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The Future of Work: the Idea of Work in Europe¹

Most of what is written or said about the future of work points to the radical newness of the evolutions under way. The globalization of communications and production chains, on the one hand, the dramatic advances of automation, on the other, demand that the rules obtaining on European labor markets be drastically revised and adapted to globalized world competition. Ideally, the work factor should not represent an obstacle for firms, which more than ever require flexibility, suppleness, agility and the capacity to react quickly. But at the same time, individuals' expectations related to work have never been so intense, their desire for it to be self-fulfilling so strong. Also, ecological risks force us to completely revamp our system of production.

This text seeks to answer some of the questions asked today about the future of work. We will first look at labor's long history, considering that the notion of work is historical and that new meanings have enriched it over the centuries, as confirmed by a bountiful literature. We then examine how that multiplicity of meanings has created a diversity of ways of relating to work, sketching a rapid panorama of Europeans' expectations and how they are (or not) satisfied by the reality of work as we know it. Secondly, we concentrate on the discourse most often heard today according to which employment and work are undergoing major transformations due to the technological revolution, questioning in particular the technological determinism underlying that view and analyzing the policies it implies. Thirdly, we present the three broad scenarios in which the future of work might take shape: next to the one that emphasizes the technological revolution, another scenario envisions the drastic reduction of systems of employment protection as another possibility, while a third – the scenario of ecological reconversion – could represent a major opportunity to reconnect with full employment, the meaning of work and the decent work dear to the International Labor Organization. This leads to exploring the conditions for such a scenario to become reality.

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The effects of automation on work and on employment

a) Employment is dying out, the nature of work is changing: the technological revolution marches on

Since the start of the 2010s, saying that automation is about to do away with existing jobs and to revolutionize labor has become extremely common and the fact is now considered self-evident, a *fait accompli* – a view that the most recent report presented in Davos, *The Future of Jobs* (2016) confirms. That view, prevalent in academic and journalistic circles, fairly obviously points back to the simultaneous publication of influential books or articles which, though few in number, are regularly quoted. The first such opus is *Race Against The Machine. How The Digital Revolution Is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and The Economy* (2011). In it, Erik Brynjolfsson and Andrew McAfee, research scholars at the MIT Center for Digital Business, contend that it is high time Rifkin's thesis – author of *The End of Work* in 1995 – was given the credit it deserves. For according to them, computers have become capable of doing what up till now only humans were able to do. We are on the verge of a “Great Restructuring”, entering “the second part of the chess-game”, *i.e.* the era when the advances digital technologies have made possible will mushroom, as suggested by Moore's law.² Computers are part of the “General Purpose Technologies” category – *i.e.* at the root of a multiplicity of incremental innovations (Lipsey, Carlaw, Bekhar, 2005; Field, 2008), interrupting and accelerating the normal course of events that unfold when there is economic progress. These authors stress that henceforth, even in the realm of purely intellectual labor or in activities that contain no physical component at all, computers monopolize the field. But such technologies create considerable value: they permit improving productivity and therefore collective wealth. The risk is that they bring about sweeping transformations and doubtless too a polarization of society (Wallerstein, 2014; Autor and Dorn, 2013; Dorn, 2016), not to mention a general disqualification (Beaudry, Green, Sand, 2013), which would demand radical organizational innovations, with entrepreneurs at the helm and massive investments in “human capital”.

Work published in 2013 by two Oxford scholars draws an even more graphic picture of how jobs will be impacted. In “The Future of Employment: how susceptible are Jobs to Computerization?” Carl Benedikt Frey and Michael A. Osborne studied 702 occupations and weighed the probability that they be replaced by intelligent machines. Certain sectors, such as education or health are at little risk of being mechanized. On the other hand, occupations such as selling, administration, agriculture or even transportation are very much at risk. In the United States, the authors estimated that “47% of the workforce were in sectors highly exposed to unemployment” and that their jobs could be done by robots or “intelligent” machines within ten to twenty years. Since then, many other authors have dealt with that theme (Ford, 2015; Benzell, Kotlikoff, LaGarda, Sachs, 2015; Boston Consulting Group, 2015).

Other prospective studies, founded less on mathematical projections than on testimony provided by – or on surveys done among – consultants, managers or CEOs of large firms, paint a picture of the consequences these developments, and particularly the development of

² According to Moore, the power of popular computerization doubles every two years. Moore has nevertheless conceded since that his law would become obsolete in *ca.* 2020.

digital technologies, will have on the nature of work³. According to these sources, work, which has already become collaborative, will be called upon to become more and more so. Crowdsourcing is one of the most widespread ways of working, foregrounding co-production. It will no longer be the case mainly of large, hierarchically structured companies but will invade value-producing platforms. The classical unity of time and space that has characterized work until now is becoming a thing of the past: work will no longer be situated in a well-defined, predetermined time and place. There will be less and less difference between work and non-work, professional life and private life. Work will occupy 24 hours of the day, and a career will consist of a series of jobs that everyone will be responsible for managing on their own. A large number of occupations are being automated and specific competences are becoming rapidly obsolescent; what will really count are individual dispositions, and particularly the aptitude to provide leadership, to communicate, to constantly be on the lookout for new solutions, to innovate. It will be the end of the pecking order and salaried work: everyone will be their own boss, become their own business. Managerial logics based on results will go hand in hand with a 360 degree appraisal, on which reputations are built. In a word, the technological revolution is ongoing – but its effects on the rate of growth and productivity are as yet unknown, both as to the time lag and the fact that the existing tools available for measuring growth and productivity according to those who promote those ideas are unadapted – and will be the key to prevent our societies from falling into a century-long stagnation (Teulings, Baldwin, 2014).

