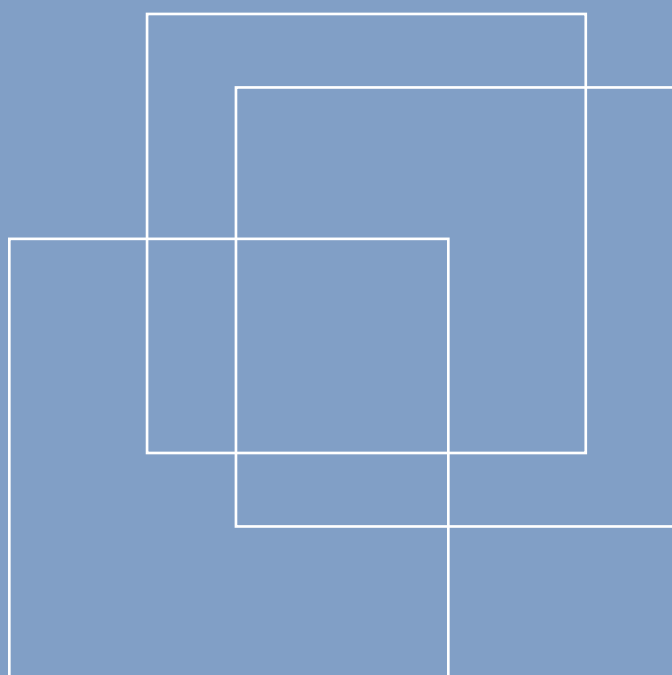




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The future of work: The meaning and value of
work in Europe

*Dominique Méda**

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* Professor of Sociology at Université Paris-Dauphine, Paris; PSL Research University; and Director of IRISSO (Institut de Recherche Interdisciplinaire en Sciences Sociales). For further enquiries, please contact the author at: dominique.meda@dauphine.fr



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Abstract

This paper looks at the notion of work historically and how new meanings have enriched this notion over centuries. It then analyses the importance Europeans give to the concept of work, and presents the ongoing discourse on technological revolution and its impact on work and employment. The paper then examines the future of work in the coming decades in the light of three broad scenarios, which are competing to present a mid-term view of the future of work. First, the consequences of a scenario called “dismantling the labour law” are considered. Second, the validity of the propositions announcing the end of work within the scope of automation and digitalization (scenario of the technological revolution) are examined. Finally, a third scenario, the “ecological conversion”, which seems to be the most compatible with the need to combat the unbearable features of our present model of development and seems capable of satisfying the expectations placed on work is examined. It is this third scenario – “ecological conversion” – that seems best able to respond to the high expectations that Europeans continue to place on work while ensuring the continuation of our societies.

Keywords: Automation, digital revolution, ecological conversion, future of work, importance of work, work

JEL classification: J08; J53; J81; J83; J88; O17; O47

1 Introduction

Most of what is written or said about the future of work points to the radical novelty of the ongoing changes – the globalization of communications and production chains on the one hand, the dramatic advances in automation on the other – along with demands for the rules governing European labour markets to be drastically revised and adapted to worldwide competition. Ideally, labour as a factor of production should not represent an obstacle for firms, which more than ever requires flexibility, versatility, and adaptability. But at the same time, individual expectations related to work have never been so intense, the desire for it to be fulfilling so strong. In addition, ecological risks force us to completely revamp our system of production.

This paper seeks to answer some of the questions being asked today about the future of work. In Section 2, we will look at the long history of the notion of work, considering the fact that new meanings have enriched it over the centuries as a bountiful literature testifies. We examine how the 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 are not) satisfied with the reality of work as we know it. Section 3 will deal with the effects on work and employment of the discourse currently in vogue according to which the technological revolution under way is leading inevitably to radical transformations, questioning in particular the technological determinism underlying that view and analysing the policies it implies. In Section 4, we present the three broad scenarios in which the future of work might take shape: the first scenario emphasizes the technological revolution, the second scenario envisions the possibility of drastic reduction of systems of employment protection, while a third – the scenario of ecological conversion – could represent a major opportunity to reconnect with full employment, the meaning of work and the concept of “decent work”, which is of much importance to the International Labour Organization. This leads to an exploration of the conditions for such a scenario to become reality. The final section concludes.

2 The importance of work in Europeans' lives

This section accounts for the long history of the idea of “work”, bringing to light how the various aspects attached to the notion today emerged little by little, creating the modern concept. It then moves on to examine the way those different aspects now function together and are valued by Europeans, before measuring the abyss existing between the expectations and current perceptions of work in Europe. The notion has been enriched while it has also diversified, and this has obvious implications in terms of expectations.

2.1 A historical overview of the concept of work

Our modern idea of work has a history: over the centuries, the term has not always meant the same thing nor always been valued to the same extent (Méda, 2010). Anthropological and ethnological research on ways of life in pre-economic societies shows that it is impossible to find an identical meaning for the word “work” in the various societies examined (Sahlins, 1968; Descola, 1983; Chamoux, 1994). Some of them do not even possess a separate word for activities of production that differ from other human activities, nor a word or notion that might synthesize the idea of work in general (Chamoux, 1994). In Greece there are crafts, activities, tasks, but it is vain to look for work, adds Vernant (1965): activities

are classified in an indivisible set of diverse categories, including distinctions that prevent work from being seen as a *single function*. The value of labour, embryonic in the Old and New Testaments, emerged little by little during the Middle Ages, but the word itself only became synonymous with a productive activity in the seventeenth century (Rey, 2012). Our modern idea of work then gradually evolved throughout the eighteenth and nineteenth centuries, passing through several phases, each one depositing a sediment of extra meaning (Meyerson, 1955).

2.1.1 The invention of abstract work

The eighteenth century is when the term “work” crystallized: from the moment a certain number of activities were considered sufficiently homogeneous to be encompassed by a single word it became possible to speak of “work” in a general sense. But in exchange, the actual content of the activities it covered disappeared and work became an intangible notion; what was understood was *work in the abstract*, and commodities were detached from the people who produced them. Describing the category of objects that can be rented out, for instance, Pothier (1764), a jurist, mentions houses, pieces of land, furniture, movable goods, and the services of a free man. However, though considered – by Locke (1690) in particular – a source of individual autonomy, work as an activity did not confer any value in itself. According to Smith (1776) and his contemporaries, work remained synonymous with torture, effort, and sacrifice, a view for which Marx (1979) would later reproach the author of *An Inquiry into the Nature and the Causes of the Wealth of Nations*, claiming that Smith did not understand the true nature of work.¹

2.1.2 Work as the essence of humanity

At the start of the nineteenth century, many texts corroborated this transformation: work was no longer considered only a hardship, a sacrifice, an expense, an “inutility”, but turned into “creative freedom” whereby humans could transform the world, reorganize it, make it habitable, leave their mark on it. Work was considered the *essence of humanity*, on a parallel with a work of art: I put something of myself in what I am doing; through it, I express what I am. Marx (1979) defended the idea that when work is no longer alienating and we are allowed to produce freely, we will no longer need “the mediation of money”, and the goods or services we produce will reveal us to one another, expose our true selves: “Let us suppose we are able to produce as human beings [...] Our products would be so many mirrors in which we saw reflected our essential nature”.² But work will become that “primary, vital need” only when we can produce freely, i.e. when waged employment has disappeared and prosperity is attained.

2.1.3 A society of wage-earners

However, at the end of the nineteenth century, instead of doing away with wage employment – which on the contrary was in the process of consolidation – the words and deeds of social democrats presented it as the main road to riches, the way to a fairer, truly collective (“associated producers”) social order

¹ “[...] to consider work simply as a sacrifice, thus as a source of value, as the price of things that give things a price according to the amount of work they cost, means keeping to a purely negative definition [...] Work is a positive, a creative activity” (“Work as sacrifice and as free labor” in Marx, 1979, pp. 289–293. Translated from French).

² “Notes de lecture”, in Marx 1979, p. 33 (translated from French).

