision-making, must be underpinned by transparency, accountability and equality; these central tenets, together with the principles of legitimacy and legality, are the cornerstones of rights-based democracies. But they are at risk from the structural, unfettered and unaccountable, and often hidden, interferences of AI-based technology into our democratic processes and institutions. I wish to highlight three aspects that illustrate these risks:

First, machine-generated decision-making is difficult, even impossible for humans to trace or reconstruct. When unaccountable, black-boxed algorithms take decisions that affect people's lives, especially in sensitive areas, there is a serious danger to the democratic values of transparency, accountability and equality, and to the principle of democratic legitimacy.

Second, AI facilitates abuses of power by States and state agencies: as a dual-usage technology, it can be deployed to undermine important human rights that are integral to the functioning of democracies. For example, AI-driven blanket surveillance measures threaten our right to privacy and to freedom of expression, while automation bias, which is the acceptance of machine-generated decisions, either without or with limited human control, undermines transparency and accountability. AI systems can produce profoundly unjust, unfair and even discriminatory outcomes that undermine democratic processes and institutions, and that impact negatively on individuals, especially on individuals from vulnerable communities.

Third, public-private collaborations in AI and its use in sensitive fields, such as public order; security and intelligence; border control, but also in research and development, blur the boundaries between the responsibilities, processes and institutions of democratic states, and the interests of private corporations. Further, the availability and use of AI-based software facilitates abuses of power, e.g. through the micro-targeting of voters and the interference into democratic elections.

Establishing democratic governance of AI

We need measures that safe-guard and strengthen democratic institutions, processes and practices, and democratic norms. I want to propose five steps that are intended to ensure the democratic governance of AI.

First, AI's impact on the principles and practices of democratic governance, on democratic institutions and processes, requires a much more prominent and wide-ranging conversation than is currently taking place. I welcome the Council of Europe's activities in this field, but I would like to see much more space, time and effort given over to similar initiatives, reaching a broader range of participants in the democratic process.

Second, to counter the negative impact of AI usage requires the championing of a democratic ethos: it entails the ongoing engagement with, and assertion of, democratic principles and values, and the challenging of a discourse that prioritises AI-generated convenience over democratic principles and procedures. Further, civil society and individual citizens must be educated for the digital age. This should mean more than developing a

skills-pipeline for our economies. Rather, it requires a citizenry that is aware of the ethical and political challenges of the digital age.

Third, it is essential to protect and guarantee those rights that are key to the democratic process. This entails a focus on the meaning and significance of human rights in the digital age and the need to update (and where necessary complement) existing human rights protections.

Fourth, it is also essential to safe-guard those processes and procedures that ensure the effective functioning of our democratic institutions, including their legality and legitimacy. This includes in particular the effective regulation of the electoral process in the digital age, and the compliance of Big Tech corporations and other actors with electoral laws and procedures. It also calls for a careful attention to public discourse that upholds the right to freedom of expression while simultaneously protecting against misinformation campaigns and digitally distributed hate speech.

Finally, we must ensure effective regulation and compliance of those who design and develop AI. This includes the licensing of existing and new applications; an effective framework for corporate and research governance; and the disclosure of conflicts of interest on the part of researchers who are funded by tech companies and who participate in public discourse.

In conclusion, participation, equality and human rights are essential to the meaningful and effective functioning of our democracies. Democratic practices, processes, and institution must be protected. Given the speed of development in the field of AI, this calls for constant scrutiny and attention. AI design, development and usage requires democratic governance so that human flourishing and societal needs, social impact, and the protection of citizens can be upheld.

Speech by Mr Paul Nemitz, Principal Advisor, "Strategies for cross-cutting justice policies and legal actions", Directorate-General for Justice and Consumers, European Commission

I will just bring you up to date on the work of the European Commission relating to AI. In April 2018, we adopted a strategic communication on AI for Europe which contains three parts:

- First, industrial policy, namely more research, more money spent to develop AI in a competitive way. In Europe we have to catch up with the United States and China in this area, but also to foster the use of AI by private and public parties.

