The Predictions on the Future of Labour are not Grounded; Some Arguments for a Bayesian Approach

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Abstract: Expectations on predicting the future of work are not substantiated, and can only control some of the variables that define its character. The following variables could help to shape a Bayesian methodological framework of the future of labour and could interfere in modelling labour status: 1) The meaning of labour depends on the context of significance specific to each historical period; 2) The fate of labour is dependent on the ontological status of the utensil; 3) The status of labour is defined to a significant extent in the self-fulfilling / defeating prophecy horizon; 4) The normative perspective: the future of labour will be as we want it to be; but we cannot predict the evolution of our desires; 5) The present confirms to a small extent the expectations of the past; 6) Predictability in the field of labour is not protected by black swans: the evolution of artificial intelligence outlines the most important dimension of the extremistan; 7) If the decision belongs to the human, there will be at least some areas where human labour will be preferred; 8) The increase in the number of jobs and the decrease in their quality cannot be excluded; 9) the progress can also lead to the increase of the number of jobs; 10) The diminishing of social control over labour will

persist. The arguments in favour of labour show that it will still exist; but we cannot be sure who and how it will be, or what status it will have.

Keywords: *future of labour; prediction; Bayesian method; fitness argument.*

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1. Introduction

In the market economy, labour is thought of as an economic component, its place being outlined by its interdependencies with capital, goods, the market, etc. Given that cyclical economic crises show cyclically that the predictive power of the economy as a science remains at the level of a desideratum, we can reasonably expect work to share the same fate. In this context, are we entitled to anticipate a massive change in the place occupied by labour in the existence of humanity and in the individual one? For an effective approach, we must admit that, although the work takes up most of our lives, we may approach it inappropriately, losing its place and purpose in our existence. Identifying the role and the current situation of labour is one of the prerequisites for anticipating the future developments within reasonable limits. In this article we try to identify a set of variables that could interfere with the modelling of the labour status with some key interventions needed in order to prepare for its future, thus indicating some of the difficulties that predictions in this area have to face. Together with the resumption of some of the issues discussed in the research literature in a personal manner or just by suggesting them, our approach also focuses on identifying additional variables that can shape the future of work in ways that are difficult to predict, indicating the Bayesian method as the most appropriate framework of discussion on the topic of anticipating the future.

The dynamics of the labour market is experiencing a process of acceleration, visible in the disappearance of new professions and the emergence of new ones, in changing the structure of competences within the various professions, continuously re-establishing the market shares related to the various fields of activity. The technological progress seems to bring about an increase in the complexity of the labour market, the identification of the responsible variables for this complexity being able to help clarify the situation. From the point of view of the disappearance of certain jobs and the emergence of others, the McKinsey report (Manyika et al., 2017: 2) estimates that this kind of dynamics could affect approx. 14% of the workforce by 2030 - in the scenario based on the maximum speed of change. This development generates significant concerns about the impact of automation of production could have on jobs, many of the scenarios operating with the alternative of total or quasi-total replacement of human labour.

The fate of work seems to be dependent on that of artificial intelligence. Estimates from this direction use the standard robotic model: the predictive model that takes into account an accelerated increase in the

ability of robots to take over human work. Since the imagination of the future often moves around the well-known area, the model is largely based on forms of slavery reproduction: the main discussions within the standard robotic model focus on the possible variations in the human-machine relationship, the centre being the relationship owner-slave type. Even if this model appears to have the highest frequency, the worries being caused by the situation in the traditional paradigm of the confiscation of the means of production by the owners, respectively of the subsistence of the rest of the population, it does not exhaust the horizon of fears towards the future, being populated with interval scenarios that go up to the robot-type variants that take the lead on humanity.

1.1. The future of work: science or ideology?

Labour has accelerated its entry into the moral area, becoming more and more a criterion for classifying the humans. The rise in the employment rate is the most visible argument, being determined by two causes that seem to originate in the two ideological poles of politics: feminism (the entry of women into the labour market at an accelerated pace), and the criticism of the non-labour. Is it possible to talk about the future of labour outside the ideological frameworks, namely of the political context? The answer is obviously not, the fundamental argument being related to something essential to the society: its organization is based on moral values, which are the result of a choice, not the result of scientific experiments. Moreover, labour is an intensely regulated field, being highly dependent on political decision-making. Which means that the future of labour will depend heavily on the choices of humanity. But the realm of human decisions is the most resistant to predictions.

Since most predictions about the emergence of dramatic changes in the status of labour consider the impact of artificial intelligence on it, they are, by default, expectations of evolution AI, sharing all limitations specific to this field. We agree in this respect with the position expressed by Armstrong and Sotala (2012: 1) "expert predictions contradict each other considerably, and are indistinguishable from non-expert predictions and past failed predictions", being equally applicable to labor predictions.

Can we talk about a similar Maes-Garreau (Kelly, 2007) law in the field of labour predictions, as they are in fact targeting a variant that offers advantages to the authors? A possible formulation: changes in labour status risk affecting the lives of those who predict them; therefore, they each exceed the length of their professional life. Even if in the AI field this law did not prove valid (Armstrong & Sotala, 2012: 16) it is possible that it

influences predictions on labour, being essentially a form of intervention of subjectivity in an area where experimental verification of hypotheses it is seldom possible and every time only for long durations.

2. Several variables that can influence the context of work understanding

2.1. Changing the context of meaning

In some cases, labour market analyses are carried out without regard to context, generating the risk of identifying as structural changes what are in fact only role/purpose changes generated by the change of the reference framework. Understood in its complexity, labour is a specific concept of the last centuries. Many of its notes are generated by the speech that is opposed by the capital, some of them having political connotations; which means that this concept is not only relevant for the economy, as it is related to the political dimension of human existence, respectively to the historical context. From the perspectives of the future, we cannot exclude the possibility of such extensive context changes so that labour would lose its meaning / a large part of its notes, being replaced by another descriptor of a set of activities that has its source in human actions. Externalizations are an illustration of some context changes that move a number of activities from the labour area into the space of domestic activities. Modifying the hierarchy / organization of human activities could lead to "elimination of labour", although some (maybe even many) of the activities that are part of its dimension may still exist. Predictive patterns tend to talk about the future considering that the current conceptual framework will remain unchanged. However, changing the conceptual framework may be so broad that even if current estimates are correct to a significant extent, they could become incomprehensible / irrelevant in the new type of society; the work would have the fate that Heidegger attributes to the work of art, requiring keepers-testifiers (Heidegger, 2002).

