The Digital Use of Human Beings: labour in the "Information Age"

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Abstract

In the Information Age", labour is strictly intertwined with digital technologies, production being deployed through the pervasive control on human behaviour. This section provides an overview on ethical-legal concerns raising in this field from the interaction among humans, between humans and machines, and among machines. The contribution focuses, in the first part, on the flexible and "agile" workflow, in the second part, on "collaborative" economy, and in the second part on the replacement of workers by Artificial Intelligence.

(1) Introduction

(1.1) Overview on the "human" use of human beings

The meaning of our everyday efforts has been an open question for humankind since its wake. Labour is epitomised in many mythological figures – from Ephestus to the Demiurge – and in the Bible – the image of Adam's forehead sweat – as the symbol of the human condition. Such denotation is twofold, as everyone knows from her/his professional experience, since it celebrates human ability to grasp the understanding of natural elements and to craft malleable matter, but also the fact that the onuses sometimes are heavier to carry than our gratifications.

Working is a complex endeavour also because it is a structured social activity, organized by customs, laws and institutions. In this regard, Samuel Pufendorf, who is widely considered the first legal philosopher of the contemporary age, connoted human condition as "imbecillitas" (Pufendorf, 1759) due to our innate physical and moral weakness that demands us to reach our for other people (Todescan, 2001). Such expression enlightens with extraordinary precision the primary source of social conflicts. Indeed, as learned from the early reflections of western culture (Aristotles [1253b]), we are "political animals", since an individual is naturally bound to her/his community, yet struggles raise when we are in need of others assistance or required to contribute in other people's businesses: someone is likely to intervene as driven by altruism, others act only by interest; somebody is more willing to acknowledge the assistance received, while opportunists just forget very easily whom offered a benefit. In Pufendorf's view is expressed a sad universal truth, still valid in current times.

Moreover, the remuneration of our work hangs on a very difficult balance between our own dignity, the untouchable value we hold as human beings, and the price of our time and efforts. As considered by Immanuel Kant, there is a moral limit under which work should be forbidden, a kind of sacred threshold which nobody should demand us to infringe: an individual should not be considered as "mere instrument", but as "purpose in itself". In this sense, the expression "*Zweck an sich selbst*" (Kant, 1911 p. 429) means that we can "use" other people, allowing them work to for us, but not "abuse" of them, such as humiliating and subjugating to our mere willpower. On the other side, according to Georg Hegel, in the famous dynamic opposition between master and servant – "*Herrschaft und Knechtschaft*" – we can argue that every servant can overwhelm and submit her/his own master, if only she/he learns the secrets of the job she/he is meant to carry out. Opposing Kant's perspective, the fact that the servant overcomes her/his limit is exactly what is required to reach a better status: with Hegel we can claim that the real goal of a job is not completing the task assigned, nor being paid for it, but becoming something else, changing our own nature (Hegel, 1968). Everyone can appreciate that both perspectives are very difficult to operate in the real world. The distinction between "use" and "abuse" brought by Kant is quite vague in many cases, while the fact that a servant could become master, as stated by Hegel, almost always remains a wishful dream.

It is a fact that workplaces have been radically changed in last two centuries, due to technological improvements – steam power, coal, oil, electric energy, telephones, ICTs – and, in general, through a more rational approach to production processes. If Modern thought was rooted on the faith that knowledge and rationality can bring the power to rule over nature, in the attempt to imitate God's act of creation (Ellul, 1954), in Contemporary approach technology has become the

topic of a specific field of investigation for many scholars (Kapp, 1877) though its meaning has been disputed. It is worthwhile to mention the famous debate held in Davos in march 1929 between Ernst Cassirer and Martin Heidegger (Gordon, 2012). As the first, which was a post-Kantian philosopher, portrayed an optimistic draw of human potentials, the second, a then-young and irreverent promising scholar, opposed a nihilistic perspective in which technology was alleged to be the example of the inconsistence of the Being. According to the chronicles, Heidegger emerged from the discussion as the representative of a new philosophical wave, commonly known as "existentialism", which spread worldwide and even today influences our vision of the world. Paradoxically, while engineers were inventing many of the devices still used (the television, for example), philosophers were upholding the futility of human efforts to apprehend reality.

