

ALGORITHMS, ACCESS TO PERSONAL DATA AND ITS CHALLENGES

ნინო ცხოვრებაშვილი

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Abstract

Artificial intelligence has in particular changed certain processes. Decisions, which impact both the organization and individuals, can be made by algorithms, including for example granting credit, recommending medical treatment, accessing a service. The implementation of AI involves new complexity and therefore generates new needs for control and mastery. There is a wide variety of algorithms used for machine learning. They can be grouped into several distinct categories. Algorithms offer many possibilities, but remain simple sets of instructions. They are created by humans, and therefore can have flaws. According to the recommendations of the CNIL¹, the principle of loyalty must be applied to all algorithms. Any algorithm, whether or not it processes personal data, must be loyal to its users, not only as consumers, but also as citizens. Rhetorical questions: can we speak of „ethics of algorithms“ and how to apprehend these humanized robots?

Keywords: Artificial Intelligence, Algorithm, Data Protection, Privacy By Design.

¹ National Commission on Informatics and Liberty.

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The algorithmic processing of information raises questions. An algorithm is an instruction for solving a problem. Algorithms can be found in many applications, in computer operations, cryptography, resource planning, image processing...

On the internet, algorithms classify information, make recommendations or put people in contact with each other. But if the advantages of algorithmic processing are indisputable, the risks must also be clearly identified. An algorithm is a general method for solving a set of problems. It is said to be correct when it solves the problem posed. Its effectiveness is measured by the precision of the results obtain.

The algorithm makes calculations from the data collected, without any verification of their veracity, accuracy, relevance, suitability for the intended purpose. In the end, the data controller does not know how the research is conducted and by what method the profiling was carried out. An important question is: How to control the machine if its reasoning escapes man?

If we take the example of Google's search engine, on the assumption that this company would like to promote its own services by algorithmic decision of its engine: human activity is encrypted to be categorized without awareness of the individuals concerned. The public and private actors behind algorithmic processing are also varied (States, commercial companies) and their purposes (fight against crime, improve knowledge of individuals). According to the authors, „algorithmic governmentality“ is defined in three stages:

- Collection of massive amounts of data (big data);
- Data processing;
- Knowledge production (data mining);

This third part is that of the use of this statistical probabilistic knowledge for purposes of anticipating individual behavior, data mining. (Rouvroy 2013 163-196)

Indeed, data mining makes it possible to aggregate knowledge about individuals and to profile them, for example to condition the obtaining of a pricing of an insurance contract, the suggestion of purchases on sales sites. online, etc.

This type of profiling of individuals risks violating fundamental rights and being a source of discrimination. In our daily life, more and more, the machine decides for the man. But how do you make sure it is relevant? A large part of our behavior is already captured and analyzed. Even if one thinks that algorithms are used simply to aid law enforcement, one has to question how checks on individuals are carried out in this way. The means are

just as important as the ends.

Companies whose policies are based on the use of algorithms may be held liable in connection with possible abuses of market rules. In the financial sector, market abuse may have been carried out in the context of high-frequency trading operations (ALGORITHMES, 2017, 92).

In the case, an algorithm was invented to achieve a market manipulation that is admittedly classic but carried out on a scale which until then was technically unthinkable. It was about the strategy of marking the close. Practice of posting and then canceling many orders for large quantities in the book, forcing other traders to waste time processing and interpreting these orders. This type of tactic is made possible by algorithmic trading.

The algorithms can be used for anti-competitive practices. This is a situation in which firms coordinate their behavior to increase their profit. A first type of agreement operating through an algorithm is given to us by an American case: Topkins. It is about a seller of posters on Amazon Market Place who used with its competitors a price algorithm allowing them to adjust instantly to any factor leading to differences between them. 'an agreement between the firms concerned but was based exclusively for its operation on a price algorithm. If all the „competitors“ increase their prices, the optimal strategy is to reduce theirs as discreetly as possible.

Through machine learning, the algorithm changes its code and parameters on its own. Machine learning refers to the algorithm's ability to change itself as part of a learning process. The specificity of these algorithms is the ability to be autonomous in their initial coding through experience. This experience is accumulated through market interactions.

Deep learning allows very large amounts of data to be analyzed and allows a machine to correct its internal parameters on its own to improve its performance (Marty, 2017, 3-8).

The use of algorithms by the creative industries can have more or less significant effects on the development of a rich and diversified offer. To preserve the individual's free choice and to allow them to contextualize personalized recommendations, it is necessary to ensure a certain degree of consumer information on the driving mechanisms of the algorithms. A few systems, like IBM Watson with the Jeopardy game, have publicized advances in artificial intelligence (AI). These large systems are complex, associating multiple algorithms, according to different technologies. For their development, especially over the past two years, the American digital greats have been investing billions in computing and storage capacities.

