

ARTIFICIAL INTELLIGENCE AND EUROPEAN NATION'S FUNDAMENTAL INTERESTS : A READING OF DEPENDENCY THEORY

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Abstract (En) :

Artificial intelligence is probably the most important vector of security and law enforcement transformation. The need of security is a response to the defense of fundamental interests of states. How to protect these interest with artificial intelligence tools and technologies from foreign states? Beyond the major state powers, it is necessary to address the economic environment of artificial intelligence. The main players in the development of artificial intelligence in the world are the largest technology companies : GAFAM and BHATHX. The reality is that their capacity to influence extends beyond the borders of the United States or China and their power is not limited to companies, but extends to States, NGOs, international and regional organizations. This hegemony is a reality also in Europe. This creates a situation of dependency. We have chosen to work on the basis of the theory of dependence that emerged at the end of colonisation, in an atypical approach that opens up the field for future research.

Keywords : Artificial intelligence, security, fundamental interests, dependency

INTRODUCTION

In 1996, in an article entitled "The World Wide Web as Super-Brain: from Metaphor to Model", Francis Heylighen and Johan Bollen of the Vrij Universiteit Brussel (VUB) put forward some interesting proposals concerning the development of the "super-brain" and what enables it to learn, without omitting to point out that it is not the brain itself that thinks, but the users of the web. Indeed, the power of this 'super-brain' lies in the tenuous link with its users, a self-referential link. Algorithms have also developed, which (by analogy with the human brain) strengthen the links and weakens those that are less frequently used. Using the principle of transitivity, the construction of new links can be automated. But none of this means that this "super-brain" can actually think independently of the users that make it up (Mortier, 2019). Today, the conditions are ripe for a widespread evolution of AI technology techniques: availability and diversity of data, development of offers and performance of IT devices and equipments (Marellin, 2021).

In other words, AI, which is both a discipline and a scientific modeling tool, brings together all the modeling representation techniques that allow to simulate a phenomenon or a situation by computer. This phenomenon can be physical, chemical, biological, medical, sociological, financial or demographic. From these simulations, answers to questions, elements of understanding of the phenomenon in question and even components of prediction were learned. In practice, one or more algorithms implemented within a computer program run on one or more computer processors. An algorithm is a hierarchical set of logical operations to execute in order to solve a problem or answer a question (Jean, 2021).

The ability of nations to develop AI firms is critical to their competitiveness. Such firms provide tools and services to the growing number of companies adopting AI. Indeed, the global percentage of large companies using AI in at least one function or business unit increased from 47 percent to 58 percent from 2018 to 2019 (Castro & McLaughlin, 2021). In 2023, 83% of companies say AI is their priority for the coming years¹. Insofar as power is exercised on an informational basis, the determinants of success or advantage have less to do with the information we possess and the knowledge we can deduce from it for strategic purposes, than with the management of increasingly automated information (Atif *et al.*, 2022). In this sense, AI is a power issue.

The Artificial Intelligence (AI) has giant possibilities to optimize the fight against crime and strengthen national security. In the conditions of unimaginable accumulation of information and the need for rapid decision-making, only the use of AI can lead to success. Intelligence, counterintelligence, forensic science, counteracting organized crime, rapid processing of available information, drafting of varied decisions, creating plans and multivariate scenarios, performing various analyzes is a time-consuming process. Only its use can significantly shorten this time and thus dramatically increase the possibilities for detection, prevention and curbing crimes (Radulov, 2019). In brief, Artificial Intelligence (AI) and Machine Learning (ML) can be a great cyber defense strategy, it can also be a double edged sword (Meghani, Essomba, Chrzanovski, 2023). AI belongs to the new class of technological objects which, as simple objects of value, portable, transferable, easily convertible, present themselves as the ideal object for a global hyper-capitalism, supported by flows of circulation of value and its unprecedented capacity to create value, AI is inevitably and completely taken over by geopolitical forces (Atif *et al.*, 2022). That's the reason why AI is and will increasingly be indispensable for national security. It is inconceivable to exclude such technology from security strategies. More and more, the regalian services are using artificial intelligence tools, both for judicial investigations and for intelligence or administrative police.

¹ <https://lesmakers.fr/statistiques-intelligence-artificielle/>

Clearly, the powers that be are now engaged in an AI race, although only two countries look set to win it in the near future. Only two countries seem likely to win it in the near future: they are, of course, the United States and China (Thibout, 2018). As for Europe, it is trying to regain a leading position among other players such as Russia and Korea (Atif *et al.*, 2022). The risk is not in the use of artificial intelligence but in the algorithms or tools that enable its use. Most of the algorithms and tools are developed outside the European Union and place the Member States in a certain form of dependence on foreign powers. This of course generates risks for national security and the protection of the fundamental interests of European states.

This situation of dependence is reminiscent of the theories developed in the context of decolonization. In particular, the theory of dependence based on the work of Theotonio Dos Santos (1970). This theory is a critique of structuralism, the theoretical corpus developed within the framework of the United Nations Economic Commission for Latin America (CEPAL) in the 50s and 60s. However, this theory is of particular interest in the context of artificial intelligence dependencies. In a singular way, we will attempt to analyze the European situation through the prism of this theoretical framework. There is no intention here of considering Europe as a developing geographical zone, but rather to demonstrate that in certain sectors of activity, the old Western powers can find themselves in a situation of dependence, with all the consequences that this can produce in society as a whole.

While we will live in a world of permanent low-level conflict, often unnoticed, undeclared and unending, and one in which even our allies may also be our competitors (Galleoti, 2022), after recalling the context in which artificial intelligence is evolving and becoming unavoidable, we will address the risks to which European countries are currently exposed. But first we will look at the theory of dependency, whose historical context is reminiscent of the current situation of European states in the AI race.