(based on hard work and individual capacities), which (they claimed) would gradually fall into place. It was – particularly in France and Germany – around the *salary or wages linking employer to employee* that labour laws and welfare gradually developed, reinforcing the system and rendering it indispensable. In Germany, for instance, labour laws and social protection grew out of that link between wage earner and employer, due to the insurance laws enacted by Bismarck between 1883 and 1889. But this also reinforced the relationship of subordination. Work was thus supposed to be self-fulfilling even though better wages, consumerism and social benefits, far from eradicating waged employment, made it pivotal and turned the heretofore unworthy waged worker into the most desirable social status (Castel, 1995).

The twentieth century, especially in Europe, witnessed the ultimate metamorphosis: increasingly distancing itself from its more painful connotations – the etymology suggests that the French word *travail* comes from “*tripalium*”, a three-pronged spike used to contain animals and often considered an instrument of *torture* – the word “work” has ended up representing a highly desirable activity, both because of the benefits to which a particular job gives access but also because, in an ever-greater number of cases, it opens the door to self-expression and self-realization, giving a person the possibility of demonstrating their capabilities both to others and to themselves. It is as if, with the advent of the twenty-first century, developed countries had once again overcome a hurdle, one more step in the multi-secular switchover from *travail-tripalium* to *travail-self-fulfilment*. Voswinkel (2007) argues that the development of “post-Taylorism” and the intense mobilization of subjectivity on the job that has prevailed since the 1980s have contributed to replacing the ethics of obligation (to work) with a subjective ethics of professional self-fulfilment that brings the individual to the front of the stage and bases recognition on *admiration* more than on appreciation. The prospect of being admired, i.e. being seen as a subject, is therefore concomitant with choosing work as the locus for self-realization, the place where individuals can exhibit all their worth and all their grandeur, one of the main arenas where they can best perform.

Our idea of work today is made up of all these dimensions: work is considered *at the same time* – to varying degrees depending on the country and the individual – a factor of production, the essence of humanity, and the pivot of the system of distribution of wealth, benefits and protection, dimensions that collide and are the reason why so many interpretations affect the concept of “work” today. We present in the next sub-section our analysis of the way Europeans juggle with and give value to the various dimensions that constitute work.

2.2 How Europeans relate to work³

The analysis of the available surveys on Europeans’ relationship to work sheds light on the importance attached to it in comparison with other fields of activity or other values, as well as on the common trends and the variety of opinions people give when asked to say what aspect of work they most appreciate.

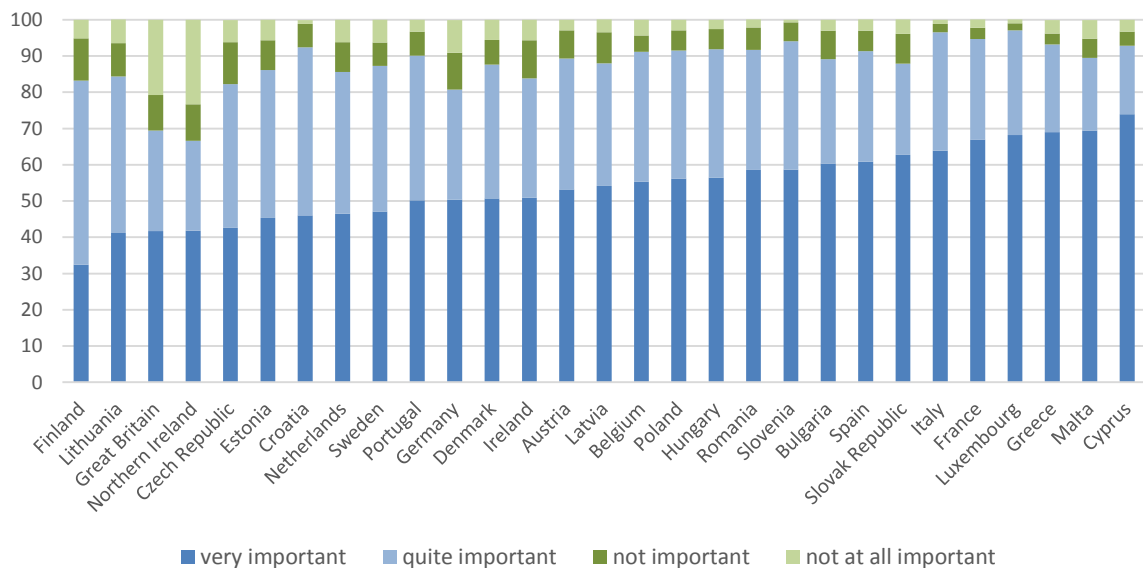
³ The analysis for this section largely comes from Davoine and Méda, 2008; Méda and Vendramin, 2013.

2.2.1 Importance of work

The European Values Study (EVS), which has periodically analysed the ways Europeans relate to their values since 1981, notably enables people to account for the importance of work in their lives.⁴ One of the questions asked is: “How important is work in your life?” Respondents can choose from four responses: very important, quite important, not important, and not at all important. Of course, the word “important” can have several meanings: work may be important because it is central to one’s existence, because it is a source of income, because it is all-absorbing, because it is a source of happiness or of suffering, because there is not enough work, etc. But these surveys have many other limitations; which are well known, for instance, that the impulse to use extreme evaluations (such as “very” important) varies by country (Davoine and Méda, 2008). But all things being held equal, the results of the survey of 2008 stand out clearly: in all of Europe, work is considered quite important or very important (see Figure 1). Fewer than 20 per cent in 2008 of the people surveyed declared that work was not important or not at all important – except in Great Britain and Northern Ireland.

In those two places, as well as in Finland, the response “work is very important” was chosen less frequently than elsewhere, whereas in another group – composed of southern European countries (Greece, Italy, Spain,.) two continental countries (France and Luxembourg) and several new (since 2004) member states of the European Union (Cyprus, Malta, and Slovenia) – the proportion of people declaring that work is “not, or not at all, important” was under 10 per cent; in fact, between 58 per cent and 75 per cent of the population in those countries declared that “work is very important”.

Figure 1: The importance of work in Europeans’ lives, 2008 (%)

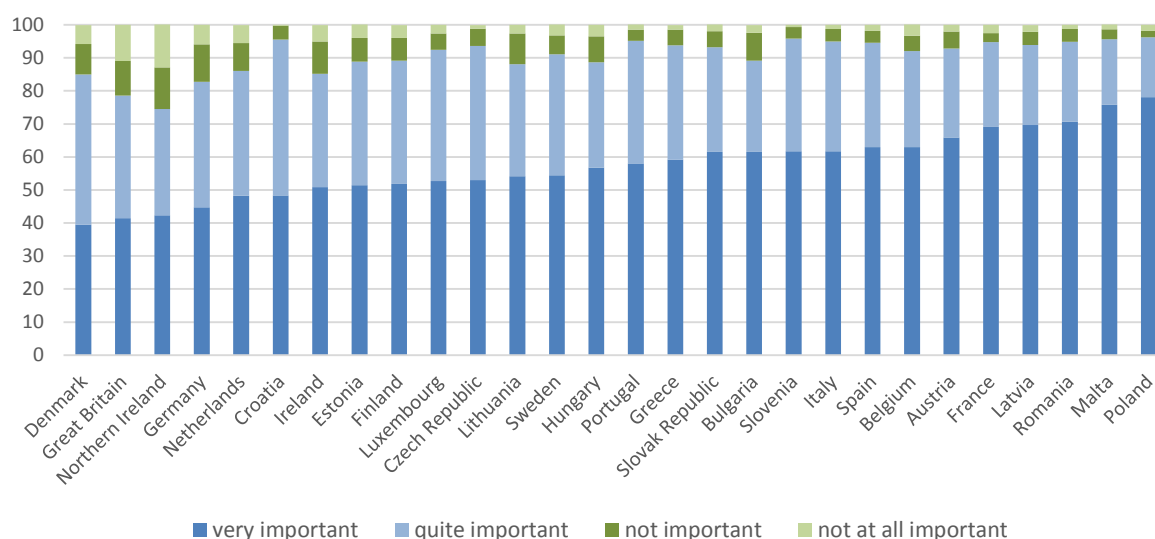


Source: EVS survey, 2008.