Statistical algorithms, as a means of profiling, create the conditions for a human-machine dialogue simulating a real dialogue between a user and an expert. Statistical algorithms only recycle information to the sphere of the user. Companies seek to create ecosys-

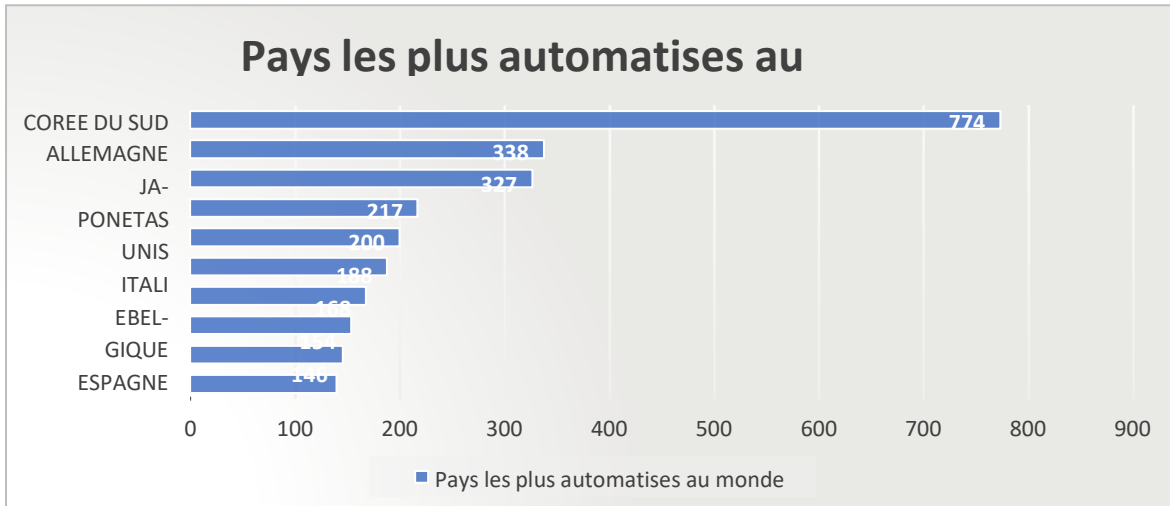
tems around algorithms, drawing on communities of AI developers and researchers. IBM's specialized healthcare division, the Watson Developer Cloud, is a platform that brings together 400 Watson Ecosystem partners to develop products. In January 2016, for example, Sopra Steria announced the creation of an IBM Watson cognitive skills center (Rapport – Algorithms, 2016).

To imagine the impact of AI on the work of the future, we must study the history of technological development. The research results are different. Oxford University researchers Carl Frey and Michael Osborne published a study of different types of jobs to calculate the probability of automation among them. This study concluded that 47% of American jobs were threatened by automation in the next 20 years. More recent work carried out by researchers Melanie Arntz, Terry Gregory and Ulrich Zierahn believe that Frey and Osborne's approach by professions does not give the possibility of restoring a real image. She estimates that around 9% of jobs could be lost due to robotization and the adoption of AI tools replacing human labor. (Rapport d'information, 2019)

Another study by France Stratégie estimates for France that the number of jobs that can be easily automated by 2025 would be around 3.5 million, or 15% of total employment, while those that cannot be automated at all amount to more than 9 million.

According to the latest publication from the International Federation of Robotics, in France there is a lower density of industrial robots than in its European neighbors. There were 154 robots for 10,000 employees in French industry, compared with 200 in Italy, 188 in Belgium and 168 in Spain, respectively. (Executive Summary, 2016, 13-16)

The use of algorithms in the verification system poses challenges not only for the industry in which they operate, but also for society. Above all, the impact of algorithms on the development of technology and human rights is particularly interesting. Of the many definitions, we can choose the most striking: AI is a scientific discipline (process) aimed at performing cognitive processes by machines (computers and computer programs). AI systems can only be software, (facial recognition) or be integrated into hardware devices (self-driving cars). The AI system has many advantages: speed of execution, accuracy, costs ... but it carries in itself a negative and risky effect for non-respect of privacy. According to 1,000 US business executives surveyed, more than 20% of companies use AI and their organization plans to improve this system. Most executives know that artificial intelligence (AI) has the power to change almost everything in business and could contribute up to \$ 15.7 trillion to the global economy by 2030. But what many business leaders don't know is how to deploy AI, across the organization, to create maximum value. (2019 AI Predictions, 2019)