Changing the status of labour status, consistent with the historical changes through which society will pass, is part of the expectations with a high degree of justification. The problem is that the estimation of the changes under these conditions depends on the ability to anticipate the changes of the society, as they do not concern both the area of scientific predictions and the unpredictability of the political decisions, respectively the dose of irrational present in the area of human decisions. In the sense of an intentional change, the greatest probability of generating change in the

context of significance comes from the political area, with some attempts already visible.

One of the current problems of estimates constitute a form of restriction of freedom of imagining solutions, the most important being a cantonment brake in the traditional definitions of labour. But it is possible that it is precisely the job that changes its character, overcoming the traditional forms of understanding. For example, a variant of progress may be the acquisition of workers' robots by each person (inheritance, purchase), that is, a direct form of replacement, in which the concern of the person is to maintain / check the workers. In such a variant, the context of significance of human labour would have as a defining feature what man does through his representatives.

2.2. Changing daily behaviours affects productive practices

Changing daily practices will have a significant impact on production. The boundary between personal life and labour can be overcome in both directions, both by extending the labour to personal life (as we will show, for example, in case of externalization) and by moving some domestic activities in the labour area (the most obvious example being when preparing the food). Consumer behaviours can also register significant changes with impact on jobs, such as the inclusion of new products and services in the category of indispensable ones for individual living.

Another example of changing daily practices is the change of the mental behaviours that the smartphone, for example, generates. If the smartphone starts to "be part of the person" (so far it seems to be part of the family), then any changes to the individual dimension it determines will have an impact on the worker's behaviour. Technology changes the worker, thus inevitably bringing about significant changes in the field of work. Because we cannot anticipate the directions in which human preferences will evolve relative to the possibilities created by science and technology, changes in production practices are also difficult to estimate.

The use of technology in day-to-day activities and the proximity to the information and training sources that new media create determines the possibility of rapid upgrades / acquisitions, thus increasing the flexibility of the workforce. Estimates of work developments should also take into account these variables related to increasing the capacity to adapt the workforce to the new contexts generated by technological changes that affect everyday life. Given that the flexibility of the acquisition of skills is highly likely to correlate with brain flexibility, being of use mostly to young people over 45 (to take into account the age at which unemployment points

out the difficulty of adapting) benefit from a significant degree of protection due to the gerontocratic culture that characterizes most of the jobs, which is very obvious, for example, in the public sector (Rotilă & Celmare, 2017).

2.3. The impact of innovation

In principle (in a simplistic approach) robotization should lead to a reduction of the working time of the employees, as a result of the decrease of the time needed to achieve a product / service. Automation should also have a positive impact on consumers, as an equation may be thought of to indicate the level at which automation is socially profitable, taking into account the following variables: a reduction in the price / service automation determines; the level of savings in family/personal budget due to price reduction; the equivalent reduction in the working time determined by this economy; the rate of increase in the number of consumer goods that are part of a family basket.

If the new technologies release the man of labour then the future of human labour seems to be the constantly expanding leisure activities. The increase of the freedom to choose activities in line with individual choices is likely to move labour closer to the game. Technological development could lead to a reduction in the level of training required to carry out various activities, thus lowering the pressure to increase the duration of education, respectively by increasing the accessibility of jobs. The most common example is the driving of a car related to their technological evolution: the emergence of cars with automatic gearboxes and electronic guidance make it easier to drive. Such an effect can be ticked in terms of the positive part of the technological development related to the evolution of labour.

Innovation is always a change in the significance of the body, it multiplies and changes the functions of different organs: the bicycle pedal has altered the traditional role and dynamics of the foot, the traditional tools those of the hand, etc. Progress brings about every time other essential modifications of the humans, visible only at the scale of history and only by a mettlesome eye. We imagine that each innovation will improve our existence without noticing that the beneficiary of that transformation will be a transformed man. We think that the future will bring relief to our present satisfactions by losing the radical changes that the technologies of the future produce at the level of our expectations, of our way of looking and thinking the world. Each innovation brings about new ways to use our body, forcing us to adapt to them. The history of innovation is a route to increasing the complexity of control over one's own body, in order to adapt it to new technologies every time. Along with the benefits, the human body is also

supposed to bear the costs: our life expectancy has increased, but we are living in a sitting position more and more, fulfilling different tasks. It is possible for the future to come with the liberation of the human of certain productive tasks, but with the obligation of other conformations to the new ways of being. In order to understand the impact of innovation on work we should start from trying to imagine how the man of those times will look.

2.4. Is only labour at risk to disappear or the capital as well?

To what extent is technological development consistent with maintaining the capitalist model? Interviews on the risks of labour disappearance on the backdrop of technological development should be duplicated by those on the topic of possibility of modifying ownership, including those in the field of production and services. The answer to the question: to the extent that the use of the term "capitalism" places us in a Marxist ideological context of signification, based at origin on the postulation of the existence of the two social classes. Or, if we keep ourselves in this horizon of significance, we have to ask ourselves what will happen to capital if the work of men disappears. Obviously, replacing people with machines is a third solution that seems to preserve capital but generate the disappearance of the working class, re-establishing the society (from a Marxist perspective) on other coordinates. This variant is possible given that technological progress is created as a result of work, but in the end it is fully accounted for by capital. It seems to have another major weakness: it does not stimulate the consumption so necessary to maintain production.

3. Some arguments for keeping people in the labour area

Predictions on the disappearance of human labour on the background of its replacement of automation, occupying a significant part of the work on the subject, could prove unfounded. Here are some arguments for keeping human labour in the future. The more appropriate approach is that of a certain level of replacement of current activities without being able to talk about the subsequent human activities that might occur in the workplace.

3.1. Maintaining social systems

We begin with the argument of the historical role of taxation: the existence of human society implies a form of redistribution made by taxation, and work is also situated in this area. Labour taxation could be a significant argument for maintaining a system close to the current one. To the extent that the maintenance of social security systems will continue to be

linked to (dependent on) individual work, we can anticipate a perpetuation of labour derived from the need to maintain them. An alternative model is possible: social systems are maintained through what we call, somewhat improperly, the labour of robots. For the time being, we have no conclusive evidence to indicate that this will happen; but we have no arguments against this possibility either.

One of the rules applicable to current societies is that labour is maintained (especially) through labour. To the extent that the school will be needed to prepare the workforce there is a significant probability of maintaining a tax system (obviously we cannot know the degree to which the rule applies to the standard robotic model). The existence of the school makes training possible; it does not only cover the necessary skills but also the general training for a set of social changes, including those related to the labour market. Even if we can see a gradual drop in the occupational scale of higher education graduates, in turn pushing even down lower education graduates (Beaudry, Green, & Sand, 2016), there remains a reserve of important skills for the labour market and a range of social skills that studies generate, usable in the new type of society.