THE DEPENDENCE THEORY AS A CONCEPTUAL FRAMEWORK

The myth of dependence theory establishes the theory as a univocal and articulated field of thought, either to refer to and discuss it, or to take the measure of its scope (Weffort, 1970; Cueva, 1974; 1979a; 1979b; Borón, 2008; Tapia, 2009). If the idea of a general theory refers to the existence of a systematic theoretical corpus which, on the basis of general and necessary propositions, can at the same time explain different problems in different circumstances and at different times as singular expressions of the same theoretical object (Poulantzas, 1979), confining dependency theory to a general theory is too problematic. It suffices to review the works that have been included in this field, from Gunder Frank to Agustín Cueva (1979a, b), via Ruy Mauro Marini (1969, 1973) or Fernando Cardoso and Enzo Faletto (1967), to verify that the existence of diverse and varied perspectives, which have coexisted in conflict within it, threatens the idea of a common systematic field that could define addiction in a homogenous way. Indeed, when we delve into the various productions of this current and swim in its theoretical waters, we very quickly realise that there is no univocal and uniform idea of what addiction is (Giller, 2014). We will, however, take the risk of applying this theoretical framework to a problematic other than the economics of development in the post-colonial period, and apply it to a new technological dependence in the 21st century.

By dependence, Theotonio Dos Santos (1970) mean a situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected. The relation of interdependence between two or more economies, and between these and world trade, assumes the form of dependence when some countries (the dominant ones) can expand and can be self-sustaining, while other countries (the dependent ones) can do this only as a reflection of that expansion, which can have either a positive or a negative effect on their immediate development. We could read it in the context of artificial intelligence: by dependence, we can refer

to a situation in which the development of AI in some countries is conditioned by the development and expansion of other AI development to which the former is subject. The interdependent relationship between two or more IA developments, and between these and strategic needs, takes the form of dependence when certain (the dominant ones) countries have the data and algorithms needed to develop IA tools, while other countries (the dependent ones) are very dependent on the tools developed by the dominant, which can have a positive or negative effect (depending on their geostrategic alliances) on their national security.

The theory of dependence was developed in an effort to establish links between real processes and the theoretical construct. The theoretical framework seeks support and legitimacy in reality itself. Starting from a concrete situation, generated by the historical process and possessing historically determined characteristics, this analysis is more than empirical, because it does not to be a simple description of reality, it seeks to produce, at the same time, an interpretation that contains the elements of change of social structure. The concrete situation is referred to as a situation of dependence; the theory that seeks to interpret it appears as the result of applying the concept (of dependence) to this situation. The concept gains its meaning from the movement in history which produced the situation of dependence. The theory of dependence therefore consists of a set of explanatory propositions, grouped behind the concept, and which are organised on the basis of a given situation (Peixoto, 1977).

In the postwar period a new type of dependence has been consolidated, based on multinational corporations which began to invest in industries geared to the internal market of underdeveloped countries. This form of dependence is basically technological-industrial dependence (Dos Santos, 1968). The parallel with AI is particularly realistic and relevant.

In a paper on research at the University of Lubumbashi in the Democratic Republic of Congo, it is noted that whatever the conceptual variations used to analyse the situation of development and underdevelopment in this country, the situation of dependence is clearly noted; the internal structures are grasped in their altered position following a long process of interaction with developed central capitalism. There is a certain mechanics to the predominance of the external over the internal (Ngoie Tshibambe & Lunda Chimene, 2018). This observation is particularly interesting in our case. In fact, the long process of interactions in the context of an economy of attention (Patino, 2019, 2022) that is considerably beyond the reach of the European states, the predominance of the external over the internal, inevitably leading to a situation of dependence in the context of a situation of development, or even underdevelopment in the case of AI of course.

The new form of dependence, above, is in process of developing and is conditioned by the exigencies of the international commodity and capital markets. The possibility of generating new investments depends on the existence of financial resources in foreign currency for the purchase of machinery and processed raw materials not produced domestically. The limitations of monopoly on patents which leads monopolistic firms to prefer to transfer their machines in the form of capital rather than as commodities for sale (Dos Santos, 1970). Industrial development is dependent on an export sector for the foreign currency to buy the inputs utilized by the industrial sector. The first consequence of this dependence is the need to preserve the traditional export sector, which limits economically the development of the internal market by the conservation of backward relations of production and signifies, politically, the maintenance of power by traditional decadent oligarchies (Dos Santos, 1970). Once again, the parallel with Europe's AI situation is clear. Over and above the monetary aspect, which no longer seems to have as great an impact as in the historical and geographical context of the development of dependency theory, the fact that European states must continue to operate their traditional industries in order to secure their resources, the place given to new technologies and AI in particular, is much more complex to order due to the fact that we are falling behind other powers in this field (US and China).

In the case of Latin America, the degree of success of national economies in the decolonial situation depended, from an economic point of view, on the following elements (Cardoso, 1967) :

- the availability of a primary product capable of sustaining, transforming and developing the export sector inherited from the colonial period;
- an abundant labour force ;
- the availability of land that could be appropriated or of highly profitable mineral deposits.

It is these last two points that characterise the current European dilemma. In contemporary terms, and applied to the European situation, the first factor corresponds to the current industrial fabric, the second to the production capacity of personal or other data and finally the third is none other than all the data produced but which escape European players to the benefit of foreign players (US and GAFAM, China and BATX).

Finally, industrial development is strongly conditioned by the technological monopoly exercised by imperialist centers. We have seen that the underdeveloped countries depend on the importation of machinery and raw materials for the development of their industries. However, these goods are not freely available in the international market ; they are patented and usually belong to the big companies. The big companies do not sell machinery and processed raw materials as simple merchandise : they demand either the payment of royalties, etc., for their utilization or, in most cases, they convert these goods into capital and introduce them in the form of their own investments. This is how machinery which is replaced in the hegemonic centers by more advanced technology is sent to dependent countries as capital for the installation of affiliate (Dos Santos,1970). Local businessmen have financing difficulties, and they must pay for the utilization of certain patented techniques. These factors oblige the national bourgeois governments to facilitate the entry of foreign capital in order to supply the restricted national market, which is strongly protected by high tariffs in order to promote industrialization. Thus, foreign capital enters with all the advantages : in many cases, it is given exemption from exchange controls for the importation of machinery; financing of sites for installation of industries is provided ; government financing agencies facilitate industrialization; loans are available from foreign and domestic banks, which prefer such clients; foreign aid often subsidizes such investments and finances complementary public investments; after installation, high profits obtained in such favorable circumstances can be reinvested freely (Dos Santos,1970). This is the current situation in Europe, where many strategic companies (linked to national security or the nation's fundamental interests) are being bought out by American or Chinese economic operators through foreign investment. This has prompted the EU to legislate to protect its strategic economic assets (filtering foreign investment, blocking laws in France, etc.).

