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Artificial Intelligence "AI" and its impact on global Economy

الذكاء الاصطناعي وأثره على الاقتصاد العالمي

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Abstract

As the spreading of various technologies endowed with Artificial Intelligence ("AI") has increasingly helped boost corporate profitability, the financial services industry is investing in developing "AI" models. This paper focuses on the impacts of "AI" on society and economy. Actually, it has been found out that according to many statistical predictions made by famous firms (McKinsey & Company, PwC) the world economic impact of "AI" is expected to between $9.1 and $15.7 trillion by 2030, whereas the expectations are pessimistic as regards its impact on employment. In the other hand, several ethical questions are relevant to the rise of AI.

Keywords : Artificial Intelligence, Deep learning, Machines, Humans.

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ملخص

ساعد الانتشار المتزايد لتقنيات الذكاء الاصطناعي في تعزيز ربحية الشركات المختلفة بما فيها ذات الصلة بالخدمات المالية التي تستثمر في تطوير نماذج الذكاء الاصطناعي. هذه الورقة محل الدراسة تركز على التأثيرات الاجتماعية والاقتصادية للانتشار الواسع والسريع لتقنيات الذكاء الاصطناعي. ووفقا للعديد من التوقعات الإحصائية التي قدمتها الشركات الشهيرة يُتوقع أن تساهم تكنولوجيات الذكاء الاصطناعي في زيادة النمو العالمي بمقدار يتراوح بين 9.1 و 15.7 تريليون دولار بحلول عام 2030، في حين أن التوقعات متشائمة فيما يتعلق بتأثير هذه التقنيات على التوظيف. من ناحية أخرى، هناك العديد من الأسئلة الأخلاقية ذات الصلة بصعود الذكاء الاصطناعي تفرض نفسها.

الكلمات المفتاحية: الذكاء الاصطناعي، التعلم العميق، الآلات، البشر.

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1. INTRODUCTION

In today's digital age, we find ourselves positively immersed and surrounded by technological advancement in a way that we are becoming increasingly familiar and reliant on it. The most significant technological force whose rise is kicking into high gear, turning ripples into waves, is none other than “AI” (artificial intelligence). Whenever we use the Google search engine, or ask Amazon Alexa a question, we are interacting with “AI”. AI-enabled technologies make our lives easier, such as industrial robotics, robotic medical assistants, smart games, financial forecasting software, big data algorithms in health and bioinformatics, unmanned cargo-planes, ambulance drones, general robots and many more. From powerful deep learning projects created by React developers to scientists further developing the world of medicine, the true applications of artificial intelligence are only starting to present themselves and being applied to their full advantage. A particularly notable point is that more and more sectors are concerned (industry, health, agriculture, finance, banking, insurance, transport, etc.). Actually, the power of AI is transforming nearly every industry. Globally, the world economic impact of “AI” is expected to be around $13 trillion by 2030, boosting global GDP by about 1.2 percent a year, according to McKinsey & Company (The McKinsey Global Institute (MGI), September 2018, p. 1).

In the other hand, as Artificial intelligence will likely surpass human intelligence in the future and the spectacular progress achieved by researchers in the area of “AI” will lead to a sudden and unpredictable increase in potentially automatable tasks which raises questions about human activities. The same for the promise of more equality, more democracy or in contrast, Big Data and AI will lead us to more and more totalitarian societies. In the other hand, AI is becoming a real tool of power. This applies to hard power (military applications) as well as to soft power (economic impact, political and cultural influence). Consequently, AI is to be an essential dimension of the current global technological contest. The United States, China and Russia are competing to dominate the market and impose their power. Europe is lagging behind and is trying to react by

issuing new regulations. As for Africa, it has become a battleground for "digital empires". The Russian president was among the first to express the geopolitical stakes of these transformations: a new world order is being played out on the battlefields of AI and quantum computing. When asked about Artificial Intelligence (AI) in front of an audience of Russian schoolchildren and journalist, in September 2017, Vladimir Putin declared that "Artificial intelligence is the future not only of Russia, but of all mankind. Whoever becomes the leader in this field will be the master of the world" (Miailhe, 2018, p. 105). The third pillar of national power, according to Carr (2001), is to influence public opinion. Thanks to the rapid net adoption of artificial intelligence, the competition among all actors in the international political economy in the 21st century is shifting from the physical to the cognitive realm. Military formations will no longer be the main focus of the enemies plan and game to destroy them. Influencing public opinion is the ultimate weapon as the focus is shifted from hard power to soft power capability by embracing, developing and harnessing "AI" (Tugrul Keskin, 2021, pp. 7-8).