Technological evolution is the cumulative result of labour and of investment, and it is still necessary to use redistribution solutions (conducted by the state) in order to maintain social equity. Globalization brings with it the risk of diminishing the social role of the state, bypassing social components (most often represented by taxation), often depending on the essence of business.

Excessive automation that leads to the exclusion of human labour to a significant extent, it is not profitable for the state from the point of view of the important place occupied by the taxation of labour in the overall budget. At the same time, to the extent that pension systems are based on the principle of solidarity between generations, there is a social interest in determining the gradual introduction of automation, by privileging the replacement of skills rather than replacement of jobs with automatic processes.

Since the main form of state intervention in the field of economy is taxing, we can anticipate the intervention of an interest in order to discourage too much automation based on significant tax differences between automatically made products and those involving human labour. Consumer behaviour may also undergo adaptations to the context (already visible to some extent) by moving products that include human labour in an area of bio / favourite products.

3.2. Society is not possible without economy; labour is a condition of the economy

By accepting the hypothesis of the gradual replacement of human labour by that of robots (although a more realistic definition is that of automation) we need to consider a change in the traditional division of productive work-capital activity, all "robots' work" (automated work) being situated on the part of capital/owners of production means. In the horizon of the Marxist discourse we can say that we are assisting to a continuous absorption of labour in the means of production, this synthesis generating in fact the autonomy of production for the owners of the capital. Obviously, this crude simulation quickly reveals the risk of occurrence of other issues such as lowering consumer spending (which would make production useless), the probability of political revolutions aimed at redistributing well-being, etc. We suggest that it is essential for today's society the dual quality that citizens have, respectively of workers and consumers, each of them being important for production.

Can we imagine a society without economy? If the answer to this question is no, then we need the answer to another: Is there an economic model in which citizens do not play either the role of workers/producers (and) that of consumers? In other words, to what extent will the society of the future go out of known frameworks in terms of its economic dimension? The only notorious solution is that proposed by communism, but it has two major disadvantages: history has proven that the methodology of its implementation has been a humanitarian disaster and, most importantly, it is not actually a departure from the traditional frameworks of the economy, but the development of a utopia within it. We suggest that the only type of society we can imagine for the future includes the economy, this in turn including production and consumption. It is becoming increasingly easy to imagine production automation (for the moment we mention that we do not believe in the possibility of complete automation), but no model seems to resist the absence of consumers. In turn, consumers, in order to have this quality, must be trapped in the production chain either by the owners - the citizens holding the "robots" involved in production; the collective property seems to be a possible model (Spencer, 2018: 11) - or that of workers. This simplification lacks some alternative possibilities (for example, turning people into a commodity) but captures the general framework. In this model the existence of consumption is the reason for labour.

If we accept the need of consumers and condition their status by the existence of resources, then the most coherent model with a fully automated

society involves either collective ownership (at least one form of it) or redistributions of the type of guaranteed minimum income. In other words, the disappearance of human labour (in the context of maintaining the society) would call into question the structure of property. This is an argument in favour of the continuation of the existence of human labour, its strength being given by the anticipated opposition to the re-discussion of the structure of ownership (obviously, the argument refers to the structure of the contemporary society, but the future does not exclude structural changes even in this plan). In this paradigm, we can estimate a limitation of investment in automation for certain activities, either because of costs or hierarchy / social order reasons, and it is preferable for them to be further developed by people. If we look at the information we have so far, we tend to think that we will have in many cases lower-quality labour, characterized by "humans' robotization".

The strategic importance of consumers for the economy is not the only argument in favour of maintaining human labour. Labour has an important role in social hierarchy, which interferes on multiple levels: the employee-employer hierarchy, chief- subordinate worker-unemployed etc. Hierarchy brings about a form of social organization, thus contributing to its structuring. The participation of the additional hierarchies of labour to the organization of society is a strong argument in favour of human labour. McLuhan (2003: 19) considers that machine technology has generated the technique of fragmentation of human labour, while automation technology increases the level of their involvement. In such an approach we can hope both to maintain labour and to enhance its qualitative leap. Maintaining human labour in the context of an increased involvement does not exclude the possibility of a wide redefinition of human activities from the perspective of labour. It also does not rule out the way in which we want to compete with robots through implants or genetic changes in order to compete for certain jobs.

3.3. Fitness argument

From the perspective of workers, the disappearance of labour must be regarded as liberation or as a form of loss? Classification of work from the point of view of its usefulness / inutility to the individual is an important variable of the analyses of the future of labour. Depending on the adoption of one or other of the perspectives we may consider that automation brings with it a release of people from labour or a loss of the right to work.

The fitness argument is based on the need for physical and mental activities to maintain the humane. In principle, we believe that these

activities are covered by work and play. If labour is a strong component in human biological existence then the hypothesis of replacing it by automation brings with it two possible consequences: either we will witness a human bio-psychic atrophy of the humane, or labour will be replaced by its game-type surrogates. Since replacement is unlikely to be done by contemporary forms of fitness, it seems more reasonable to rely on the solution proposed by Srnicek and Williams: replacing it with free creative activities (2015: 176-177). We can rightly assume that at least part of the creative activities of some people could meet the needs of other people (the rest of the needs being covered by automation). Which means that even in the case of the liberation of the man from the automation we can talk about the maintenance of the work. For the sake of clarity, we are convinced that conducting a productive activity out of pleasure does not bring it out of the labour area, but rather places it closer to its nature, thus assuming a different perspective than that proposed by Srnicek and Williams (2015). In other words, we believe that one of the solutions on which we should meditate from the perspective of the future is to preserve those areas of labour that contribute to the fulfilment of the humane, as forms of exercising its creativity. We mention that we are not referring here only to intellectual activities, as physical ones can also be part of the category of activities meant to affirm the humane.