- Secondly, the transformation of labour markets. We must qualify all people to use AI in the context of work, but certainly also what Ms Schippers says, in the way that people understand and can be critical towards this technology when necessary.

- Thirdly, the law and ethics of AI. We need a framework which ensures that this technology is developed and deployed in full respect not only of our values but also of our written law, fundamental rights, rule of law, democracy and the full body of secondary law. Let me be very clear on this. This technology will contain many of the rules according to which we live, it will take decisions, so if that is so, then we must test the functioning of these programmes in their functioning context against all secondary law. The principle must be that nothing can be legal if carried out by AI as an automation process if it would be illegal if it is carried out by human. I think this is a very simple basic principle and I refer to my article on Constitutional Democracy and technology in the age of AI, where I explained this further.

Under the heading of democracy and AI, first of all I think that it is a very important step moving from discourse and non-binding instruments -the big discussion on ethics and self-regulation- to the regulation by law. Here, the principle of essentiality applies to draw the line between what can be left to self-regulation and ethics, and for what requires law. The principle of essentiality is common to many legal systems of democratic societies. We see it in European Union (EU) law, in the law of many EU member states, of law system of the United States (US) and of the United Kingdom, fortunately, as we have now recently seen in relation to BREXIT. It prescribes that whatever matter is essential for society must be regulated by law. And a matter is essential if either fundamental rights are touched upon or if it pertains to the key elements of the good functioning of society as a whole, for example the functioning of democratic process. The key question which we need to address relating to AI is which matters touched on by AI are essential to society, and which matters therefore must be regulated by law, and which matters are not essential and therefore can be left to ethics and self-regulation.

This is exactly the point at which we have arrived in the European Commission following the strategic communication adopted in April 2018. We set up a high-level group on AI. 52 independent experts who came up with a code of ethics and identified issues related to AI, and on the basis of this, a catalogue of ethics which we are still trying out in a voluntary process until December. It is already clear that on the basis of the knowledge thus created, we will make a legislative proposal within 100 days of the European Commission taking office. This is at least a very clear orientation of the new President-elect of the European Commission, Ms von der Leyen, as she has explained before the European Parliament in her political orientations. This proposal will be guided by the principle of essentiality. It will look at ensuring that this technology develops in line with our values, but it will also look at the other very important interests of Europeans and the European Union, namely the development of science and competitiveness. So, it will be, like for example the data protection regulation, a multiple purpose regulation which serves both the internal market in the European Union and its economic development, but also the protection of fundamental rights, rule of law and democracy.

On the question of democracy, there are of course many contexts in which AI is already used in democracy. It will be very important to make sure that everybody who is communicating, in particular in a political context, knows whether he or she is communicating with a machine or a human being. Democracy does not function if we do not know whether our discussion partner is a machine or a human. Transparency here will be very important. AI is becoming a technology together with data, which is essential for winning elections. I am member of the Council on extended intelligence of the Massachusetts Institute of Technology (MIT) and the Institute of Electrical and Electronics Engineers (IEEE), and there I can just quote to you one very knowledgeable person in this field. He told me that in 10 years AI will win all games. I asked him, what does this mean? And the answer was stock market and elections. Games being understood as rule-based relationships between many people.

I think it is very important that we see this potential and it is already clear that when we come to elections, we must look at this potential. The European Commission, in the runup to the European elections recently adopted a whole package of measures to protect our elections, ranging from specific data protection rules for political parties, how can personal data be used and analysed in the context of campaigns. If we look to America this seems to be a key element of winning elections, right to the question of how we deal with fake news, propaganda from outside the European Union and so on. In all these contexts AI plays a role. This package did not mention AI specifically, but of course it applies also to AI.

There is another key consideration. There is already a lot of law, and I mention again the General Data Protection Regulation (Regulation n° 2016/679, GDPR) which applies very clearly to AI, even if it does not mention it. Whenever AI processes personal data, the GDPR applies, which means that we already have a lot of information rights and transparency rights in the context of personal data being treated by AI. The intellectual work for our new legislative package on AI will certainly be inspired by looking what there is in GDPR for personal data. Should we extend those principles and rights in relation to AI to the space of non-personal data in which AI operates, because for personal data we already have those rights? That will be one of the questions to answer.