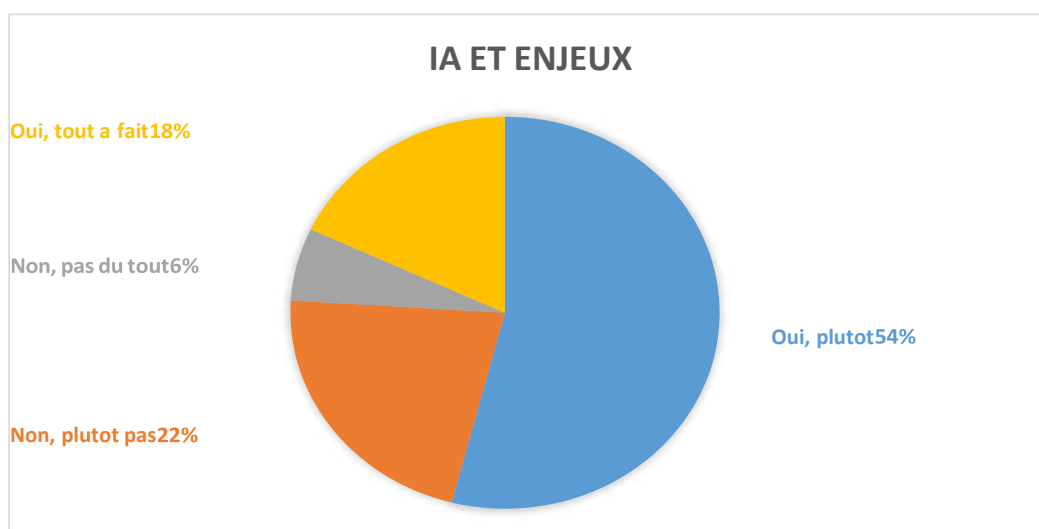


Source Pays les plus automatisés au monde, secteur industriel 2018

Algorithms in the verification system and data protection

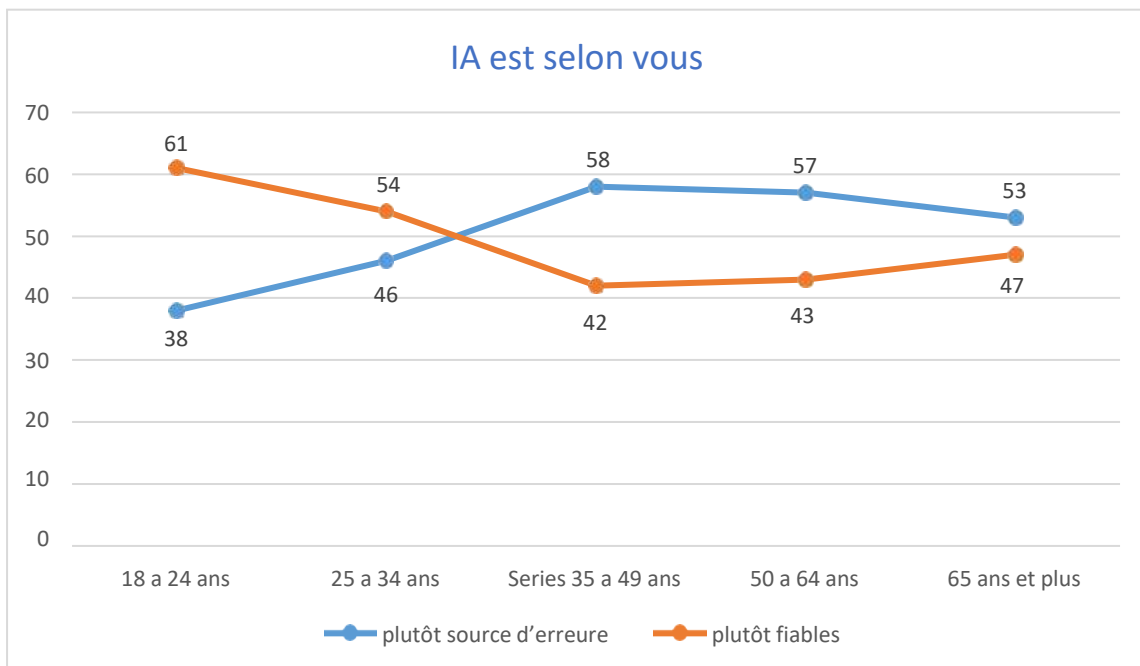
In our view, the question of the coexistence of AI with data protection is interesting. The law for a digital republic in France provides that administrations implement algorithmic processing which results in an individual decision. Algorithms occupy an important place in our daily life: results on a search engine, news on social networks, recommendations on e-commerce sites, financial procedures carried out by robots in the markets, automatic medical diagnoses ... algorithms are present in all these areas. Individual decisions should not be made on the basis of an algorithm alone.