First the industrial and technological structure responds more closely to the interests of the multinational corporations than to internal developmental needs (conceived of not only in terms of the overall interests of the population, but also from the point of view of the interests of a national capitalist development). Second, the same technological and economic-financial concentration of the hegemonic economies is transferred without substantial alteration to very different economies and societies, giving rise to a highly unequal productive structure, a high concentration of incomes, underutilization of installed capacity, intensive exploitation of existing markets concentrated in large cities, etc. (Dos Santos,1970). In order to understand the system of dependent reproduction and the socioeconomic institutions created by it, we must see it as part of a system of world economic relations based on monopolistic control of large-scale capital, on control of certain economic and financial centers over others, on a monopoly of a complex technology that leads to unequal and combined development at a national and international level. Attempts to analyze backwardness as a failure to assimilate more advanced models of production or to modernize are nothing more than ideology disguised as science (Dos Santos,1970). Isn't this an analysis that can be applied to Europe's situation of dependence on GAFAM and BATX?

NATIONAL SECURITY ENVIRONMENT

The official definition of the French State services such as the National Agency for the Security of Information Systems (ANSSI) or the Ministry of Europe and Foreign Affairs (MEAE) attests to this: "A space of communication constituted by the worldwide interconnection of automated digital data processing equipment and by the objects connected to it and the data processed therein". The communication space is virtual, the equipment and infrastructure are material and the data processed is... immaterial. The material element is a sine qua non condition for the expression of sovereignty, be it digital.

The concept of digital sovereignty can be understood in a different sense and refer to the ability of a given entity (a nation, a company, an individual) to master digital attributes (data, information, knowledge, algorithms) on objects that it claims to observe or even control. The term "control" does not necessarily mean that the entity holds (in the sense of full ownership) the objects in question, and *a fortiori* the digital attributes, in this case the data, of these objects (Ganascie, Germain, Kirchner, 2018)². This is how digital sovereignty is conceived in France and more widely in Europe. It is indeed the (immaterial) data that represent the challenge of this sovereignty. In this respect and with this in mind, the European Union has a legislative arsenal in this area.

On 23 June 2022, the new European Data Governance Act (DGA) officially entered into force. It will take effect in September 2023.

This text is part of the "European Data Strategy"³, itself a sub-branch of the strategy "Shaping Europe's Digital Future"⁴, unveiled in February 2020 by the European Commission, of which one of the six priorities for the period 2019-2024 is to "adapt Europe to the digital age"⁵. To this end, the European Union has undertaken, in particular, to equip itself with new legal instruments in the field of the platform economy (Digital Markets Act⁶ and Digital Services Act⁷), and artificial intelligence (Artificial Intelligence Act⁸), and, of course, in that which concerns the raw material of the digital economy: data.

The most important and relevant legislative initiative is the draft Artificial Intelligence Act, the first ever European legal framework dedicated to AI systems. The Commission has chosen not to regulate AI itself as a technology, but to focus on AI systems, understood as software capable of generating outputs such as content, predictions, recommendations or decisions (Article 3 of the draft AI Regulation), and to use a multi-layered risk-based approach. Some uses of AI entail an unacceptable risk and are prohibited; others create a high risk and are allowed if their providers meet certain requirements and carry out a compliance assessment. Uses that are considered low or minimal risk are simply allowed. Uses of AI that undermine fundamental values are considered unacceptable risks. These include systems that deploy subliminal techniques, exploit vulnerabilities to alter human behaviour, or are used for algorithmic social rating. Finally, the use of "real-time"

² Available on : http://cerna-ethics-allistene.org/digitalAssets/55/55160_AvisSouverainete-CERNA-2018-05-27.pdf

³ European Commission, « A European Data Strategy », Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels, 19 February 2020.

⁴ European Commission, « Shaping Europe's Digital Future », Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels, 19 February 2020.

⁵ https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age_fr.

⁶ <https://eur-lex.europa.eu/legal-content/FR/TXT/?uri=CELEX%3A52020PC0842>

⁷ <https://eur-lex.europa.eu/eli/reg/2022/2065/oj>

⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206> and <https://artificialintelligenceact.eu/the-act/>

remote biometric identification of people in public spaces is considered particularly intrusive and is in principle prohibited (Ponce del Castillo, 2021)⁹.

It is therefore through security (cybersecurity), of immaterial data in particular, that the real world is trying to “master” cyberspace. It is an attempt to territorialise the dematerialised without possessing the material element: a decorelation between the territory and the space of sovereignty (non-territorialised) (Mortier, 2020).

Cybersecurity therefore allows the expression of "digital" sovereignty. It is defined by the ANSSI¹⁰ as "the state sought for an information system enabling it to resist events originating in cyberspace likely to compromise the availability, integrity or confidentiality of the data stored, processed or transmitted and the related services that these systems offer or make accessible. Cybersecurity involves the use of information systems security techniques and is based on the fight against cybercrime and the establishment of a cyber defence. This definition includes purely sovereign elements such as the fight against crime and defence, but relates to the data that is coveted in cyberspace.

As for artificial intelligence, what place does it occupy in the field of cyberspace and more particularly in the expression of sovereignty within it? It should be admitted that artificial intelligence is nothing other than a device that functions through algorithms that attempt to reproduce human intelligence on a probabilistic and deterministic basis through the processing of large volumes of data. These algorithms, these computer programs, constitute the basis of artificial intelligence and are the result of a process of creation by humans, hence the term artificial. It is not a natural process but an artificial construction. Machine learning, a field of artificial intelligence, aims to enable a machine, through the use of learning algorithms, to determine the best possible result or, if necessary, to detect malicious behaviour in cyber security for example. To work, this “method” needs access to data. This brings us back to the immaterial and virtual characteristics that allow the expression of digital sovereignty over a non-territorialised space (cyberspace in which the data is located) (Mortier, 2020).