A day will come in the future when "AI" gets smart enough so as to be able to dominate human intelligence in all three areas—mechanical, thinking, and feeling. This is the scenario widely known as the Technological singularity a time at which technological growth will become radically faster and uncontrollable, resulting in unforeseeable changes to human civilization. One of the relevant futuristic bleak scenarios is the doomsday scenario considered by 'Bostrom' to be the most likely outcome, if "AI super-intelligence" emerges, while others believe that a more positive way to rationalize the emergence of superior "AI" is to think of it as the next stage of human evolution (Huang Min-hui, 2021, pp. 164-169).

So what is "AI"? What is its influence on the digital economy? What its impact on Global economy? And what are the challenges posed by it?

2- Defining Artificial Intelligence (AI):

Although, it is well known that there is no widely accepted definition of Artificial Intelligence (AI) as it is an ever-evolving field, the term "AI" has been used with many different senses, both within the field and outside it. Some authors define it as the part of computer science concerned with designing systems that exhibit characteristics we associate with intelligence in: understanding language, learning, reasoning, solving problems, and so on (Barr & Feigenbaum, 1981) (Barr Avron, 1981, p. 3).

John McCarthy who was in 1956 one of the founders of the discipline of Artificial Intelligence described AI as "It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable" (Vinod De Chandra S.S., 2021, p. 2). Yet years before the introduction of this definition, Alan Mathison Turing, often referred to as 'the father of computer science' made a famous assertion famously known as the "Turing Test" in a landmark article published in October 1950 in the philosophy journal Mind (Turing, 1950, pp. 433-460). He predicted that by the year 2000 it would be feasible to write a program that would, after five minutes of questioning, have at least a 30% chance of fooling an average conversational partner into believing it was a human being (Turing, 1950). Turing was able to put his hypotheses and questions into actions by testing whether "machines can think"? After series of testing (later was called as Turing Test) it turns out that it is possible to enable machines to think and learn just like humans, and if the machine could successfully pretend to be human to a knowledgeable observer, then it certainly should be considered intelligent. While this test which uses the pragmatic approach to be able to identify if machines can respond as humans, has undergone much scrutiny since its publish, it remains an important part of the history of AI sometimes defined as "intelligence demonstrated by machines", in contrast to the natural intelligence displayed by humans and other animals. Some of the activities that it is designed to do is speech recognition, learning, planning and problem solving. Some authors define AI as the study of "intelligent agents" (or "rational agents") that

receive percepts from the environment and perform actions. Stuart Russell and Peter Norvig instead delve into four potential goals or definitions of "AI", which differentiates computer systems on the basis of rationality and thinking vs. acting, so that the human approach concerns systems that think like humans and those that act like humans and the ideal approach regards systems that think rationally and those that act rationally. Alan Turing's definition would have fallen under the category of "systems that act like humans" (Stuart Russell, 2010, pp. 2-4).

Moreover, Artificial intelligence (AI), sometimes called Computational Intelligence (David L. Poole, 2010, pp. 1-22), is an interdisciplinary field of study drawing heavily on domains including: computer science, neuroscience, cognitive science, engineering, logic, mathematics, statistics, natural sciences, physiology, ethics, linguistics, psychology and philosophy. "Artificial Intelligence" is often used interchangeably with "machine learning" and "deep learning". With machine learning, algorithms are trained to identify relationships, develop predictive models, and make decisions. Nowadays "AI" techniques developed with the inspiration from nature is becoming popular. A new area of research what is known as Nature Inspired Computing is emerging. Biologically inspired AI approaches such as neural networks and genetic algorithms are already in place. There are many AI applications that we witness: Robotics, Machine translators, chat-bots, voice recognizers, computer vision, recommendation engines, and automated stock trading, among others. "AI" techniques are used to solve many real life problems. Some kind of robots are helping to find land-mines, searching humans trapped in rubbles due to natural calamities.