⁴ The EVS was launched in 1981 by a group of researchers led by Jan Kerhofs of Louvain University and Ruud de Moor of Tilburg University. The survey has comprised four waves – 1981, 1990, 1999 and 2008 – for 47 countries. The EVS questionnaire, a large part of which does not vary from wave to wave, addresses, inter alia, the importance of major values such as work, family or religion, but also religious practices, political opinions in people’s lives and the importance attributed to each facet of work (wages, security, personal fulfilment, etc.). The interview, which lasts almost an hour, therefore covers numerous topics.

The situation was comparable in 1999 (see Figure 2): only 40 per cent of Danish, British and Northern Irish respondents at the time declared that work was “very important”, while that proportion neared 50 per cent in Germany, the Netherlands and Sweden, but also in Croatia, the Czech Republic and in Estonia, and was much larger in France and some new member countries (Latvia, Malta, Poland, and Romania).

Figure 2: The importance of work in Europeans’ lives, 1999 (%)



Source: EVS survey, 1999.

Even when the effects of the composition of populations are taken into account,⁵ the gaps between countries remain significant (see Figure 3). The composition is in itself difficult to interpret since in the various countries people occupying different levels of employment respond to the question differently. Figure 3 clearly shows that in France nearly two-thirds of full-time workers and three-quarters of part-time workers, unemployed and retired people declare that work is very important, while in Great Britain and in Germany that opinion was mainly held by full-time workers and the self-employed.

Cultural,⁶ religious,⁷ and economic factors have been advanced to explain these differences but none

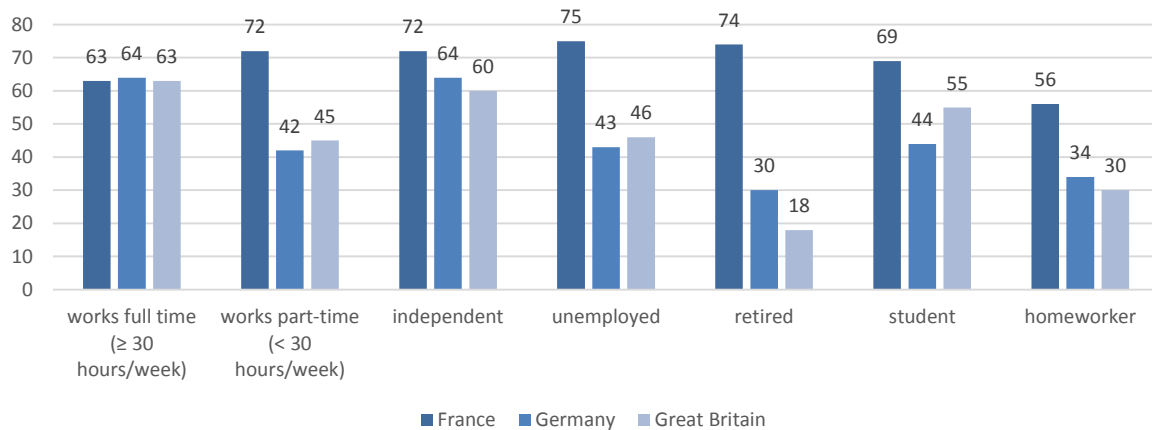
⁵ Composition of a population refers to its structure by age group, proportion of working population, or level of qualification. For example, women at home and people with higher education declare less often that their work is very important. Conversely, employers, the unemployed and the self-employed attribute more importance to work. Yet, these categories are very unevenly distributed in European countries: education levels are, for example, higher in the Nordic countries, and women participate less frequently in employment in southern European countries.

⁶ In psychology and management in particular, the cultural dimensions highlighted by Hofstede (2001) are systematically used to try to explain relationships to work (see, for example, Parboteeah and Cullen, 2003). For example, French and Belgian people are more likely to accept a power distance, whereas a close relationship with the hierarchy is appreciated in Denmark, Sweden, Austria, and Finland.

⁷ “A split between protestant and catholic countries seems to be taking shape: contrary to what Max Weber teaches us, work seems less important in many protestant countries (Denmark, UK, Netherlands, Germany, Finland) and more important in catholic countries (France, Belgium, Spain, Italy, Austria), with the exception however of Ireland. But the effect of the individual practice of a religion must be clearly distinguished in the work relationship from the effect of belonging to a country or of a group belonging to a given religion. At the individual level, religion clearly has an impact on the relationship to work: compared with atheists, interviewees

are fully satisfactory: nevertheless, it has been shown that the influence of both GDP per person and the rate of unemployment were significant for understanding the importance attributed to work (Clark, 2005; Davoine and Méda, 2008; Méda and Vendramin, 2013).

Figure 3: Proportion of individuals who feel work is “very important”, by occupation (France, Germany and Great Britain; in %)



Source: EVS survey, 2008–2010, processed by CREDOC (Bigot, Daudey and Hoibian, 2013).

In earlier research, we suggested that people in some countries, particularly France, attach more importance to work than those in others such as Great Britain or Denmark. According to the EVS surveys – where people seem to have a more pragmatic approach – it is probably necessary, as sociologist d’Iribarne (1989) suggests, to see this in relation to the national systems of education and the status attributed to work. In France, one’s craft and the sort of work one does go into shaping a person’s “status”, which indicates the sort of schooling they have had and, ultimately, their position in society. Taking into account the other dimensions identified with work allows this analysis to be refined, as we observe later.

2.2.2 The different dimensions of work

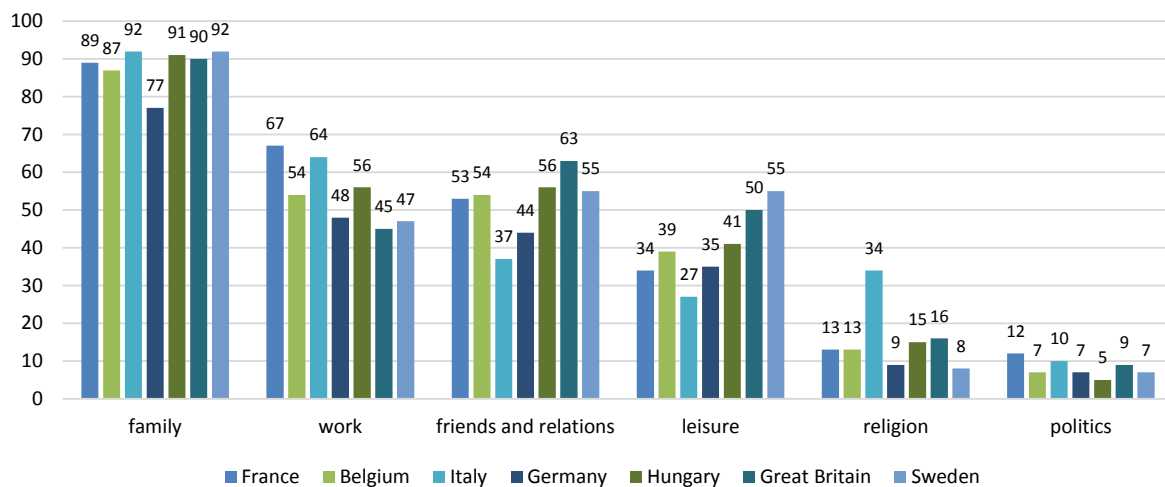
Three factors are significant to understand the different dimensions of work. In the first place, the *ethics of duty* (work is considered a duty to society), which a certain number of studies have claimed are of diminishing importance (Inglehart, 1990; Riffault and Tchernia, 2002), but are still very present in Europe. According to the EVS Survey (2008), 64 per cent of Europeans consider that “working is an obligation”. The *instrumental dimension* of work (also known as its “extrinsic dimensions”, mainly with reference to the bread-winning function of work and job security) remains dominant. Over 84 per cent of Europeans in the EVS survey mentioned that making a good living was one of the important aspects of work, though opinions varied according to country: while 89 per cent of Portuguese and 74 per cent of British people said that having a well-paid job was an important factor, only 55 per cent of respondents in Denmark, 57 per cent in France, 60 per cent in Belgium and 61 per cent in Sweden had the same opinion. We previously noted that the level of GDP per person influenced people’s preferences

who said they were christian or muslim attribute more importance to work, and within this category protestants are amongst those who attribute the greatest importance to work” (Davoine and Méda, 2008, p.11).

for a good salary but institutions are also important: for instance, a generous system of social security may diminish the importance of salary and of promotions. According to the EVS, in countries where expenditures for social protection are high, workers do in fact less often declare that salary and promotions are important. The diversity of preferences in Europe therefore partly reflects the diverse nature of the prevailing economic and institutional contexts. Salary being a lesser priority could pass for a cultural trait but is in fact partly explained by the comparative levels of wealth and of social benefits available.