3.4. Fear of the anomy consequent to the liberation from labour could lead to the maintenance of human labour

Work is a social integrator, its absence discussing the possibility of existence of society. It is obvious that we have the freedom to imagine companies lacking work, but there is still no proof of their possibility. A careful analysis shows that even in the case of historical examples of social categories benefiting from privileges that seem to have excluded labour, they have been doubled by specific social obligations, many of which are currently defined as labour-related activities. It is sufficient to think of the powers of the nobles that held power, judgment, use of force, domain management, etc. in order to observe that they have been decomposed into basal elements and have been included as attributes specific to the various current functions. Professionalization of these activities grants them retrospective membership to the field of work. This would mean that the ruling class (in terms of Marxist thinking) had at least some specific professional attributes, which in fact belonged to the working class (even if the situation would be in the area of the white collars). From a historical perspective, we can consider that the existence of the society has always

been conditioned by a number of specific activities that currently belong to the field of work. Moreover, we suggest that the existence of society is conditioned by the organization of the activity of its members, in the absence of corresponding roles and statuses, resulting in anomy. To the extent that the activities that constitute a condition for the existence of society are currently in the field of work we can consider that the work will be maintained.

4. Ten variables useful for a methodology to estimate the future of labour

4.1. Ontological status of tools

Given that the increase in intelligence increases the probability of ontological leaps in tools, the fate of labour is dependent on the ontological status of the utensil. So far, the perception of the spectrum of the possibilities of this type of leap tends to be limited by our historical perspectives, the slave being the most common image associated with the tools intelligence. Estimates are strongly influenced by history in terms of the relationship of intelligent tools to man, the Marxist visions haunting our imagination with "class struggles" between robots and humanity. It is possible that the demands of changing the ontological status of the work may migrate to the ontological modification of the tools. In other words, we could witness the transition from liberating man of labour to forms of liberation of tools. The history of theoretical approaches in the field could provide some useful information.

The Smartphone (SP) is an example of a utensil that changes its status, aspiring to an area of autonomy specific to artificial intelligence, being already a mediator of satisfying a set of needs, a generator of new needs and a special human need (specially shaped in the area of the role of symbol of the social status it holds). SPs indicate the pulling of the utensil from the traditional ideological frameworks and its contribution to the enrolment of the humans into a new social and existential paradigm. These intelligent tools have already been included in the area of desirable things in themselves, and in that of essential points for the way in which humanity defines itself. The new role already indicates a first ontological status change, suggesting a new horizon of future possibilities. The emergence of smart tools will bring the effects of standardization, with existential uniformity being one of the risks of depriving people of labour.

The impact of automation on human labour tends to focus either on global approaches or on targeted surveys on each profession. The table of

probability of computerisation proposed by Frey and Osborne (2017) constitutes a point of orientation in the latter sense. At the same time, to the extent that the tool's intelligence reaches a level comparable to that of the humane, the ontological leap will bring to the discussion the need for a moral leap, namely the possibility of including that intelligence in a moral dimension of neighbouring existence (if not even similar) to that of the humane. This means that the maximum ontological leap of the tool can be its exit from the tools region and the entrance in that of the humane (or somewhere in the current range between tool and human being). Many of the fears expressed pose the risk of an even greater leap, which surpasses the humane, moving the latter into the tools region.

4.2. Normativity and self fulfilling / defeating prophecy

The normative perspective is relevant in this approach: the future of labour will be the way we want it to be. But we cannot predict the evolution of our desires. Identifying the dependence of the future of work on the normative dimension of social existence could be one of the ways to make reasonable predictions. But there are two major impediments to this variant: it implies the hypothesis of our ability to transmit all our values to future generations and the impact that landslides can have on ideological approaches. We must remind you that in the field of labour, history has been the most penetrating and persistent ideology, its essential feature being normativity: we are talking about the Marxist ideology, built essentially on normative sociology. To what extent is Marxist ideology applicable to the future of work? Redistribution is a concept the meaning of which has been outlined in the area of this ideology, with the minimum guaranteed income being the most radical version of it proposed for past, present and future. Transforming workers into owners of means of production is also amongst the proposals destined to anticipate the salvation of labour or of workers (Spencer, 2018: 11).

Not only the uncertainty of future political decisions contributes to the reduction of predictive capacity, but also the various attempts to postulate inexorable laws in the field of labour, which become reality through the specific self fulfilling prophecy mechanism (Merton, 1948). The attempt to translate Marxist thinking into practice takes into account a false confirmation of predictions with scientific claims through the social experiment called communism. Our fears and expectations shape the status of work, which is defined to a significant extent in the horizon of self-fulfilled prophecy. The future of labour is to a great extent self fulfilling prophecy: it will be influenced by our expectations on it. Erroneous

expectations about the future of labour can become causes of the changes that labour will suffer; Changes can also affect the current labour status. The prediction of the disappearance of labour, for example, is accompanied by a diminishing interest in organizing workers in trade unions (a key variable for job quality), generating precarious labour, and a continuing fall in job quality and pay levels.

Protection of job quality is affected by information and power asymmetry, the information and actions destined to make work more flexible being more ample than those intended to defend its essential characteristics for workers. For example, practice shows that there is a much higher number of labour law professionals involved in defending employer's rights than those on the part of workers, the most likely being the asymmetry of financial resources. The pro-employer doctrine far exceeds that of pro-employees, thus adding an additional modelling of the legal provisions, which are actually in favour of the employer. The struggle between the two camps is also present in the field of public discourse, the advancement of the new "gig economy" concepts being one of the many examples. The situation highlights the power asymmetry, the trade union movement being devoid of the resources (and concern) of adapting to new technologies in order to track the struggle in all the plans where it is moved by the technological development. If the balance between neo-liberal and social discourse in the workplace field is disturbed in favour of the former, then the wage labour will be more and more crowded in the area of retrograde social mechanisms, being replaced by the series of variants waiting to take its place (eg. people on zero-hours contracts). However, both types of excess could benefit from an accelerated labour market dynamics that brings the consequences much closer to causes, generating weighting solutions. The condition is, however, the withdrawal from the various types of ideological clues.

We believe that it is reasonable to also consider the possibility of defense responses to the danger of the disappearance / diminution of human labour conducted by politicians or stakeholders. For example, we can anticipate a trade union defense response or a form of resistance to change from professional bodies, both valuing human labour. To the extent to which such reactions are effective, they will change the predictions path by moving them into an alternative reality. In this context, it is obvious that the predictions about the future of labour should not only take into account the expected changes, but also the reactions of the society to the imminence of such changes, together with the changes they will make in this field. Preventive changes in case of possible scenarios are part of what Bushman,

Baumeister, and Stack (1999) called self-defeating prophecy: "The expectation elicits behaviour that produces results opposite of what was expected".

4.3. Although it confirms to a small extent the previous expectations, we hope that the present indicates future possibilities

Some of the dimensions we tend to allocate to the future are already present, with new technologies already exerting their influence on labour. It may be enough to identify these influences to generate reasonable predictions. We will try to provide some examples in this respect, without forgetting that the failure of anticipating the future based on the past seems to be a constant of mankind. For example, in contrast to Marxist analyses and predictions, history seems to indicate positive effects of progress on the labour force, highlighted by the salary earnings brought by the industrial revolution (Frey & Osborne, 2017: 8).

