Humans and robots: How to create a better future together?[1, 2]

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ABSTRACT

Going beyond liability of robots, this research aims to propose and explore best ways to create a society where "emerging technologies" are smartly and fully integrated in our societies. It is necessary to clarify their integration to try to give an objective background to reflect on their liability.

Keywords: Contracts, Robots, AI, Artificial intelligence, Liability, responsibilities, future, Workplace

INTRODUCTION

Today we are experiencing an unprecedented revolution in the labor market. With the emergence of robotization and artificial intelligence, humans are pushing the boundaries of productivity and research.[3]

All sectors are affected by this phenomenon. In previous labor market revolutions, jobs that could be described as "more intellectual" were spared, but today robots are able to think and analyze more quickly than humans. This phenomenon can be observed, for example, in the banking sector. Trading rooms, once full of agitation and human beings speculating on stocks, are now full of computers that make all day predictions of changes in values.

Western societies and even all the countries of the world are undergoing a profound transformation and today we have already adopted a very serious and advanced robotization of society. For example, today in South Korea, one of the most technologically advanced countries

[1] Editor's note: This paper was prepared for the course "International Contract Management" facilitated by Dr Paul D. Giammalvo of PT Mitratata Citragraha, Jakarta, Indonesia as an Adjunct Professor under contract to SKEMA Business School for the program Master of Science in Project and Programme Management and Business Development. http://www.skema.edu/programmes/masters-of-science. For more information on this global program (Lille and Paris in France; Belo Horizonte in Brazil), contact Dr Paul Gardiner, Global Programme Director, at paul.gardiner@skema.edu.

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[3] Rise of the robots: the implications for legal teams, Lucy Trevelyan, 2017
https://www.ibanet.org/Article/NewDetail.aspx?ArticleUid=9bfea263-fa14-4e88-981f-5efa7b587bd5

in the world, people are already thinking about putting an end to physical money. Robots and artificial intelligence are beginning to control all sectors of the economy.[4]

If robots are taking up more and more space in our lives, this is also the case in the field of project management.

Today, robots and artificial intelligence are becoming cornerstones in the success of many projects. They become essential. They become full stakeholders. For example, in IT-projects, artificial intelligence helps project managers to sort data and make it usable. Without this added value, some projects would not be possible.

		GUILD DEFINITION[5]	EXAMPLES
Project		Special environment created in order to deliver one or several business outcomes, in a frame of a specified resources.	We can here use the example a project to create a new model of more aerodynamic aircraft. Artificial intelligences nowadays manage to model structures on their own and are therefore an integral part of the project.
Program	Strategic Program	Set of related projects, combined with the purpose to attain the sponsor's future state. This program is linked to a specific strategic goal and its early results influence the further decision-making process	The integration of robotic production lines on all plants of a multinational group can be considered as a strategic program that aims to increase productivity and therefore turnover.
	Operational Program	Interdependent constituent projects, aiming to affect sponsor's day-to-day operations	In companies that operate with an ERP, the implementation of a new automated module can impact all the services of a company and therefore affects day-to-day operations.
	Multi-Project Program	Created interdependence of constituent project in order receive benefits from the synergy	A program monitoring software can significantly change the management of a program.

[4] South Korea gets ready to embrace coinless society, Zlata Rodionova, 2017 https://www.independent.co.uk/news/business/news/south-korea-coinless-society-cash-tender-stores-prepaid-cards-trial-banks-a7694736.html

[5] Planning planet (2015, November 2). GUILD OF PROJECT CONTROLS COMPENDIUM and REFERENCE (CaR)

	Mega-Project	Project with significantly larger scale than the typical sponsor's projects have.	The creation of an autonomous vehicle is a mega project that can affect an entire market, in our case the automotive market.
Portfolio	Portfolio of Projects Portfolio of Assets	Is investment portfolio, where the main aim is to minimize risks and maximize returns. Owner or Contractor has a portfolio of assets, that mean set of resources, which are dedicated to the projects, with the aim to generate those resources into the most desirable return.	To monitor its population, the Chinese government is now implementing various projects, including the installation of cameras in all major cities linked to facial recognition software to identify the various citizens in real time. The return is immense because it reduces the risks and costs of physical police surveillance.

Figure 1 : Robots and IA inside projects, programs and portfolios, by author

The main characteristic of robotization and intelligence is the uncertainty of its evolution.
How can we adapt to the sudden and rapid changes brought about by this new era of the world of work and humanity in general?

One of the biggest uncertainties about the robotization is about **employment**. Indeed, some previsions say that it can be a loss of jobs **between 9% and 47%**[6] in the developed country like the United-States of America. For India and China, previsions are even more pessimistic with a loss **between 25% and 69%** of jobs. Obviously, consequences of it could be enormous, for example a global nastiness from the population, which will want to make its voice heard by the world.

Robotization and rise of AI are one the biggest gap the humanity has to deal with since the beginning of the Human Race.

This is a huge uncertainty and it's really hard to predict what will happen in the long term and even in the short term. The only certainty we have is that it will happen.

John Maynard Keynes was already thinking about this during the last century and created the **Theory of technological unemployment**. With his vision centered on Industry sector, a robot in this sector can replace three human jobs. That's why for him, even if productivity is growing with robots, it can't be equitably redistribute inside the society.

But nowadays, it becomes a duty to react and take responsibilities. Influential people are already taking part in the debate, like the former CEO of Google Eric Schmidt or Elon Musk.

[6] No one is prepared to stop the robot onslaught. So what will we do when it arrives? Steve LeVine, 2017 https://qz.com/940977/no-one-is-prepared-to-stop-the-robot-onslaught-so-what-will-we-do-when-it-arrives/

Eric Schmidt: "So we might as well assume it's going to happen and make it work well".

Elon Musk: "It's going to be a massive social change".[7]

That's why, we have to anticipate and predict what we have to do with this (re)volution!

One of the major preoccupations is quite philosophical. If robots are taking all the Human jobs, **"what will human do?", "what will be the purpose of their lives?".** We never try to imagine a world without human jobs and that's a huge challenge. As Simon Fraser says, **"Doing trade deals and robotics without consideration of the people displaced is insane"**. A lot of people have satisfaction, dignity through labors work, even if it's a routine.

European Union tries to do something but can' go against the evolution of technology when nobody else cares about this issue in a globalized world. But some ideas are emerging like the **Universal Basic Income (UBI)** which can completely change the Welfare State system in the western countries. For some experts, this evolution is fundable and realistic. Even if **UBI can solve the needs issue of citizen, it can't solve the issue to occupy them and create a goal in their lives.**

However, some optimistic people like Wallach supposes that "people would create their own jobs. Or government would create new form of work". Also, to receive UBI, it can be interesting to create criteria and **encourage people to do "something meaningful and constructive to society".**

Moreover, in this robotic revolution, an other issue isn't explore enough. We are living in a world where people think that technology can't be stopped. It is like an unstoppable and inevitable force, but we forget that human being is at the origin of it. Technology can be controlled and framed. Bill Gates is in a good position to speak about it. He is speaking about **Robot Taxes**. Burrow is also speaking about **"Human content requirement"** and a 50% human quota inside companies.

It's possible and even necessary to focus again on our well-being and comfort, something that we have partially lost with a society which focus on productivism with the dirty works explosion. With the robotization, we have the opportunity to create a new sustainable society.