Artificial Intelligence ("AI") can also be classified into analytical, human-inspired, and humanized "AI" depending on the types of intelligence it exhibits (cognitive, emotional, and social intelligence) or into Artificial Narrow, General, and Super Intelligence by its evolutionary stage. What all of these types have in common, however, is that when "AI" reaches mainstream usage it is frequently no longer considered as such. This phenomenon is described as the "AI" effect, which occurs when onlookers discount the behavior of an "AI" program by arguing that it is not real

intelligence (Haenlein Michael, 2019, p. 2), thus, many systems, ideas, and technologies have been developed in the "AI" universe, without really being called 'AI products'. They are rather given appropriate and specific names such as intelligent computer graphics, machine learning, e-commerce etc.

In the other hand, amongst the many features of "AI" one can distinguish the following:

1-"AI" is capable of predicting and adapting by using algorithms that discover patterns from huge amounts of data.

2-It makes decisions on its own, by augmenting human intelligence, delivering insights and improving productivity.

3-It relies on continuous learning to construct analytical models by using algorithms of which "AI" technology will find out how to perform tasks through innumerable rounds of trial and error.

4-"AI" is forward-looking as it is a tool that allows people to reconsider how to analyze data and integrate information, and then use these insights to make better decisions.

5-it is capable of motion and perception.

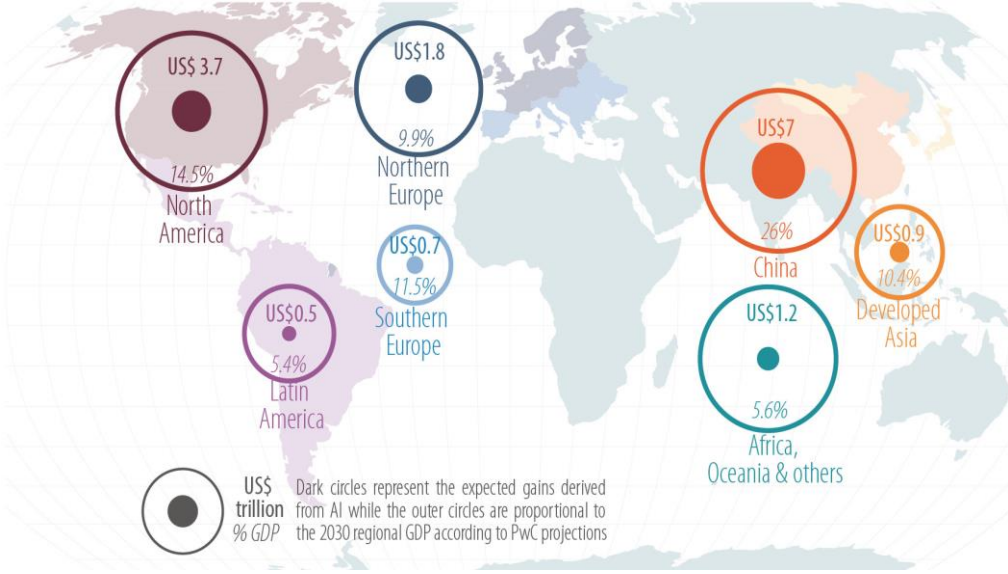
3- **The Economic Impact of Artificial Intelligence:**

Artificial intelligence (AI) can transform the productivity and GDP potential of the global economy. Strategic investment in different types of AI technology is needed to make that happen. Labor productivity improvements will drive initial GDP gains as firms seek to augment the productivity of their labor force with "AI" technologies (assisted, autonomous and augmented intelligence) and to automate some tasks and roles. In addition, increased consumer demand will result from the availability of personalized and/or higher-quality "AI-enhanced" products and services.