Finally, the rise of the *expressive dimensions* of work (also called “post-materialistic” or “intrinsic” with reference to work as a means of self-fulfilment) is verified all over Europe: Europeans attribute more and more importance to the contents and interest of a job, as well as to the atmosphere in the workplace. Even if there are great differences between countries, most people also consider that in order to develop one’s capabilities to the hilt, one must work. Far from replacing each other, as a hasty review of the literature might suggest (Inglehart and Baker, 2000; Riffault and Tchernia, 2002; de Witte, Halman and Gelissen, 2004; Ester, Braun and Vinken, 2006), those different dimensions endure and evolve side by side (Méda and Vendramin, 2013).

Figure 4: Proportion of individuals feeling that the following domains are “very important” in their lives (%)



Source: EVS survey, 2008, processed by CREDOC (Bigot, Daudey and Hoibian, 2013).

Though country-level effects do exist, largely linked to educational levels and national policies and institutions, there is also diversity within countries due to other factors. We have shown this through the secondary analysis of European surveys, but also through interviews carried out in various European countries and by taking national research results into account (Zoll, 1999; Davoine and Méda, 2008; Vendramin, 2010; Méda and Vendramin, 2013), that among respondents today, the youngest, best educated and women – more than others – had expectations of employment characterized by the desire to do something meaningful (defined by its intrinsic interest, its contents, the workplace) and compatible with their other commitments (e.g. family, friends, personal pursuits, leisure activities).

2.3 Expectations versus realities

Are these great expectations, both of a material and an expressive nature, met by the present-day organization of work? This to a large extent depends on the country, its national policies and the institutions that it has developed.

2.3.1 Rise of flexibility

The “economic miracle” (“*trente glorieuses*”, 1945–1974) saw the advent of a form of organization allowing for mass production based on standardized products and methods of production as well as on the rationalization of work processes. Since the mid-1980s, *flexibility* has replaced standardization: the new forms of organization are supposed to meet the challenge of a globalized world economy and permit industries to adapt. The changing economic context and policies that discard internal flexibility in favour of external flexibility have produced growing job insecurity among employees. New models of production have sprung up, typified by the conjunction of technological and organizational innovations and principles of labour organization based on versatility and individual initiative “post-Taylorism”. But the development of a multi-skilled, autonomous workforce has gone hand in hand with the overall persistence – the amplification even – of prescriptions and control: though work has become more autonomous, it is a *controlled autonomy*. At the same time, firms have broadened the scope of their executives’ responsibilities, and they have spelled out what was expected of them and adopted even more clearly new ways of monitoring their objectives, which explains the increase of formal systems of individual assessment (ever more automated and computerized) as well as the incitements and mechanisms set up to reward and punish individual performance.

2.3.2 Rise of unemployment and stress

In parallel with transformations of work, most European countries have had to face a strong rise in unemployment and atypical forms of employment, as well as intense criticism of the rules prevailing in the job market that firms see as an obstacle to competition. All these changes have ended up making work increasingly strenuous and stressful, more or less obviously depending on the country in question, but which the 2010 wave of the European Working Conditions Survey clearly underlined. A considerable proportion of European employees questioned in the survey declared that they had suffered from stress in their job. More than one in four wage-earners said that they were regularly under stress: nearly 10 per cent “always”, 17 per cent “most of the time”, 40.5 per cent “sometimes”, slightly over 18 per cent “rarely”, and 15 per cent “never”. As to regular exposure to stress on the job, there were sharp differences between, for example, Germany (12 per cent) and Hungary (40.5 per cent). France elicited very high percentages for three symptoms: depression or anxiety, general fatigue, and insomnia; 38 per cent of European wage employees declared that they would be unable to continue doing the same job after the age of 60.

The answers given by French respondents to the Working Conditions Survey provide further evidence for the existence of this deterioration – the last wave pointed to high levels of stress, harsher measures and less leeway for personal initiative – but we find the same picture in an important British survey carried out in identical conditions in 1992 and 2000 by the Economic and Social Research Council in a research programme entitled “the Future of Work”. Taylor (2002, p. 9) wrote in conclusion: “Today’s

world of work is much less satisfying to employees than the one they were experiencing ten years ago. It has also grown more stressful for all categories of employees without exception – from senior managers to manual workers. Most people say they are working much harder in intensity and clocking on for more hours of work than in the recent past. [...] This key finding is overwhelming and perhaps the most important to be found in the survey”. The same can be said of the research carried out by Green (2006), who argues that work has certainly become more “demanding” in recent years: “In the affluent economies of the industrialized world, life at work in the early twenty-first century has evolved in a curious and intriguing way. Workers have, with significant exceptions, been taking home increasing wages, exercising more acute mental skills, enjoying safer and more pleasant conditions at work, and spending less time there. Yet they have also been working much more intensely, experiencing greater mental strain, sometimes to the point of exhaustion. In many cases, work has come under increased and unwelcome control from above, leaving individual employees with less influence over their daily work lives and a correspondingly less fulfilling experience than before. In these ways, work in the recent era has become more demanding” (ibid., p. 20).

2.3.3 Types of working organizations

It is as if the promises made by the firms, at the same time as they asked employees to become more personally involved in their job, have not been kept, as if the new forms of the organization of labour, supposed to be a departure from Taylorism (though Taylorism still prevails in many workplaces), have reinforced and sharpened the supervision and individualization of work.

From this point of view, there are nevertheless still striking differences between European countries, as recent research carried out by Gallie and Zhou (2013) on the last wave of the European Working Conditions Survey demonstrates. These authors classify the different types of labour organization according to their capacity to allow employees to participate in day-to-day decision-making or to influence issues pertaining to their job. The types of organization that best do so are known as “high involvement working organizations”.

The authors show us that in Europe,⁸ 38 per cent of workers are in “low involvement organizations”, 27 per cent in “high involvement organizations” and 35 per cent in organizations that offer “intermediate levels of involvement”, and they further expose the differentiated distribution of those models of labour organization in Europe, indicating that “high involvement organizations” are associated with greater well-being, less absenteeism, and greater job satisfaction. One group of countries in particular stands out – the Nordic countries, particularly Denmark, Finland and Sweden – where the likelihood of being employed in that sort of company is much greater than elsewhere. Looking for the factors that might explain the probability of encountering such an organization, the authors came up with a correlation implicating one single factor: the strength of labour unions.

This result clearly illustrates the fact that the organization of labour is vital for the quality of peoples’ working lives, reminding us that the possibility of controlling one’s work, both on a daily basis but also more generally in relation to the decisions made by one’s employer, is decisive. It shows that some countries are far more advanced than others on this score, once again challenging the thesis that international competition renders a preoccupation with the quality of life on the job anachronistic.

⁸ Here Europe refers to the 34 countries covered by the European Working Conditions Survey.

To sum up, the expectations that Europeans place on work today are many and varied. There have also been more instrumental aspirations, hopes ushered in by the nineteenth century but have not truly materialized. In the twentieth century, the 1980s and 1990s witnessed the development of new forms of organization of labour, some being more compatible than others with the contemporary hope that work will permit self-expression. Nevertheless, issues pertaining to “job quality” are today brutally challenged by some prospective studies that predict nothing less than the disappearance of a large number of jobs and the end of wage employment due to the ongoing technological revolution.