Obviously, the opinion of the company on this subject is interesting. IN France A survey was conducted among a sample of 1001 people, representative of the French population aged 18 and over (by the CNIL): for 72%, AI is a challenge for society. (Sondage Ifop pour la CNIL, 2017) Question: In your opinion, are algorithms a social issue?



Source Sondage Ifop pour la CNIL, 2017

Question: In your opinion, algorithms today ... Are rather a source of error
Are rather reliable



Source: Sondage IFOP pour la CNIL, 2017; Privacy by design

For protection of data, we use the system of decentralization of data thus reducing the risk of invasion of privacy. In this context it is very interesting Privacy by design. According to these concepts, legislative means are not sufficient to guarantee the protection of privacy. According to the European Competition Commissioner, „What we see in Europe is that there is a large proportion of citizens who find that they are not in control. They don't trust companies to protect their data, and I think that's bad, because then there is a risk that they will take out all the benefits of our digital economy. And to build trust, I think it's very important that we enforce privacy rules, that we have „privacy by design“ in new services, so that privacy is not fair. an add-on, but that it is really basic“ (Business 21 sept. 2016).

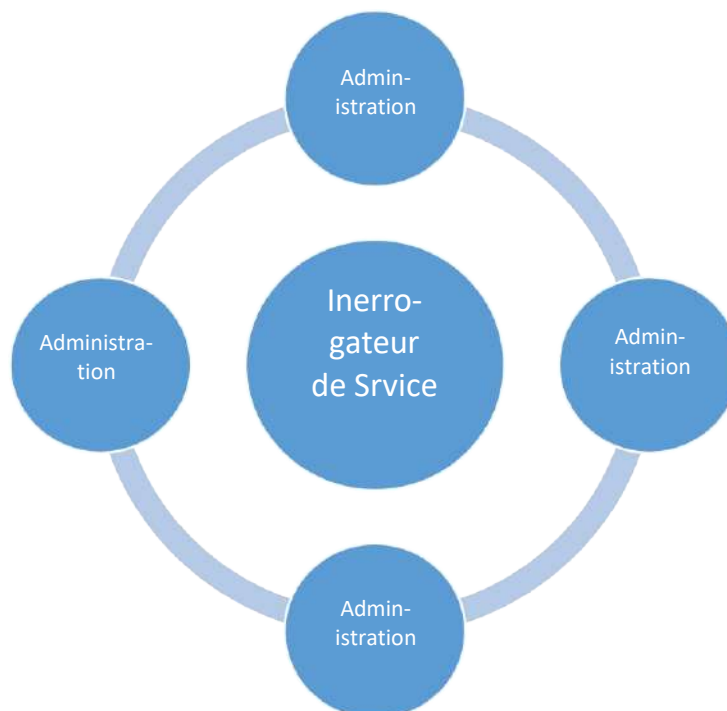
For the respect of privacy and at the same time for the exchange of information between administrations, some countries use an administrative model according to which a service integrator ensures the exchange of data between the administrations concerned. Therefore, the data is recorded in a decentralized manner within the administration and is exchanged by a service integrator. The first network of its kind is the social security network, which brings together social security institutions (PRIVACY BY DESIGN, 71-86).

Using This System, It is virtually impossible for a third party to access centralized data in a single access. there is no global identification number in place. This fact reinforces the level of security. Each citizen has an identification number specific to each network, which

prevents cross-references from one network to another. In the hypothesis to access data a citizen should conduct an attempt to access each genuine source of data, which reduces the risk of access. On the other hand, each data source must provide the level of security to ensure the proper functioning of entire security. It should be noted that even users do not have central access to their own data. Such a portal would be a guarantee for the protection of privacy retaining the right to information and transparency.

The Belgian model of e-government is a good example of an administration which is both efficient and guarantees the protection of privacy. The automation of certain rights, the computerization of the fight against fraud, the access to online forms are the steps advanced in the relationship between the administration and citizens. This is a diagram illustrating a network of administrations made up of a service integrator to which several administrations are linked.

According to the Belgian government, the proliferation of vertical service integrators is creating a problem for administrations. For example, administrations must contact different service integrators depending on the type of data and each time must wait for specific procedures. To improve service and save time, so-called „horizontal“ service integrators have been created which group together administrations according to their membership in the federal entity. They include a service integrator responsible for ensuring the flow of data between the administrations concerned.



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