The British PricewaterhouseCoopers (PwC), which is the second-largest professional services network in the world and one of the Big Four accounting firms, estimated in 2018 that global GDP could be up to 14% higher in 2030 as a result of "AI" – the equivalent of an additional $15.7 trillion – making it the biggest commercial opportunity in today's fast

changing economy. According to "PwC", 58% of total economic gains or $9.1 trillion of additional GDP by 2030 will come from product enhancements, stimulating consumer demand. This is because "AI" will drive greater product variety, with increased personalization, attractiveness and affordability over time. The greatest economic gains from 'AI' (see Fig. 1) will be in China (26% boost to GDP in 2030) and North America (14.5% boost), equivalent to a total of $10.7 trillion and accounting for almost 70% of the global economic impact. The biggest sector gains will be in retail, financial services and healthcare as "AI" increases productivity, product quality and consumption (PwC, February 2018, p. 3).

Figure 1 – Expected gains from AI in the different regions of the world by 2030



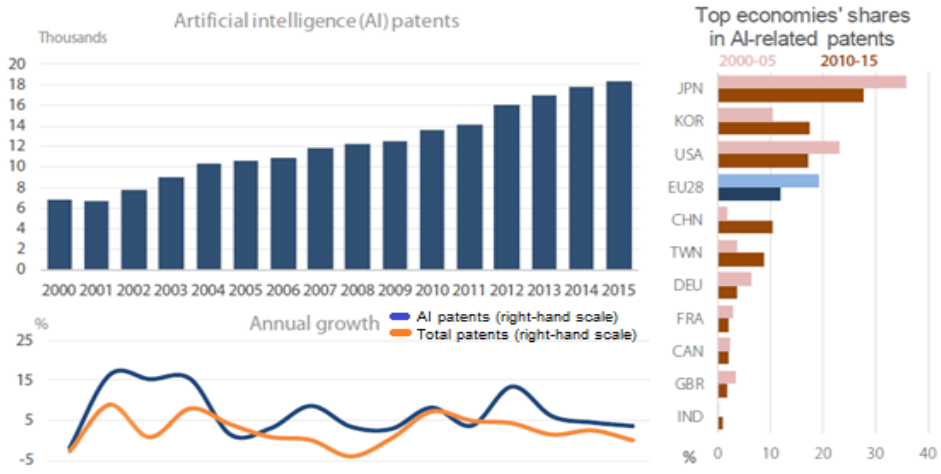
Source: The macroeconomic impact of artificial intelligence, PwC, 2018, page 46.

Figure 1 represents the expected gains, by geographical region, derived from Artificial Intelligence (AI) in 2030 that will specifically enhance GDP by 26% equivalent to $7 trillion (china), 14.5% equivalent to $3.7 trillion (North America), 11% equivalent to $0.7 trillion (Southern Europe), 10.4% equivalent to $0.9 trillion (Developed Asia), 9.9% equivalent to $1.8 trillion (Northern Europe), 5.6% equivalent to $1.2 trillion (Africa, Oceania & others) and 5.49% equivalent to $0.5 trillion (Latin America).

3-1 **Artificial Intelligence in production:**

The rapid increase in computing power and connectivity has made it possible to compile and share large volumes of valuable data, which is now more accessible than ever. This has created momentum for "AI technologies". Importantly, "AI" patents have been increasing globally (see Figure 2). Although measuring the development of 'AI' technologies is challenging as the boundaries between 'AI' and other technologies blur and change over time, the Organization for Economic Co-operation and Development (OECD) has classified all inventions belonging to the "Human interface" and "Cognition and meaning understanding" categories listed as being AI-related. According to OECD, the development of AI-related technologies, as measured by inventions patented in the five top IP offices (IP5), increased by 6% per year on average between 2010 and 2015, which is higher than the annual growth rate observed for other patents (OECD, 2018, p. 22). Table 1 represent number of "AI" patents per year in the period 2000-2015, with the appropriate yearly growth rate, whereas Table 2 represents the annual growth of the top inventors economies.