For example, **the Venus project** is an interesting project and also a thinktank which is trying to conceive alternative society models.[8]

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[7] No one is prepared to stop the robot onslaught. So what will we do when it arrives? Steve LeVine, 2017 https://qz.com/940977/no-one-is-prepared-to-stop-the-robot-onslaught-so-what-will-we-do-when-it-arrives/

[8] The Venus Project from The Venus Project France YouTube channel; https://www.youtube.com/watch?v=rhcLzWk1U28; https://www.thevenusproject.com/

To transition with the subject, robots and artificial intelligence therefore take a very important place in our lives and replace us in the accomplishment of many tasks.

However, many points need to be clarified, if they can think like or even better than humans, what is their responsibility in the tasks they perform? How to include their responsibility in a contract?

Today, robots allow us to create the design of our future aircraft and even spacecraft. They push us to innovate more quickly, but what is their responsibility in case of failure? For example, Airbus uses the computing power of artificial intelligence to optimize the design and structure of their airplanes and future aircraft.[9]

Other example, Google, Uber, GAFAs in general and the automotive industry are creating autonomous vehicles. Pittsburgh is today the test city for creating the car of the future. However, as **Dr Gerlind Wisskirchen says: "*Risk analysis must be carried out in advance... even the best system can make mistakes.*[10]**

However, there are limits, the machines are not infallible and can do mistakes. This year, for example, a person died in a car accident in Pittsburgh involving an autonomous vehicle.[11] So, whose fault is it? How to create a viable and reassuring environment?

If, we do not want to plunge into worrying pessimistic universes like in the film I Robot, we must therefore bring a set of rules, like the author Isaac Asimov who predicts the three laws of robotics long before their development, which is still a source of inspiration today.

Before the development of the subject, you will find below a root cause analysis:

[9] TEDx, The incredible inventions of intuitive AI, Maurice Conti, 2017, https://www.youtube.com/watch?v=aR5N2Jl8k14&t=702s

[10] Rise of the robots: the implications for legal teams, Lucy Trevelyan, 2017 https://www.ibanet.org/Article/NewDetail.aspx?ArticleUid=9bfea263-fa14-4e88-981f-5efa7b587bd5

[11] Uber has terminated its self-driving car operators in Pittsburgh, Alison Griswold, 2018 https://qz.com/1326155/uber-has-terminated-its-self-driving-car-operators-in-pittsburgh/

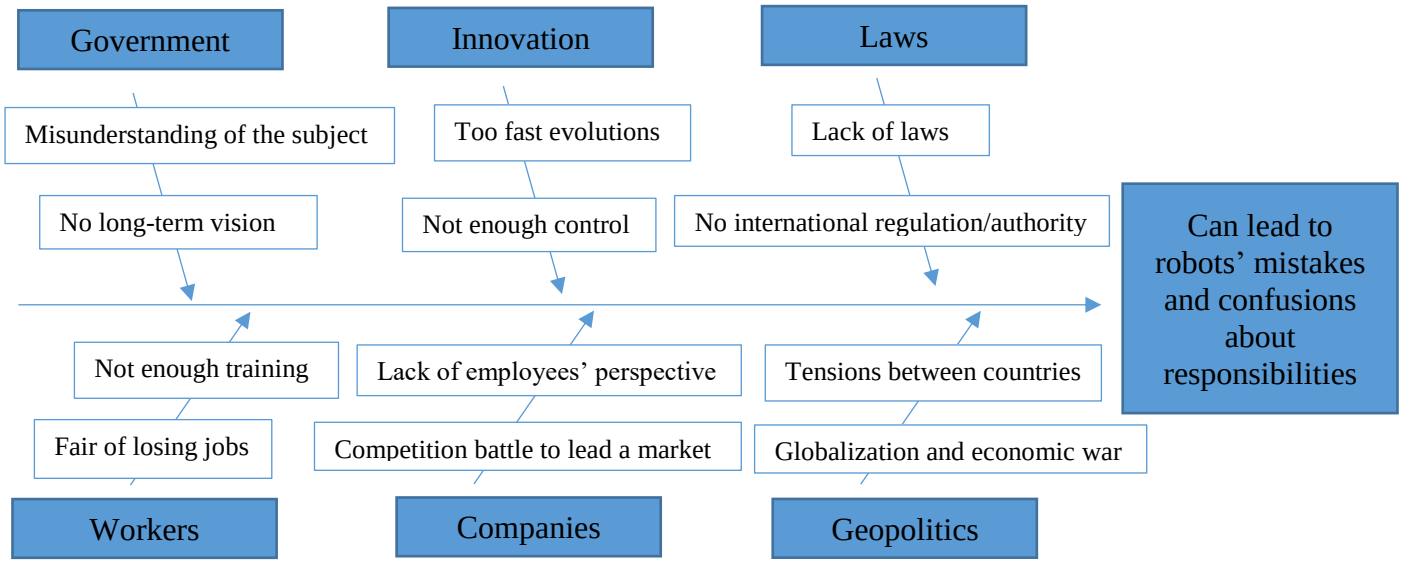

Figure 2 : Robots liabilities root causes analysis, by author

Priya Patra, a senior manager for Capgemini India is telling something really interesting about the relationship between humans and robots during a project. According to him, even if "Projects are for the people, by the people and of the people. Every project starts with a business case – to solve a people problem, without people there is no project."

Thus, according to him, the human remains at the heart of projects, but robots have a certain interest: "Technology or a web robot (BOT) can only augment the project manager. Think of it as a symbiotic relationship. It's all about collaboration between what machines can do and humans can do; BOTS are mainly for crunching data that the managers need, so they can be more equipped to make decisions and work on tangible needs of their teams to get things done."[12]

In all project contracts, it is essential to show interests to all stakeholders. Thus, we arrive at an essential point: **how to consider the interest and responsibility of a robot in the accomplishment of a project?**

We will try to answer this core question in the rest of this topic.

METHODOLOBY

In this part, we will divide our previous core question into smaller questions to frame and guide our research, then we will define and evaluate them. Finally, in this part, we will present alternatives that we will study throughout the rest of our paper.

[12] 4 Ways Project Management Will Be Disrupted, Naomi Caietti, 2016
https://www.projectmanager.com/blog/4-ways-project-management-will-be-disrupted

Step 1: Summarize

As we have seen, robots and what regulatory institutes call "emerging technologies", capable of making decisions on their own and assisting human beings in their decisions, must have regulatory status.

Over the past 30 years, 30 deaths have been reported in the working environment with robots that cause them. [13]

So, this is our first problematic:

1) **what are the laws that cover this new issue? Who is responsible when an "emerging technology" is doing a mistake?**

In addition, let's use the definition of robot which is as follows:

1. (especially in science fiction) a machine resembling a human being and able to replicate certain human movements and functions automatically.
   1.1. A machine capable of carrying out a complex series of actions automatically, especially one programmable by a computer.
   1.2. A person who behaves in a mechanical or unemotional manner.[14]

In this definition, it is interesting to note that the robot is nothing more than something obedient to the human being. However, with the emergence of artificial intelligence, it becomes necessary to make this definition evolve because of the robots' immense capacity for learning and reflecting.