A last remark, and I do this more as a scientist, this is not a European Commission position, but more my personal thinking: We must be very conscious that so far, in the exercise of public power, we have a number of member States of the Council of Europe and of the European Union which already in their general administrative law, namely the law which guides governmental administrations, have clauses which say that certain decisions can be taken in an automated way. Often, these clauses say that automation needs a special legal base and cannot be extended to areas where exercise of discretion is necessary. If you look for example at Article 35 A of the German law on administration (VwVfG), this is what is says. With these older clauses we have all been in touch, directly or indirectly, with automation. If we get a parking ticket today, these procedures of administration which lead you to be obliged to pay 20 euros, are based on these clauses. But whether these clauses are actually sufficient to cover programmes which are more than automation, namely AI, is an open question. In contrast to automation, you cannot foresee in all cases the outcome of the decision of the programme, because the programme has a great advantage, namely it learns, therefore we may need new, additional empowerments to use such programmes in public administration. The programmes can also mutate and as we have learned in these programmes of machine learning and predictive computation, the outcome is not mechanical, like it is in automation. The law must thus set out the empowerment but also the conditions of operation of these programmes in public service.

From a point of view of democratically binding administration and governments to the law, it is going to be very important to recall that these clauses providing a legal basis for simple automation, are not enough, and that in our domestic laws – because these programmes are so powerful and because they will be doing important things in the police, in the judiciary maybe, in education, in health, in all these very important fields – we need specific legal empowerments/legal basis for these programmes to be used, when these programmes touch on rights of people and in the exercise of power.

We need to make sure that in public service these programmes are used with democratic legitimacy and in the context of a legal basis. There will also be a need to spell out more specific needs of these programmes in the context in which they will be used.

A last word on explainability of the programmes and on the question of general and sectoral regulations of these programmes and of this technology. The question of whether there should be general legislation or whether the issue should be approached only sectoral legislation is a classic issue in technology regulation. We had the same discussion before GDPR. A lot of those in industry love to say that 'we do not know the details', and the details are only clear in the sectoral context, that is why we need specific legislation for sectoral context only. We cannot have general rules. And in the case of GDPR, there was an extreme lobbying in that direction because indeed in the United States, privacy and data protection is regulated strictly on a sectoral basis. In the US, there are special rules for student privacy, special rules for credit data, special rules for medicine. Data protection is not regulated horizontally on the federal level and only very recently and very rarely there is a horizontal legislation in states, as in California and the State of Washington. But in the European Union we decided on a General Data Protection Regulation for all sectors, thus horizontal legislation, because from a user point of view, from industry, individuals, citizens and human rights perspective, it is much simpler, and it does not leave loopholes. If you start a sectoral regulation only, lots of loopholes will remain unregulated. This is exactly the aim of the lobby. We have the same discourse right now. If you look at what the head of Google recently said, exactly this: 'only sectoral regulation of AI, we do not need anything else.

This a very American debate, but the European Commission said that we will make a legislative proposal which will be general, like in GDPR. We have the same discourse and the result is the same. We first need to put down the common rules in a transparent way, for business and for citizens, to keep things as simple as possible and to have the same rules wherever this technology is used, as a basis. This does not exclude that later on, as with data protection, specific rules will be necessary. But first trust will be based on general rules.

And on explainability, I would say this. We have had this discussion already before 2018, namely how do we deal with the claim of technologists who also want to sell this technology and some of those who develop it, that this technology is so good, and makes such great decisions that we have to content ourselves with not understanding how it works. The European Commission, very early, in the paper of 2018, took a very clear view on this, saying this is not possible, we must have decisions explained, in particular when they are taken by public sector or governments. Why? Because we live under the rule of law where a judge must be able to check on the decisions of governments, and therefore government decisions must be motivated. Motivation is a key principle of democracy and the rule of law, and if there is no motivation, the decision of the government is already illegal, and therefore we have taken a pretty strict view on this. And I observe that more and more now, we get the exactly opposite message from developers and scientists in industry, namely we can do explainability, yes, do not worry.