Figure 2 – AI patents worldwide, 2000-2015



Source: OECD, Science, Technology and Industry Scoreboard, 2017, P 22

Table 1: **Patents in Artificial Intelligence technologies, 2000-2015**
Number of IP5 patent families, annual growth rate

Year	Artificial intelligence (AI) patents	Annual growth rates (%)	
		AI patents (right-hand scale)	Total patents (right-hand scale)
2000	6 827	28,7	13,9
2001	6 689	-2,0	-2,7
2002	7 797	16,6	9,0
2003	9 004	15,5	1,0
2004	10 405	15,6	8,1
2005	10 556	1,5	4,1
2006	10 876	3,0	1,0
2007	11 822	8,7	0,2
2008	12 228	3,4	-3,9
2009	12 580	2,9	0,6
2010	13 617	8,2	7,3
2011	14 123	3,7	5,0
2012	16 043	13,6	4,4
2013	17 019	6,1	1,6
2014	17 787	4,5	2,6
2015	18 429	3,6	0,2

Table 2: **Annual growth rates and top inventors' economies, 2000-2015**

Country	Share of economies in

	AI-related IP5 patent families, %		
	2000-05	**2010-15**	
JPN	35,8	27,9	Japan
S. KOR	10,5	17,5	South Korea
USA	23.2	17.2	United States
EU28	19,1	11,9	EU28
CHN	1,7	10,4	China
TWN	3,6	8,9	Taiwan
DEU	6,3	3,7	Germany
FRA	2,8	2,1	France
CAN	2,4	2,0	Canada
GBR	3,3	1,9	United Kingdom
IND	0,2	1,0	India

Source: OECD, Science, Technology and Industry Scoreboard, 2017.

Figure 2 (data extracted from tables 1 &2 into drawings) represents the histograms of the global number of AI-patents during the period 2000-2015, which is increasing steadily (from 6689 patents in 2001 to 18429 patents in 2015), along with the charts of the annual growth rates (AI patents: right-hand scale & Total patents: right-hand scale) within the same period. It also shows the annual growth rates of top inventors' economies in periods 2000-05 ad 2010-15. The countries at the forefront of research during this period were Japan, South Korea and the United States, which together accounted for nearly two-thirds of AI-related patent applications. South Korea, China and Taiwan have recorded a remarkable increase in the number of "AI" patents compared to their past results, whereas EU Member States contributed to 12 % of the total AI-related inventions over 2010-2015, a decrease from the 19 % recorded in the previous decade. AI technological breakthroughs such as "machine learning" coupled with emerging technologies such as big data and cloud computing are strengthening the potential impact of "AI" (OECD, 2018, p. 22).

The World Intellectual Property Organization (WIPO) believes that the large number of machine learning patents shows that it is currently the main field of application of artificial intelligence representing a massive 89% of filings mentioning this "AI" technique and 40% of all AI-related patents,

while deep learning and neural networks are the fastest growing technologies terms of patent filings. Deep learning showed an impressive average annual growth rate of 175% in the period 2013-2016, reaching 2,399 patent filings in 2016, whereas neural networks grew at a rate of 46% over the same period, with 6,506 patent filings in 2016 (WIPO, 2019, p. 14). The OECD also attributes recent advances in artificial intelligence to the development of deep learning using artificial neural networks.

The key elements in Industrial "AI" can be characterized by 'ABCDE'. These key elements include Analytics technology (A), Big data technology (B), Cloud or Cyber technology (C), Domain knowhow (D) and Evidence (E). Analytics is the core of AI, which can only bring value if other elements are present. Big data technology and Cloud are both essential elements, which provide the source of the information (data) and a platform for Industrial AI. Domain knowhow is the key element for understanding the problem and solving it; the system so that right data with the right quality can be collected; the physical meanings of the parameters and how they are associated with the physical characteristics of a system or process; and how these parameters vary from machine to machine. Evidence is also an essential element in validating Industrial "AI" models and incorporate them with cumulative learning ability (Jay Lee, 2018, pp. 20-21). Moreover, "AI" is considered one of the cornerstones of the growing digitalization of industry ('Industry 4.0'). Technologies underpinning this process – such as Internet of Things (IoT), 5G, cloud computing, big data analytics, smart sensors, augmented reality, 3D-printing and robotics – are likely to transform manufacturing into a single cyber-physical system in which digital technology, internet and production are merged in one. Besides, with the development of deep learning using artificial neural networks – the main source of recent progress in the field – "AI" can be applied to most industrial activities from optimizing multi-machine systems to enhancing industrial research (OECD, 2018, pp. 52-54). In smart factories, production processes would be connected and "AI" solutions would be essential in linking machines, interfaces and components (using, for example, visual recognition). Large amounts of data would be collected and fed into "AI" devices, which in turn would optimize the manufacturing process. "AI" can be applied to most industrial activities, from optimizing multi-machine