Companies, and then the most technologically advanced states, saw in this set of techniques an extraordinary means of increasing their power to act. This intuition has led some players to invest huge sums of money in the field of AI, not only to make substantial financial gains or establish their influence on the their influence on the international stage, but also to avoid running the risk of seeing a competitor (State or company) take over. A competitor (government or company) get hold of this technology first, on the assumption that whoever whoever manages to master the highest level of artificial intelligence sophistication at a given stage would undoubtedly be forever ahead of his or her rivals (Thibout, 2018). What's more, true interconnection between private companies and state agencies, especially in the military field, has become the norm. For instance, Eric Schmidt, the former head of Google and Alphabet, was one of these "go-betweens". From March 2016 to January 2018, he headed the Defense Innovation Advisory Board - the Department of Defense body responsible for facilitating the transfer of innovative technologies and practices from Silicon Valley to the US military – where he campaigned for greater integration of technology companies into the Pentagon's strategy, while remaining on the board of Alphabet (Thibout, 2018). Today, our understanding of what is AI varies with the passing of each milestone in this field. Adaptability, flexibility, predictability and proactivity in terms of minimum time resources, the speed of decision- making and scenarios realizing them should be the priorities of the AI used in the security sphere (Radulov, 2019).

⁹ Available on https://www.etui.org/sites/default/files/2022-03/04_La%20strat%C3%A9gie%20num%C3%A9rique%20de%20l'E2%80%99Europe_2022.pdf

¹⁰ Agence Nationale de la Sécurité des Systèmes d'Information / National Agency for the Security of Information Systems <https://www.ssi.gouv.fr/>

In this sense, artificial intelligence, made up of algorithms and computer programs, would be only one of the physical aspects of the networks mentioned above in the definition of cyberspace proposed by the French authorities: "... worldwide interconnection of automated digital data processing equipment...". Artificial intelligence could then return to a more conventional understanding of sovereignty since the algorithms that give it life would have a nationality by virtue of their creation by a human being who, for the time being, holds a nationality relative to a classic expression of sovereignty.

These few reflections on territory, borders and sovereignty are in no way intended to be exhaustive or peremptory, but rather to raise awareness of the fact that human nature always tries to bring together what is known with what can sometimes be beyond it. A natural reinterpretation of the immaterial in order to keep one's own reference points. The shock of digital technology, the shock of cyberspace, which has arrived like a wave in a few decades (close to zero on the scale of humanity), requires human to rethink his condition in a world that is both new and still marked by an inescapable existing. From a "black transcendence" (Hottois, 1984) to a "re-enchantment of the world", everything is possible and the tone seems to be set by... data, artificial intelligence, the link between the real world and cyberspace, between utopia and dystopia, both of which are equally "frightening", but also the object of law, security and the foundation of an intelligence created by man, artificial.

ARTIFICIAL INTELLIGENCE AND NATIONAL SECURITY

National security, for a company, a citizen or a strategic and sovereign State, is defined as the fact of being able to have full control over its data. And this also implies knowing how to defend oneself legally, economically and technologically from other supplier states – or foreign companies – for the storage, capture and exploitation of data (Decloquement, Lutrin, 2023).

The French Penal Code defines the fundamental interests of the nation, the objects of national security, as follows (art 410-1) :

"its independence, (...) the integrity of its territory, (...) its security, (...) the republican form of its institutions, [the] means of its defence and (...) its diplomacy, (...) the safeguarding of its population in France and abroad, (...) the equilibrium of its natural environment and its surroundings and [the] essential elements of its scientific and economic potential and of its cultural heritage."

A state therefore has an obligation to safeguard its sovereignty in this way. In order to do this and to deal with threats, it must have the necessary resources, including technology. Artificial intelligence is now a component of this because of the developments it suggests. The defence of fundamental interests is no longer limited to the physical plane, but also encompasses the virtual domain. If the national interest is the anchor of geopolitical power, the point of orientation of international tactics and the foundation of foreign policy, it is increasingly destabilized by the new configuration and new ways of circulating information that AI allows (Atif *et al.*, 2022).

The major national security risk in the use of artificial intelligence is the dependence on foreign technologies. There is indeed a real technological competition between the United States and China. The investments of these two powers in European companies are fully in line with this competition. It is particularly difficult for European states to coordinate in order to combat this type of economic predation, despite the European foreign investment screening mechanism. European states are therefore becoming increasingly technology importing countries. This can take the form of access to biased information or strategic operations by foreign powers: the use of algorithms developed and controlled by them creates not only dependence but also risk. Moreover, artificial intelligence controlled by someone else opens the door to the risk of cyber-attacks, the manipulation of content

and even the misappropriation of strategic informations. Even further, a foreign power could control the social control of our populations and thus set up disinformation actions to destabilise the social order

The American economic and political sphere's deep and sincere interest in AI stems specifically from a logic of power (potentia): AI is perceived and conceived as a AI is perceived and conceived as an agent that multiplies human possibilities and, in the field of international relations as an instrument of power designed to increase US supremacy over the rest of the world (Thibout, 2018). In terms of intelligence, the United States is deploying considerable resources to master artificial intelligence. The Central Intelligence Agency (CIA) alone has around 140 projects in development that leverage AI in some capacity to accomplish tasks such as image recognition and predictive analytics. The Intelligence Advanced Research Projects Activity (IARPA), whose mission is to devise and lead high-risk, high-impact research leading to innovative technologies with significant future benefits for intelligence, is sponsoring several AI research projects intended to produce other analytic tools within the next four to five years. Some examples include developing algorithms for multilingual speech recognition and translation in noisy environments, geo-locating images without the associated metadata, fusing 2-D images to create 3-D models, and building tools to infer a building's function based on pattern-of-life analysis (Congressional Research Service, 2020). Such means are not available to European states without real multilateral cooperation. The AIDA project, mentioned in the introduction, is the beginning of a European response but probably lacks dimension. The 2019 U.S. National AI Strategy includes: Promoting an international environment supportive of U.S. AI innovation: The United States is committed internationally to promoting a global environment that supports U.S. AI research and innovation and opens markets for U.S. AI industries, while ensuring that AI is developed in a manner consistent with U.S. values (Atif et al., 2022).