For some authors, the digital sector is at the forefront of these changes, revealing how unadapted labor legislation is – unable to give businesses the flexibility they need and at the same time protect workers against excessive work loads. Following the report published in 2006 by the European Commission, *Modernizing labor law to meet the challenges of the 21st century (Moderniser le droit du travail pour relever les défis du XXIème siècle)*, some have demanded that the rules governing employment be loosened – e.g. by extending the French system of days worked to a greater number of categories of workers (Mettling, 2015) or revising the EU directive on working time in a way that would more readily permit exemptions, opt-outs and augmenting the number of autonomous workers – and that para-subordination (already implemented in Italy and Spain) be developed, claiming that if this is not done, adjustments will take place by the massive expansion of atypical forms of employment already in high gear (free-lancing, casual work, self-employment...).

Promoting this solution – which would make a reduction of the measures protecting salaried labor seem acceptable – often goes together with an idealized, charmed discourse on the virtues of collaborative economies, extolling their capacity to create social ties and avoid commodification, as well as on young people's hypothetical aspiration to bypass salaried employment supposedly synonymous with unwieldy hierarchies as opposed to creating one's own startup often presented as the ideal road, combining both flexibility and autonomy. Thus, what is known as the Uberization of society (allowing those offering and those requesting a service to connect directly thanks to computer platforms) is very often seen as one of the best solutions for putting an end to the monopolies and protections surrounding certain professions and for surmounting the so-called rigidities of some European "job markets".

The scenario of the technological revolution appears particularly well suited therefore to dismantling the systems of labor and employment protection still prevalent in Europe.

3 David Bollier, *The Future of Work: what it means for Individuals, Businesses, Markets and Governments*, The Aspen Institute, 2011; more recently, the report submitted in Davos, *The Future of Jobs* moved in the same direction, asking 371 executives and Human Resource Directors of large firms throughout the world to respond to a survey online.

b) *The impact of digitalization, computer platforms and Uberization on employment and work*

We must be careful not to take the forecasts on the effects of digitalization on employment exposed above at face value. In fact, the studies remain very controversial: for example, analyzing what has taken place in seventeen countries over fifteen years, Graetz and Michaels (2015) show that robotization has permitted gaining close to half a point of annual growth without harming employment. A study by Deloitte (2015) based on 140 years of statistics on England and Wales has shown that the process of robotization is in fact a “*formidable machine for creating employment*”. Economist Jean Gadrey reminds us, tongue in cheek, of the alarmist predictions contained in the Nora-Minc report on the computerization of society, published in France in 1978: “They announced that the creation of jobs in the service industry would come to an end (p. 35). But the part of services in overall employment has risen from 57% in 1980 to over 70% in 2000. According to them, we were going to witness an unavoidable drop in the number of secretaries, but their number increased between 1980 and 2000; a strong decline in employment in banks and insurance companies, but employment in those branches continued to rise during the 1980s; and if more recently there has been a slowdown, it has not been due to computerizing but above all to the context of the 1990s, *i.e.* to ‘de-intermediation’ [...] The part of service jobs in employment is nearly 80% today. Practically all the sectors and professions the N-M report claimed would become ‘the steelworks of tomorrow’⁴ are those where employment has increased the most.”

We can only go along with Gadrey when he explains why forecasters make that mistake: they generalize to whole sectors the case of segments where machines have replaced humans. Reasoning “all things being equal”, they forget that when the content of an activity and production changes radically, it generates a process of enrichment thanks to new services – which then also means employment. In the end, they do not pay enough attention to the resistance of populations. The *technological determinism* typical of all those predictions is striking, as if everything that is possible were fated to happen and as if populations would just stand by and allow half of the jobs that exist to be eliminated in ten years or accept to be cared for, accompanied, educated, or driven, by robots. Such research also forgets that simply replacing humans by robots is not the only solution: cooperation and cobotization that permits to considerably alleviate harsh working conditions and organize close, complementary collaboration between humans and robots is just as likely to be an option.

Nevertheless, the development of digitalization and a computer economy has in point of fact already begun to disrupt working styles. Important research has in recent years revealed the de-structuring effects of the new forms of organizations on work. The de-intermediation organized by digital platforms leads not only to competing against a large number of regulated or organized professions but also and especially to mobilizing people’s activity in ways which are, or at least seem to be no longer either salaried employment or a classical form of independent labor. For digital platforms put those offering and those requesting a service in touch, thus contributing to cut up the work into individualized services, fragmentary tasks, to dismantle groups working collectively and to individualize already wobbly labor relations.

Even though giving formal “orders” does not enter the picture, this sort of arrangement allows platforms to profit from the work of others and manage it. They obtain the same results as they would in salaried employment: giving orders, controlling the job,

4 <http://alternatives-economiques.fr/blogs/gadrey/2015/06/01/le-mythe-de-la-robotisation-detruisant-des-emplois-par-millions-1/>

penalizing the shortcomings, without however having to shoulder the responsibilities traditionally attached to the figure of employer. It is work “on demand” or “on tap”, piece work done by workers who are neither employees – platforms refuse the role of employer and call workers their “partners” – nor real entrepreneurs (Levratto, Serverin, 2013). In order to access a platform and stay on it, they must in fact fill a great number of obligations. Available research shows reinforced control and supervision, permanent assessment – including by the clients – and very little or no leeway in deciding how the work should be done, all this being made possible by “algorithmic management” (Rosenblat, Stark, 2015). Some authors point the finger at the dumbing-down provoked by computer-directed labor (Amazon) and the end-result, which is disqualification (Head, 2014). It is the return of labor as a commodity in its worst form: they call it platform capitalism (Lobo, 2014), sweatshops, *digital labor* (Cardon, Casilli 2015). The non-respect of national labor legislation is facilitated by the transnational character of the platforms and the difficulty, when all relations are mediated by computers, to control them.