3 The effects of automation on work and on employment

While Europeans place powerful expectations on work, some prospective studies have shown that the quantity of employment is dwindling and the nature of work changing due to the dawning of the new era of automation. Though the results of these studies must be treated with some scepticism, some transformations have already taken place in several sectors; as yet peripheral, they do however play a role in transforming working conditions. Depending on the diagnosis of the ongoing changes and the objectives to be attained, very different policies have been suggested to speed up, accompany, or, on the contrary, slow down the process. Technological changes in any case represent a major factor behind the current and future transformation of work.

3.1 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 labour has become extremely common and the fact is now considered self-evident, a *fait accompli* – a view that the most recent World Economic Forum (WEF) report (2016) presented in Davos, confirms. That view, prevalent in academic and journalistic circles, alludes to the simultaneous publication of influential books or articles which, though few in number, are regularly quoted. The first such opus is by Brynjolfsson and McAfee (2011) who contend that it is high time Jeremy Rifkin’s (1995) thesis –*The End of Work*⁹ – 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 that digital technologies have made possible will mushroom, as suggested by Moore’s law.¹⁰ Computers are part of the “General Purpose Technologies” category – i.e. at the root of a multiplicity of incremental innovations (Lipsey, et al., 2005; Field, 2008), which interrupt the normal course of events that unfold along with economic progress. These authors stress that henceforth, even in the realm of purely intellectual labour or in activities that contain no physical component at all, computers will monopolize the field. But such technologies create considerable value: they permit improvements in productivity and therefore collective wealth. The risk is that they will bring about sweeping transformations and doubtless a polarization of society too (Autor and Dorn, 2013; Collins, 2014; Dorn, forthcoming), not

⁹ In his book, Rifkin explains that automation and technological progress will inevitably destroy jobs and cause soaring unemployment. Only a few professionals specializing in the manipulation of symbols will be able to keep their jobs. A quaternary sector will develop to maintain social ties.

¹⁰ According to Moore (1965), the power of popular computerization doubles every two years. Moore has nevertheless conceded since that his law would become obsolete in approximately 2020.

to mention a general skills mismatch (Beaudry et al., 2013), which would demand radical organizational innovations, with entrepreneurs at the helm and massive investments in “human capital”.

3.1.1 The end of work?

Frey and Osborne (2013) in their study of 702 occupations, draw an even more graphic picture of how jobs will be affected and estimate the probability of intelligent machines replacing them. Certain sectors, such as education and health, are at small risk of being mechanized. On the other hand, occupations such as selling, administration, agriculture and even transportation are very much at risk. In the United States, the authors estimated that 47 per cent of the workforce were in sectors highly exposed to unemployment and that their jobs could be done by robots or “intelligent” machines within 10 to 20 years.¹¹ Since then, many other authors have dealt with this theme (e.g. Ford, 2015; Benzell et al., 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 and CEOs of large firms, paint a picture of what the consequences of these developments, and particularly the development of digital technologies, will be for the nature of work (see Bollier, 2013; WEF, 2016).¹² According to these sources, work, which has already become collaborative, will become more and more so. Crowdsourcing is one of the most widespread ways of working, emphasizing co-production; this way of working will no longer be confined to large, hierarchically structured companies, but will also 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 the entire 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 the “720 degree” assessment on which reputations are built. In short, the technological revolution is ongoing and will be the way to prevent our societies from falling into a century-long stagnation (Teulings and Baldwin, 2014). But its effects on the rate of growth and productivity are as yet unknown: both as to the time lag and given the fact that (according to the expounders of these ideas) the existing tools available for measuring growth and productivity are not adapted to the new situation.

For some authors, the digital sector is at the forefront of these changes, revealing how labour legislation have not been adapted to it – unable to give businesses the flexibility they need and at the same time to protect workers against excessive workloads. Following the Commission of the European Communities (2006) report, some have demanded that the rules governing employment be made more flexible – e.g. by extending the French system of days worked to a greater number of categories of workers (Mettling,

¹¹ “47 percent of total US employment is in the high risk category, meaning that associated occupations are potentially automatable over some unspecified number of years, perhaps a decade or two” (Frey and Osborne 2013, p. 38).

¹² The report submitted in Davos, 2016, *The future of jobs*, went in the same direction, asking 371 executives and human resource directors of large firms throughout the world to respond to an online survey.

2015) or revising the EU directive on working time in a way that would more readily permit exemptions, opt-outs and augmentations of the number of autonomous workers. Furthermore, such commentators have demanded that para-subordination (already implemented in Italy and Spain) be developed, for if this is not done, there will be adjustments in the form of a massive expansion of atypical forms of employment already in high gear (freelancing, casual work, self-employment, etc.).

Promoting such changes in labour laws – which would make a reduction of the measures protecting wage labour seem acceptable – often goes together with an idealized 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 aspirations to bypass wage employment, supposedly synonymous with unwieldy hierarchies, as opposed to creating one’s own start-up which is 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 through 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 labour and employment protection still prevalent in Europe. Its effects on employment and work require further analysis.

3.2 The impact of digitalization, computer platforms and Uberization on employment and work

First, we must be careful not to take the predictions concerning the effects of digitalization on employment discussed above at face value. In fact, the studies are very controversial: for example, analysing what has taken place in 17 countries over 15 years, Graetz and Michaels (2015) show that robotization has permitted the gaining of close to half a percentage point in annual growth without harming employment. A study by Deloitte (Stewart, De and Cole, 2015) based on 140 years of statistics from England and Wales has shown that the process of robotization is in fact a “great job-creating machine”. Gadrey (2015), an economist, reminds us, tongue in cheek, of the alarmist predictions contained in the Nora-Minc (1978) report on the computerization of society, published in France: “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 per cent in 1980 to over 70 per cent 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 per cent today. Practically all the sectors and professions the Nora-Minc report claimed would become “the steelworks of tomorrow” are those where employment increased the most”.¹³ During a conference organized by the European Trade Union Institute, “Shaping the New World of Work”, Loungani (2016) presented a graph showing that the number of automated teller machines increased at the same rate as

¹³ See <http://alternatives-economiques.fr/blogs/gadrey/2015/06/01/le-mythe-de-la-robotisation-detruisant-des-emplois-par-millions-1/> (translated from French).

the number of clerks. Moreover, a recent study showed that the estimate of 47 per cent jobs lost in the next 10 years had to be re-evaluated considerably to a low of approximately 9 per cent (Arntz, Gregory and Zierahn, 2016). Criticism has also been levelled at the methodology used by Frey and Osborne in their study (Vendramin and Valenduc, 2016).

We can only agree with Gadrey (2015) when he explains why forecasters make these mistakes: they generalize entire sectors or segments where machines have replaced humans. Reasoning “all things being equal”, the results they predict are inevitable but they forget that when the content of an activity and production change radically, a process of enrichment driven by the emergence of new services is generated – which then also leads to employment. They also do not pay enough attention to the resistance of populations. The *technological determinism* typical of all these 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 10 years or accept being 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 permit a considerable alleviation of harsh working conditions and organization could lead to complementary collaboration between humans and robots, which is a likely option.

3.2.1 Workers on tap

Nevertheless, the development of digitalization and a computer economy has in fact already begun to disrupt working styles. Important research has in recent years revealed the de-structuring effects of the new types of organizations on work (Head, 2014). The de-intermediation brought about by digital platforms leads not only to competition against a large number of regulated or organized professions but also, and especially, to mobilizing people’s activity in ways which are not, or at least seem no longer to be, either wage employment or a classical form of self-employment. Digital platforms provides access to those offering work and those requesting a service, thus contributing to cutting up the work into individualized services, fragmentary tasks, to dismantling groups working collectively and to individualizing already shaky labour 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 to manage it. They obtain the same results as they would in providing wage employment – giving orders, controlling work and penalizing shortcoming – without, however, having to shoulder the responsibilities traditionally attached to that 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 and Serverin, 2013). In order to access a platform and stay on it, they must in fact fulfil a great number of obligations in contradiction with the status of a self-employed. Available research shows reinforced control and supervision, permanent assessment – including by clients – and very little or no leeway in deciding how the work should be done, all this being made possible by “algorithmic management” (Rosenblat and Stark, 2015). Some authors point the finger at the dumbing-down provoked by computer-directed labour (Amazon) and the end result, which is over emphasis on low skills (Head, 2014). It is the return of labour as a commodity in its worst form: they call it platform capitalism (Lobo, 2014), sweatshops, digital labour (Cardon and Casilli 2015). The non-respect of national labour legislation is facilitated by the transnational character of the platforms and the difficulty, when all relations are mediated by computers, of controlling them.