Recently, the social impact of technology has been under specific scrutiny. On that note, very evocative are the remarks by Michael Foucault on the social and cultural repercussions brought by modernization (Foucault, 1975). Indeed, it is not a case if, in Contemporary age, we find the same pattern in human behaviour within different contexts, such as prisons, manufactures, schools and army barracks: in each of them we can observe constrained spaces, uniform clothing, strict discipline, structured hierarchy, severe punishments, activities timely cadenced. Under the view of Foucault – bound to a materialistic philosophical perspective – the condition of alienation suffered by individuals is the direct and unavoidable consequence of the emerging bourgeois class: technology is envisioned as the sharpened tool used by capitalism to mould the whole society according to the needs of the production system and, as the practical expression of modern rationalism, is claimed to be the *causa causarum* of the frustration of single individuals and the oppression of the working class. We may observe that, of course, social processes and historical developments are far more complicated, but, as we know from the history of political movements, a simple equation is a good story to tell and an easy explanation to believe in. Without technology, no industry, without industry, no proletarians, without proletarians, finally social justice.

Against the demonization of technology stood one of the most brilliant minds of the Twentieth century, Norbert Wiener, pioneer in several fields of scientific research. Together with other scholars, he founded a discipline called "cybernetics" (Wiener, 1948) aimed at shaping a unified theory of interaction among humans, animals and machines. According to such perspective, technology is not just a human invention, but the basic structure of a sophisticated ecosystem in which every slice of reality – psychological, social, organic, mechanical, physical – is translated in terms of control and communication. Since each empirical phenomenon, regardless of the fact that it is natural or artificial, can be represented in flow of "information", everything is, in a way, technological. In a nutshell, technology is in nature, so everyone can benefit from it, regardless of her/his social status, or of her/his human – or even animal – condition.

In his most famous book, *The Human Use of Human Beings*, Wiener claimed that cybernetics could have allowed a "human" use of technology towards other people (Wiener, 1954), respectful of their dignity and so, we could add, compliant with Kantian moral imperative. In this sense, technology should have been considered not a dumb instrument in the hands of a caste of wealthy oligarchs, but the tangible opportunity to expand further the connection among components of the social system and to tighten its lattice, reducing political and social conflicts. According to Wiener, such approach should have allowed to decrease the economic disbalances generated by the early industrial mass-production system and to lead towards the emergence of a "flattened", "decentralized" – and thus peaceful – interaction between employers and employees.

(1.2) Ethical-legal issues in the "digital" use of human beings

Currently things are even more uncertain than they were for Wiener, since additional concerns emerge besides those that were already detected at his time. Indeed, in last decades automation and ITCs has spread worldwide at a very fast pace, hence technological advancements have created new professional profiles and great career opportunities, but also a considerable number of job losses and displacements. Moreover, information is concentrating in few hands, which have reach the power not

only to deeply interfere with social processes at an aggregate level, but to intrude in individual behaviour and personal choices. Surveillance systems are being deployed in public and private spaces, collecting an enormous amount of personal and non-personal data, which are handled by sophisticated artificial agents in order to provide feedbacks suitable to bring proactively accurate analysis of business processes and to profile entire populations. Such innovations, coupled with those promised by the biotech industry (genetic human empowerment, above all), allow to question if humankind, in the future, would be different than as we know it: a few could flourish as technological demigods as all the others could plunge into an abyss of a short, poor and nescient life. While some authors look forward to witness the advent of "singularity" (Kurzweil, 2005), others seem to be cautious, underlining the threats (Harari, 2018).

This contribution is focused on the ethical-legal issues raised by the impact of ITCs in worker's conditions. Its aim is to address such questions from a theoretical perspective, hence the choice of the title, in which is recalled Wiener's book. The adjective "human" is substituted by "digital" as it is taken into consideration the approach known as "Philosophy of Information" proposed by Luciano Floridi and other scholars in the last twenty years (Durante, 2017; Floridi, 2013b). According to such view, the impact of technology in our existence is not just an everyday practical matter, but a theoretical challenge. As claimed in the *Onlife Manifesto*, a publication which envisions such perspective with great clarity, "*ICTs are not mere tools but rather environmental forces that are increasingly affecting: 1. our self-conception (who we are); 2. our mutual interactions (how we socialise); 3. our conception of reality (our metaphysics); and 4. our interactions with reality (our agency)*" (Floridi, 2015b p. 2). These few statements deserve a short clarification before proceeding further.

On the first aspect, it is worthwhile to emphasise that ICTs have produced an anthropological transformation, since humans have become "*Inforgs*", namely "*informational organisms living and interacting with other informational agents in the infosphere*" (Floridi, 2015a p. 54).

On the second profile, human communities have become part of a more wider and complex structure in which relations are symbolized in terms of multi-agent systems, regardless of the fact that an agent is natural or artificial, human or not.

As of the third regard, our world has become an "infosphere", a hybrid between the spiritual and the secular world, tangible matter and impalpable data (Floridi, 2014).