While some welcome the fact that “privileges” and undeserved lifetime incomes – or at least the monopolies and protections enjoyed by regulated professions – are being called into question, the very people who work “for” or “with” those platforms are calling attention to what is euphemistically known as “classification errors”, *i.e.* the fact that workers who are clearly treated like employees (whose work is supervised, because even if it is an algorithm that does it, very precise orders are given and must be observed) do not even have a contract. It is as if the creators of these platforms, for whose profit value is created and detained, refused to take on the responsibilities incumbent not only on those who supervise salaried labor but also on those who pay for a job done by an independent contractor with a commercial contract, as if the disappearance of hierarchical companies caused the figure of the employer him/herself to disappear. The people who do the work are neither employees nor often even acknowledged as entrepreneurs with the protections, insurance or qualifications traditionally required. This being the case, though they allow eliminating entrance barriers (as when corporations were abolished in France, first in 1776 then in 1791), and therefore bring greater flexibility to some segments of the labor market, those new actors play a role in dismantling it and jeopardizing the mechanisms that as of the end of the 19th century in Europe had permitted stabilizing work and making it more secure – not however without raising the ire of the imperiled professions, one example being, in several European countries, the complaints of the taxi companies and their drivers against Uber, or of hotel owners against AirB&B.

c) *What should our labor and employment policies be in the face of the expansion of digitalization and automation?*

The impacts of the development of automation, digitalization and platforms on growth, employment and work are therefore subject to diametrically opposed interpretations. Certain authors stress their extra-financial benefits: the fact that collaborative economics permit the extension of free services and the reinforcement of social links; the loosening by and large of entrance barriers and thus the greater fluidity of the “labor market”; the fact that leaving behind a hierarchical company and an employee status makes more autonomy at work possible. Other analysts on the contrary underline the perils attached to the extension of forms of work which are officially neither salaried nor independent, particularly the loopholes in workers’ health and social protection; the risks attached to their self-exploitation (overly long working hours, health hazards); the unfair competition that platforms represent for traditional organizations (taxi drivers, artisans, hotel owners...); the fact that activities which were voluntary until then are commodified; that the differences between amateur and professional disappear; the explosion of *digital labor* (data handlers “forced” to work for free); the risk that

once rules and regulations are suppressed extremely powerful monopolies once again might emerge ...

Those who share the idea that automation and digitalization have already begun disrupting working conditions and will continue to do so exponentially, propose adapting the existing rules and regulations, generally to make the on-going evolutions smoother. The Mettling report, *Transformation numérique et vie au travail (Digital transformation and life on the job)* submitted by Orange's director of human resources to the French Minister of Social Affairs and Employment in 2015, stressed that "digital transformation disrupts the traditional organization of labor in a thousand ways", pointing out that "all over the world flexibility, adaptability but also the business model of a digital economy rests on the multiplication of unwaged jobs. In France, beyond having reached the symbolic million of self-employed this summer, we estimate that one of ten digital workers is already operating without a salary and that the trend will continue to rise. In 2014, free-lancers – persons carrying out their activity as independent contractors – represented 18% of the service sector in the Netherlands, 11% in Germany and 7% in France, to the tune of 8.6% for that year". Like other authors, Mettling seems to support the idea that the expansion of the digital sector quite logically spurs new ways of working, which could make headway also among wage-earners if the days-worked system – which allows disregarding statutory working time and certain *maxima* (maximum weekly working hours) – is extended to them, or if the new forms of independent work (free-lancing, self-employment) become more widespread.

Since the publication of the European Commission's *Modernizing labor law...*, several other reports have recommended developing a parasubordinate working status that implements a third way of working, between salaried employment and independent work, the traditional *summa divisio* of working for others. In Italy, contracts of coordinated and continuous collaboration have existed since 1973; in this system, the collaborator provides a service for an employer who is not his/her superior and, since 2013, contracts for cooperative projects are being drawn up to carry out a specific project in a given amount of time. In Spain, an autonomous work status exists since 2007. It includes a set of benefits common to all autonomous workers as well as collective benefits, and specific systems for economically dependent autonomous workers. In Germany, economically dependent workers benefit since 1974 from the same protection as salaried workers. In the United Kingdom, workers who work for an employer without being under his/her authority benefit from a protection concerning minimum wage, working time and paid vacations. In France, legislation has invented hybrid systems that combine wage-earning and independent activity: in exchange for not requesting the status of wage-earner, the Labor Law grants non-salaried managers various social benefits (working time, rest periods, vacations, healthcare and security on the job). Since 2010, special "service contracts" (*portage salarial*) permit unemployed executives to carry out missions for a firm, while continuing to receive social benefits and paying into retirement. Though these systems do give workers certain rights, the drawback is nevertheless that they are deliberately prevented from qualifying as employees, even though the activity in question is usually overseen by someone in command, so that the worker often finds him/herself in the position of mere executor in the middle of an organized task. This process means that a part of the risks has been transferred from the company to the worker and that those who profit from the other's work and capitalize on it can sidestep the risks attached to being manager.

It is a mistake to think that this means "the end of salaried labor": true, parasubordinate work is on the rise, as well as forms of poorly protected, atypical labor, and independent labor is progressing in Europe: in 2012, the main occupation of 15% of the active workforce fell into that category, including in agriculture. But though this was the case for

32% in Greece and over 20% in Italy, Portugal and Rumania, it accounted for less than 15% of the workforce in the United Kingdom, 11% in France and Germany, and less than 10% in Estonia, Luxemburg, Denmark and Latvia.