I think this is also a classic example of how we have to guide technology development, and make it very clear what the requirements are for the future use of this technology, and that we do not want a technology that brings us back before Enlightenment, where we had to accept what church and God were telling us, and the new church is going to be AI and Google and so on. I think that this is something very clear and we should direct research and funds and interests in the right direction, namely explainability of this AI technology and the decisions it takes.

Speech by Mr Yannick Meneceur, Information Society and Action against crime Directorate, Directorate General Human Rights and Rule of Law, French magistrate on secondment to the Council of Europe

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Luc Julia, the co-creator of Apple's smartphone personal assistant "Siri", somewhat provocatively entitled his book "Artificial intelligence does not exist". This provocation is an invitation for us to question the true nature of this technology, which since the mid-1950s has been skilfully marketed by using anthropomorphism to arouse people's interest and attention. Perhaps this artificial intelligence ("AI")[1] should simply be redefined in the light of the underlying technology: computer science. The programmes implemented (and their component algorithms) all have something in common: they rely on a logic-based formalism to process data – with all the power of mathematics, but also with its limitations. People are now speaking out to express concerns about what could be regarded as a new regime of truth and of "algorithmic governance",[2] as well as about the manipulations, biases and loss of human autonomy.[3]

The resurgence of "AI"

The enthusiasm about "AI" which has been evident since 2010 might seem surprising, given the lack of of any revolution in the field of fundamental research. Nonetheless, we are clearly witnessing a genuine resurrection of the term, which had not been used by the media since the 1990s, due to the conjunction of two phenomena: the mass availability of digitised data and an increase in computing power. This combination has made it possible to honour the long-standing promise, made in the early days of cybernetics in the 1940s, to derive logical operating rules for computers from statistical processing of the data available in a given environment. Having long been scoffed at by computer scientists belonging to the "symbolic" (or "cognitivist") school, which conceived programming solely as the description of a logical instruction sequence, the "connectionists" were able to prove the relevance of their approach only when new resources became available. For example, machine learning, especially with neural networks, has achieved considerable advances in image or sound recognition. However, these successes should perhaps not have met with such wholesale enthusiasm because the statistical processing of data is in reality not easily applicable in all types of environments with equal effectiveness. Evgeny Morozov compares the situation to someone having invented a hammer who now thinks all problems should be transformed into nails.[4]

Although "AI" has managed to beat the best human players at the game of Go, it is perhaps not capable of dealing with more complex phenomena, involving unstable relationships, such as social realities.[5] Moreover, it requires us to accept a new form of truth, vested with all the authority of mathematics, which can take the place of our own judgment not in a top-down authoritative manner but in a much more "horizontal" one that involves giving us advice or opinions or nudging us in a certain direction. This therefore supposes that we voluntarily surrender part of our free will for the sake of convenience and safety, for example being guided by a navigation system in our car, accepting a suggested choice of film or music, agreeing to read a feature article that deals with particular social or pollical issues. But what part of ourselves are we surrendering?

Democratic processes reshaped by the digital age?

There is general agreement that technological progress should not undermine our democracies. However, the *Cambridge Analytica* case has demonstrated the effectiveness of new forms of propaganda using microtargeting and all kinds of algorithms, including "AI". If designed and used responsibly "AI" could undoubtedly help safeguard human rights, democracy and the rule of law. Yet, at the same time, society as a whole currently has only ethical recommendations in this field and a framework of legal rules (such as the European Convention on Human Rights or Convention 108+, as well as the GDPR) which, while their relevance is not being called into question, remain complex to apply. In this context, a more general problem of democratic consent arises: the digital society is being imposed on us as an inevitable consequence of progress, but have we been allowed time for reflection, so as to determine together to what extent we are willing to give way to such progress and to what extent we can – legitimately – reject it?

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[1] The acronym for artificial intelligence will be used between quotation marks for editorial convenience. Not all the technologies covered by this term constitute an autonomous entity and, to avoid any form of anthropomorphism, it has been decided to subsume the more appropriate terms "artificial intelligence tools" or "artificial intelligence applications" under the single term "AI" placed between quotation marks.