This is our second problematic:

2) **what legal status can we give to robots?**

Finally, this subject is also an opportunity to take a step back and consider innovation as a whole. There are also issues that go beyond laws or regulations in this subject because the development of robots also affects the individual freedom of each person. It is also a huge political and societal issue. From a moral point of view, do we ever want to be governed by artificial intelligence?

This is our third problematic:

[13] Liability in the robotics: inside the legal debate, Oliver Mitchel, May 2018
https://www.therobotreport.com/liability-robot-legal-debate/

[14] English Oxford Living Dictionaries
https://en.oxforddictionaries.com/definition/robot

3) Should we regulate innovation?

Step 2: Feasible alternative solutions

Before giving some feasible solutions, let's remember stakeholders who have interests in robotics:

- Companies: companies are at the heart of robotics as it seeks to reduce manufacturing or production costs in general in a globalized world. A well-functioning machine is much more profitable than a human because it listens to instructions and follows them to the letter. In addition, a high-performance machine produces with higher quality and over a longer period of time. Today, all large companies use machines in all sectors of activity (agriculture, banking, textiles, etc.). [15]

- Governments: because emerging technologies are shaking up the working environment, they are also changing the rules of the game in society. This means that we have to rethink and project ourselves into a completely new economy and adjusting current social and economic models. Governments must help individuals make this transition.[16]

- Workers: Finally, inevitably, workers have a strong interest in the emergence of robots. For some difficult and dehumanizing tasks, robots have since long time proven that their help is invaluable. However, they are also the cause of many redundancies. Thus, workers are at the heart of the problem.

Let's insert stakeholders into an Influence/Interest grid:

[15] Meet your maker: 4 companies using robots, Callum Sharp; https://www.turbinehq.com/blog/companies-using-robots

[16] If the Robots Come for Our Jobs, What Should the Government Do? Neil Irwin, 2018; https://www.nytimes.com/2018/06/12/upshot/if-the-robots-come-for-our-jobs-what-should-the-government-do.html

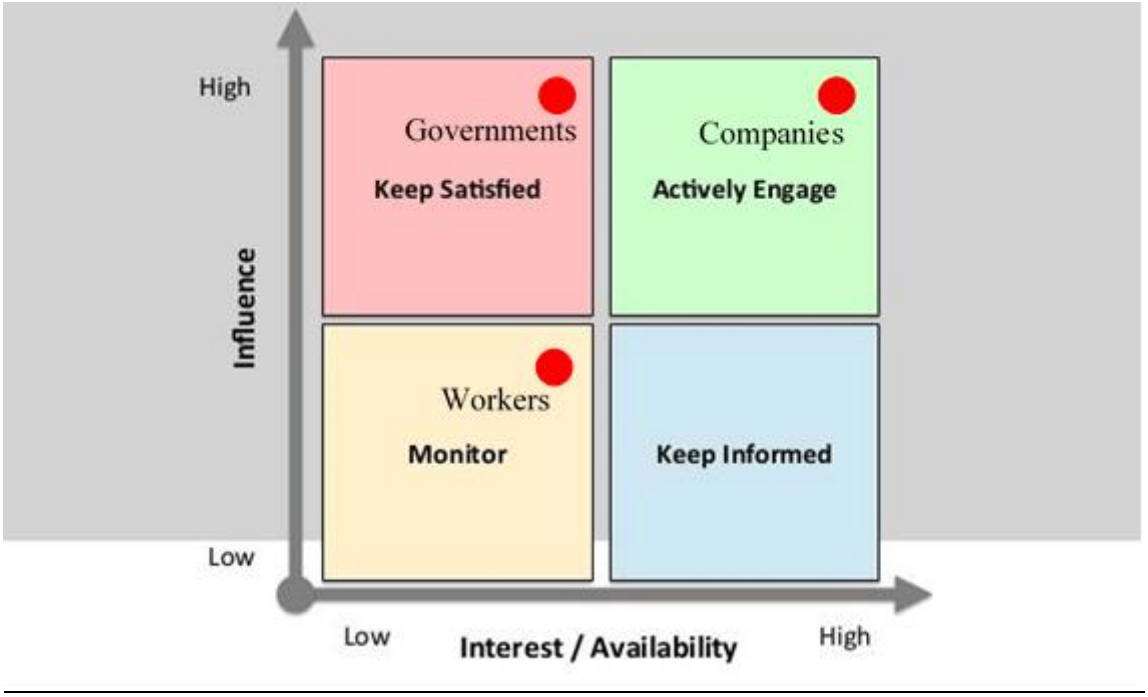

Figure 3: stakeholders' analysis of actors concerned by Robots and AI, by author

Thus, in the alternatives we will present, we will have to consider the benefits that each stakeholder obtains and weigh them considering their influence and interest.

In addition, we have identified key success factors for each stakeholder that attest or not to their adequacy with the different alternatives that we will present, here are success factors:

	Companies	Governments	Workers
Key success factors	- Increase profit - Increase quality - Increase productivity	- Reduce unemployment - Increase security - Increase the equality of citizens and their well-being	- Reduce the difficulty of the work - Increase wages - Access to more intellectual work and more responsibility

Figure 4 : table of success factors for each stakeholder, by author

Finally, alternatives that we will study can be classified on a scale that tends either towards a greater autonomy of robots with a greater responsibility or towards a ban and very important regulation of emerging technologies. the alternatives we are going to propose can add up, complement each other. The fact of studying or choosing one does not change because of the application of other alternatives.

Here is the list of alternatives that we will study:

Degrees of robots' autonomy		Alternatives
Total robots' autonomy	5	Alternative 1: Universal Basics Income (UBI) which integrate robots value creation
	4	Alternative 2: a liability shared between consumers and producers Alternative 3: give a legal status to robots
	3	Alternative 4: robots' tax Alternative 5: application of laws of robotics
	2	Alternative 6: humans' quota inside companies
Interdiction, strict regulations	1	Alternative 7: robots' interdiction

Figure 5 : alternatives ranked regarding the autonomy given to robots and AI, by author

Thanks to the different tools we have identified, we will now develop each of them in a third step and then try to classify them.

Step 3: Development of the feasible alternatives

<u>Alternative 1: Universal Basic Income (UBI) which integrate robots value creation</u>

Let's start this alternative with a quote from Richard Branson, the founder of the Virgin group: "Basic income is going to be all the more important. If a lot more wealth is created by AI, the least that the country should be able to do is that a lot of that wealth that is created by AI goes back into making sure that everybody has a safety net."

The development of a Universal Basics Income is increasingly relevant. In many countries, political agenda incorporates this thought, such as the program of the left-wing candidate Benoit Hamon, during the last presidential elections in France, which incorporated this idea. In some Scandinavian countries such as Finland, this idea is being tested on a part of the population.[17]

[17] Richard Branson calls for universal basic income because robots are taking people's jobs, Benjamin Kentish, 2017; https://www.independent.co.uk/news/business/news/richard-branson-universal-basic-income-robots-taking-jobs-automation-threat-a7993006.html

To summarize the idea, to counter the loss of jobs caused by emerging technologies, a universal wage should be created for all inhabitants. The money would come in part from the value created by robots. Thus, this idea is linked to a tax on robotics that would make it possible to capture this value from the companies that we will discuss in another alternative.