Also, it is not at all clear why developing jobs in the digital sector should necessarily come with new forms of work disconnected from salaried employment, nor why the latter should not be compatible with a digital economy. Salaried employment is characterized, on the one hand, by subordination and thus by an external source of control over the job that goes together with coordination, and, on the other hand, by the existence of rules that give workers a certain number of rights, the protection of their health above all. Working at a distance or thanks to digital applications – in 2010, 24% of European workers were considered “digital nomads”, *i.e.* spent more than 25% of their working time away from their office or traditional workplace – does not account for all systems permitting to loosen the hold of work on life, quite to the contrary. Specialized in law, sociologist Evelyne Serverin (2011) maintains that even if certain forms of labor organization foster autonomy more than others, the idea that autonomy lies mainly outside the realm of salaried employment – in self-employment for example – is not really borne out by the facts: being one’s own enterprise often leads to a form of self-exploitation (Abdelnour, 2014).

Other ideas today consist rather in attempting, if not to slam on the brakes, at least to come up with rules that put some order back into the presently chaotic development of collaborative economies and platforms: either by declaring the incomes derived from platform activities, through fiscal reform, organizing collaborative economies, as suggested in the report recently presented by the French deputy Pascal Terrasse – or by extracting them from the capitalist and commodity system and making them serve a community – a cooperative such as Coopaname in Paris or the Platform cooperativism of Trbor Scholz that aims to give citizens the collective ownership of the digital platforms they use in order to profit integrally from the economic value produced, or a city (*e.g.* the Bologna Regulation for the Urban Commons). Finally, certain authors think that the implementation of a universal income, that might take several different forms (Conseil national du numérique, 2016), would be the only way to counter the damages caused by automation.

Three scenarios for the future of work

a) The technological revolution scenario

The most popular scenario among economists, businessmen and governments at the moment seems to be the technological revolution. Published in 2014, *Secular Stagnation: Facts, Causes and Cures* presents the views of some of the most influential economists in the world today. Though in it R. Gordon reiterates his doubts as to a possible return of growth due to headwinds, among which the exhaustion of technological innovation, he nevertheless also expresses a shared and determined belief in the ability of the technological revolution to boost productivity and stimulate a new wave of growth: “the economy may be facing some headwinds, but the technological tailwind is more like a tornado” (Mokyr, 2014). If we have not as yet seen the benefits of the “tornado”, it is not only because innovations have not all yet seen the light of day but also and above all because our instruments of measure are not up to revealing them. The report presented in Davos in January 2016, “The Future of Jobs”, confirms that these theses have gained official status (Davos, 2016).

Is this scenario the most likely to develop? It has in any case many drawbacks. In the first place, it is based on a powerful technological determinism: everything that is possible is

really destined to happen... which means ignoring the resistance of those groups who would have to face the consequences due to the loss of jobs connected to such a development – true, the Luddites lost the battle but it could have turned out differently – or to unfair competition (see the suit brought against Uber and the fact the company was banned from working in several large German cities), or the ethical opposition to certain products or processes (drive-it-yourself hired cars), that trained the spotlight on the question of responsibility and accidents, as was the case during the first industrial age, or again the de-humanization implied by the large-scale publicity given to automated processes: in certain countries such as France, setting up automatic cash registers in the large department stores is cut short mainly by customers, the seniors in particular, who complain they have only a machine to talk to; it seems hard to imagine a completely automated work process in sectors such as health, education, agriculture, or care because of the human element involved. One might on the contrary imagine that in order to save employment, enrich jobs (mainly as to human relations) and further social cohesiveness, automation should be contained within very precise limits. As of 1957, criticizing the all-out race for greater productivity, economist Bertrand de Jouvenel wrote that though it meant progress for the consumer, it implied a “regress” for the producer.

Developing this scenario comes up against two other serious limitations. In the first place, it seems to rest on dubious assumptions, at least in the cases presented by the books quoted above (automation, job cuts and the end of waged employment, see 2.a). One might recall that, as Ronald Coase pointed out, the choice between production based on work contracts or free-lancing (commercial contracts) depended on the price of the transaction. Those promoting an automated and dematerialized vision of production follow Jérémie Rifkin (2015) and claim that the cost of transactions is so low today that implementing a hierarchy and work contracts is no longer justified, which makes it possible to imagine the end of wage-earning and finally the end... of firms. But if that is true of certain components or processes, can one be sure it will be the same for all goods, products and services? Couldn't the contrary occur, *i.e.* an uncontrollable rise in the cost of transactions for certain materials, jobs and operations? Above all, can one imagine production without coordination, managed at a distance by an algorithm? Besides, would that cause the figure of employer to disappear? A large amount of production is carried out worldwide through extremely fragmented and computerized value chains. But companies that ensure coordination exist too (even if it is delegated to an algorithm) and in the final analysis they capture the value. Is a vision of society where production is done by a platform pooling services found on the market, devoid of all coordination even thinkable when it comes to constructing planes or buildings? If we all become self-employed or free-lance, will platforms suffice to coordinate our actions, or will production become completely individualized, for instance thanks to printing in three dimensions? Despite the optimism of research scholars such as Chris Anderson (2012), for whom 3D printing represents a bonafide disruptive technology, it does not seem that a large-scale production of planes or buildings could take place in that ultra-personalized way, and it is also uncertain that such an industrial revolution would be of the sort to save materials and energy.