systems to improving industrial research and due to the development of automated learning processes, the deployment of "AI" in production is likely to increase and drive the competitiveness of the manufacturing sector through the efficiency and productivity gains enabled by data analytics. However, we are still in a transition to Industry 4.0 that may not be realized until at least the middle of the next decade, as it requires a combination of various technologies.

3-2- **Artificial Intelligence in employment:**

According to Zeira (1998), Hémous & Olsen (2014), Acemoglu & Restrepo (2016) and Aghion et al. (2017), "AI" can spur growth by replacing labor, which is a limited resource, by capital, an unlimited resource, both in the production of goods and services and in the production of ideas (Philippe Aghion, 2019, p. 153). Yet, we argue that "AI" may inhibit growth if combined with inappropriate competition policy. Therefore concerns that the increasing sophistication of "AI" may negatively affect the labor force and lead to mass unemployment by jeopardizing skilled and semi-skilled workers and reduce the size of the middle class, have made "AI" one of the parts of the debate on the link between Robotization/Automation and jobs, which gives rise to concern about a massive and rapid disappearance of the latter. Indeed, the increasing adoption of automation, artificial intelligence (AI), and other technologies suggests that the role of humans in the economy will shrink drastically, wiping out millions of jobs in the process, which gives rise to fears of the massive destruction of jobs in developed countries, a large retraining skills, a widening of the digital divide within the social body, and more broadly, a trans-humanization of society (Bostrom, 2014). Nonetheless the real picture is more nuanced: thought these technologies will eliminate some jobs, they will create many others (Rainer Strack, March 2021, p. 1).

Actually, the threat that automation will eliminate a broad swath of jobs across the world economy is now well established. As artificial intelligence (AI) systems become ever more sophisticated, another wave of job displacement will almost certainly occur. It is though a distressing picture. In Accenture PLC's global study of more than 1,000 large companies already using or testing AI and machine-learning systems, the emergence of

entire categories of new, uniquely human jobs are identified. These roles are not replacing old ones. They are novel, requiring skills and training that have no precedents. Among the many job categories "AI" will create, we can find trainers, explainers and sustainers. Trainers are human workers to teach "AI" systems; explainers will bridge the gap between technologists and business leaders, whereas sustainers will help ensure that "AI" systems are operating as designed and that unintended consequences are addressed with the appropriate urgency (H. James Wilson, 2017, pp. 14-16). For many authors, the new prospects for automation opened up by "AI" require rethinking the division of labor between humans and machines, since the progress made in this field makes "AI" systems become more efficient than humans in many areas such as diagnosis or predictive analysis. Based on this observation of the growing superiority of AI systems, McAfee and Brynjolfsson (2017) argue that it is necessary to rethink the Human-Machine partnership. In this perspective, they consider the necessity to move towards a synergy between human judgment and algorithms by reversing this partnership. Rather than considering machines as suppliers of data that will be used by humans to make a decision or pass judgment on a situation, they propose that the judgment of humans, their "intuitions" serve as data for the algorithms. The idea of distributing tasks between Human and machine according to their strengths and weaknesses is not new. It echoes an old approach to automation that goes back to the work done by Fitts and his colleagues in the 1950s (Fitts, 1951). It should be noted that present-day humans apparently consider that machines surpass humans for detection, perception, and long-term memory, while in 1951 Paul Fitts and his colleagues argued the opposite held true (J.C.F. de Wintera, 2015, p. 5340).