This minimum wage would provide a transition for people who lose their jobs, giving them the opportunity to provide for themselves while they find a new job or even create a new one. With this change in the labor market, some estimations predict that "85% of jobs that will exist in 2030 haven't been invented yet."[18] This information is from a report from the company Dell, which was authored by the Institute for the Future (IFTF).

Thus, the UBI would promote innovation because people who will loose their jobs could have a salary to support themselves and at the same time create new jobs in an entrepreneurial spirit.

For each alternative, we will try to grade them according to the success factors we have define. We have decided to grade each success factor from 1 to 5 (5 will be the equivalent of a perfect match with the success factor).

	Key success factor	Grade
Companies	Increase profit	2
	Increase quality	2
	Increase productivity	2
Governments	Reduce unemployment	3
	Increase security	3
	Increase the quality of citizens and their well-being	5
Workers	Reduce the difficulty of the work	5
	Increase wages	3
	Access to more intellectual work and more responsibility	5
		Total: 30

Figure 6 : alternative 1 ranking according to success factors, by author

[18] 85% Of Jobs That Will Exist In 2030 Haven't Been Invented Yet: Dell, Daniel Tencer, 2017 https://www.huffingtonpost.ca/2017/07/14/85-of-jobs-that-will-exist-in-2030-haven-t-been-invented-yet-d_a_23030098/?guccounter=1&guce_referrer_us=aHR0cHM6Ly93d3cuZ29vZ2xlLmZyLw&guce_referrer_cs=RvRId8QWrwY6zS124NK7Jw

Alternative 2: A liability shared between consumers and producers

Before discussing this subject in more detail, it is interesting to talk about the relationship between innovation in general and responsibility. Despite various studies, it is difficult to draw real conclusions because innovation is so broad that it must be adapted to the context, "including the nature of the innovation, the level of liability risk, and the value of the technology".[19]

Since the use of a robot or artificial intelligence also requires interaction between a human and a machine, it is difficult to anticipate the relationship and create truly precise rules.
Everyone must use technologies in the most appropriate way to avoid mistakes.
Thus, if a robot error occurs, it is interesting to imagine a fault shared between the creator (producers) and the users (consumers).

In case of inadequate use of emerging technologies, it could be appropriate to create a user/consumer responsibility and impose, for example, training before using it or even the passage of mandatory formalities. For example, to use some complex medical tools that save lives, doctors should justify a minimum amount of training beforehand. Without this training, part of the tool's fault could be attributed to the user.

Another idea in the context of the emergence of autonomous vehicles is that a suitable new driving license could be a good idea to use the vehicles safely.

Finally, we must talk about this alternative if we do not consider a robot to be legally responsible for these acts. We will study this alternative in the next part.

	Key success factor	Grade
Companies	Increase profit	2
	Increase quality	2
	Increase productivity	2
Governments	Reduce unemployment	1
	Increase security	4
	Increase the quality of citizens and their well-being	3
Workers	Reduce the difficulty of the work	2
	Increase wages	2
	Access to more intellectual work and more responsibility	3
		Total: 21

Figure 7 : alternative 2 ranking according to success factors, by author

[19] Punishing Robots: Issues in the Economics of Tort Liability and Innovation in Artificial Intelligence, Alberto Galasso and Hong Luo; http://www.nber.org/chapters/c14035.pdf

Alternative 3: give a legal status to robots

Regarding this alternative, it is the European Union that seems to be the laboratory for this new idea. Since 2017, the European Union has opened a discussion with experts to explore the debate on the consideration of robots as a personhood with the creation of an appropriate legal status. Here are the exact words: "creating a specific legal status for robots in the long run, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons responsible for making good any damage they may cause, and possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently."[20]

Thus, a real responsibility on the part of robots could be interesting and encourage innovation within companies, in addition to solve user's responsibility.

However, from another point of view, for many experts, the European Union goes too far at the moment, because robots are not sophisticated enough to have such a status.

	Key success factor	Grade
Companies	Increase profit	4
	Increase quality	2
	Increase productivity	3
Governments	Reduce unemployment	1
	Increase security	3
	Increase the quality of citizens and their well-being	3
Workers	Reduce the difficulty of the work	4
	Increase wages	2
	Access to more intellectual work and more responsibility	5
		Total: 27

Figure 8 : alternative 3 ranking according to success factors, by author

Alternative 4: Robots' tax

One of the flagships of this alternative is Bill Gates. As he said: "Certainly there will be taxes that relate to automation. Right now, for the human worker who does, say, $50,000 worth of work

[20] Europe Considers Granting Robots Legal Status, Paul Blois, 2018
https://www.dailywire.com/news/29397/europe-considers-granting-robots-legal-status-paul-bois

in a factory, that income is taxed and you get income tax, social security tax, all those things. If a robot comes in to do the same thing, you'd think that we'd tax the robot at a similar level."[21]

If we think about it carefully, this idea is totally in line with our current thinking patterns in Western countries. This would support the welfare state system that is running out of steam in some countries. Indeed, we are experiencing a decline in the birth rate in many Western countries. However, the welfare state system is based on a share of the working population that works and finances pension systems, for example. Moreover, this phenomenon is even more important with increasing life expectancy and an overall ageing of the population. Thus, the tax on the value creation of robots could partly solve this problem and support our welfare state systems.

Thus, workers would no longer necessarily see robots as a constraint but as a real tool properly integrated into the system. Finally, if robots are taxed but no quota exists, companies could still increase their profit and the quality of the various productions with increasingly efficient robots.

This idea is also central to the alternative model presented in the introduction: Venus project.

	Key success factor	Grade
Companies	Increase profit	4
	Increase quality	4
	Increase productivity	4
Governments	Reduce unemployment	1
	Increase security	4
	Increase the quality of citizens and their well-being	5
Workers	Reduce the difficulty of the work	5
	Increase wages	3
	Access to more intellectual work and more responsibility	5
		Total: 35

Figure 9 : alternative 4 ranking according to success factors, by author

[21] The robot that takes your job should pay taxes, says Bill Gates, Kevin J.Delaney, 2017 https://qz.com/911968/bill-gates-the-robot-that-takes-your-job-should-pay-taxes/

Alternative 5: Application of Laws of Robotics

This alternative is the oldest because its origin goes back to the three laws of robotics set out by Isaac Asimov.[22]

And here are the first three laws:

1 "A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given by human beings except where such orders would conflict with the first law.
3. A robot must protect its own existence as long as such protection does not conflict with the first or second laws."

More recently, Alan Winfield has updated them to make them easier to adapt to the current model[23], here they are:

1. "Robots are multi-use tools. Robots should not be designed solely or primarily to kill or harm humans, except in the interests of national security.
2. Humans, not robots, are responsible agents. Robots should be designed and operated as far as practicable to comply with existing laws, fundamental rights, and freedoms, including privacy.
3. Robots are products. They should be designed using processes which assure their safety and security.
4. Robots are manufactured artifacts. They should not be designed in a deceptive way to exploit vulnerable users; instead, their machine nature should be transparent.
5. The person with legal responsibility for a robot should be attributed."

Through these five revised laws, we can bring the notion of responsibility into play, in addition to framing the use of robots. It can be observed that a person with responsibility must be assigned to each robot.

Today, these laws are known to all but not enforced. There is no international organization that governs the development of artificial intelligence and robotics and it is a risk, in addition of being a brake on the development of these technologies. Like the FDA for drugs and high-risk medical devices: there is a need of an international regulation in this area which can frame and control every companies for a global security.