Beyond the major state powers, it is necessary to address the economic environment of artificial intelligence. The main players in the development of artificial intelligence in the world are the largest technology companies. GAFAM are economic monsters, of unprecedented size, sometimes in a position of near-monopoly, which gives them enormous power (Cazals, Cazals, 2020). The reality is that GAFAM's capacity to influence extends beyond the borders of the United States and their power is not limited to companies, but extends to States, NGOs and even international organisations (Nour, 2019). The hegemony of the GAFAMs in Europe is almost complete. In November 2021, at the peak of the COVID-19 pandemic, the GAFAMs reached record margins: 38% for Microsoft, 37% for Meta, almost 30% for Google and over 26% for Apple. In early December, the latter's market capitalisation reached the highest ever recorded for a US company at a staggering \$2,650 billion, followed by Microsoft (\$2,570 billion), Alphabet (\$1,980 billion), Amazon (\$1,850 billion) and Meta (\$1,000 billion) (Smyrniaios, 2023). Although they are economic actors, they are and represent foreign forces whose *modus operandi* is as follows (Decloquement, Luttrin, 2023):

- Analyze targets (psychological weaknesses, economic and social weaknesses and social weaknesses, modes of operation, network, family and professional environment, identification of the needs of the territory) ;
- Use psychological vulnerabilities and respond to a specific need in the territory (short-term strategy) ;
- Penetrate the territories, impoverish them (in the medium and long term) to better absorb the State.

Private strategies are then aligned with, or even replace, the strategic interests of governments. But there is always an adversary. This is particularly true in Europe, where there is a form of dependence on the United States, but also elsewhere in the world, where Chinese players are playing an increasingly important role in this field. For the United States and the West at large, China is the chief ideological opponent, largest economic and technological competitor (including in such battlegrounds as microelectronics, 5G wireless technology, and artificial intelligence), most

capable military challenger, and greatest geopolitical rival (Jones *et al.*, 2023). If the adversary is designated in this way, a veritable artificial intelligence race is launched, similar to the arms race that shaped the Cold War period. Beyond artificial intelligence, its entire environment is a source of greed and therefore predation. By environment, we mean all the “hardware” needed for artificial intelligence to function: chips, servers, storage, fast, low-latency, high-performance networks, 5G, edge computing, operations, software and data collection (Harry, 2023). All the equipment required is of a strategic nature and therefore falls within the scope of national security or the nation's fundamental economic, industrial or scientific interests.

In March 2016, AlphaGo, the computer programme developed by Google Deepmind, triumphed over Korea's Lee Sedol, one of the best Go players in the world. Until then, Chinese officials were certainly interested in these issues, driven in particular by the national technology giants Baidu, Alibaba and Tencent. However, it was precisely from this confrontation, which was both fabulous and sacrilegious, that time accelerated for the development of AI in China (Thibout, 2018). China also has a large pool of skilled workers. Every year, some 1.4 million engineers are trained, six times more than in the United States, a third of them in AI (Chou, 2023).

On its territory, Beijing obliges foreign companies, including American ones, to collaborate with a Chinese counterpart, to store their data, even the most sensitive ones, locally and to transmit their technological patents, at the risk of losing access to the market of the second world economy (Nour, 2019). This is one of the reasons for the huge developments in artificial intelligence in China. In the United States, much of the data is monopolised by private companies (Amazon, Facebook and Google), whereas in China the majority of companies are either public or linked to the government in some way. Therefore, the plethora of data, thousands of entrepreneurs and engineers, as well as the active support of political power, are ingredients that facilitate this Chinese rise. Currently, the BHATX (Baidu, Huawei, Alibaba, Tencent, Xiaomi) combined have more data than the US and Europe combined (Nour, 2019). Similarly, one of the key components of AI, namely machine learning, which relies, essentially, on abundant data, is being further developed in China through two global leaders in mobile payments, namely AliPay and Tencent. Indeed, as surprising as it may seem, Chinese people make 50 times more mobile purchases than Americans (Nour, 2019).

While it is acknowledged that the United States is in the best position to win this AI race, thanks to its impressive pool of highly qualified engineers, its particularly dynamic innovative firms and its army, which is already beginning to integrate certain technological applications, China nevertheless seems to be in a position to surpass them. This ambition can be clearly seen in the "Development Plan for the New Generation of AI (AIDP)", unveiled by the Chinese government in July 2017. It predicts that China will become the world's leading AI power by 2025, and the world's leading innovation center by 2030 (Thibout, 2018). The AIDP delineates three key steps, each of which contains a series of goals, some of which are tightly defined, while others are vaguer (Roberts *et al.*, 2021) :

- By 2020, China aims to maintain competitiveness with other major powers and optimise its AI development environment. In monetary terms, China intends to create an AI industry worth more than 150 billion yuan (ca. 21 billion dollars). Lastly, it seeks to establish initial ethical norms, policies and regulations for vital areas of AI ;
- By 2025, China aims to have achieved a “major breakthrough” (as stated in the document) in basic AI theory and to be world-leading in some applications (some technologies and applications achieve a world-leading level). China also targets an increase in the worth of its core AI industry to over 400 billion yuan (ca. 58 billion dollars), and plans to expand upon, and codify in law, ethical standards for AI ;
- By 2030, China seeks to become the world’s innovation centre for AI. By then, growth in the core AI industry is expected to more than double again and be valued at 1 trillion yuan (147 billion dollars), and further upgrades in the laws and standards are also to be expected, in order to deal with newly emerging challenges.

