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Data: the fuel of the third industrial revolution

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Digital technology is one of the major components of the third industrial revolution. It is already transforming the organisation of many activities, causing some to disappear, leading to the creation of new ones and fostering the development of innovation. This transformation is being made possible by the harnessing and trade of big data[1] thanks to artificial intelligence[2]. A first stage in the development of the digital economy is linked to the harnessing of big data constituted by the personal data left on the web, which has been used for the most part by the GAFAMs[3]. The second stage will be fed by the billions of business-related data held by companies. But access to this information by third parties still needs to be organised.

THE FIRST BOOM IN THE DIGITAL ECONOMY: HARNESSING PERSONAL DATA

The so-called digital businesses GAFAM or BATX[4] use billions of data, which are the raw material in the development of their strength. This is the result of the footprints left by their users on all the free services that they receive from these companies, or, more broadly, that they leave on the web, or services that they purchase at great expense. This is mainly the so-called personal data. Big data is available and used very quickly thanks to the artificial intelligence that feeds off the mass of information available on the web.

From this mostly "free" raw material, whose production has not been conditioned by a process of opening, these "pure-players"[5] have therefore built several economic or business models:

• The first is to provide the players in the "classical" economy with extremely valuable information, and very quickly, in the field of advertising, knowledge of market segments, the development of demand and trends, etc... in a very short time. This offer does not change the business model of any company that makes use of it but reinforces its knowledge of the market. Examples of such offers are those of Google and Facebook.

• The second model, embodied among others by Amazon, involves offering the end user a range of goods to buy through an e-commerce site. The billions of data at its disposal have helped it to develop an offer covering a wide variety of product families. Traditional commerce therefore faces competition of a totally different nature, against which it is difficult. The difficulties encountered by booksellers and record dealers, who are among the first to be affected by this competition, are a perfect illustration of this situation and show that these players themselves must evolve and adapt to the new situation.

• The third model is that of the collaborative economy. The GAFAMs that are not in the front line here, but companies like Uber, Airbnb, Deliveroo, etc... The source of development of these offers is always the same: free access to big data, use of artificial intelligence, the proposal of a new service that competes with traditional players: hotels, taxis, restaurants, etc. Here again, traditional players must evolve and adapt.

These pure play companies, particularly the GAFAM, have acquired enormous financial power, which means that they are state-of-the-art investors, particularly in the fields of artificial intelligence, technological innovation, the acquisition of "traditional" activities and the development of new ones.

The pure play companies that dominate in Europe are mainly American and Chinese. It is always possible that one day this type of company will

[1] Big data or megadata, sometimes referred to as massive data, refers to data sets that have become so voluminous that they are beyond human intuition and analytical capabilities and even those of conventional computerized database or information management tools.

[2] Artificial intelligence is "the set of theories and techniques used to create machines capable of simulating intelligence".

[3] Google, Apple, Facebook, Amazon, Microsoft.

[4] Baidu, Alibaba, Tencent, Xiaomi.

[5] Refers to a company operating in a single industry sector. However, the term has become popular when referring to businesses operating solely on the Internet.

emerge in Europe, but given the market power of the incumbent players in this field, this will be difficult. The strength of the GAFAMs and BATXs is therefore the consequence of continuous free access to billions of data and their use of artificial intelligence to offer new services. This is one of the lessons to be learnt from the development of the digital economy in this first phase with a view to preparing in the best way possible for the second phase at European level, which will involve the use of non-personal data by companies. The other lesson is that these players will obviously remain formidable competitors in this second stage, which will be marked by the quest for European digital sovereignty.