[22] Asimov I. I, Robot. 6th ed. Greenwich, Conn.: Fawcett Publications; 1950. 192 p

[23] Ethical Robots: some technical and ethical challenges, from Alan Winfield blogspot, 2013

Products controlled and [24]approved by such an authority would no longer be subject to liability uncertainty.

	Key success factor	Grade
Companies	Increase profit	3
	Increase quality	4
	Increase productivity	4
Governments	Reduce unemployment	2
	Increase security	5
	Increase the quality of citizens and their well-being	5
Workers	Reduce the difficulty of the work	3
	Increase wages	3
	Access to more intellectual work and more responsibility	4
		Total: 33

Figure 10 : alternative 5 ranking according to success factors, by author

Alternative 6: humans' quota inside companies

A recent report from the International Bar Association (IBA), which cope and study impact of the onward march of technology, alerts governments because experts believe that we do not have time to adapt quickly enough to emerging technologies. Laws and regulations become obsolete too quickly because the evolution of robots and AI is too fast. [25]

Thus, establishing a quota of human employees within companies could be a good solution to this problem. Thus, the various governments should determine a minimum number of individuals per sector of activity. However, a question arises: how to count the number of robots? Is a robot always worth a human?

Finally, another idea is emerging, that of creating a label "made by humans", which could also be an interesting alternative.

[24] Punishing Robots: Issues in the Economics of Tort Liability and Innovation in Artificial Intelligence, Alberto Galasso and Hong Luo; http://www.nber.org/chapters/c14035.pdf

[25] The rise of the robots may force ministers to introduce human worker quotas, leading legal experts warn, Tim Collins, 2017; https://www.dailymail.co.uk/sciencetech/article-4378800/Minimum-human-quotas-needed-protect-jobs-robots.html

	Key success factor	Grade
Companies	Increase profit	2
	Increase quality	2
	Increase productivity	2
Governments	Reduce unemployment	5
	Increase security	3
	Increase the quality of citizens and their well-being	4
Workers	Reduce the difficulty of the work	3
	Increase wages	4
	Access to more intellectual work and more responsibility	3
		Total: 28

Figure 11 : alternative 6 ranking according to success factors, by author

Alternative 7: Robots' interdiction

Regarding this alternative, it is important to discuss it for this subject, but it remains almost impossible given the world we live in.

We live today in a capitalist economy that seeks to create more and more value every day. Returning to the foundations of capitalism and Schumpeter, he speaks of creative destruction, which is in fact one of the roots of capitalism: "this process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in…".[26]

We must innovate to stay alive in capitalism. Thus, no company would be ready to stop innovating in emerging technologies. Even for governments and workers, banning robots would be a backward step.

[26] Creative Destruction, from Investopedia.com; https://www.investopedia.com/terms/c/creativedestruction.asp

	Key success factor	Grade
Companies	Increase profit	1
	Increase quality	1
	Increase productivity	1
Governments	Reduce unemployment	5
	Increase security	1
	Increase the quality of citizens and their well-being	1
Workers	Reduce the difficulty of the work	1
	Increase wages	2
	Access to more intellectual work and more responsibility	1
		Total: 14

Figure 12 : alternative 7 ranking according to success factors, by author

Now, let's rank alternatives with the total amount of points obtained.

From the table that follows, we will take up our stakeholders' analysis, which will allow us to weight the alternatives according to the stakeholders. According to our analysis, companies have more influence and interests than others, which is why we have put an index of 0.5. Finally, for the government, we put an index of 0.3 and for workers, an index of 0.2.

Before weighting index:

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7
Companies	6	6	9	12	11	6	3
Governments	11	8	7	10	12	12	7
Workers	13	7	11	13	10	10	4
Total	30	21	27	35	33	28	14

Figure 13 : compiled alternatives result before weighting index, by author

After weighting index:

		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7
	Weighting index							
Companies	0,5	3	3	4,5	6	5,5	3	1,5
Governments	0,3	3,3	2,4	2,1	3	3,6	3,6	2,1
Workers	0,2	2,6	1,4	2,2	2,6	2	2	0,8
Total		8,9	6,8	8,8	11,6	11,1	8,6	4,4

Figure 14 : compiled alternatives result after weighting index, by author

Here is the ranking which considers every stakeholder and key success factors:

Ranking	Alternative	Total points
1	Robots' tax	11,6
2	Application of laws of robotics	11,1
3	Universal Basics Income (UBI) which integrate robots value creation	8,9
4	Give a legal status to robots	8,8
5	Humans' quota inside companies	8,6
6	A liability shared between consumers and producers	6,8
7	Robots' interdiction	4,4

Figure 15 : final ranking of alternatives, by author

Step 4: Selection of criteria and alternative solutions

After studying the different alternatives in the previous section, it would seem that the last three are difficult to implement. Indeed, a human quota within a company is too restrictive for a company. In addition, taxing the value creation of robots overwhelms this alternative and makes it unattainable.

Moreover, sharing responsibility between the consumer and the producer also shows these limits, in the sense that it is necessary to proceed on a case-by-case basis for all emerging technologies.

Thus, we decided to retain only those alternatives that exceed a total of 8,7 points.

Ranking	Alternative	Total points
1	Robots' tax	11,6
2	Application of laws of robotics	11,1
3	Universal Basics Income (UBI) which integrate robots value creation	8,9
4	Give a legal status to robots	8,8
5	Humans' quota inside companies	8,6
6	A liability shared between consumers and producers	6,8
7	Robots' interdiction	4,4

Figure 16 : final ranking with exclusion of alternatives, by author

To conclude on this part, we have therefore selected only the first four alternatives.

FINDINGS

Step 5: Additive weighting techniques

In this part, we now have four alternatives left that we will continue to explore.

As mentioned, these alternatives are interdependent, they can co-exist and even be complementary. So, to see the strengths and weaknesses of each of the alternatives, we will use the SWOT tool. This analysis will allow us to think further and go beyond the criteria established in the second part.

Finally, as each stakeholder has a different vision of the advantages and weaknesses for each alternative, we will make a differentiation within each SWOT.