In other words, AIDP is intended to be a blueprint for a complete AI ecosystem for the country (Wu *et al.*, 2020). In short, China is working hard to create AI systems that can analyse and react to geopolitical changes, providing a competitive advantage over other states (Frankopan, 2018). There are also the raw materials (rare metals in particular) essential for electronic components, including the semi-conductors needed for AI tools. Without these components, AI developments are impossible, and their manufacturers have a veritable weapon of economic warfare at their disposal.

By way of comparison, the US budget for AI in 2018 is estimated at \$11 billion. The French strategy, meanwhile, is based on public funding of €1.5 billion over four years, while Europe as a whole is investing little more than €1.8 billion each year. We still need to take into account the investments made by the major American technology companies in AI, estimated at 40 billion dollars a year, and those of the Chinese BATXs, whose level, although probably a little lower, remains comparable. What's more, in addition to their economic weight, these major digital firms are exerting an increasingly remarkable diplomatic and political influence. This is particularly true of the GAFAMs (Google, Amazon, Facebook, Apple, Microsoft and others), which raises questions about their ability and desire, in the long term, to continue their collaboration with the US State. As their financial and commercial power grows, they seem to be outlining a strategy which, if proven, would ultimately mean deconstructing nation-states and reorganising the distribution of populations across the world, within virtual, transnational and post-political communities (Thibout, 2018).

Unlike surveillance by state intelligence agencies, which target either other states or their own citizens for national security purposes, a new form of AI-induced surveillance blurs the boundary between state and private actors :

- The surveillance carried out by state intelligence agencies (NSA, Guoanbu, etc.), which collect vast amounts of personal data, is definitively erasing the boundary between the public and private spheres ;
- The actions of intelligence agencies are being challenged by private players such as GAFAM and BATX, which possess the world's most powerful algorithmic devices. In this sense, these private players are replacing the reason of States and playing a major role in security, no longer national, but relative to a form of generalized surveillance capitalism (Zuboff, 2019).

EUROPEAN STATES BETWEEN DEPENDENCE AND REGULATORY

The roots of the problem having been laid down, we would like to draw up a short list of the elements specific to the EU and to each of its member states, rendering simply impossible to achieve an efficient AI system at the service of law enforcement and justice at the entire European Union level.

Recently, the website of one of the leading AI organizations - the Centre for Governance of AI, in Oxford - published a white paper with an intriguing title (Ord, 2022) : *Lessons from the Development of the Atomic Bomb*. This very pertinent text indirectly compares the resources needed by any state entity wishing to possess the atomic bomb with those needed by the same entity to develop its own operational AI system. The previous pages largely evoke the infinite powers of Big Tech – to which we will add the (illegal) capacity of global surveillance, recently strengthened by the StarLink satellite constellations and soon to those of Amazon, all topics explained in great detail in the reference work on this subject, Shoshana Zuboff's masterpiece (2019). On this subject, for the development of an atomic bomb as well as for the development of a sovereign complete AI system, the four main conditions explained by Orb (2022) are:

- to possess the raw materials (= what Europe does not have in terms of hardware)

- to have an unwavering political will in the short, medium and long term (impossible in the current state of the EU and national prerogatives)
- to have for decades the human, technological and financial resources needed (Europe has never had a single program quantified in trillions of Euros, the sum necessary for an AI system, all that has been implemented so far, all fields considered, not exceeding a few billions), and, finally,
- to perform active espionage of those who already possess the bomb (in this case AI) as well as to keep the most total secrecy on the development of the weapon itself (of AI)

The EU spying the GAFAM/BATX and keeping a total secrecy on the existence and activity of the mega-laboratory developing its own AI system – including satellites, terrestrial hardware including quantum computers and supercomputers, own-made individual recognition software and means of capillary surveillance throughout the EU? One does not need to become as cynic as Emil Cioran to realize that if the development of a European security is already impossible, its extension to a pan-EU AI system as well as continuous EU operations of espionage, counter-espionage and deception (preserving the secrecy of the project) left in the hands of Brussels is pure science fiction (Chrzanowski & Mortier, 2023). In the field of a fully functional AI system for security, the EU needs reliable and quick communications as well as top-notch technologies and, last but not least, a unique competence center receiving, analyzing and dispatching the investigations, in real time, to each EU member. The choices made since the beginning of the EU's "digital decade" are just comparable with a small cashbox with 27 holes giving each member State Euros for achieving the same goal as every other member.

Two examples are particularly relevant : the first is, due to the U.S. political pressures, most of the EU members still lack 5G (not to speak about the very-soon available 6G), a fundamental element for the good functionality of AI. This refusal to adopt the last wireless technology is costing the EU's economy billions each year. Creating a fund of 2 billion Euros to be distributed to each member desiring to create an operative OpenRan technology which, at the end, in 2027, will compete with the technologies developed by other members. Useless here to mention that France, Spain and Germany already master this technology : a logical business mind would have simply made an EU OpenRan combining the best of each of the result obtained by these three States and proposing it to the EU Parliament for an immediate adoption (Lauhde, 2022). The second element, even more pertinent, is the "European Cybersecurity Center" as it was labelled ten years ago, to be under the direction of a newly created position of EU Commissioner. Set to be located in the UK, everything had to be re-thought after the Brexit. Many hopes were still possible until 2020, as the former head of Security of the IAEA was appointed to design its functional architecture, while Bucharest won the competition to host the Center's headquarters. The entry in function of President von der Leyen and the elimination of the old "Spitzkandidaten" way to choose the Commissioners, doubled by economical (hence political) consequences of the COVID and the energy crisis, the ever-growing disputes between several member States had a catastrophic impact on all the project designed for the purposes of the Cybersecurity Center and not only as it has been highlighted in December 2022 by the veto of only 2 members prohibiting Romania and Bulgaria to join the Schengen area while the unanimity of the members was welcoming Croatia. The new born security entity suffered in its very roots. Re-branded ECCC (European Cybersecurity Competence Centre and Network), it is still directed by a steering committee (and not a Commissioner), and its goals are mainly to distribute funds and share know-how for any demanding member State. Hence it will never become the wished pro-active law enforcement / intelligence agency of the Union, following the steps of the Council of Europe's C-Proc (Cybercrime Programme Office), also based in Bucharest, reduced by the very same national sovereignty political egos to perform continuous capacity building mainly in third world countries and sometimes in one the EC members.