Progress has a much lower positive impact on the social state of labour than anticipated. Frequently, the degrees of freedom brought by new technologies have been quickly offset by new types of addiction. As we have seen before, some gadgets already have an ambiguous ontological status: they are both tools and symbols of social status. The model of subordinating machines to human needs (robots' orientation to meeting human needs) turns out to be inappropriate for a simple reason: human needs are constantly redefining, being affected by the inclusion of machines in the area of new expectations. Following the evolution of a SP type gadget, we can anticipate the entry of robots into the social status symbols area, becoming at the same time mediators of meeting the various human needs and the objects of fundamental human needs. If this evolution is maintained then the pattern of total release of man from labour due to its takeover by the robots will prove utopian: we will work harder to have robots work for us because the robots may have two major roles: social symbol status and a major place in maintaining consumption.

4.3.1. Outsourcing work on behalf of consumers / users

If the best prediction available at this time is the one based on the past, then we have to observe that the past tends to indicate two types of complementary changes: a) increasing "Do it yourself" requests; and b) (consequently) the decrease in the number of jobs in the respective fields. To the extent that we agree that activities moved from the industrial work area to that of domestic works are still part of the labour domain, then we are entitled to see the existence of the phenomenon of externalization of

labour on behalf of consumers, which is actually a form of camouflage of work in other types of activities. "Do it yourself!" activities do not indicate the gradual reduction of work, but the transfer of some activities from the area of salaried labour to that of the free labour performed by citizens. In such cases, labour has not disappeared, but has been externalized on behalf of the beneficiaries of certain services / products. McDonalds and Ikea are not the only examples, outsourcing already including a significant part of the marketing area (information is provided by us rather than by specialists), public services and others.

The experience of everyday life shows an increase in the intellectual demands of the individual caused by digitization, generating a paradox: although we hope that labour will be done more and more by robots (in fact automated mechanisms / processes, robots being the symbol of a human limit to understand, anthropologizing, the forms of outsourcing of the mind called artificial intelligence) we are in the situation of a continuous increase of the intellectual tasks of the individuals. People's life does not seem to be simplified by technology but, on the contrary, technology seems to continually increase the degree of complexity of society and the effort needed to adapt to it. Continuously increasing the duration of schooling is one of the most prominent indicators.

Technology increasingly mediates the interactions of the citizen with the institutions / organizations / companies, generating it more and more individual responsibilities as part of the civil attributions taken from the work area of some specialized officials. The certain direction of evolution is the removal of some activities from the sphere of labour and their introduction in the sphere of civil / private individual activities, with two easy-to-understand effects: the decrease of the number of work places and the increase of the weight of the personal attributions (and of the necessary skills for carrying them out). This is a form of "forced crowdsourcing", within which citizens are empowered (in fact, burdened) with very large time, training and energy -consuming civic attributions. Amazon's Mechanical Turk is an example of a particular type of outsourcing, which complements the deficiencies of various software. Meanwhile Mechanical Turk has become a symbol of Work offshoring and crowdsourcing, respectively.

The (further) reduction of working time seems a reasonable estimate. However, it seems equally reasonable to increase the outsourcing of additional labour to different services and products, complicating the final analysis. We first learned to outsource and transfer the experience through language, then writing, continued by printing and forms of social media, and

now we invent ways of outsourcing and automating thinking. From the way these innovations changed the labour, we could deduce some estimates of the impact of the future. Only the impact of past innovations is post-factum, none of them being preceded by adequate estimates of their social impact.

4.3.2. Work offshoring

Externalizing activities that involve human work to geographic areas where the costs associated with it are lower, generated by technological development, is one of the possible evolution directions. It breaks the traditional link between the place where the company is located and the impact it has on that labour market, generating a form of globalization of the labour market applicable to some of its fields. Blinder (2009: 41) estimates the offshoring impact between 22 and 29% for the US, while proposing in the annex Ranking of 291 Occupations by Offshorability, which seems to have been the model of the Frey & Osborne (2017) approach in the computerisation probability of occupations. To the extent that the assumption of a future meeting point of labour costs corresponding to the different regions of the world is correct, highlighting the boundaries of this phenomenon, we can interpret it as an antecedent of digitization, as outsourcing can also be made to intelligent machinery specialized in different types of activities.

4.3.3. Did work made the man?

If human development has been modelled by work, then maintaining its current dimensions makes work necessary. In the case of the liberation of people from work, inasmuch as the paradigm of labour as a constituent essential for humanity is correct, we have to add to the gyms those of labour simulation.

Since this assumption has to be demonstrated experimentally, we can have an estimate of the impact of the disappearance of work on society, taking as a starting point one of the essential conditions for entering the labour market and, at the same time, maintaining the coherence of society: education. In the absence of work, education risks losing its meaning, with the labour market, often being the fundamental (pragmatic) objective of education. If we accept this hypothesis (even if it is secondary) then the absence of work could lead to the disappearance of education. In such a variant, the secondary effects that can bring major risks for the existence of society become important. Education and labour are primary or intermediate objectives that contribute to the meaning of existence. In their absence, the

whole social structure should be rethought. Is there a possible alternative model?

Analyses of the whole of the workforce on humanity tend to take into account only the "recent past", that is, the last 3-4000 years, missing the entire duration of evolution of humanity. At best, predictions based on history have a reasonable degree of probability only for the immediate future. Human prehistory tends to be as far removed from our knowledge as its long-term future. In a form close to the present meaning, work has come about 10,000 years ago, getting closer to the current structure in the last three centuries. If we look at it from the perspective of the organized framework, including its social protection dimensions, we are approaching approx. a century. Work is, therefore, a recent acquisition in the evolution of humanity, and the impact of its elimination on existence is therefore difficult to estimate. Anticipation of liberation from labour brought by the future could be influenced by nostalgia for a past marked by the absence of work, the freedom of hunter-gatherers being the reference frame.

4.4. Black swans and power law distribution

Using the perspective of Taleb (2007) we can assume that the predictability in the field of labour is not protected by black swans, the evolution of artificial intelligence outlining the most important dimension of the extremistan. Anticipations of the future that consider artificial consciousness as a certain event are based on rational models of the society, presuming the possibility of knowing and harmonizing all variables. In itself, estimates of the future of work presume the possibility of knowing it, by removing the impact that the unknown might have. The consequences of the emergence of artificial consciousness could conceal one of the black swans of the evolution of labour. By artificial consciousness is often understood as a consciousness comparable to that of man. But a revolution in defining consciousness, which also takes into account the intermediate degrees of consciousness (thought on the evolutionary scale) or the derived ones, could radically change the structure of the world in directions that are hard to anticipate. The relationship between work and consciousness (the degree of use of consciousness) could even lead to changes in the social status of labour.