On the last account, it is claimed the need of a radically new ethical framework, since the individual has become *homo poieticus*, namely "*a demiurge, who takes care of reality, today conceptualized as the infosphere, to protect it and make it flourish*" (Floridi, 2013a pag. 175).

It is relevant to underline that this contribution intends to address the problem of the "human use" under the "digital" perspective, as said, yet without fully embracing it. The interesting fact – and the reason for such choice in this contribution – is that "Philosophy of Information" can be seen as an evolution of "cybernetics", not only because it includes technology as a key element of our social ecosystem, but also because it investigates the possibility to establish new criteria and moral values as tool for a new metaphysics.

(1.3) Outline of this contribution

This contribution proposes a threefold taxonomy under the tenet that labour does not involve just humans anymore. Indeed, "working" is not necessarily a human duty since machines are not merely cooperating with us, but are also undertaking progressively more assignments without human supervision. Provided that, depending on the technological involvement, we can find: (1) traditional connections between humans, (2) more sophisticated interactions between humans and machines and (3) exchanges of information between fully autonomous machines. Such tripartite classification finds its background in the distinction brought by "Philosophy of Information", in which information can be appreciated under three ontological modalities: (1) "information *as* reality" (*technological information*), for example, the electric signal transmitted and received regardless of the content, (2) "information *about* reality" (*natural information*), such as data regarding natural phenomena, (3)

"information *for* reality" (*cultural information*), such as algorithms and procedures to be abode (Borgmann, 1999; Floridi, 2004). It is interesting to recall that the distinction of three levels of "complexity" was pivotal not only for the foundation of the theory of communication – where information can be "*technical*", "*semantic*" or "*influential*" (Weaver, 1949) – but also for the speculation on the control of information – the three layers of control are "*physical*", "*logical*" and "*content*" (Benkler, 2000) – at the awakening of cyberlaw (Lessig, 2002).

The "digital" use of human beings, mentioning again Wiener's work, has not only many benefits and drawbacks, but also an intrinsic complexity. The aim of this contribution is to provide a comprehensive overview of labour issues in a digital environment embracing every level of such complexity. In order to do so, it is divided into three sections, which correspond to the three models above explained.

In the first, technology is considered as an ecosystem of the interactions among human workers: in it, I will investigate how virtualization of labour resources influences tools, methods and procedures.

In the second, technology ultimately defines in what way valuable resources – workload and retribution, above all – are distributed among workers: such issue is particularly relevant in "collaborative" or "sharing" economy, where the pattern of interactions seems really "flattened" or "decentralized".

In the third, technology is embodied in artificial agents, which can properly substitute human labour: I'll analyse ethical and legal concerns in the social impact of artificial intelligence according to the most recent perspectives emerged in the European Union.

For each prospect I'll make a comment on the recent Proposal for a Directive COM(2017) 797 *on transparent and predictable working conditions in the European Union*, adopted by the European Parliament on 16 April 2019.

At the end, I'll draw a few final remarks.

(2) Human / human interaction and the "virtualization" of labour resources

(2.1) Introduction: industrial production, control of information and labour

Control of information is essential in industrial production, yet this necessity is fulfilled in different ways and has evolved in time with technological innovation. It can be useful to underline two crucial traits in the organization of traditional industry: a unidirectional linear production and a highly centralized hierarchy. In such model, the fast-growing needs of mass market is fulfilled by delivering goods or services through extremely standardized processes, which require accurate management of resources and continuous supervision. It is important that, also due to technological constraints, such kind of surveillance is not incorporated in the workflow, but performed with external branches of the organization and different professional profiles, hence the hierarchy remarked by Foucault. On the contrary, more recent "on demand" business models are aimed to adapt rapidly to market's transformations. To do so, productive resources are "virtualized", being always available for supply, but utilised only if and when required. In such configuration, workflow needs to be "iterative" and organization has to be "flattened" and "decentralized". Indeed, production is divided into cycles which include phases of monitoring and loops of adjustment of the production process. The key point, here, is that control is an essential part of the workflow, often being undertaken directly by the workforce (Wysocki, 2014). This latter approach is adopted, as we know, by the "lean" production method – also famous as "Toyota Production System" – which was developed in Japan after the Second World War.

In this section we focus on "lean" production not only because it seems to be currently deployed in many "as a service" business models (Sharma, 2015), but also due to the fact that it is "flexible". Such method is well expressed by the acronym PDCA (Plan, Do, Check, Act), originally coined W. Edwards Demming, officer of the U.S.A. army, who was inspired by cybernetical studies.