Rank 1 alternative: Robots' tax

	Helpfull	Harmful
Internal origin	**Strenghts:**	**Weaknesses:**
	For companies: The tax on robots could allow small and medium-sized companies that have less means to compete with market leaders to be in a more equal fight with them.	**For companies:** If a tax is created on the profit created by a robot, companies will have to study the contribution and quantify the value creation made by robots or IA and compare it to the potential of a human-being at the same position. In any case, this represents a financial loss for the company does not currently exist. In addition, it makes the preparation of audits dedicated to controlling accounts and the creation of value brought by robots and AI much more complex.
	For governments: For governments from western countries, the tax on robots makes it possible to guarantee a welfare state system by taxing the value creation of robots. Moreover, in any case, it is an additional mass of money for the state to improve the well-being of citizens.	**For governments:** Although the tax on robots may hinder some companies from investing massively in robotics, it does not prohibit companies from investing in this sector and laying people off. Moreover, it is very difficult to quantify, structure and make this idea useable.
	For workers: A tax on robots could make it possible to change the relationship between man and machine in companies. In addition, it would also change management's vision, which will ask itself what real value an employee brings to the company. This could therefore save many jobs.	**For workers:** With the tax on robots, workers are still not protected from dismissal or relocation. In addition, the more skilled robots are, the more skilled workers will also have to upgrade their skills.
External origin	**Opportunities:**	**Threats:**
	For companies: Robots' tax will be allow to increase competition between companies as they will increasingly seek to create the most efficient robots possible to optimize the costs and value created by robots and artificial intelligence.	**For companies:** Since the tax comes from a higher institution and a government, the company will not be able to control its evolution.
	For governments: In a world where economies are globalized, companies have a freedom of action that governments do not necessarily have. Thus, monitoring and taxing emerging technologies would be a way for the government to gain legitimacy with citizens and to have more influence on corporate strategies.	**For governments:** If not all governments in the world apply this strategy, companies would relocate to countries where this tax is not applied.
	For workers: Thanks to the tax on robots, the various governments could give or help citizens in a more important way, thus increasing the purchasing power of workers. It could therefore invest more and open up to culture and improving their skills.	**For workers:** It is difficult to plan for the long term, but massive layoffs can be imagined when the skills of robots and artificial intelligence will become unattainable for human beings.

Figure 17 : SWOT analysis for the robot tax alternative, by author

Rank 2 alternative: Application of laws of robotics

	Helpfull	Harmful
Internal origin	**Strenghts:**	**Weaknesses:**
	For companies: For companies that are very committed to human beings and sustainable development, the laws of robotics could reduce the anxiety associated with the development and innovation of some companies. In addition, with the application of the revised laws, a responsible person would be assigned to each emerging technology, which answers to the issue of robots liability.	**For companies:** For some industries such as armaments, the application of robotics laws could greatly reduce the market. It is worth reminding that in these laws, a robot must obey human beings completely and must under no circumstances turn against them.
	For governments: For governments around the world, the enforcement of robotics laws could drastically increase safety regarding robots and AI development within countries and also the control of innovation as a whole.	**For governments:** Robotics laws are difficult to enforce and will not necessarily regulate emerging technologies. More specific laws are needed because the laws of robotics simply provide a framework and describe the relationship between humans and robots.
	For workers: The application of robotics laws will change the relationship between workers and robots. This law places the human being as superior to robots and creates a notion of global obedience.	**For workers:** The laws of robotics do not in any way solve the global upheaval in the working envrionment and the employment crisis linked to the emergence of emerging technologies. Robots and human beings will always be in competition.
External origin	**Opportunities:**	**Threats:**
	For companies: If first laws are established for companies regarding emerging technologies, it is an opportunity for them to build and implement laws that are favorable to them with legal experts.	**For companies:** Overly specific robotics laws could slow down innovation within companies and result in lost money.
	For governments: For the government, the application of the first laws on robotics is already a first victory in raising awareness of these issues among companies and people in general. This is a first step to enrich these laws with future proposals.	**For governments:** If not all governments in the world apply this strategy, companies would relocate to countries where the laws of robotics are not applied.
	For workers: The application of robotics laws is an opportunity for workers of democratic countries to express themselves and build laws with the government.	**For workers:** If the laws are not specific enough, they will not prevent companies from designing business models where a small number of people is needed within a company. It is difficult to plan for the long term, but massive layoffs can be imagined when the skills of robots and artificial intelligence will become unattainable for human beings.

Figure 18 : SWOT analysis for the laws of robotics application, by author

Rank 3 alternative: Universal Basics Income (UBI) which integrate robots value creation

To make this alternative viable, the value creation of robots must first be taxed. Thus, this alternative is closely linked to the rank 1 alternative and the SWOTs are therefore identical. The only thing that we can add is that Universal Basics Income (UBI) can partially solve the unemployment crisis and the massive transformation of the working environment.

Rank 4 alternative: Give a legal status to robots

	Helpfull	Harmful
Internal origin	**Strenghts:**	**Weaknesses:**
	For companies: Providing a framework and status for robots could reduce the anxiety of many companies about emerging technologies. In addition, it could partly regulate competition between the different market players developing and using robots.	**For companies:** If a legal status is given to emerging technologies, companies could suffer, particularly in terms of their responsibility towards emerging technologies.
	For governments: If a legal status is applied to emerging technologies, this could clarify a legal vacuum which concerns the entire population. This could also improve overall security in a country.	**For governments:** If the given status is too advantageous for robots, the consequences could be disastrous. Moreover, the evolution of robots being very fast, it would be necessary to adapt this status very quickly. Finally, it would be necessary to study each case because it is unthinkable that all robots have the same status. So the task is huge.
	For workers: The application of robotics laws will change the relationship between workers and robots. The responsibility of robots could clearly be applied in certain cases of errors and mistakes.	**For workers:** This alternative does not yet solve the massive layoffs linked to emerging technologies.
External origin	**Opportunities:**	**Threats:**
	For companies: Depending on the status given to the different emerging technologies, this could allow companies to optimize their resources and emerging technologies present within the company. There would then be a race between companies towards the optimization and research of emerging technology that best circumvents laws and provides the most value.	**For companies:** If the status given to robots is too restrictive, the company could lose money. In addition, once a status is in place, it will be difficult for the company to control or influence its development.
	For governments: In a world where economies are globalized, companies have a freedom of action that governments do not necessarily have. Thus, monitoring and a give a robot status to emerging technologies would be a way for the government to gain legitimacy with citizens and to have more influence on corporate strategies.	**For governments:** A part of the population less inclined to the emergence of robotics could challenge this legal status and create a vast conflict on this subject. In addition, this status should be internationally recognized.
	For workers: The creation of a robot status is an opportunity for workers of democratic countries to express themselves and build status with the government.	**For workers:** For many, this subject is pure science fiction. We must be careful about the gap between people's perception of robotics and current advances.

Figure 19 : SWOT analysis about robots' legal status application, by author

Through SWOTs, we can see that the rank 1 alternative could be very interesting because all stakeholders can have benefits.

The main problem with massive layoffs and the transformation of working environment due to robotics is that it still benefits the already rich and further increases inequalities between the rich and the poor.[27] According to an Oxfam report, in 2016, only 62 people worldwide held as much money as the poorest 3.5 billion people.[28]
The problem is that the capital of the most advanced companies is held by precisely that part of the world's richest population. Dismissing workers without compensation thanks to emerging technologies can only increase this issue.

Thus, to prepare for the future, there is an urgent interest in thinking about the different ways to redistribute the money created by emerging technologies if we want to preserve our current Western models based on democracies where global wealth is redistributed.

Taxing the value created by robots and redistributing it is therefore an interesting alternative. This is why UBI alternative and robots tax alternative are very interesting because they both solve a fundamental issue. They are therefore complementary in this subject.

As for the other two alternatives, they are much more sensitive to criticism and interpretation. If we observe the weaknesses and threats in SWOTs, we can see that they are very huge and the consequences too important to take risks at the moment to implement them.
The laws of robotics are nowadays greatly challenged, the movie "I, Robot" is a perfect example and explains that "rules were made to be broken".[29]
Indeed, these laws are impossible to transcribe inside a machine. The machines are the result of a human creation and therefore of a multitude of algorithms. However, it is impossible to codify and insert these laws into a machine.

Finally, give a status to robots is a too vast a problem to solve because it would first of all have to solve the following problem: what can we consider as a living being or not?