An automated and dematerialized vision of production does seem totally at odds with the fact that the global level of consumption of materials has never been so high (Krausmann, 2009). That is the scenario's third weakness, and the most decisive: the fact that we choose to radically ignore the escalation to which we risk being rapidly exposed of the quantities and costs of raw materials and energy consumed and, generally speaking, the ecological conversion we should be embarking upon as fast as possible, if the scientific evidence of the ecological threat, climactic in particular, hanging over our societies is to be believed, and if we take seriously the injunction validated by COP 21 to reduce the rise of temperature levels

to 2°C by the end of the century. Broadly speaking, the scenario totally rejects the legitimate suspicion contaminating growth and the effects of growth today. Yet, the scientific evidence that has come out in the past few years (Giec, 2014; Rockstrom *et al.*, 2009; Barnosky *et al.*, 2012) forces us to review our past and become conscious of just how ambiguous growth is. True, growth has been enormously beneficial and brought along previously unsuspected progress that no-one would deny, but it has also been, particularly in the second half of the 20th century, the cause of ills, deterioration and damage to our natural heritage, social cohesiveness and work (Beck, 1992; Méda, 1999; Gadrey, 2010; Méda, 2013; Heinberg, 2011). In Western societies, that awareness was expressed and much thought given to those issues during the 1970s: Ivan Illich, Jean Baudrillard, Bertrand de Jouvenel, Dennis Meadows, Herman Daly, or Fred Hirsch, all raised the question of the risks connected to our shared belief that growth is society's main objective and the GNP the instrument to measure it by. We understand today that growth might not return but above all that it is probably not desirable that it should return, in Western countries, at the same rythm as it did during what Angus Maddison (2006) called the Golden Age – when greenhouse gas emissions and various other pollutions and devastations had become so intense that the term *Anthropocene* was created for the era dominated by the human capacity to modify the conditions of life on earth (Crutzen, Stoermer, 2000).

Technology plays a decisive role in the research that aims to find a model for the future evolutions of our societies: the destructive impact of growth on our natural heritage is thrown into perspective by many economists who, after Solow (1986), consider that technological progress will allow diminishing energetic intensity (the volume of CO2/unit of GDP), and obtain “green” or “clean” growth, rendering the technological revolution perfectly congruent with the ecological imperative. Several studies nevertheless show that the technological progress needed to decarbonize growth will be disruptive if one aims for absolute “uncoupling”, *i.e.* separating prosperity from growth (Jackson, 2009). Husson (2010) has shown, for instance, that attaining IPCC objectives (an 85% reduction of CO2 emissions between 2000 and 2050 would allow bringing the rise of temperatures down to 2°C by the end of the century) was incompatible with sustained growth, even given a veritable technological disruption. Because, if the CO2/GDP ratio⁵ continued to diminish at the same rate as over the last 40 years (1.5%/year), world GDP would be reduced by 3.3%/year by 2050. Were it multiplied by two (3%/year), the growth rate of the GDP should come down by 1.8%/year...

The Commission for the measure of economic performance and social progress, set up at the behest of French President Nicolas Sarkozy in 2008 (Stiglitz, Sen, Fitoussi, 2009), confirmed the critical view that the GDP is inept to account for a nation's wealth or warn about ongoing damages (Méda, 1999; Gadrey, Jany-Catrice, 2005; Gadrey, 2010; Méda, 2013; Cassiers, 2014); it validated the idea that the GDP cannot play the role of whistle blower. A convention created in the mid 20th century, the GDP became the official marker used to gauge countries' performances according to the *System of National Accounts* (2008) but in reality it has many limitations: it turns its back on the many activities – linked to the home, family, friends, voluntary work, civic participation, leisure ... – essential for the permanence of society; it is impervious to inequalities in consumption or participation in production; it is based on an accounting that pays no heed to heritage, thus making it impossible to visualize, next to the totality of added values, the inherited possessions that were brought into play and affected during the process of production and consumption. If one believes that our major emergency is to guarantee the lasting quality – physical first and

5 the amount of CO2 emitted to produce one dollar of GDP.

foremost – of our societies, then our primary objective must be to establish a certain number of environmental norms and take a relative view of the exclusive use of the GDP to measure progress, and of growth itself.

b) *The scenarios of the quality of work and ecological conversion: an opportunity to recover full employment and change work*

The technological revolution scenario does not take into account the destructions caused by economic growth and does not seem able to satisfy the tremendous expectations placed on work and employment today (*cf.* 1.b). Two other scenarios do seem up to it however. The “quality work” scenario seeks to respond primarily to the loss of the meaning of labor and the worsening of working conditions noted both in Western societies and in emerging countries (to obviously very different degrees). The increase of stress, burn-out, intensification, a-typical contracts (Eurofound, 2012) in the West, unfair working conditions, dramatic labor accidents (like the one in Rana Plaza), and sweatshops in the emerging countries, where part of the dirty and indecent production has moved to since social and environmental norms are less strict and the cost of labor lower. In most cases, the trade unions are powerless to oppose these evolutions, though it has been demonstrated that higher levels of union membership go hand in hand with well-being in the workplace (Gallie, Zhou, 2013) and slow down the advance of inequalities (Jaumotte, Buitron, 2015).

In his *Shop Class as Soulcraft: An Inquiry into the Value of Work*, Matthew Crawford condemns the entire process leading to the decomposition of work. He deplores that our societies have forgotten what makes for a good job and that a good job is an ingredient of the good life, and he places the responsibility for the loss of the meaning of work on the obsession with profitability and productivity as well as on the implementation of managerial tools supposed to reinforce them even more, that separate workers from their productions and prevent them from being recognized by those for whom the work is being done. In the short term, Crawford proposes “to find work in the cracks; work the market rationale of which is fully contained within a human scale of face-to-face interactions. This is what the speed shop offers; it is a community of making and fixing that is embedded within a community of use. Such enterprises are not ‘scalable’ in the way that whets the appetite of remote investors, much as they might like to explode the happy scene and ‘take it global’”. More generally, Crawford pleads for a “Republican” attitude towards work, aiming to develop the economic conditions that would guarantee workers’ independence above all else, a position that he greatly regrets Americans have ended up by abandoning. Those are the times, the epoch preceding the liberal and capitalistic “drift” of the mid-19th century that Crawford would like to see return.