(2.2) Labour forces from "flexibility" to "agility": the case of "Agile manifesto"

The "lean" process of production started raising interest in the academia after few years. More than thirty years ago, two scholars in a famous contribution noted that it presents interesting features. The most important one was that the success of the method depended mostly by the joint effort of the workers. The pattern in the behaviour of workgroup members resembled to the authors a "scrum" in a rugby match: "*Under the rugby approach, the product development process emerges from the constant interaction of a hand-picked, multidisciplinary team whose members work together from start to finish. Rather than moving in defined, highly structured stages, the process is born out of the team members' interplay*" (Takeuchi & Nonaka, 1986 p. 138). In other words, teams were able, under given conditions, to improve productivity spontaneously, as a self-regulating organization, bringing an extraordinary "flexibility" to the whole process. We can observe that in a "flexible" workflow, the feedback is not only part of it, but also an joint effort of every worker involved. Control becomes a personal commitment of the individual and a shared value of the team.

Recently there has been a further evolution which has spread worldwide from the field of software development to other economic sectors. In 2001, a group of software engineers released publicly a document called "Agile Manifesto" in which their thesis were condensed in few world: "*Individuals and interactions over processes and tools, Working software over comprehensive documentation, Customer collaboration over contract negotiation, Responding to change over following a plan*" (Beck et al, 2001). This seminal declaration sparkled rapidly, shaping into a kind of pragmatic philosophy, whose potentials have been exploited with remarkable results (Sutherland, 2014). Indeed, many companies and institutions have implemented such method, not only increasing their productivity, but also developing strategies to take advantage from "uncertainty" (Taleb, 2012).

It may be remarked that "agility" is different from "flexibility". While the latter still relies on the prevalence of the process and regards changes as mere fine-tuning corrections – structure over function, in a nutshell – the first is a proclamation of primacy of transformation over routine – function over structure – in the attempt to convey individual problem-solving skills with the benefit of the entire team and so, indirectly, increasing overall productivity.

The fact that a working methodology, invented in the digital economy, could be adopted in different fields, should not be a surprise. Today not only ICTs are deeply embedded in most workplaces – we may think to telecommuting – but often an entire working environment is shared on on line platforms: workflows are monitored remotely and individual tasks are assigned through digital interfaces.

(2.3) Conclusion: "agility" and creativity

Digital technologies – or, better, the mindset that has been shaped around them – have an impact on the interaction among workers. The cybernetical concept of control has changed three different statuses: at first, in the traditional model, as an external surveillance of the behaviour of the individual, then, in the "flexible" pattern, as an internal commitment – "moral", I could say – of openness and transparency towards the teammates, eventually, in the "agile" approach, as *ars inveniendi* of new ways to bring order to chaos. We can argue that this shift is made possible by a major assumption: labour in itself has become a kind of information, namely, a way to organize the world according to a given purpose. This is the reason why, in the digital era, labour can be ideally separated from individuals: workload is not necessarily a human matter, and its purpose may be not self-determined by the worker.

Is noteworthy that the issues raised in this paragraph fall into the scope of EU Proposal of Directive (2017)797. Article 9 sets limits for the predictability of work, imposing to employers a preliminary notification of reference hours and days and allowing employees to refuse to work if the advance notice is not respected. Such limits do not apply if the employer sets a task to be achieved, however in such case the worker is free to determine the time schedule.

We could agree that these provisions could protect workers from malevolent "virtualization" of labour in "flexible" environments. Indeed, they seem to apply easily to permanent personnel. However, such safeguards appear inadequate against abuses of "agile" methodology, moreover when involving freelance workers. The fact is that "on demand" production models entail a complicated sequence of choices, which can be problematic to contradict, especially when workers are directly involved in the decision process.

(3) Human / machine interaction: decentralization and "platform" economy

(3.1) Decentralization, social computing and "peer-to-peer economy"

In general, flow of information in a given system can be classified in three models – "centralized", "decentralized" and "distributed" – depending by information management: in the first, control is allocated in one single fulcrum, in the second it is assigned to certain nodes, in the third information is pooled among all components (Baran, 1962). In last fifty years, sociologists and psychologists, investigating the pattern of social interaction, have discovered that connections among human beings can be represented in terms of "decentralized" networks (Milgram, 1967). In this sense, certain nodes in the network can have more links and share more information just as some of us are more "popular" than others. This model could be considered the standard configuration of human social relationships, even thou historically prevailed "centralized" social systems (a State or a Church, for example) and "distributed" ones (communitarian settlements, for example) have been occasionally witnessed. The point is that we, as human beings, are designed to inhabit "distributed" ecosystems, where a limited control is coupled with shared resources. Here, in a way, social authority and group extension find their dynamic – and quite precarious, as history can tell – balance.