[2] A. Rouvroy and T. Berns, Algorithmic Governmentality and Prospects of Emancipation: Réseaux 2013/1, n°177, 2013, pp163-196.

[3] Declaration by the Committee of Ministers on the manipulative capabilities of algorithmic processes, adopted by the Committee of Ministers on 13 February 2019 at the 1337th meeting of the Ministers' Deputies.

[4] Quoted by D. Larousserie, Contre le "solutionnisme" numérique, Le Monde, 6 October 2014.

[5] P. Jensen, Pourquoi la société ne se laisse pas en équation: Editions du Seuil, 2018.

Let us return for a moment to the very notion of democracy, which encompasses some very different institutional practices and procedures all having the same objective: that of equality, emancipation and individual autonomy within a single collective project. Whether it involves elected representatives deriving their legitimacy from an electoral process or different kinds of social movements, collective campaigns or expressions of opinion, the exercise of democracy is no longer the sole preserve of government but is also a matter for more or less organised forms of "civil society", such as associations or collectives. Our aim here today is not to determine what constitutes good or bad use of the notion of democracy. We will simply try to analyse how it is impacted by digital tools, including "AI". However, we still need to define the different meanings of these terms, so as to distinguish what are mere tools from what is a profound transformation, likely to call into question the deep-seated foundations of our democratic covenant.

Political science traditionally considers that democracy has two dimensions, to which the sociologist Dominique Cardon adds a third. First, there is what is called representative democracy, which is characterised by the designation of elected representatives and was imposed by the great revolutions of the 18th century. In our modern age, representative democracy is such a central principle that we tend to consider it as the only possible form of democracy. Its indisputable strength comes from its electoral legitimacy, but its modus operandi, which were thought to be settled, are again a matter of heated debate. The criticisms voiced vary: career politicians and their disconnect from situations on the ground, the non-representativeness of those engaging in politics, the dominance of majority voting at the expense of minorities, partisan reasoning, and so on. In this context the use of technology is in any event confined to remote voting solutions. However, the impact of "AI" algorithms is not insignificant, since it has been noted for instance that there is a considerable potential for electoral interference.

In view of the criticisms levelled against representative democracy, a second dimension has gradually emerged, with the support of sophisticated communication tools: participatory democracy. This new approach involves proposing that representative institutions should not only rely on the legitimacy of elected representatives but also enable citizens to participate in public decision-making. Over the last thirty years, neighbourhood councils have flourished, national consultations have taken place and participatory forums have been established. Their status is still mainly experimental, but they undoubtedly provide a possible means of improving the quality of decisions, particularly when the citizens are required to justify their proposals. An outstanding example is the work on the Montreal Declaration for Responsible Development of AI, which was conducted through public consultation, under the aegis of academics, and enabled the substance of the instrument in question to be drawn up directly with those who are the users of the technologies concerned. The proponents of participative democracy consider that this type of approach gives decisions on matters of general interest and public policies a completely different type of legitimacy. In this field too, digital tools have been used to support the collection of different types of expression of opinion. The "great debate" in France was an attempt to engage this form of consultation, although the processing methods, which combined the use of "AI" for electronic participation with the physical extraction of information from registers opened in town halls, met with some criticism.[6]

Lastly, the Internet has made us aware that the democratic spirit can manifest itself in a new way, particularly through the social media. Dominique Cardon describes this as "Internet democracy".[7] Everyone now has their own space and can become a part-time commentator. A multitude of forms of commitments, mobilisations, coordinated actions and collective expressions of opinion can be found on the Internet outside of any political, trade union or voluntary-sector channels. Individual Internet users join forces and commit themselves in real time with a few "clicks" or "taps" on their mobile phones. Opinions are expressed in online petitions, "viral" videos, tweets or invitations to participate in rallies by creating "events" on Facebook, for example. Without it being possible to aggregate and summarise their opinions, Internet users "like" one another, share materials, clash with one another and, far from creating harmony, come together with a huge background noise. Has the centre of gravity of democracies shifted permanently towards society itself? What then becomes the greatest threat, apart from the traditional kinds of propaganda that have long been present in the new media, is the addition of artificial voices – not just those of robots created to increase the popularity of published material and to target people potentially sensitive to certain arguments, but also the voices of "AI" robots able to create content. For example, the OpenAI tool was described by its developers as being capable of building credible journalistic quality content, of creating *false* information (*fake news*) on an industrial scale.[8] Not to mention the *DeepFake* algorithm, which is able to produce strikingly realistic fake videos and, for example, reproduce the face of a head of state and make him/her say anything at all. This is technology so complex that Facebook has relied on its community to try to find countermeasures.[9]