In itself, this scenario seems little likely to occur, but it is compatible with the third scenario, more directly built around what today, if we give credit to the Paris agreement adopted during Cop 21, should be our main objective: ensure the sustainability of our societies and make the preservation of our natural heritage our absolute priority. This can be done by throwing out the exclusively monetary marker that assesses the increase in quantities produced and in human added value and replacing it by indicators labelled in physical, biological and social terms, framing the goods produced to satisfy social needs in social and environmental norms compatible with the reproduction of societies. The “ecological conversion” scenario therefore consists in taking seriously the complete set of scientific works presently available and adopting the maxim suggested by Hans Jonas in *The Imperative of responsibility* (1985): “act in ways that the consequences of what you do are compatible with the permanence of an authentically human life on earth.” It assumes that we adopt strict social and environmental norms on the international level and that we rationally and rapidly adapt our societies to the new constraints.

Is it possible to solve the ecological and social questions at the same time? Is ecological conversion not synonymous with the loss of jobs and steeper prices? If the ecological conversion demands that the objective of growth be relativized, that reasoning “beyond growth” become our way of thinking, are we not running the risk of jeopardizing employment since it seems to be particularly dependent on growth? Here I would like to defend the point of view that we must in any case commit ourselves most urgently to ecological conversion without expecting it to deliver a “double dividend”, but that it is also possible to see it as a formidable opportunity both for retrieving full employment and for transforming work.

We must first of all remember that it is possible to create jobs without growth, simply by sharing the stock of jobs which in an economy are available at all times. Of the two million jobs created between 1997 and 2001, for instance, between 350.000 and 400.000 were put down to the reduction of legal working time in France. True, they were created at a moment when growth had picked up again in both Europe and France but results were due to the very fact that State aid depended on reducing working time and creating jobs. To answer economists who maintain that the notion of work sharing is inept, they should be reminded that at all times in an economy a given amount of hours are distributed over the entire population old enough to work and that this can be modified and done in different ways. Thus, if working time in France and Germany has diminished approximately to the same extent since the 1990s (in actual weekly or annual working hours the French today work more than the Germans) it is interesting to note that a week of full-time employment in Germany is today longer than in France but that part-time jobs are much more numerous and of shorter duration there than in France: 27% of German jobs are part-time work, vs. only 18% in France and 8% of the occupied workforce in France puts in less than 20 hours/week vs. 18 % in Germany. Part-time workers in both countries are practically exclusively women. Reducing the legal number of working hours in France – considered in the Parliamentary Investigating Committee’s official report (2015) to be one of the least expensive measures in the employment policy (9.000 euros net per job created) – sharply curtailed the development of part-time employment, mainly done by women and whose consequences in terms of professional inequalities are well known. It also allowed initiating a dynamics to balance out the occupational, domestic and family investments of men and women better (Méda, Orain, 2002; Méda, 2015) and retrospectively appears as one of the main conditions for gender equality. We must also not forget that in most countries, women still have lower rates of activity and employment than men, that they give less time to occupational activities than men but more to domestic and family occupations. That might be the reason the policy unleashed such passionate confrontations ... But, in a word, it is possible to create employment in the absence of growth.

Next, ecological conversion implies shutting down or diminishing certain sectors of activity and developing others, which should, according to existing international, European or national studies lead to a positive balance of jobs in 2020, 2030 and 2050 (UNEP, ILO, IOE, ITUC, 2008; ILO, 2013; Horbach, Rennings, Sommerfeld, 2015; Ademe, 2013; Quirion, 2013; Neale, Spence, Ytterstad, 2015). For in fact, the economic activities that will be stimulated – insulating buildings, renewable energies, public transportation... – represent many more jobs than will disappear. But the synthesis of the ILO/UNEP report addressed to decision makers stresses that, even if the net balance is positive, “Not everybody will gain from such a change, however. The typically positive job balance from greening an economy is the result of major shifts often within sectors. While some groups and regions are gaining significantly, others incur significant losses. These losses raise questions of equity, which if not addressed, can make green economy policies difficult to sustain” (PNUE, 2008). Whether

we consider countries, sectors, or categories of workers, ecological conversion will be an extremely delicate operation demanding powerful security mechanisms to avoid that restructuring turn into the eviction from the labor market of a large part of the workers employed in the sectors guilty of producing the most greenhouse gas. The “fair transition” proposed by the unions (ITUC, 2015) seeks to defend the idea that ecological conversion must be carried out in a civilized manner, by pooling the gains and losses and developing real solidarity among all the members of the society involved, so that the cost of the transition should be equitably shared by everybody.

To achieve a system of production that can guarantee the same level of comfort we are used to without fossil fuels or nuclear energy, supposes we overhaul our energy infrastructure from top to bottom (Bardi, 2015), mainly by calling upon renewable energy (sun, wind, hydraulics, bio-mass), and programming the gradual prohibition of other sources (including underground reserves). It is a rich source of employment. Aside from the production of energy itself, the transformation of the whole system of production is brought into play: transportation, construction, industry, services, which implies both renewing the heating systems in buildings, erecting new sorts of edifices in which to produce or inhabit, setting up new means of production, developing public transportation, all with low emissions of greenhouse gas. Agriculture enters for a large part into the transformation, since it contributes to greenhouse gas emissions and other sorts of pollution (excess use of water, fertilizers, overexploitation of soils, pesticides...). Filling social needs, underestimated until now, is another source of employment: care centers for children, for seniors, education for all, culture, services dedicated to people’s well-being and comfortable living, all represent employment for a million individuals in the twenty years to come, according to Gadrey (see his article “On peut créer des millions d’emplois dans une perspective durable”[We can create millions of jobs in a durable perspective] (2014).