The evolution of labour could be affected by the power law distribution: there is the possibility of eliminating the traditional Gauss distribution of labour and replacing it with a polynomial law, in which few will win a lot, and a large part will have long-lasting distributed earnings. We can easily imagine a holder of an artificial intelligence that can be used in

many fields of activity, replacing to a great extent human labour. History shows that tools' developments have generated advantages especially for the owners of the means of production, eliminating the corresponding activities in the labour area. This is the main reason for the various proposed retaliation strategies to overcome the effects of such a phenomenon. Evolution may, however, be different from a certain level of intelligence of the tool to the next, under discussion being the preservation of the copyright on a form of intelligence or the copyright of mankind over a form of intelligence that has taken over, by learning, the structure of human intelligence, or the movement of this form of intelligence to the area of legal instruments of protection similar to human labour and so on. An ontological leap of the intelligent tool that would move it into the area of moral subject quality would bring with it all its specific activities in an area similar to labour and labour force.

4.5. Changing the legal definition of labour

We need not only pay attention to the activities that are currently considered as part of the labour, but also to those that might be included in this field in the future. An example of such a development is housework (domestic work). Also, if the duration of the training required for a productive activity is going to increase continuously, it could fully fall into the sphere of labour (not just a part of it, as it happens now).

Increasing the number of commitments different from what the individual employment contract means could be, to a significant extent, the secondary effect of labour legislation frozen in inappropriate schemes. An example of inappropriate labour law is the ban on doing business for two employers at the same time, forcing in many cases the passage of activities into the liberal professions area in order to ensure the adequacy to reality. For example, the provision is incoherent with the forms of performing the "remote" activity, centred rather on results and less on controlling the process of achieving the results.

We believe that it is necessary to move from the normative approach of the definition of labour to the realistic one, because the factual situations could exceed the legal ones in the labour field (or at least increase in importance). Changing the labour legislation in the sense of adapting it to the new situations depends on the need for a law to correspond to reality. Maintaining the traditional, strict and constraining definitions of work will lead to the exclusion of more and more occupations and activities in the labour area in the traditional sense of the term and their movement to an area of business or liberal profession. There is resistance to changing the

definition of labour in the sense of including liberal professions within it. The best example is the university environment. It is precisely the academic environment that indicates the shift from the traditional form of thinking labour to one adapted to the new specific requirements for this profession. In addition, the segmentation of activities on the three dimensions (work, business, liberal professions) tends to correspond less and less to new realities, continuously increasing interpenetration between them and having situations that cannot be properly framed in these legal schemes emerging.

4.6. Will there be areas of labour reserved exclusively for the humans?

We could start by answering another question: Should we limit automation intervention? Obviously, any positive response would be in the regulatory approach area. The fitness argument indicated several reasons for the perpetuation of human work, the exclusivity of some areas being a complementary solution.

In the maximum version of robotization, we may witness attempts to maintain human labour in different activities, motivated by cultural reasons. This could be called the argument of the appeal to tradition: if the decision belongs to the humans, there will be at least some areas in which human work will be preferred. For example, some categories of services; we can easily imagine the desire to eat at a restaurant where we are served by people for cultural reasons (obviously, if humans keeps the food in the area of cultural habits). Given that consumer needs tend to grow (and the duration of product use decreases), the question is whether automation could meet these growing needs. The relevance of the question could be partially cancelled if we consider the possibility of a significant development of the needs of products / services in the non-automation direction. The emergence of a cultural current based on the use of manufactured products is very likely, and its beginnings can be seen today.

For the time being we can see that there are professions that tend to be more affected than others by automation, and the distribution rule seems to be the level of education / competence. Frey and Osborne (2017: 12) indicate the U-shaped evolution of the professions in the US, according to their competence, characterized by the increase in the importance of the professions with the highest and the lowest level of competence, respectively with the decrease of the ones with average level, as a result of automation. This evolution shows a trend of polarization depending on the level of competence that automation determines on occupations in the labour market, raising thus the issue of the consecutive social impact that it may have. If the model is confirmed by the future, only the professions at the

extremes of the training level will resist. But if they resist, the model would confirm the hypothesis of humans' exclusivity, modelled by economic reasons.

4.6.1. One of the risks: increasing control degree over humans; people as robots

The directions of evolution of the relationship between technological progress and labour do not lead unidirectionally to the emergence of robotization and the replacement of human labour with that of robots, including the possibility of increasing the degree of control over humans, namely "robotizing people". The article published by Chen (2018) is an example of an initiative indicating the possibility of development directions destined for controlling the minds of workers. This example proves that maintaining labour cannot be an objective in itself, because it also allows for variants where man can be pushed to the tool, the problem being the social context in which the labour will be. Prudence causes us to prefer variations within the framework created by social mechanisms known to radical innovations in this area. However, personal preferences are not included in the methods on which reasonable predictions can be based. History gives us enough examples of reducing people to the role of tools to understand that this possibility cannot be eliminated a priori. In other words, the fears that underlie prudence in front of the future must include both the danger of confiscating the work of automation and of confiscating people for work.

4.7. Labour may decrease, but the effort to perform it will increase

Reducing labour should be synchronized with technological development. However, we are witnessing a paradox generated by the results of the choice between two possible options: maintaining the current working time in the context of unemployment and reducing working time to create more jobs. What are the variables that cause employers to opt for this first option, given that the anomaly of additional work for some and of unemployment for others (Spencer, 2018: 9) generates inequality of opportunity? Wishing a reduction in the working time but not having the courage of a public debate on this issue, some countries prefer to resort to the indirect solution to increasing the number of legal days off (even if the selected occasions are not related to work, but rather to national or religious festivities). In a certain sense, such measures can be interpreted as a mix in the organization of a person's leisure time. At the same time, we need to keep in mind that the expansion of leisure time is consistent with the

interests of consumption, marketing largely transforming it into "free time destined for consumption".