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[6] R. Demichelis, Grand débat national : à quoi l'intelligence artificielle peut-elle aider ?, Les Echos, 1 March 2019.
[7] D. Cardon, Digital Culture, Presses de la fondation nationale des sciences politiques, 2019.
[8] J. Wakefield, 'Dangerous' AI offers to write Fake News, BBC News, 27 August 2019.
[9] Mr. Szadkowski, Facebook lance une compétition contre les vidéos « deepfake », Le Monde, September 6, 2019.

The risks of weakening standards of participatory democracy

Originally for the Internet pioneers, who were fervent libertarians, the decentralisation, horizontality and self-organisation were indeed part of a form of political counter-model which clearly set out to dispense with all other forms of political debate. This is how the first general effect of digital technology on political institutions must be perceived: in the utopian, individualistic thinking of the founders of the Internet, its decentralisation first and foremost encourages freedom of expression, spontaneous organisation and criticism of any other form of binding organisation of society, including representative democracy. However, after having raised many expectations, digital technologies are now becoming a disappointment. As a result of their versatility, they lend themselves to uses far removed from what their creators planned and they facilitate means of centralisation and control.

With the rise of the Internet giants, a new form of control over what Internet users have to say has emerged. The journalists' role of prioritising and screening news ("gatekeeping") has been transferred – de facto – to these platforms and, above all, to their algorithms powered by "AI". At the same time, their sole editorial strategy is gaining popularity, increasing the traffic on their web site and scoring the highest audience time among Internet users. This genuine "attention economy"[10] has undoubtedly led to a deterioration in news quality and provided the tools for a new form of propaganda based on micro-targeting. Authoritarian regimes have been able to appropriate these technologies for their own political ends. The Arab Spring and its success in Tunisia probably contributed to the subsequent increased political surveillance of dissidents and the public at large, which grew to an unprecedented extent. China is the best example of this appropriation, with its "Great Firewall", protecting it from outside influences and allowing the unrestricted development of all kinds of profiling, in particular through the use of facial recognition technology, and the ranking of individuals according to a social credit system.

Lastly, it may also be interesting to consider how the spontaneous movements whose success was facilitated by the social media networks have developed. Those occupying public places in particular (Indignados, Occupy or Nuit Debout) as well as the "yellow vests" have succeeded in reflecting people's dissatisfaction but without building sustainable political alternatives. Populist and extremist movements have also emerged on the Internet to funnel anger and protests against governments and institutions and have contributed to the recruitment and indoctrination of other individuals, and even to terrorist acts.

For many, the political promises of the Internet have therefore not been fulfilled and some even consider that they now constitute a danger for participatory democracy. Despite young people's enthusiasm for so-called civic technology (or civic tech), which refers to a set of tools and services derived from information technologies that aims to improve democratic debate and public policies, it is important to keep a close eye on the results of the uninhibited experiments being run, which may produce the exact opposite of the desired effect. For example, open data policies, which are often presented in a favourable light, as a renewal of public scrutiny over the authorities' action, are far from fulfilling their promises: those who are re-using the data must first be capable of exploiting them in an objective manner. Releasing datasets to all and sundry, without taking into consideration their particularities or the risks inherent in inappropriate cross-linking or matching, also entails accepting the new uses to which they are put, without any possibility of oversight or counter-evaluation. And it also means allowing the data industry access to a free source of "fuel", derived from a common good and resold to citizens in the form of services.

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[10] B. Patino, La civilisation du poisson rouge, petit traité sur le marché de l'attention, Grasset, 2019.