But, following Gadrey, it is also possible to see ecological conversion not only as a chance to retrieve a form of full employment (entailing the redistribution of the total stock of working hours available and shortening the norms of full-time work) but as a chance to surmount the loss of the meaning of work. Seizing that chance implies breaking with our most inured economic beliefs, among which the one that Fourastié considered the most crucial: the idea that productivity is the heart of progress (Fourastié, 1979). Gadrey (2015) defends the idea that in a good number of sectors – particularly due to the tertiarization of the economy – productivity gains *per se*, as they are (badly) measured, have become counter-productive and destructive, both to jobs and to the meaning of work. What if the real question was no longer about the *distribution* of productivity gains but if they are relevant or not? What if true progress today no longer depended on having the highest productivity gains but on achieving gains in *quality and durability*? What if a retrospective analysis of the productivity gains during the “economic miracle” were to reveal the overexploitation of the workers and the environment that we are now being called upon to repair? What if these productivity gains are largely explained by the dilapidation of sources of energy and non-renewable resources (Pessis, Topçu, Bonneuil, 2013)? We would then need to bring all our efforts to bear on deploying productive ventures whose objectives would no longer be efficacy measured by the classical notion of productivity – that Adam Smith praised in his presentation of the pin factory – but quality and durability measured by using other markers.

c) *On what does an ecological conversion that fosters employment and decent working conditions depend?*

Present-day accounting – whether of a Nation or a firm – does not allow showing gains in quality and durability.⁶ Alternative accounting systems have been suggested these past years, and there is an on-going competition to find an indicator capable of completing the GNP: the Adjusted Net Savings plan (*Epargne Nette Ajustée*), the Inclusive Wealth Index, the Better Life Index... Like their ancestor, the Indicator of Human Development (presently in the process of being revamped), they are made up of key variables supposed to give us a better idea than the GNP of the state of health or the wealth of a society. One must be aware that this competition opposes nothing less than world views; it is thus crucial to grasp their significant features⁷ (Méda, 2013). Proposals to redesign firms' accounting methods were also forthcoming, as in CARE (*Comptabilité Adaptée au Renouvellement de l'Environnement* ["Accounting adapted to the Renewal of the Environment"])⁸ which, were it applied, would oblige firms to assume responsibility for damages caused to our natural capital and to human labor and make provisions in their budgets to compensate for them (thus slashing their profits), or in "Triple Bottom Line", which aims to account for the impacts of organizations on the environment and on "stakeholders".

Those various approaches are supposed to allow substituting for productive efficacy (measured solely by the greater amount of quantities produced) another form of effectiveness that takes into account (internalizes) the probable impacts of production on the environment and on workers (those in the firm, stakeholders or all of society). Some authors – and I for one – propose gathering part of these thoughts under an alternative paradigm baptized *Care*, thereby signifying that, from now on, production must obligatorily *care for and care about* our natural heritage, social cohesiveness and human labor. This would mean framing the act of production in a set of rules (social and environmental norms), that might constitute a new normative and accounting framework, thus triggering the development of new organizations of work at the service of quality (of the products and the work). Adopting such an alternative paradigm congruent with the objective of *decent work* – which espouses the aim of the ILO – obviously entails many changes, both as concerns the definition and function ascribed to a firm and applying the new rules on an international level.

Weber defended the idea that Capitalism was a permanent quest for maximum profit and therefore implied a specific sort of firm: "Capitalism means making profit, a profit constantly renewed within a stable, rational and capitalistic firm – it is the search for profitability" (2002). If such a configuration seems perfectly suited to the national objective of ever-increasing rates of growth, does not the objective of decent production and working conditions demand developing a different sort of dynamics and a different sort of firm? Legalist Jean-Philippe Robé has shown (2012) that Milton Friedman's definition of a firm (whose exclusive responsibility is to make profit) does not allow it to contribute in any systematic manner to the common good. The work of many economists, jurists, sociologists, managers and philosophers (Baudoin, 2012) has in recent years highlighted the fact that other objectives should be considered legitimate pursuits for a firm and also that it is necessary to show up and promote different forms of organization, permitting in particular to acknowledge

6 Jacques Richard (2016) also writes: the way private and public firms keep their books – the importance of which Max Weber pinpointed as an instrument codified by a firm's right to rationality – is one of the main causes, if not the major cause, of the dramatic situation affecting the human race today.

7 *Epargne Nette Ajustée* (Adjusted Net Savings), for instance, rests on a lukewarm interpretation of sustainability that leads us to accept the idea that human intelligence is capable of creating, in the place of natural capital an artificiel capital that could be just as satisfying...

8 Jacques Richard, *Comptabilité et développement durable*, Paris, Economica, 2012.

the unique character of a firm as a project of collective creativity different from the classical forms of commercial exchange.

Producing “cleanly” or “decently” – ecologically and socially – imposes the respect of strict rules in a sufficiently large geographic area so as to minimize the risks of dumping, and a control system. During the 19th century, it was precisely such a system of social rules and regulations over the whole of the territory (particularly concerning working time and actual working conditions) that allowed improving conditions on the job and workers’ healthcare. It is high time the rules were refreshed, adapted to our times and to the new risks defying our societies, in particular by honoring the maximum quantities of greenhouse gas emissions and the levels of diverse pollutions. In these new accounting conventions, instead of a currency and “added” value in terms of money, the principal unit of measure could be the kilogram or ton of greenhouse gas. Similarly to carbon quotas but excluding the possibility of operating an exchange, each “unit” could be indexed on an emission quota calculated on the basis of a national endowment. Production would be obliged to respect those norms, without intensifying work.