In March 2023, an overwhelming majority of the EU Parliament voted for the implementation of an EU digital ID. This would be another essential tool for any AI system dedicated to law

enforcement purposes. Although the legislative text includes all the guarantees ensuring that each EU citizen will have a permanent right of access and surveillance to the data contained in this "digital passport" (which should/could eventually include tax, health, legal and biometric documents etc.), there is a majority of political parties against the participation of their country to the digital ID, in most of the EU countries and above all in the whole Eastern EU (where the memory of the communist times State intrusion in personal lives is still very pregnant, even by the youngest generations). The EU digital ID, whose implementation and contents is let to the latitude of each member State, is very likely to become a gigantic empty folder, at least for a short and middle term. The above-mentioned act, finalized in 2021 but still not voted by the EU parliament, is an over-ethical text, which will probably boost EU-made AI sales to customers desiring to protect their clients privacy, mainly in countries, where the citizens are very suspicious towards the intelligence activities of their own government – like the USA or Canada after Snowden's revelations and the Patriot Act abuses for the USA, after the judicial abuses during the martial law period enforced by the Trudeau government during the truck-drivers strike (Siegmann, Anderljung, 2022). European legislation on AI is part of a series of texts relating to digital technology:

- European Chips Act (2022), which draws lessons from Europe's dependence on semiconductor producers and consequently on the hardware needed to operate and develop AI tools;
- Digital Markets Act (2023), which targets the major digital platforms by establishing a set of rules to limit their influence and impact on the European market (Atif *et al.*, 2022). In other words, the aim is to limit the capture and use of data (useful as training data);
- Digital Services Act (2023), which lays down rules for digital platforms to combat the dissemination of illicit or harmful content or illegal products: racist attacks, child pornography, disinformation, sale of drugs or counterfeit goods. When it comes to disinformation, generative AI is implicitly targeted.

The Artificial Intelligence Act (2023) aims to protect European citizens through a series of ethical rules. For instance, the text requires AI algorithms to comply with the following rules (Atif *et al.*, 2022):

- Trained on representative and error-free training datasets ;
- Implemented on systems that are traceable and auditable in a transparent manner ;
- Subject to human supervision at all times ;
- Robust, accurate and secure.

However, learning algorithms are a long way from satisfying these constraints, and it's a safe bet that they won't, or won't for a long time, be able to do so without a sustained fundamental research effort. Moreover, recent developments in the field seem to suggest that the bigger the models, the better they perform. And the bigger a model is, sometimes with thousands of billions of parameters, the less transparent and therefore less auditable it is (Atif *et al.*, 2022).

Paradoxically, as we can see in the USA, where AI is already used for law enforcement and justice purposes, this European rule, if implemented, will simply forbid the use of AI by the same actors in the EU, as no complete investigation realized with the help of a complete AI toolkit can be performed without "collateral damage" (environmental interceptions, video/pictures examination etc. are all elements where other citizens appear, aliens to the mischiefs of the investigated possible criminal). Even if all these elements can and must be duly censored and erased before the trial, this very topic will be politically widely used, with the help of the EU's "AI Act", to take radical positions against the use of AI by law enforcement bodies. For example, in terms of European technological autonomy, how can we ensure that we have control over technologies that are ethically prohibited in Europe, so that we can protect ourselves against them? How can we detect attempted information attacks without knowing how they work? This is a question of national security. These questions are all the more crucial in a field in which the uses are for the most part

dual, but which today continues to require large learning datasets (Atif *et al.*, 2022). It is interesting to note that in the Chinese strategy (AIDP) for 2023, China plans to develop and codify in law ethical standards for AI. The field of ethical standards is already one of confrontation.

Another vital source to analyse the AI via the perception of the EU's population and companies are all the white papers published by the Barcelona-based IE University - Center for the Governance of Change (ie.edu) and in particular its yearly report "European Tech Insights". Its hugest version, published in 2 volumes in 2021, underling a sort of "schizophrenia" within the perception of each individual on what is really AI (Chrzanovki, 2021). As a matter of fact, on the one hand, a huge majority of Europeans would like EU and its member states to take legal measures to reduce the loss of jobs due to AI and ML (European Tech Insights, 2021), but on the other hand, the mistrust for the actual political class and governments is total: a majority of Europeans clearly want the social media to censor fake news and not State institutions (European Tech Insights, 2021). Worse, 51% of the Europeans would prefer AI to rule their country instead of human congressmen and government members (European Tech Insights, 2021). The main problem, in the field of our topic, is that we are witnessing the worse level of trust towards politicians and hence governments in contemporary history. The dramatic aspect is that the direct consequence of this lack of trust, even in countries where the administration fulfils the expectations of the citizens, law enforcement bodies and, above all, intelligence services are believed to be as toxic as the politicians, meaning that any new dotation to those entities (AI would be the biggest) is *de facto* considered as an intrusion into the citizen's privacy.

The new law of the international system is that of digital, algorithmic governance. Digitization, electronic communication and the mobilization of Big Data for geopolitical ends are fundamentally changing the configuration of international norms, regulations and laws in a number of ways (Atif *et al.*, 2022). Will the European legal arsenal have the necessary influence to weigh in the balance of global geopolitical rebalancing, or will it be no more than a last-ditch effort? Over and above regulation, we urgently need to build a systemic industrial approach combining research and development, massive training, support for innovation, public procurement on a critical scale and industrial projects of European interest. The success of this approach rests on three pillars that are insufficiently developed in Europe (Klossa, 2023) :

- Immediate and massive investment in fundamental mathematical research, the basis for the development of AI ;
- The effective and rapid implementation of a genuine and fully unified European market in all areas where the digital dimension is becoming central, to enable companies to project themselves into the European market, unlike the current situation where the American market is often paradoxically more accessible ;
- The ability to develop a genuine continental public procurement policy in the field of advanced technologies (particularly in the arms sector).