THE NEW CHALLENGE OF THE DIGITAL ECONOMY : THE OPENING UP OF NON-PERSONAL DATA

Actors in the so-called "traditional" economy constantly have and produce equally large volumes of non-personal data. They are linked to production processes, maintenance, commercial activities, marketing, research and innovation, etc. The volume of this industrial data will also grow exponentially with the development of connected objects and artificial intelligence. Indeed, all economic activities undertaken by companies, including the production of goods, are undergoing and will continue to undergo a revolution under the pressure of this same artificial intelligence, i.e. the processing of data using sophisticated algorithms allowing for greater productivity, considerable savings or even the total transformation of the traditional production process. Anticipating and avoiding defects and increasing the precision of industrial chains will lead to better control of the entire production chain.

This is how each company operates and will operate its own data set in the best interests and growth of its own business. The difference with the first phase of the development of the digital economy is therefore that this potential big data set is split between thousands of companies. The condition for the development of this new stage is therefore to reconcile the optimisation by each company of its own data set with the sharing of data which will constitute a common big data and multiply the capacities of each player and enable the creation of new activities. Hence, people will have to be convinced of this reality. From now on, there are business-to-business agreements, partnerships in the form of a platform or rules of good conduct, but more will have to be done via the conception of a more global strategy, defining the conditions and tools for this pooling. Finally, this action must be carried out with the aim of protecting Europe's digital sovereignty. The opening up of non-personal data, whatever form it takes, must not allow the use of this data outside the respect of the rules that Europe has set itself under its data processing policy. These include the rules governing competition, or the location of the data.

While the economic development associated with the use of personal data provided by individuals may have been free to begin with, the establishment of a process to open up non-personal data will therefore require regulation by the European authorities.

THE CHALLENGE OF REGULATION

We have at least two examples of European texts on data openness. On the one hand, the sectoral regulation regarding the framework for the deployment of smart transport systems[6]. On the other the revision of the Public Sector Information directive[7], which has already been adopted, and opens up some of the data for public sector enterprises. An impact study is currently being carried out on the economic consequences of this new directive. the comitology procedure is be conducted in parallel.
It is now necessary to define the conditions under which industrial data, which is the property of companies, can be shared on a sufficient scale to constitute efficient big data and reused with the development of artificial intelligence. This is the challenge of this new regulation.

The European Commission, under the impetus of Margrethe Vestager and Thierry Breton, has just published two documents: "A European strategy for data"[8] and a "Whitepaper on artificial intelligence"[9]. The first aims to create a common

[6] Regulation C(2019) 1789 final *13th March 2019 thereby completing the directive 2010/40/ 7th July 2010*

[7] Directive 2019/1024 20th June 2019 regarding open data and the re-use of information from the public sector

[8] COM (2020) 66 final 19th February 2020

[9] COM (2020) 65 final 19th February 2020

data space in Europe, to organise the free movement of data and to provide free access to as much data as possible for large companies, SMEs and individuals. In very concrete terms, tools for pooling data with the creation of sectoral "data spaces" and their operating legislative framework will quickly be proposed. The definition of high value data sets and a Data Act on the relations between actors are planned for 2021. The second, in consultation, aims to determine the conditions for the development of artificial intelligence for the benefit of large companies, SMEs and citizens by creating a framework of trust and excellence. In particular, this involves carrying out a thorough analysis of high-risk sectors such as health, which require special precautions, without increasing the use of artificial intelligence in non-risky economic activities. It also means pursuing the good European system for the protection of personal data.

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The harnessing of personal data by the GAFAMs has largely begun this process of data optimisation. The massive use of non-personal data is the natural continuation of this process. But all of these dynamics are based on the use of big data/megadata by artificial intelligence, one reinforcing the high-speed development of the other, thereby opening up prospects for innovation, as well as the creation of thousands of new activities. And by the same token, making adaptation to the process of opening up data inevitable for everyone. To meet these huge challenges, dialogue between all European economic players will be essential over the coming months. It will continue and will be organised around the European Commission's ambitious proposals. It is by acting in this way that Europe will be able to become a major player in the world of this third industrial revolution[10].

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[10] The Robert Schuman Foundation is organising with Alphalex-Consult a round table on non-personal data and artificial intelligence on 19th March at the French Permanent Representation with the European Commissioner, Thierry Breton.

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