If we admit that replacing automation labour will remain in the current trend, we have to accept that this process is doubled by an increase in complexity. The increase of the complexity of the society generates an increase in the effort required to live and work within it. Recent history shows a continuous increase in the duration of schooling, and we are tempted to deduce a continuation of this trend determined by the technological progress. In this context of significance, the following possibility is relevant: actual labour (as work performed by people) will be reduced, but will increase the effort made to prepare for work, represented by the duration of schooling. This scenario should not exclude the possibility of including an increasing part of the length of training in the labour area (the example of training physicians being relevant), thus generating a paradigm shift and maintaining the status of work at a level comparable to the present one.

4.8. Technological development could increase the number of jobs

Does technological development have only a destructive effect on jobs or a constructive one as well, leading to the emergence of new fields of activity that require human work? If the development of technology necessarily leads to the diminution of human labour then we should already see its first effects, relying on the idea: any advances in technology leads to a reduction in working time. However, the data are not consistent with this scenario, with work increasing continuously. For example, the EU-wide employment rate has increased by about 8 percentage points over the last 20 years, mainly due to the increase in the female gender balance in the labour market (EUROSTAT, 2017). Spencer (2018: 4-5) contends that this apparent paradox is determined by two variables: the effect of consumerism and the fall of trade union negotiation power, quoting a number of papers indicating the decoupling of labour productivity growth by reducing working time. Given that the evolution of the employment rate indicates an increase in the number of jobs, if it occurs on the background of a demographic decrease then it is relative to the existing population. However, the speed of spreading industrial development tends to suggest that it is an absolute growth.

Assuming that the estimate proposed by Frey and Osborne (2017: 254) that approx. 47% of US jobs are at risk of automation is correct, it refers to jobs as we know them at this time, missing the possibility of diversifying the jobs brought by technology and changing cultural /

civilization patterns. Recent history shows that technology has abolished many jobs while the employment rate has increased. A higher rate of occupation tends to be part of a new cultural model of labour.

The magnitude of automation intervention also depends on the ratio between its cost and the equivalent labour cost. Where automation is more expensive than human labour, it is natural for the latter to be preferred. Overall, it is expected that less paid jobs will be less likely to be automated (or at least included in the automation process later). The impact may vary from country to country depending on labour cost, increasing the likelihood of the next (simplified) model that is applicable to creating the same product category: high level of automation in highly developed countries (mainly driven by labour cost) and less impact in the least developed. To the extent that this scenario is confirmed, it can also have a significant influence on migration (but the demographic variables, together with consumer habits, labour-dynamics, etc.) need to be considered.

Given that the demographic trend will keep either the trend or the current level, the following model should be considered: the more automation will replace human labour, the more available workforce will be. The more human workforce available, the more the costs of using this workforce will be lower, thus increasing the likelihood of using it. The model of royalties paid by the state (as a result of automation) is not inconsistent with the maintenance of individual labour obligations, as it is already visible in the employment policies of some states.

4.9. Decreasing the quality of work could be a higher risk than the quantity

Although technology eliminates heavy work places, it also seems to bring about a drop in job quality in terms of another dimension concerning them. The flexibility of the working hours is just one of many examples. Spencer (2018: 7) suggests that it is not the lack of jobs the main threat brought about by technological progress, but the decline in the quality of jobs. It indicates the continuous emergence of a workspace in the area of operations which can already be carried out automatically, the continuous decrease of salaries (amid the weakening of the collective bargaining capacity) making human work more profitable than automation. Labour transfer causes a decrease in trade unionisation, which leads to an even large diminishing of the bargaining power, thus creating a vicious circle of labour. Even if we look cautiously at this highly ideological perspective, the call to evidence indicates that there are relevant issues. The main threat to trade unions is generated by changing the traditional work co-ordinates that make

trade unions organization increasingly difficult. The most readily understandable impact is distance work mediated by new technologies. Trade unions are like the states: periodic choices free their representatives from the responsibility for thinking about the future of labour and trade unionism. Excessive confidence in the possibilities of normativity highlights the issues. The use of Uber as a negative example of the evolution of labour misses an ideological problem, determined by the impact of the liberalization of some activities that were previously part of the work area. Their entry into the business area generates the profit on account of social contributions, this model being part of the contemporary market behaviour: consuming based on the future. The ability of workers in such fields of activity to join trade unions is part of the job quality protection solutions. The transition to online syndication / digital forms of union action is added, as they are part of the solutions based on the use of progress in trade union activity. While the current trends in the field of IT research based on machine learning are maintained and they are going to be responsible for progress, it seems reasonable to ask whether one of the learning acquisitions will be solidarity, that is, the behaviours related to the means of syndication.

4.10. A reduction in social control is unlikely

At this time there are two major forms of performing the lucrative activities: employee and self-employed (we excluded business activities and those specific to agricultural activities, as these are part of another classification system). The activities carried out by the employees are placed under a high level of control, starting with those established by the legislation and ending with those established by the employers.

The activity of the liberal professions is under the control of the professional bodies, ensuring the observance of a set of deontological norms consistent with the social interest and (especially) with the interests of the guild. Practically, the only proof we have from the past in the field of lucrative activities is the significant level of social or community control under which these are placed.

The emergence of freelancers tends to radically modify this picture of lucrative activities, generating unpredictable consequences. The basic idea is that work can be used both in the sense of social utility and in the direction of constructions against the society. To avoid the unfavourable alternatives, the society has learned to introduce a degree of control over lucrative activities in proportion to the social danger they carry with themselves. If our past-based estimation is correct then we should expect them to introduce some form of regulation of new professions, the most

eloquent example of which being IT activities and, above all, artificial intelligence. Which means creating structures similar to professional bodies. Also based on the past, we can see the tendency of professional bodies to slip into the area of defending the professional interests of the members, often taking over the specific tasks of the trade union organizations.

5. Emergency solutions – Universal Basic Income (UBI) or Negative Income Tax

Ideal scenarios due to the effects of progress operate with variants of robot slavery, which will carry out the tasks normally attributed to people, freeing them from the burden of labour. Thinking for a wider temporal scale, the image of an army of unemployed generated by the replacement of human work with robots is valid only to the extent that we accept the assumption of a guaranteed minimum income or something similar. The dependence of human survival on minimal resources is a reality that can show its effects within approx. two generations. The guaranteed minimum income seems to be the most appropriate safety net for citizens who will not find a job because of the impact that technology has on labour. There are several developed or ongoing research in the direction of the UBI (Arnold, 2018), the most important being launched in 2017 in Kenya. There are also alternative options: although UBI, Brynjolfsson and McAfee (2014: 130) consider that The Negative Income Tax might be a more appropriate solution, as part of policies that encourage work: "So we support policies that encourage work, even as the second machine age progresses."