In the last twenty years, such "decentralized" design has been overlapped by the massive deployment of ICTs, which have facilitated the exponential rise of what has been called "Networked Information Economy" (Benkler, 2006). Indeed, a raising part of human communication has been conveyed through digital media, phenomenon called "social computing" (Ala-Mutka et al, 2009), as well as pre-existing economic models have been empowered – such as "collaborative consumption" (Felson & Spaeth, 1978; Oh & Moon, 2016) – and other alike have been introduced. This broad category of "decentralized" economy is called in many ways – "peer-to-peer", or "collaborative", or "sharing", or "gig", or "platform" economy – in the attempt to grasp the general concept, or to stress one specific aspect (Belk, 2014). The European Union, in the document COM(2016) 356 final, entitled *A European agenda for the collaborative economy*, provided an analytical definition (pag. 3) identifying three categories of actors: (1) "service providers", which can operate as private individuals or professionals, (2) "users" of the services offered through online platforms, (3) "intermediaries", namely the owners of the platform where transactions are routed. According to this blueprint, "users" access online platforms to contact "service providers", who operate as their "peers" within the digital ecosystem managed by the "intermediator". In the "service provider" we can find a new kind of worker, which has been named "prosumer" being a synthesis between two traditional categories: the "producer" and the "consumer".

(3.2) "plaform workers" and decentralization

The social impact of the fast-growing category of such new type of workers, named also "platform workers", raises several issues, as explained by the European Group on Ethics in Science and New Technologies in the Opinion n. 30 entitled *Future of Work, Future of Society*, released in December 2018, and in the report published by the JRC (Pesole et al, 2018). One of the reasons of such concerns is that substantial aspect of the working conditions – the task assigned to the specific worker and the remuneration, especially – are defined automatically by the online platform. In a nutshell, "intermediaries" not only build an economic ecosystem around the transactions among "service providers" and "users", but also exploit them by using data collected by profiling individuals, analysing exchanges, and mining external databases. Hence, such design allows not only massive and

penetrating surveillance on "service providers", but also definitive information asymmetry towards "users". The bitter irony embedded in the name of "collaborative" economy is that the lack of transparency can be exponentially more profitable than in "non-collaborative" – namely, traditional – markets: profitable not for workers or consumers, of course, but for those who speculate on their needs and expectations.

We can observe that, in "decentralized" economy models, control of information is embedded into the process of sharing resources. Yet, not necessarily the allocation of control has to be a detriment for the same parties who should benefit from it by feeding their energies into the system. Indeed, there are different kinds of "decentralization", as recently pointed out by a brilliant article posted on Medium by Vitalik Buterin, inventor of Ethereum, one of the most used distributed-ledger system (Buterin, 2017). He observes that "decentralization" can operate at three very different layers: (1) "architectural", depending on how many computers are involved and how they process information, (2) "political", depending on how is distributed the ownership of the system, (3) "logical", depending on the configuration of interfaces and data structures. It is quite remarkable how Buterin applies this theoretical framework to human phenomena arguing, for example, that Common Law is logically centralized – since it relies on certain social structures, law-making bodies – but architecturally and politically decentralized because of the court's large discretion in interpretation. According to such framework, "collaborative economy" could be classified as architecturally and logically decentralized, but politically centralized. Indeed, as observed in the EU document, commonly platforms are owned by "intermediators", which are third-party entities. Needless to say, that leaves ultimate control out of the hands of "service providers" and "users". By default, workers are not fully in charge of the data governing their activities.

Buterin, in his post, tries to make a distinction between beneficial and harmful coordination. In tackling what is defined "*a social challenge more than anything else*", the author suggests several remedies, most of which address the "protocol" formulation. Of course, in "decentralized economy" this question stands differently than in cryptocurrencies, where the "consensus" of the users has a stronger importance, yet the conclusion could be quite similar. In "decentralized" economy, the difference between "use" and "abuse" of human beings depends on the design of the ecosystem surrounding "service providers" and "users". The "protocol" becomes vital since joining a platform, more and more often – for many reasons – is not simply a matter of rational choice, as in cryptocurrencies, but of trust (Balkin, 2017; Pagallo, 2017). Who owns the platform, controls the transactions, as in gambling the bench always wins.

(3.3) Conclusion: platform owners, "political" decentralization and "data protection"

It can be agreed that in a specific system control of information can be shaped according to different models – centralized, decentralized, distributed – and "decentralization" can be applied at different layers – physical, political or logical – multiplying the complexity of a system. The allocation of control is independent from the distribution of resources, which can be shared among participants regardless of the model adopted.