3.2.2 The end of wage employment?

While some people 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” these platforms are drawing attention to what is euphemistically known as “classification errors”, i.e. the fact that workers 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 – but do not even have a contract. It is as if the creators of these platforms, for whose profit value is created and retained, have refused to take on the responsibilities incumbent not only on those who supervise wage labour but also on those who pay for a job done by a self-employed worker under a commercial contract, as if the disappearance of hierarchical companies had caused 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, although such work relationships allow for the elimination of entrance barriers (as when trade guilds were abolished in France, first in 1776 and then in 1791), and bring greater flexibility to some segments of the labour market, these new actors play a role in dismantling it and jeopardizing the mechanisms that, as of the end of the nineteenth century in Europe, enabled the stabilization of work and made it more secure – not, however, without rousing the ire of the imperilled professions, as, for example in several European countries the complaints of taxi companies and their drivers against Uber and of hotel owners against Airbnb.

3.3 What should our labour and employment policies be in the face of the expansion of digitalization and automation?

How the development of automation, digitalization and digital platforms affect growth, employment and work is therefore subjected to diametrically opposed interpretations. Some authors stress their extra-financial benefits: the fact that collaborative economies permit the extension of free services and the reinforcement of social links; the general loosening of entrance barriers and thus the greater fluidity of the “labour market”; and the fact that leaving behind hierarchical companies and employee status makes for more autonomy at work. Other analysts, on the contrary, underline the perils attached to the extension of forms of work which are officially neither wage employment nor self-employed, particularly the loopholes in workers’ health and social coverage; the risks attached to the fact that they are being exploited (overly long working hours, health hazards); the unfair competition that platforms represent for traditional organizations (taxi drivers, artisans, hotel owners, etc.); the fact that activities which were voluntary until then have been commodified; that the differences between amateur and professional disappear; the explosion of *digital* labour (data handlers “forced” to work for free); the risk that once rules and regulations are suppressed, extremely powerful monopolies once again might emerge; and so on.

3.3.1 A new status for self-employed?

Those who share the idea that automation and digitalization have already begun to disrupt working conditions and will continue to do so exponentially, propose adapting the existing rules and regulations, generally to make the ongoing changes smoother. The Mettling (2015) report, which was submitted by the director of human resources of Orange to the French Minister of Social Affairs and Employment in 2015, stressed that “digital transformation disrupts the traditional organization of labour in a thousand

ways” (ibid., p. 8), 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, in addition to having reached the symbolic million self-employed in summer 2015, we estimate that one in 10 digital workers is already operating without a salary and that the trend will continue. In 2014, freelancers – persons carrying out their activity as self-employed – represented 18 per cent of the service sector in the Netherlands, 11 per cent in Germany and 7 per cent in France, an increase of 8.6 per cent in that year” (ibid., p. 8).¹⁴ Like other authors, Mettling seems to support the idea that the expansion of the digital sector logically spurs new ways of working, which could also make headway among wage-earners if the days-worked system – which allows for standard statutory working time to be disregarded and certain *maxima* (maximum weekly working hours) to be applied – is extended to them, or if the new forms of independent labour (freelancing, self-employment) become more widespread.

Since the publication of the Commission of the European Communities’ (2006) report, several other reports have recommended developing a para-subordinate working status that implements a third way of working, between wage employment and self-employment, 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 have been drawn up for the carrying out of a specific project in a given amount of time. In Spain, an autonomous work status has existed 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 have benefited since 1974 from the same protection as wage workers. In the United Kingdom, workers who work for an employer without being under his/her authority benefit from protections concerning minimum wage, working time and paid vacations. In France, hybrid systems have been created under labour laws that combine wage-earning and self-employed activity: in exchange for not requesting the status of wage earner, the law grants non-wage managers various social benefits (working time, rest periods, vacations, health care and security on the job). Since 2010, a type of special “service contract” (*portage salarial*) has permitted unemployed executives to carry out projects for a firm, while continuing to receive social benefits and paying into retirement funds. 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, so that the worker often finds him/herself in the position of mere executor of an organized task. This process means that part of the risk has been transferred from the company to the worker and that those who profit from others’ work and capitalize on it can sidestep the risks attached to being a manager.

3.3.2 The persistence of wage employment

But is this really the “end of wage employment”? It would seem to be less of a reality than an aspiration for some: para-subordinate work, as well as forms of poorly protected, atypical labour, and self-employment is on the rise in Europe. In 2012, the main occupation of 15 per cent of the active workforce fell into that category, including in agriculture. But though this was the case for 32 per cent in Greece and over 20 per cent in Italy, Portugal and Romania, it accounted for less than 15 per cent of the workforce in the United Kingdom, 11 per cent in France and Germany, and less than 10 per cent in Estonia, Luxembourg, Denmark and Latvia (INSEE, 2015).

¹⁴ Translated from French.

Moreover, it is not at all clear why developing jobs in the digital sector should necessarily come with new forms of work disconnected from wage employment, nor why the latter should not be compatible with a digital economy. Wage 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, due to digital applications – in 2010, 24 per cent of European workers were considered “digital nomads”, i.e. spent more than 25 per cent of their working time away from their office or traditional workplace (Méda and Vendramin, 2013) – does not account for all systems permitting a loosening of the hold of work on life; quite the contrary. Serverin (2011), a sociologist specialized in law, maintains that even if certain forms of labour organization foster autonomy more than others, the idea that autonomy lies mainly outside the realm of wage 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). These self-employed workers are under the illusion of being free but often they must work long hours and no longer distinguish their private from their professional life, for incomes that remain on average extremely modest.

Other ideas today centre on attempts (at least) to come up with rules that put some order back into the currently chaotic development of collaborative economies and platforms: either by ensuring that the incomes derived from platform activities are declared, through fiscal reform, as suggested in a report recently presented by the French Parliamentarian Pascal Terrasse (2016), or by extracting the profits from the capitalist and commodity system and making them serve as a societal good – a cooperative such as “Coopaname” in Paris or the “Platform Cooperativism” that aims to give citizens collective ownership of the digital platforms they use in order to benefit integrally from the economic value produced (Scholz, 2016); or yet through a collective such as a city designating itself as a collaborative social ecosystem (e.g. the Bologna Regulation on collaboration between citizens and the city for the care and regeneration of urban commons). Finally, some authors argue that the implementation of a universal income, which might take several forms, would be the only way to counter the damage caused by automation (Conseil National du Numérique, 2016). The future of work will thus depend in part on the policies implemented to support, speed up or delay the ongoing changes.

4 Three scenarios for the future of work

In the context of future of work, there are three main scenarios that emerge from the available literature, and we examine these scenarios questioning their capacity to meet the expectations attached to work. A first scenario consists in pursuing the present policy of “dismantling labour law”, which risks being accompanied by the deterioration of working conditions. But the most fashionable scenario today is without a doubt the “technological revolution” which, despite the much feared loss of jobs, is expected to trigger economic growth and a profound change in the ways of working (Brynjolfsson and McAfee, 2014). It is nevertheless far from certain that this will materialize, for several reasons, which we will explain later. A third scenario, the “ecological conversion”, seems to be the most compatible with the need to combat the unbearable features of our present model of development and seems capable of satisfying the expectations placed on work. We will detail the conditions of its implementation. For reasons of clarity, the three scenarios are presented one after the other, somewhat like ideal-types, but they are not mutually exclusive.