Fragmentation is detrimental to a shared vision and therefore to efficiency...

DISCUSSION

For years, American platforms (GAFAM) have been hoarding data without users understanding the extent of what was happening. Since the system is self-sustaining, it is utopian for companies operating in European democracies, which do not have the same means of action as China, to catch up (Atif *et al.*, 2022). The current situation poses two problems for Europe (Atif *et al.*, 2022) :

- On a purely economic level, regulation of AI could slow down the development of European companies in the face of their foreign competitors ;
- The risk of losing control of the technology and making Europe a *de facto* vassal of the United States and China in the field of AI.

In any case, the European states are in a situation of dependence on the US and China. Digital colonialism makes invasive use of the raw material, i.e. the digital data generated by the populations of the "South" (and today also of Europe), populations who will be instantly removed from their production context, to be exploited in the creation of products tailored to the consumption of a humanity in which they have the right to participate only marginally (Atif *et al.*, 2022). Dominating the digital market means controlling the movement of data. This control belongs to a small number of entities (mainly American and Chinese). The others, including Europe and its economic fabric, cannot compete with such giants of digital data aspiration.

In the dependency theory, countries are integrated into the global economy but are structurally placed in a state of continuous dependency by applying, for example, a ban on the domestic production of products that must be purchased from colonial companies. That's what it was all about in the 1950s. In the context of AI developments, the notion of banning national production corresponds to the power exercised by foreign players (the US and China) over the development capacities of European players, whether public or private. Given the budgets allocated, and the centralisation of projects, by the two major powers in the development of AI, this European dependence seems likely to continue. Yet the fundamental interests of the European States, or of the European Union more generally, are increasingly linked to the mastery of AI tools. Dependence on tools therefore generates dependence on foreign powers. This is where the danger lies for the fundamental interests of the European States.

However, this is not about unequal trade between Europeans on the one hand and China and the US on the other, but about unequal access to the data needed to develop AI tools, unequal allocation of the budgets devoted to them, and controlled access to the tools needed to protect fundamental European interests. On the other hand, and running counter to the theory of domination, it is the Europeans who are implementing legal provisions to guard against this dependence. But as we have described, these legal constraints are difficult to put in place and coordinate with each other, and are quickly thwarted by the major foreign powers (Cloud Act, etc.).

The idea is not to demonstrate that an interpretation based on dependency theories would place Europe and Europeans in a situation similar to that of the colonised countries of the last century. However, some similarities are possible. Technological (and not economic) dependence, as far as AI is concerned, creates difficulties in defending the fundamental interests of States. Being dependent on foreign powers to defend your own interests inevitably places you in a situation of dependence, and ultimately weakens the position of the States concerned.

CONCLUSION

It is difficult to draw a conclusion between an attempt to analyse a recent phenomenon, artificial intelligence, and a theoretical reading based on the concept of dependence, which stems from decolonisation. It may be a little audacious to embark on such an analysis, but situations of dependence are evolving and can therefore take on new faces. From the economic dependence of newly decolonised countries to the technological dependence of countries of lesser dimensions, there is inevitably a corollary impact on power and the defence of national interests. This is exactly where the focus of our analysis lies: dependence accentuates the loss of power through the difficulty of autonomously managing one's own fundamental interests.

The AI race has been well and truly underway for a number of years now, and a few giants have arrogated to themselves, and continue to do so, the capture of the data needed to develop their tools. The United States and China seem to be waging a technological and economic war in which the rest of the world is trying, without any real success, to maintain an acceptable position. Without talking about the geopolitics of data or AI, it is clear that a form of bipolarisation is taking shape, with the

US and China dominating global relations in this segment. Backed by GAFAM or BATX, these two powers are in a position to 'dominate' their competitors. The immense quantities of data that GAFAM and BATX are able to capture enable these two powers to develop particularly powerful artificial intelligence tools. In addition to the data that drives these tools, which are useful to their interests, they also have the capacity to produce the hardware needed to develop such tools (semiconductors in particular).

The situation of the European States and the European Union can be seen as a form of dependence on these two major technological powers. The current response to maintaining a sufficient degree of power is to strengthen legislation on these technological issues. European Chips Act, Digital Markets Act, Digital Services Act, Artificial Intelligence Act,... are all examples of attempts to maintain a position in the new technologies sector, and more specifically in AI-related technologies. However, the decision-making process and the divergence of interests between Member States not only slows down the process, but also prevents the creation of a real doctrine in this area (including research and investment). The impossibility of creating technology giants, following the example of China and the US, inevitably places Europe in a situation of dependence. In the course of their daily lives, European citizens communicate an infinite amount of data to foreign operators such as Google, Meta, Alibaba, Amazon and TikTok. Unconsciously, citizens, economic players and also public institutions are giving access to their data, thereby enabling the development of AI tools by foreign powers. These tools are then sold to them by these same powers, which ultimately control the national interests of their customers... Defending national (or European) interests for national security purposes requires the use of increasingly powerful tools, most of which have been developed in the US or China, using European data among other things. These two powers are killing two birds with one stone, since not only are they offering tools that are useful for defending our interests, but they are also capturing critical, even classified, data.

This type of addiction is like a downward spiral in which the dependency becomes stronger over time. Without wishing to be forward-looking, Dos Santos' reflection below nevertheless suggests a bleak future for states in a situation of dependency. This should be seen in the context of the political polarisation seen in European countries in recent years:

“Everything now indicates that what can be expected is a long process of sharp political and military confrontations and of profound social radicalization which will lead these countries to a dilemma : governments of force which open the way to facism, or popular revolutionary governments, which open the way to socialism. Intermediate solutions have proved to be, in such a contradictory reality, empty and utopian” (Dos Santos, 1970).

This is a pessimistic and utopian conclusion... But beyond that, it opens the door to a transdisciplinary field of research into these issues of technological dependency. We have taken the gamble of going off the beaten track by proposing a reading of the geopolitics of AI through the theory of dependency, which might seem far-fetched in a scientific context. But the discussion is not devoid of interest and shows that changes in our world sometimes awaken the ghosts of the past...

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