In the case of "collaborative" economy, one of the main issues is that "platform workers" don't own the "political" control on the system. Indeed, in most cases "intermediators" manipulate the exchanges among "service provides" and "users" in order to increase proactively their benefit. Such advantage does not convert necessarily into an immediate and direct revenue, as the EU document seems to suggest, but at least in an advantage in terms of information.

The kind of activities that can be provided through such platform is almost infinite, from the most draining industrial jobs – as in "cyber-physical systems" (Lee, 2015) – to the most exausting symbolic reasoning and conceptual organisation – as in "human computational systems" (Law & von Ahn, 2011) – but stands on a clear criteria: humans are appointed of the tasks that by now machines cannot execute. If technological innovation will increase further capabilities of artificial systems, it is likely that humans will be overcome just to increase efficiency in the ecosystem. Perhaps that would

be the end of "collaborative economy", or better, the achievement by the intermediaries of the complete "political" control on the "decentralized" ecosystem.

We may observe that issues raised in this paragraph are not fully considered in the EU Proposal of Directive (2017)797. Of course, such legislation raises the level of safeguard for workers. Indeed, provided that transparency is mandatory in an employment relationship, Article 3 updates the requirements set out by the Written Statement Directive, detailing the minimum information that any employer has to deliver to employees. However, among the details included in the list of such requirements – regarding work schedule and remuneration, for example – neither as an explicit mention nor as an indirect indication is dedicated to employee's personal data. This is quite surprising, provided that the safeguard of "platform workers" is included in the aim of the Directive.

It should be observed that employee's personal data are strongly protected in the EU. Indeed, they fall into the scope of the EU General Data Protection Regulation 2016/679 (GDPR) recently entered into force, which – according to Articles 12 and 13, above all – requires employers – as "data controllers" – to inform workers – as "data subjects" – about the ongoing data processing. Moreover, Article 21 acknowledges to the "data subject" the right to object to the data processing, "*including profiling*", if based on "*public interest or in the exercise of official authority*" (Article 6(1)(e)) or "*legitimate interest*" (Article 6(1)(f)). Likewise, Article 22(1) recognizes "*the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her"*. Finally, Article 88 allows Member States to "*provide for more specific rules to ensure the protection of the rights and freedoms in respect of the processing of employees' personal data in the employment context*".

Notwithstanding that the current EU legal framework on data protection is one of the most advanced in the world, some concerns raise for "platform workers". Indeed, as remarked in this paragraph, since they do not have "political" control on the platform, they are mostly vulnerable to intermediaries' own discretion. For example, data could be collected by profiling workers and customers and exploited for implementing autonomous decision-making processes through which the platform could increase or reduce automatically the remuneration for some tasks in certain cases or under given conditions, creating sudden and unexpected fluctuations in market's ecosystem.

We can claim that abusive practices that deeply influence "users" preferences and re-route "service providers" choices without full transparency could be implemented under GDPR provisions, since the prohibition of profiling does not apply if an automatic decision "*is necessary for entering into, or performance of, a contract between the data subject and a data controller*" (Article 22(2)(a)). In may be argued that a basic protection for "data subject" is offered by the fact the WP29 *Guidelines on Automated individual decision-making and Profiling* (adopted on 3 October 2017 and revised on 6 February 2018) requires that the "data controller" has to "*tell the data subject that they are engaging in this type of activity; provide meaningful information about the logic involved; and explain the significance and envisaged consequences of the processing*". On the contrary, it may be replied that such safeguard applies only to personal data – not to "not personal" data, which are likewise exploited in business analysis – and that, furthermore, neither such provisions can be directly enforced nor they address specifically labour law issues. Under this aspect, it seems that the EU Proposal of Directive (2017)797 does not solve completely "platform workers" needs or expectations since it does not provide clear criteria for "political" control and differentiate "use" and "abuse" of human beings.

(4) Machine / machine interaction: towards a job-less society?

(4.1) Introduction: current perspectives in AI ethics

Throughout history, many attempts have been made to imitate natural living creatures by crafting artificial mechanisms. In Modern age, the most inspiring vision has become the creation of an artificial mind, embodiment of the power of human rationality. In this sense, very evocative is the quote from Goethe's Faust: "*and such a brain, which could think well / in the future a thinker will*

make", «*und so ein Hirn, das trefflich denken soll, / wird künftig auch ein Denker machen*» (Goethe, 1831 Act II, vv. 6869-6870). In last century, what before was just a dream has become a tangible reality and "artificial intelligence" (simply "AI", henceforth), which has been made possible by the pioneers of computer science, has obtained astonishing triumphs. As everyone can see in her/his ordinary life, today we can interact with many sorts of artificial agents, most of which are so sophisticated that can hardly be discerned by humans. Less manifest, but largely deployed – in the financial market, for example – are systems in which agents interact autonomously, signing deals on account of their owners or supervisors.