Joanna Bryson, a researcher in AI ethics at the University of Bath is telling something interesting about this issue: "giving AI anything close to human rights would allow firms to pass off both

[27] Robots won't just take our jobs – they'll make the rich even richer, Ben Tarnoff, 2017
https://www.theguardian.com/technology/2017/mar/02/robot-tax-job-elimination-livable-wage

[28] Increasing inequality, no author
https://thefuturescentre.org/trend-card/increasing-inequality

[29] Isaac Asimov's Laws of Robotics Are Wrong, Peter W.Singer, 2009
https://www.brookings.edu/opinions/isaac-asimovs-laws-of-robotics-are-wrong/

legal and tax liability to these completely synthetic entities. Basically, the entire legal notion of personhood breaks down."[30]

Step 6: Selection of the preferred alternatives

Thanks to the SWOTs in the previous section, we can see that two additional alternatives seem to be more appropriate: robots' tax and Universal Basics Income (UBI) which integrate robots value creation.

We can thus observe thanks to the last part that if we wish to apply these alternatives, we must nevertheless apply them globally to the international working environment. As the economy is globalized, if governments do not apply the same rules, then they will be ineffective.[31] Today, this shows a deeper problem in the globalized economy. Companies take advantage of countries with the most advantageous rules through fiscal or social dumping's.

Today, the universal basics income alternative is already being tested on population samples, particularly in Scandinavian countries such as Denmark on student populations and Finland. Some governments, and in particular European governments, are taking the lead in this idea. However, this measure, introduced in 2017 in Finland, will not be renewed in 2019. [32]It was tested on a sample of 2000 people and did not please all the political parties in the country. Moreover, it is very expensive, about 6.5% of a country's GDP. Not all countries can therefore afford to establish a universal wage.

Thus, this kind of attempts may still be too brutal or early, but pressures will increase in the future with the constant increase in automation within companies.

Combining the taxation of robots with the financing of services within the welfare state seems to be a viable alternative in western countries, at least for governments and workers. On the business side, it could also create a more equitable fight between companies that are pioneers in digitalization and others that are just beginning.

For people or governments seeking to move towards notions of equality and wealth sharing, this seems interesting in any case.

[30] Pretending to give a robot citizenship helps no one, James Vincent, 2017 https://www.theverge.com/2017/10/30/16552006/robot-rights-citizenship-saudi-arabia-sophia

[31] The New Rules of Globalization, Ian Bremmer, 2014; https://hbr.org/2014/01/the-new-rules-of-globalization

[32] Universal Basic Income Didn't Fail in Finland, Antti Jauhiainen and Joona-Hermanni Mäkinen, 2018 https://www.nytimes.com/2018/05/02/opinion/universal-basic-income-finland.html

Step 7: Performance Monitoring

To begin this section, it is important to remember that the alternatives we have presented require a large project to be implemented, for example, at a country level. Thus, in all cases, project management experts will be recruited if such projects are implemented in the future.

There will therefore be a need for tools and indicators to observe and assess their effectiveness. In addition, these alternatives directly influence the legal part and legislative texts to describe in detail collection and redistribution of the Robots' Tax, processes will have to be created. Before setting up this project and moving on to an initiation phase, there is therefore a huge amount of work to be done on the scope and identification of all stakeholders with their management. The implementation and reflection on a law can sometimes take decades to understand all the ins and outs.

If such a project is initiated, it will also be necessary to consider all the areas of influence of the project. Thus, the implementation, for example, of an evolutive PESTEL[33] throughout the implementation of the project could be relevant to see the ongoing impact of the project.

P Political	E Economic	S Social	T Technological	E Environmental	L Legal
• Government policy • Political stability or instability overseas • Foreign trade policy • Tax policy • Labor laws • Terrorism and military considerations • Environmental laws • Funding grants and initiatives • Trade restrictions • Fiscal policy	• Economic Growth • Interest Rates • Exchange rates • Inflation • Disposable income of consumers • Disposable income of businesses • Taxation • Interstate taxes • Wages rates • Financing capabilities	• Population growth • Age distribution • Health consciousness • Career attitudes • Customer buying trends • Cultural trends • Demographics • Industrial reviews and consumer confidence • Organizational image	• Producing goods and services • Emerging technologies • Technological maturity • Distributing goods and services • Target Market Communication • Potential Copyright infringements • Increased training to use innovation • Potential Return on Investment (ROI)	• The decline of raw materials • Pollution and green house gas emissions • Promoting positive business ethics and sustainability • Reduction of their carbon foot print. • Climate and weather • Environmental Legislation • Geographical location (and accessibility)	• Health & Safety • Equal Opportunities • Advertising Standards • Consumer Rights and laws • Product Labeling • Product Safety • Safety Standards • Labor Laws • Future Legislation • Competitive Legislation

Figure 20 : PESTEL analysis model[34]

Thus, the PESTEL could be a relevant strategic tool to analyze the impacts of the implementation of such a project.

[33] PESTEL Analysis – What is it and why do we use it? https://andet5.com/2018/02/pestel-analysis-what-is-it-and-why-do-we-use-it/

[34] PESTEL Analysis – What is it and why do we use it? https://andet5.com/2018/02/pestel-analysis-what-is-it-and-why-do-we-use-it/

In addition, there is also an interest in monitoring and controlling the tax on robots within companies, which are the first to be affected by the implementation of this law.

Thus, there is a need for legal experts and project managers who analyze the impact of this law on companies and contribute to their smooth transition to the law.

This could be a good opportunity for consulting firms, which today already sniff out the opportunity with the emergence of consulting 4.0 where consulting firms are helping industries through this new "industrial revolution" linked to the development of emerging technologies. [35]

CONCLUSION

As the former US President Bill Clinton said: "No generation has had the opportunity, as we now have, to build a global economy that leaves no-one behind. It is a wonderful opportunity, but also a profound responsibility." [36]

The emergence of what we call "emerging technologies" is still seen by many as a threat. But all threats are also opportunities if we have the power to deal with them quickly enough.

People are afraid of robots and artificial intelligence because they do not necessarily understand all the ins and outs of them. There is still a lot to be done on this subject, particularly in terms of the liability of the various machines. Today, the subject is at the heart of the debate, but even the most innovative technologies in the world are not yet sufficiently advanced to define real rules. Even today, most of the responsibility is still attributed to the manufacturer of these products. This situation could change rapidly with the very rapid evolution of their intelligence, which will create a real relationship with their user.

However, as mentioned above, with the constant increase in the liability and therefore the intelligence of emerging technologies, today they are gradually replacing or even surpassing human beings in many areas. The consequence, massive layoffs within companies, should not be seen as a threat but as an opportunity to rethink current systems, especially in the West, which is increasingly being called into question with the ageing of the population and the decline in the birth rate.

[35] Consulting 4.0: the future of consulting or just a trend? No author; https://www.consultingsearcher.com/eng/Cardea-competence-centre/The-consulting-market/Consulting-4.0-The-Future-of-Consulting-or-just-a-Trend

[36] Inspirational Pro and Anti-Globalization Quotes from Economic Experts, Barbara Farfan, 2018; https://www.thebalancesmb.com/inspirational-globalization-quotes-2892499

If we do not want to be overwhelmed by events, we will have to take strong measures, both politically and even within companies, to face this future together.