The process demands that a very large number of countries be compelled to respect the rules: if not, there would be the risk of social or environmental dumping, already the case today with the offshoring of the indecent productions towards countries where the rules and regulations are not as stiff. The ideal situation would obviously be one where worldwide institutions would prescribe the norms, organize their distribution, control their application and punish their disrespect. One imagines a World Organization for the Environment that would set greenhouse gas quotas, as well as the International Labor Organization with more power than it has today and a specific body to monitor conflicts modeled after the WTO’s (Delmas-Marty, 2004) that supervises social norms. Another solution might be to apply those rules to a single zone, the E.U. for example. Objectives decided for that zone would be adapted to the territories and the different units of production and consumption.

Such an arrangement also supposes new rules for international trade. From our point of view – taking ecological risks seriously, especially the threat of climate change – it is impossible to allow international trade to continue driving ever-increasing production and consumption worldwide and allowing competing countries to grab the largest part of the market. A group of associations has of late proposed setting up an alternative commercial mandate in the E.U.: it is a totally new procedure, initiating, negotiating and concluding trade agreements that give civil society and Parliaments an important place, organizing Europe’s self-sufficiency in food production and leading it to reduce its imports of raw materials and manufactured goods, to give precedence to human rights over commercial interests, and to organize corporate responsibility (Aitec, 2014).

Such a process – the ethical control of production, converting polluted sectors to clean, dematerializing and decarbonizing the economy, securing the transfers of manpower, setting up public policies and institutions to organize the transition by stressing the quality of work and employment – doubtless requires a wartime or crisis economy similar to the one described by Lord Beveridge in his 1944 report, *Full employment in a free society*. Many authors point to the magnitude of the three-fold crisis we face – economic, social and ecological – stressing that it supposes policies and means radically different from the ones prevailing in normal times, in particular because it is necessary to organize the coordination of a myriad operations on several different levels. As a liberal, Beveridge considered that, in order to secure individual freedoms, the State must edict very strict rules, alone capable of guaranteeing the sustainability of society. Considering that full employment was one of the central pillars of a free society, Beveridge lay down the four criteria that made it possible: organize massive public spending and investment to uphold economic activity, applying a

policy of low prices for basic consumer goods and promoting an vigorous redistribution of revenues thanks to social security and progressive income taxation; control the localization of industry; organize the mobility of the workforce; and entertain trade relations only with countries that apply a policy of full employment, balancing their accounts and avoiding deficits as well as surplus, exercising absolute control over trade through tariffs, quotas or by other means. Far from considering that individual freedom was menaced by the State's actually exercising the eminent responsibility that such circumstances placed on it, Beveridge saw in it the major determining factor.

Committing our countries to the ecological transition today demands a steering capacity of the State probably as resolute as during World War Two and the Reconstruction when national accounting and planning were developed in close association and the issue was to rebuild our societies on new foundations. Is it possible to imagine that defining the sectors whose conversion must be got under way as quickly as possible would *not* demand serious planning by the State? How could it be done without defining the outlook for trades and the ambitious qualifications, conceived after much brain storming with the social partners and scholars from all disciplines and ending by identifying both the sectors of activity and the trades of the future? Stronger State intervention means a more collective definition of the priorities in terms of social needs; it is the result of citizens deciding together what the socially useful productions are. Taking ethical considerations into account thanks to a new definition of progress means exactly that: the need to reintroduce production into a process of collective choice, within a framework of precise criteria.

Far from being contradictory, the solutions to the social and the ecological question on the contrary constitute a formidable opportunity to recover full employment and transform work. They suppose a clear break with the growth paradigm (Bailleux, Ost, 2016), adopting a new representation of the world - especially a renewed anthropology and cosmology, henceforth centered on incorporating and embedding human societies in Nature - and abandoning the simplistic categories which have guided us in the world. They also demand adopting international rules to guide our actions, new accounting systems and reinventing productive institutions whose main vocation is not just plain efficacy (without taking into consideration their effects on Nature, work and social cohesiveness) but the satisfaction of human needs with the obligation to respect ethical norms. Though a high-level mobilization of civil society would be capable of spurring such a change, it still supposes an alliance between consumers, preoccupied with the quality of products, and workers (as well as their representatives) preoccupied with the quality of work, and, in the firms, breaking with the theory of value for the shareholder and corporate governance. It also supposes perhaps, as the French jurist Adéodat Boissard suggested in 1910, when the first Labor Code was written up, that – as was the case for the three types of political regimes that followed one another – patriarchy, monarchy, democracy – the same might occur for the three types of economic regimes, that the family communism of the past and the regime of conventional, unequal sharing (still known as the salary of capitalist regime) of today, be followed by the regime of proportional or associationist sharing, the one “that is applied more or less completely in production cooperatives”, where the most complete form of sharing is carried out, or at least, within a stabilized salary regime, the representation of workers is ensured to the same extent as that of those who provide the capital.

Conclusion

Three scenarios at least are competing to represent a mid-term view of the future of work. The most popular – the technological revolution – predicts both many job losses and a world-shaking change in the nature of work and suggests that hefty adjustments are needed for the salaried society to be able to adapt. It is perfectly compatible with another scenario – also much debated – the reduction of the Welfare State and of the systems of protection from which labor has benefited until now but which appear contradictory with the need to be competitive. Neither of these scenarios is of the sort that could satisfy the huge expectations placed on work today. Both also choose to bypass the immense ecological challenge that confronts all societies. However, far from succumbing to technological determinism, we can, in certain conditions, transform that threat into an opportunity and turn ecological reconversion into a chance to reconnect with the objective of full employment and to disintensify work. Such a program demands that the Philadelphia Declaration or the Havana Charter be updated, *i.e.* the ambition not to separate economic efficacy from social justice.

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