Of course, ethical concerns emerge, as warned by Norbert Wiener in the book mentioned at the beginning of this contribution. In debating such issue different kinds of arguments can be brought: technical aspects – concerning the comparison between AI and humans in terms of efficiency or efficacy – sociological effects – relating to the social acceptance of robots in different cultural contexts – or economic implications, involving the influence on a specific sector (logistics, health, industry, for example) or market (labour, above all). The fact is that practical aspects tend to overwhelm theoretical ones and key questions sometimes remain unasked or disregarded as the proverbial elephant in the room. Consequently, discussants are prone to avoid "why and "if" AI should or should not be deployed, focusing on "how" or "when" that could happen. Thus, the risk is that advent of AI, as a transformative and disruptive technology, would be widely accepted as an inevitable human destiny, becoming a self-fulfilling prophecy.

In the last few years, public debate on AI has reached institutional level, being tackled in official meetings by governments and parliaments. Among the many political initiatives, it is noteworthy to mention four important documents that were adopted recently in the European Union: the European Parliament Resolution of 16 February 2017 on Civil Law Rules on Robotics, COM(2018)237 of 25 April 2018, *Artificial Intelligence for Europe*, COM(2018)795 of 7 December 2018, *Coordinated Plan on Artificial Intelligence*, and COM(2019)168, of 8 April 2019, *Building Trust in Human-Centric Artificial Intelligence*. Moreover, the EU instituted an independent body, the High-Level Expert Group on Artificial Intelligence (AI HLEG), which, after a four months public consultation, on 8 April 2019 released the document *Ethics Guidelines for Trustworthy Artificial Intelligence*. In the meantime, others initiatives have been put in place by experts and scholars in order to raise public awareness on such problems (Floridi et al, 2018).

The above mentioned *AI HLEG Ethical guidelines* draws a framework of principles and requirements in order to build "Trustworthy AI". In brief, artificial agents should be designed to be (1) lawful, abiding applicable laws and regulation, (2) ethical, respecting principle and values, (3) robust, preventing harms from a technical and social perspective. With regard to the second aspect, four ethical principles have been suggested for practitioners and developers: (i) Respect for human autonomy, (ii) Prevention of harm, (iii) Fairness, (iv) Explicability. These principles are complemented by a non-exhaustive list of requirements, which are further explained in the document: (1) Human agency and oversight, (2) Technical robustness and safety, (3) Privacy and data governance, (4) Transparency, (5) Diversity, non-discrimination and fairness, (6) Societal and environmental wellbeing, (7) Accountability. It is noteworthy that the European Union encourages stakeholders and public opinion to provide feedbacks on the guidelines in order to distribute a reviewed version in 2020, because it means that the matter is so important that public engagement is considered crucial.

(4.2) AI and labour in a "human centric approach"

We can agree that the problem raised by Alan Turing – if machines can "think", as humans do (Turing, 1950) – has lost its provocative sound. It is a fact, indeed, that artificial agents can replace humans in several kinds of physical and intellectual tasks. Moreover, it is foreseeable that in the future capabilities of AI will increase and space left for humans will proportionately decrease. In the EU documents mentioned above, such scenario is, of course, taken into specific consideration. In the latest one, the *AI HLEG Ethical guidelines*, under the principle named "respect for human autonomy",

it is clearly stated that "*humans interacting with AI systems must be able to keep full and effective self-determination over themselves*". With special regard to the work sphere, AI "*should support humans in the working environment, and aim for the creation of meaningful work*".

This very important declaration is implemented, in the same document, in several assessment profiles. Indeed, in developing AI tools, for example, human agency should be preserved by deploying measures preventing overconfidence or overreliance in AI systems, and human oversight should be granted thanks to mechanisms of detection of system failures or malfunctions.

We have to remark that such approach, which is broadly called "human centric", does not promise to defend current workplaces or to prevent job losses – which will be inevitable – but to preserve the "meaning" of work, which is still something.