4.1 Two scenarios in vogue: dismantling labour law, and the technological revolution

Since the start of the 1980s, the OECD has furthered policies that dismantle the rules governing labour relations on the pretext that they hamper the ability of firms to compete in the global arena. Whether it involves the rules setting the minimum wage, controlling hiring procedures or terminating an employment contract, a standard current economic thought (not only in the OECD) supports the idea that only flexibility of salaries and social protections will allow developed countries to adapt to the new conditions of international competition. The OECD (1990, p. 22) report shows that: “Employment legislation impinges on levels of employment by imposing constraints on employers' freedom to hire and employ labour either directly or indirectly [...] Redundancy legislation imposes constraints on employers' freedom to discharge workers at will”. The OECD’s doctrine changed at the start of the twenty-first century: instead of underlining a strong correlation between the rate of unemployment and job security, it stressed a weak correlation between the latter and the length of unemployment of certain categories of workers. For about 30 years now, at different tempos and sometimes shuttling back and forth, mostly depending on the political colour of the governments in place, policies have spread across Europe that are based on a reduced cost of labour and a powerful benchmarking – reminiscent of the “Doing Business” indicator of job security developed by the OECD – targeting the rules on hiring and termination of work contracts and considering them as obstacles to the necessary mobility of the “work factor”.

4.1.1 Should we burn the Labour Code?

Despite the about-turn in OECD doctrine, many economists continue to promote the idea that weakening the labour law is essential, they see it as the only way to jump-start the job market and create employment. In the United Kingdom, then in Germany, at the end of the 1990s and beginning of the 2000s, somewhat later in Italy and Spain, reforms of the “job market” got under way, particularly aimed at facilitating lay-offs. In France, two reports in particular concentrated their critiques on the rules concerning lay-offs: the Blanchard and Tirole (2003) report, which proposed replacing the intervention of a judge by a tax; and the Cahuc and Kramarz (2004) report, which defended the idea of a single contract instead of the existing fixed-term and open-ended contracts, marked by a lower level of job security during the first two years. In the end, it was not a single contract but a “new recruitment” contract that saw the light in 2005 and was presented as the first French system of flexicurity. While it was meant to improve flexibility for firms (of under 20 employees) by allowing them to fire their employees without having to give a reason for the first two years of employment, and security for employees with a bonus in case of breach of contract and reinforced assistance in finding a new job, surveys have pointed out the adverse effects caused by such a measure (which in the end was not favoured by the ILO). Surveys were able to show that not only did the process take place at the expense of security – reinforced assistance had simply not been established and the bonus was rarely attributed – but above all, the measure caused work relations to break down and become radicalized, the threat of being laid off weighing heavily on employees and causing an imbalance in favour of employers (Gomel et al., 2007).

It is to be feared that the reforms aiming to deregulate labour relations will almost systematically have negative consequences for working conditions and thus lead to a downward spiral with regard to social benefits, aside from giving poor results in matters of employment, as a study carried out by the ILO

(2015) has shown: according to this study, covering 119 countries, deregulating work contracts systematically generates a drop in the employment rate and a rise in unemployment.

4.1.2 The technological revolution

The other scenario that seems to be the most popular among economists, businessmen and governments is to all intents and purposes a technological revolution. Teulings and Baldwin (2014) present the views of some of the most influential economists in the world today. Although in it Gordon (2014) reiterates his doubts as to a possible return of growth due to headwinds, including the exhaustion of technological innovation, he nevertheless expresses a determined belief in the ability of the technological revolution to boost productivity and stimulate a new wave of growth. This can be summarized as: “the economy may be facing some headwinds, but the technological tailwind is more like a tornado” (Mokyr, 2014, p. 88). If, according to several contributors, we have not as yet seen the benefits of the “tornado”, it is not only because innovations have not yet all seen the light of day but also, and above all, because our instruments of measurement are not capable of revealing them. The WEF (2016) report presented in Davos confirms that these ideas have gained official status.

Is this scenario the most likely to develop? It could come up against three considerable hurdles and has in any case many drawbacks. In the first place, it is based on a powerful technological determinism: all that is possible is destined to occur... which means ignoring the resistance of those groups that would have to face the consequences of the loss of jobs connected to such a development – true, the Luddites lost their battle, but it could have turned out differently – or to unfair competition (see the suits brought against Uber, particularly in California, and the fact that the company was banned from working in several large German cities), or to 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 some countries, such as France, moves to install automatic cash registers in large department stores are being hampered mainly by the customers, elderly people in particular, who complain that they only have a machine to talk to. There are many who feel that to save employment, enrich work (especially concerning human relations) and uphold social cohesion, automation should be contained within certain, very precise limits. De Jouvenel (1968), an economist, criticizing the all-out race for greater productivity, wrote that, though it meant progress for the consumer, it implied a “regression” for the producer (p. 55).

4.1.3 The limits of the technological revolution scenario: production without coordination?

Developing this scenario comes up with two 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 wage employment; see Section 2.1). Second, it might be recalled that, as Coase (1937) pointed out, the choice between production based on work contracts and freelancing (commercial contracts) used to depend on the price of the transaction. Those promoting an automated and dematerialized vision of production follow 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 that it will be the same for all goods, products and services?

Might not 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 employer to disappear? A large amount of production is carried out worldwide through extremely fragmented and computerized value chains (ILO, 2015). 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 undertaken by a platform pooling services found on the market, devoid of all coordination, even thinkable when it comes to constructing aircraft or buildings? If we all become self-employed or freelance, will digital platforms suffice to coordinate our actions, or will production become completely individualized, for instance through three-dimensional (3D) printing? Despite the optimism of research scholars such as Anderson (2012), for whom 3D printing represents a bona fide disruptive technology, it does not seem that large-scale production of aircraft or buildings could take place in that ultra-personalized way, and it is also uncertain that such an industrial revolution would save materials and energy.

4.1.4 The limits of the technological revolution scenario: forgetting the ecological question

An automated and dematerialized vision of production does seem to be totally at odds with the fact that the global level of consumption of materials has never been so high (Krausmann et al., 2009). That is the scenario's third weakness, and the most decisive: the fact that it chooses to completely ignore the escalation of the quantities and costs of raw materials and energy consumed to which we risk being rapidly exposed; and, generally speaking, the need for an ecological conversion that we should be embarking upon as fast as possible, if the scientific evidence of the ecological threat, climatic in particular, hanging over our societies is to be believed; and if we take seriously the injunction validated by the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 21) to reduce the rise in temperature 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 (Rockström et al., 2009; Barnosky et al., 2012; IPCC, 2014) forces us to review the past and become conscious of just how ambiguous growth is. True, growth has been enormously beneficial and brought previously unsuspected and undeniable progress, but it has also been, particularly in the second half of the twentieth century, the cause of ills such as deterioration of and damage to our natural heritage, social cohesiveness and working conditions (Beck, 1992; Méda, 2000, 2013; Gadrey, 2010; Heinberg, 2011). In developed countries, that awareness was expressed and much thought given to those issues during the 1970s: de Jouvenel (1968), Baudrillard (1970), Meadows et al. (1972), Daly (1972), Illich (1973) and Hirsch (1976) all raised the question of the risks connected to our shared belief that growth is society's main objective and that GDP is the instrument by which to measure it. 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 rhythm as it did during what Maddison (2006) calls the "Golden Age" – when greenhouse gases and other pollutants and ecological devastation 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 and Stoermer, 2000).

Technology plays a decisive role in research that aims to find a model for the future development 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 emitted per 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 the Intergovernmental Panel on Climate Change (IPCC, 2014) objectives (an 85 per cent reduction of CO₂ emissions between 2000 and 2050 to limit the rise in temperatures to 2°C by the end of the century) is incompatible with sustained growth, even given a veritable technological disruption. This is because if the CO₂/GDP ratio¹⁵ continued to diminish at the same rate as it has over the last 40 years (1.5 per cent per year), world GDP would be reduced by 3.3 per cent/year by 2050. If it were to be multiplied by two (3 per cent per year), the rate of growth of GDP would be reduced by 1.8 per cent per year.