Neo-communist variants seem to meet neo-liberal ones either in the guaranteed minimum income area ensured for all citizens, or in a form of taxation that stimulates work in the few places where it is needed. The "nationalization of robots" (in a globalized form of it) or different forms of ownership of citizens with these new means of production are some of the redistributive options proposed for saving them from the status of unemployed with which robots seem to threaten people. Although the solution proposed by Spencer (2018: 11) for a better future - "... it must accommodate a shift towards worker ownership" - represents one of the possibilities, we do not share it in the manner formulated, showing rather an ideological position than a scientific argument.

6. Conclusions

If work is considered an economic component of social life and the predictive capacity of the economy as a science remains at the level of a

desideratum, it is reasonable to expect labour to share the same fate. The main concern about the future of labour is the negative impact of technology: instead of liberating from labour (referring to the structure of ownership of the means of production), automation can bring about the disappearance of jobs, that is, the reduction of the possibilities of gaining one's existence. In this paradigm, the development of automation to a significant level of labour replacement brings into question either the need for a collective form of ownership or the need for some form of taxation that would do this indirectly (state-mediated).

At the same time, alienation of work could lead to a radical change of the human being. The effort to maintain their own existence and of their descendants could be the most appropriate definition of labour. Accepting this interpretation places work at a central place in the order of evolution. Which raises the issue of the unpredictability of the consequences of its elimination.

The future of skills must be separated from the future of labour, the former offering the possibility of a more technical approach. Estimates of the increase in the weight of digital competences in each profession are more certain than those of replacing work by digital creations. In the short and medium term, it is more likely that automation will lead to significant changes in the skills-specific chart of each profession than to their disappearance, generating the need for restructuring of these professions.

To say that "work will probably persist" (Spencer, 2018), seems a reasonable estimate. It also includes the option: work will still exist but with changed features. As we have seen, the change could also affect the authors of the work. There is also a pessimistic scenario from a demographic point of view, which could bring with it the desire to increase the impact of automation in the context of the decrease in human resources available for work. This is easy to imagine based on current trends in the West, declining birth rates and raising life expectancy being two of the relevant indicators. On a larger scale, declining birth rates could also lead to a decrease in consumption, with the whole chain of possible consequences.

The predictive attempts in this article focus not only on descriptions of possible future workplace variants, but also of a number of ways in which the society that will convey the context of meaningful work can be shown. This manner of approach is based on a simple argument: in order to be able to talk about the future of work, we are held to make predictions about the future of society.

The relatively large number of variables that interfere with the discussions about the future of work, which we have mentioned, suggests

some of the complexity of the problem and of the predicted difficulties in this field. Our intention is not to outline a framework to demonstrate the impossibility of prediction, but to avoid the reductionist approaches to the problem. The role of discussion of the various variables and of the weight of these variables is our desire to suggest the necessity of a Bayesian approach to the problem, updating every time the likelihood of different scenarios on the basis of the latest information. This model allows for a scientific approach to both the future of work and to the political decisions in order to eliminate the undesirable effects of automation. It also allows decision making to be appropriated to the context and to the values specific to generations that will have to face each of the issues.

References

- Armstrong, S., & Sotala, K. (2012). How we're predicting AI – or failing to. In J. Romportl, P. Ircing, E. Zackova, M. Polak & R. Schuster (Eds.), *Beyond AI: Artificial dreams* (pp. 52–75). Pilsen, Czech Republic: University of West Bohemia.
- Arnold, C. (2018). Money for nothing: The truth about universal basic income. *Nature*, 557(7707), 626–628. doi:10.1038/d41586-018-05259-x
- Beaudry, P., Green, D. A., & Sand, B. M. (2016). The great reversal in the demand for skill and cognitive tasks. *Journal of Labor Economics*, 34(suppl. 1), 199–247. doi:10.1086/682347
- Blinder, A. S. (2009). How many US jobs might be offshorable? *World Economics*, 10(2), 41–78. Retrieved from <https://www.princeton.edu/ceps/workingpapers/142blinder.pdf>
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York, USA: Norton.
- Bushman, B. J., Baumeister, R. F., & Stack, A. D. (1999). Catharsis, aggression, and persuasive influence: Self-fulfilling or self-defeating prophecies? *Journal of Personality and Social Psychology*, 76(3), 367–376. doi:10.1037//0022-3514.76.3.367
- Chen, S. (2018). Forget the Facebook leak?: China is mining data directly from workers' brains on an industrial scale. *South China Morning Post*, 2018, April 29. Retrieved from <https://www.scmp.com/news/china/society/article/2143899/forget-facebook-leak-china-mining-data-directly-workers-brains>
- EUROSTAT. (2017) Employment rate by sex, age group 20–64, 1993–2016. Retrieved from https://ec.europa.eu/eurostat/web/products-datasets/-/t2020_10&lang=en

- Frey, C., & Osborne, M. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280. doi:10.1016/j.techfore.2016.08.019
- Heidegger, M. (2002). The origin of the work of art. In M. Heidegger, *Off the Beaten Track* (pp. 1-56). Cambridge, UK: Cambridge University Press.
- Kelly, K. (2007). The Maes-Garreau point. *The Technium*, 2007, March 14. Retrieved from <http://kk.org/thetechnium/the-maesgarreau/>
- Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, J., Batra, P., Ko, R., & Sanghvi, S. (2017). Jobs lost, jobs changed: Impact of automation on work. In McKinsey Global Institute, *Jobs gained: Workforce transitions in a time of automation* (pp. 23-33). San Francisco, USA: McKinsey & Company.
- McLuhan, M. (2003). *Understanding media. The extensions of man*. Corte Madera, USA: Gingko Press.
- Merton, R. K., (1948). The self-fulfilling prophecy. *The Antioch Review*, 8(2), 193-210. doi:10.2307/4609267
- Rotilă, V. & Celmare, L. (2017). Analysis of a major inequity in the budgetary wage system: Gerontocracy. Arguments and solutions, In A. Sandu, A. Frunză, T. Ciulei, G. Gorghiu & A. Petrovici (Eds.), *Rethinking Social Action. Core Values in Practice* (pp. 730-739). Bologna, Italy: Medimond.
- Spencer, D. A. (2018). Fear and hope in an age o mass automation: Debating the future of work. *New Technology, Work and Employment*, 33(1), 1-12. doi:10.1111/ntwe.12105
- Srnicek, N. & Williams A. (2015). *Inventing the future. Postcapitalism and a world without work*. London, UK: Verso.
- Taleb, N. N. (2007). *The black swan: The impact of the highly improbable*. New York, USA: Random House.