(4.3) Conclusion: AI, the "meaning" of work and the European Union

It is foreseeable that AI system will change labour market deeply, transforming working conditions, and even replacing human workers. As many disruptive phenomena are difficult to estimate, it is very unwise to make predictions. The fact is that the scenario of society where only AI and robots are working seems still quite far from being realistic. However, from the last observation in the previous paragraph emerges a further question concerning the theoretical possibility of a "job-less" society. Indeed, a profession, of any kind, should contribute to provide "meaning" to a human life not only because it provides the means of surviving, but also because it allows – and sometimes it requires – to interact with people. In other words, labour is a crucial factor in social cohesion. Therefore, if we delegate completely our activities to AI, the result would be that we could have more time to spend for our hobbies, yet it is likely that we could be alone. Without meaningful work, meaningless spare time.

Proposal of Directive (2017)797 does not tackle such kind of issues. Of course, it can be said that the impact of AI on labour market and the problem of replacement of human workforce by AI-powered devices or systems falls outside the scope of this legislation, while many other provisions, most of whom cited above, are specifically aimed at that. However, perhaps it should have been almost mentioned in the explanatory memorandum – if not in the preamble – that the advent of AI – not only of "digitalization", as written – will be one of the main factors for the dramatic transformation in working conditions in the next few years.

5) Conclusion

It is remarkable that Wiener – almost seventy years before the current "Industry 4.0" – envisioned a futuristic model of "automatic factory" in which production processes would be overseen by "computing machines". He was concerned particularly by the fact that "*the intermediate period of the introduction of the new means […] will lead to an immediate transitional period of disastrous confusion*" (Wiener, 1954), and that "*the automatic machine, whatever we think of any feelings it may have or may not have, is the precise economic equivalent of slave labour. Any labor which competes with slave labor must accept the economic conditions of slave labor*" (Wiener, 1954 pag. 162). The author, in his final comments, expressed his confidence that the business community would have taken into account the social impact of automation and its related risks, and that eventually it would have found a balance thanks to the self-regulatory properties of every social system. Today, we can argue that in this book were raised some of the most debated ethical issues on technology, and that they were tackled with an approach that is currently adopted. Our trust in the "invisible hand" of the market, unfortunately, is not robust as Wiener's was.

Currently the approach promoted by "Philosophy of Information" is maybe the most structured vision we can appreciate. The anthropological image of *homo poieticus* suggests that we are free, collectively and individually, to shape our own future, but humankind is also left alone in this challenge. Freedom of choice is a good thing, of course, but dealing with "disruptive" technologies without a "Plan B" means that behind every decision – apparently insignificant – there

can be hidden risks and potential catastrophes. Such risks have been outlined in each of the three levels of complexity addressed in this contribution.

Concerning human/human cooperation, we have seen that the "virtualization" of working tasks allows to market labour as a commodity. In this context, workers seems to resemble the mythical character of the Demiurge: as this demigod is summoned to shape empyreal ideas into telluric matter, they are required to be not only productive and efficient, but "creative", bringing order to chaos according to client's requirements. If participating in an "Agile team" is a matter of emotional involvement rather than of skills and competences, then there is a risk that the "meaning" of life depends on the outcome of the group and, indirectly, on unenumerable external factors. The figure of "*homo poieticus*", celebrated by philosophers, is not so easy to mimic when in practice.

As regards human/machine collaboration, we have observed that "decentralized" business models are based on technological platforms which control the interactions among "services providers" and "users". The fact is that such platforms tend not only to create artificial ecosystems, but to isolate such exchanges from others interactions. The internal flexibility of the market within the platform ends creating "inelasticity" in the whole social system.

Finally, in machine/machine interaction, a further challenge worth being mentioned is brought by machine-learning technologies. The fact that AI agents can improve their abilities and adapt to different environments makes them real competitors for human workers. The opinion expressed by Wiener sounds like an early-warning.

To conclude, the attempt to draw a "human centric" approach to IA is praiseworthy, of course, yet some preliminary clarifications are still required. Indeed, it is almost trivial to insist that we should first understand what really means being "human". The fact that we never did in thousand years of history and entire lifetimes of people who preceded us, means maybe that we never will either. However, focusing on labour conditions, the problem can be simply put as follows, recalling the philosophers mentioned in the introduction: shall we agree with Kant, and establish a threshold to defend human dignity, or shall we postulate, with Hegel, that there aren't any, trusting our intelligence? In the first case, we would conclude that there is a limit also in technological development, when it becomes a threat for "humans", whatever could fit into this word. In the second hypothesis, we should be aware that there is a possibility that we could find ourselves not in the positions of master, but in that of the slave. At that point, it could become quite irrelevant if the control is owned by a human or by a machine. Moreover, it would be quite complicated to evade from slavery, having to outsmart a more-than-human master.

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