4- Ethics of Artificial Intelligence:

Despite the enormous role played by "AI" in daily lives of billions of people, questions about the ethics of "AI" become more pressing than ever. As "AI" technologies continue to advance, they also generate downside risks and challenges, derived from malicious use of technology or deepening inequalities and divides. We believe as one of the purposes of "AI" is to

augment human intelligence, "AI" should make all of us better at our jobs, and that the benefits of the "AI" era should touch the many, not just the elite few. Complex ethical issues surround current and near- future "AI" systems. For instance, many countries are developing autonomous weapon systems capable of identifying and attacking a target without human intervention. Those autonomous weapons systems offer the potential to reduce risks to military personnel and civilians by being better than combat-strenuous soldiers at distinguishing between civilians and combatants and at making reasonable trade-offs between military advantage and risk or harm to civilians. But should we as a society give machines this kind of moral decision-making power? Who's at fault if an autonomous weapon system attacks a hospital or school? Does the exercise of deadly force always require "meaningful human control" to be legitimate? And so a host of ethical, legal, social and political questions have arisen. Given this, humans need to maintain control over such weapon systems to ensure that the use of such weapons is morally justified in each and every case (Liao, 2020, p. 26). Therefore using "AI" unethically is actually harmful and scary. For this purpose, a trustworthy "AI" should comply with all applicable legislation and regulations and a set of requirements; specific lists of evaluations are intended to help verify the application of each of the main requirements. In the same context, "Big Data" are the main fuel for high performing computing machines that use Artificial intelligence and Machine learning algorithms, and the collection of those data may contain several biases and unethical elements that can confuse or deviate an algorithm to behave differently and generate a whole unethical system which could be hazardous to society. Targeted advertisement, society bias, and fake news are examples among many others. There exist various occurring cases where an ML (Machine Learning) algorithm was misused, sometimes unwillingly inasmuch as all possible model behaviors haven't been previously either predicted or tested and found to behave inappropriately, hence dependable "AI" requires safe, reliable and robust algorithms that address mistakes or inconsistencies throughout all the life cycle phases of the "AI" systems.

In addition, Companies that use "Big data" need to have a huge amount of data so as to know as much about the market (consumers) as possible, thereby, among other functions, business analytics analyze data sets, enable

predictions and insights of customer behaviors, mimic human decision-making or categorize vast, highly complicated sets of information. Artificial intelligence "AI", which has been making a leap and bound progress in this field, has made that focus on customers increasingly accurate and efficient. Users' digital footprints such as social-media data, instant messages, email etc. create rich sources of Big Data to fuel "AI" algorithms. The relevant companies massively get those ubiquitous data either directly from contact details and purchase history of users (consumers), or discreetly through the use of cookies and other tracking technologies in which case the data subject may be unaware of data collection and use. So, Artificially intelligent systems should make users' lives easier and support them in complex decisions or even make these decisions completely autonomously. However, at the time of writing, the processes and decisions in an intelligent system are usually not transparent for users (Mandy Goram, 2021, pp. 12-13). As business has been becoming more invasive, the issue of up-front privacy matters, thus understandably, users are wary about automated technologies that obtain and use their data, which may include sensitive information. As "AI" models depend on data quality to deliver salient outcomes, their governance and continued existence hinge on privacy protection being integral to their design. As a matter of fact, citizens should have full control over their own personal data, whereas their data should not be used for harm or discrimination against them. In the other hand, tractability should be guaranteed for "AI" systems, which should consider and guarantee accessibility and the full range of human capabilities, skills and requirements aiming to promote positive social change and improve environmental sustainability, let alone the fact that mechanisms should be placed to ensure accountability and responsibility for "AI" systems and their products.

5- Conclusion:

In this paper, we defined the concept of Artificial intelligence ("AI") and its application in technology areas. We emphasized that it has a deep impact on Society, politics as well as on Economy. We found out that many countries are competing to dominate the market of "AI" which is ever fast evolving. It is estimated that by 2030, the global GDP could be up to 14%

higher in 2030 as a result of "AI", the equivalent of an additional $15.7 trillion ('PwC' forcast). We argued that despite "AI" will create many jobs, it is expected that AI- enabled Robotization/Automation will eventually lead to the annihilation of a huge number of jobs. Many ethical questions arose as a result of the introduction "AI" and its fast becoming the cornerstone of innovation. The initial glimpses of the trough of disillusionment are related to unfairness, inequality, privacy and accountability. "AI" should whatsoever comply with all applicable legislation and regulations in the matter.

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