Finally, it is important to conclude that one of the richest and most prosperous periods in history was the Gallo-Roman Empire. During this period, part of the population, the slaves, worked and created value for another part of the population, leaders, philosophers, mathematicians for example, who also created value, this time more spiritual, but which has survived the ages and has become timeless.

Thus, could robots be fully at the service of individuals in a society that relies on their value creation?

BIBLIOGRAPHY

1. Liability in the robotics: inside the legal debate, Oliver Mitchel, May 2018; https://www.therobotreport.com/liability-robot-legal-debate/
2. Punishing Robots: Issues in the Economics of Tort Liability and Innovation in Artificial Intelligence, Alberto Galasso and Hong Luo; http://www.nber.org/chapters/c14035.pdf
3. The legal issue of robotics, Andrea Bertolini, 2017; https://robohub.org/the-legal-issues-of-robotics/
4. Rise of the robots: the implications for legal teams, Lucy Trevelyan, 2017; https://www.ibanet.org/Article/NewDetail.aspx?ArticleUid=9bfea263-fa14-4e88-981f-5efa7b587bd5
5. Robots liability: A Use Case and a Potential Solution, Alejandro Zornoza, José C. Moreno, José L. Guzmán, Francisco Rodríguez and Julián Sánchez-Hermosilla, 2017; https://www.intechopen.com/books/robotics-legal-ethical-and-socioeconomic-impacts/robots-liability-a-use-case-and-a-potential-solution
6. Key Issues Employers Should Consider when Integrating Robotics and Automation in the Workplace, Karen Y.Cho Morgan, Lewis & Bockius LLP, 2017; https://www.lexisnexis.com/lexis-practice-advisor/the-journal/b/lpa/archive/2017/10/05/key-issues-employers-should-consider-when-integrating-robotics-and-automation-in-the-workplace.aspx
7. Liability in Robotics: An International Perspective on Robots as Animals, Richard Kelley, Enrique Schaerer, Micaela Gomez and Monica Nicolescu; https://pdfs.semanticscholar.org/8174/98e6a34922df365854c6d7fd2f18a8d1900d.pdf
8. No one is prepared to stop the robot onslaught. So what will we do when it arrives? Steve LeVine, 2017; https://qz.com/940977/no-one-is-prepared-to-stop-the-robot-onslaught-so-what-will-we-do-when-it-arrives/
9. South Korea gets ready to embrace coinless society, Zlata Rodionova, 2017; https://www.independent.co.uk/news/business/news/south-korea-coinless-society-cash-tender-stores-prepaid-cards-trial-banks-a7694736.html
10. The Venus Project from The Venus Project France YouTube channel; https://www.youtube.com/watch?v=rhcLzWk1U28
11. https://www.thevenusproject.com/
12. I, robot, a movie by Alex Proyas, 2004
13. Isaac Asimov, “Three laws of robotics”, Prelude to foundation, 1988

14. Uber has terminated its self-driving car operators in Pittsburgh, Alison Griswold, 2018; https://qz.com/1326155/uber-has-terminated-its-self-driving-car-operators-in-pittsburgh/
15. TEDx, The incredible inventions of intuitive AI, Maurice Conti, 2017; https://www.youtube.com/watch?v=aR5N2Jl8k14&t=702s
16. What is a project?, No author, 2015; https://www.whatisprince2.net/what-is-a-project.php
17. 4 Ways Project Management Will Be Disrupted, Naomi Caietti, 2016; https://www.projectmanager.com/blog/4-ways-project-management-will-be-disrupted
18. English Oxford Living Dictionaries; https://en.oxforddictionaries.com/definition/robot
19. Meet your maker: 4 companies using robots, Callum Sharp; https://www.turbinehq.com/blog/companies-using-robots
20. If the Robots Come for Our Jobs, What Should the Government Do? Neil Irwin, 2018; https://www.nytimes.com/2018/06/12/upshot/if-the-robots-come-for-our-jobs-what-should-the-government-do.html
21. Richard Branson calls for universal basic income because robots are taking people's jobs, Benjamin Kentish, 2017; https://www.independent.co.uk/news/business/news/richard-branson-universal-basic-income-robots-taking-jobs-automation-threat-a7993006.html
22. Europe Considers Granting Robots Legal Status, Paul Blois, 2018; https://www.dailywire.com/news/29397/europe-considers-granting-robots-legal-status-paul-bois
23. The robot that takes your job should pay taxes, says Bill Gates, Kevin J.Delaney, 2017; https://qz.com/911968/bill-gates-the-robot-that-takes-your-job-should-pay-taxes/
24. Asimov I. I, Robot. 6th ed. Greenwich, Conn.: Fawcett Publications; 1950. 192 p
25. Ethical Robots: some technical and ethical challenges, from Alan Winfield blogspot, 2013
26. The rise of the robots may force ministers to introduce human worker quotas, leading legal experts warn, Tim Collins, 2017; https://www.dailymail.co.uk/sciencetech/article-4378800/Minimum-human-quotas-needed-protect-jobs-robots.html
27. Creative Destruction, from Investopedia.com; https://www.investopedia.com/terms/c/creativedestruction.asp
28. Planning planet (2015, November 2). GUILD OF PROJECT CONTROLS COMPENDIUM and REFERENCE (CaR)
29. Robots won't just take our jobs – they'll make the rich even richer, Ben Tarnoff, 2017; https://www.theguardian.com/technology/2017/mar/02/robot-tax-job-elimination-livable-wage
30. Increasing inequality, no author; https://thefuturescentre.org/trend-card/increasing-inequality
31. Isaac Asimov's Laws of Robotics Are Wrong, Peter W.Singer, 2009; https://www.brookings.edu/opinions/isaac-asimovs-laws-of-robotics-are-wrong/
32. Pretending to give a robot citizenship helps no one, James Vincent, 2017; https://www.theverge.com/2017/10/30/16552006/robot-rights-citizenship-saudi-arabia-sophia
33. The New Rules of Globalization, Ian Bremmer, 2014; https://hbr.org/2014/01/the-new-rules-of-globalization
34. Universal Basic Income Didn't Fail in Finland, Antti Jauhiainen and Joona-Hermanni Mäkinen, 2018; https://www.nytimes.com/2018/05/02/opinion/universal-basic-income-finland.html
35. PESTEL Analysis – What is it and why do we use it? https://andet5.com/2018/02/pestel-analysis-what-is-it-and-why-do-we-use-it/
36. Consulting 4.0: the future of consulting or just a trend? No author; https://www.consultingsearcher.com/eng/Cardea-competence-centre/The-consulting-market/Consulting-4.0-The-Future-of-Consulting-or-just-a-Trend
37. Inspirational Pro and Anti-Globalization Quotes from Economic Experts, Barbara Farfan, 2018; https://www.thebalancesmb.com/inspirational-globalization-quotes-2892499

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With various experiences in Business Development and Headhunting, he will dedicate himself in Business Analysis and IT project management, starting in January 2019, with a permanent contract as Junior consultant in a French consulting company called Telys.

Already certified Prince2 and AgilePM, he will continue next year with IPMA D and PSPO certifications. He was also dedicated in the associative world of his school by creating a multimedia association and threw the Federation of Associations, the organism monitoring all the associations, where he was general secretary.

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