4.1.5 The inadequacies of GDP

The commission established at the behest of French President Nicolas Sarkozy in 2008 to measure economic performance and social progress (Stiglitz, Sen and Fitoussi, 2009), confirmed the view that GDP is not an appropriate tool for accounting for a nation’s wealth or warning about ongoing social and environmental damage (Méda, 2000, 2013; Gadrey and Jany-Catrice, 2005; Gadrey, 2010; Cassiers, 2014); it validated the idea that GDP cannot play the role of whistle-blower. Use of GDP as a measure became a convention in the mid-twentieth century, becoming the official marker of countries’ performances according to the *System of National Accounts, 2008* (European Commission et al., 2008); but in reality it has many limitations: it ignores many activities – linked to the home, family, friends, voluntary work, civic participation, leisure, etc. – that are essential for the continuation of society; it is impervious to inequalities in consumption or participation in production; it is based on an accounting that pays no heed to legacy, thus making it impossible to visualize, as well as 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 main priority emergency is to guarantee the durable quality – physical first and foremost – of our societies, then our primary objective must be to establish environmental norms and take a relative view of the exclusive use of GDP to measure progress, and of growth per se.

4.2 The scenario of ecological conversion: an opportunity to recover full employment and change work

The technological revolution scenario does not take into account the destruction caused by economic growth and it does not seem to be able to meet the tremendous expectations placed on work and employment today (see Section 1.2). What scenario could develop “quality work” and oppose the loss of meaning and the deterioration of working conditions, noted both in developed and in developing countries, albeit to obviously very different degrees? Stress, burn-out, intensification, atypical contracts (Parent-Thirion et al., 2012) in developed countries, unfair working conditions, dramatic labour accidents (like the one in Rana Plaza) and sweatshops in developing countries – where part of the dirty and filthy production has moved because social and environmental norms are less strict and the cost of labour lower – have increased. In most cases, trade unions are powerless to oppose these developments, though it has been demonstrated that higher levels of union membership go hand in hand with well-

¹⁵ The amount of CO₂ emitted to produce one dollar of GDP.

being in the workplace (Gallie and Zhou, 2013) and slow the advance of inequalities (Jaumotte and Buitron, 2015).

Can one hope for a process such as the one described by Crawford (2009) in *Shop class as soulcraft: An inquiry into the value of work*. The author deplores the fact 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, which are supposed to reinforce them even more, alienate 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 promote a kind of work fully contained within a human scale of face-to-face interactions. 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, to his great regret, Americans have abandoned. Crawford would like to see a return to the time before the liberal and capitalistic “drift” of the mid-nineteenth century. But for that to happen, Crawford clearly indicates that we must return to a former state of being: prior to the development of capitalism, of wage employment, factories, and the division of labour.

4.2.1 Taking seriously the imperative of responsibility

Such a process today seems barely imaginable. On the other hand, aspiring to enhance the quality of employment and of decent work *might* become one of the central elements of the scenario that would appear to be the logical outcome of the Paris Agreement adopted during COP 21: the scenario of ecological conversion. It consists in taking seriously the complete set of scientific works at our disposal and adopting the maxim suggested by Jonas in *The imperative of responsibility* (1985, p.11): “Act so that the effects of your action are compatible with the permanence of genuine human life”. Jonas imagines that we will adopt strict social and environmental norms at an international level and organize rationally and rapidly to adapt our societies to those new constraints, and that our guiding light will no longer be the indicator calculating in exclusively monetary terms the greater amounts produced and the added human value, but physical, biological and social markers of the goods produced to satisfy social needs, framed in social and environmental norms compatible with the reproduction of society.

One of the great merits of this scenario is that it enables the ecological question to be solved at the same time as the social question. Some maintain that ecological conversion is synonymous with the loss of jobs and steeper prices; and that if ecological conversion demands that the objective of growth be relativized and that reasoning “beyond growth” becomes our way of thinking, we risk jeopardizing employment since it seems to be particularly dependent on growth. Here one would like to defend the point of view that we must in any case commit ourselves most urgently to the 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.

4.2.2 Sharing jobs

We must first of all remember that it is possible to create jobs without growth, simply by sharing the stock of jobs that 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 have been put down to the reduction of legal working time in France (Assemblée Nationale, 2014). True, they were created at a moment when growth

had picked up again both in Europe and France, but the 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 flawed, they should be reminded that at all times in an economy a given number of hours are distributed over the entire population old enough to work and that this can be modified and done in different ways. Thus, while 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), a week of full-time employment in Germany is today longer than in France but part-time jobs are much more numerous and working weeks of shorter duration than in France: 27 per cent of German jobs are in part-time work versus only 18 per cent in France; and 8 per cent of the occupied workforce in France puts in less than 20 hours per week versus 18 per cent in Germany. Part-time workers in both countries are almost exclusively women. Reducing the legal number of working hours in France – considered in a report by a parliamentary investigative committee in 2014 to be one of the least expensive employment policy measures (9,000 euros net per job created) (Assemblée Nationale, 2014) – 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 the start of a process to better balance the occupational, domestic and family investments of men and women (Méda and Orain, 2002; Méda, 2015) and retrospectively appears to have been one of the main conditions for creating gender equality. We must also not forget that in most countries, women still have lower rates of economic activity and employment than men, and that they give less time to occupational activities than men and more to domestic and family occupations. That might be the reason the policy unleashed such passionate confrontations. However, to summarize, it is possible to create employment in the absence of growth.

4.2.3 The need for a fair transition

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, 2008; ADEME, 2013; ILO, 2013; Quirion, 2013; Horbach, Rennings and Sommerfeld, 2015; Neale, Spence and Ytterstad, 2015). This is because the economic activities that will be stimulated – building insulation, renewable energies, public transportation, etc. – represent many more jobs than those that disappear. But the synthesis of the United Nations Environment Programme (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.” (UNEP, 2008, p. 16). Whether we consider countries, sectors, or categories of workers, ecological conversion will be an extremely delicate operation demanding powerful security mechanisms to prevent restructuring from leading to the eviction from the labour market of a large part of the workers employed in the sectors guilty of producing the most greenhouse gases. The “fair transition” promoted by trade unions 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 society involved, so that the cost of the transition should be equitably shared by everybody (ITUC, 2015).

To achieve a system of production that can guarantee the same level of comfort as we are used to, without fossil fuels or nuclear energy, requires that we completely overhaul our energy infrastructure

(Bardi, 2015), mainly by using renewable energy (sun, wind, hydraulics, biomass), 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 and services – which implies both renewing the heating systems of buildings, putting up new sorts of edifices in which to produce or live, setting up new means of production, and developing public transportation, all with low emissions of greenhouse gases. Agriculture has a large part to play in the transformation, since it contributes to greenhouse gas emissions and other sorts of pollution and environmental degradation (excess use of water, fertilizers, overexploitation of soils, pesticides, etc.). Filling social needs, underestimated until now, is another source of employment: working in cultural centres and care centres for children and for seniors, providing education for all and services dedicated to people’s well-being and comfortable living, all represent employment for millions of individuals in the 20 years to come, according to Gadrey (2014) in his blog entry “We can create millions of jobs in a durable perspective”.¹⁶

4.2.4 Breaking with productivism

Following Gadrey (2014), 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 reducing the norms of full-time work) but also as a chance to surmount the loss of meaningful work. Seizing that chance implies breaking with our most cherished economic beliefs, and considering the idea put forth by Fourastié (1979) to be the most important: the idea that productivity is the heart of progress. Gadrey (2010) defends the idea that in several sectors – particularly due to the tertiarization of the economy – productivity gains per se, as they are (badly) measured have become counterproductive 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 whether 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 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 and 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 other markers.

4.3 What are the conditions for an ecological conversion that fosters employment and decent working conditions?

Present-day accounting – whether of a nation or a firm – does not allow for gains in quality and durability to be measured.¹⁷ Alternative accounting systems have been suggested in recent years, and there is ongoing competition to find an indicator capable of complementing that of GDP: The Adjusted

¹⁶ Available at: <http://alternatives-economiques.fr/blogs/gadrey/2014/11/30/on-peut-creer-des-millions-d%E2%80%99emplois-utiles-dans-une-perspective-durable-5/> [Sept. 2016]

¹⁷ Richard (forthcoming) 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” (translated from French).

Net Savings plan, the Inclusive Wealth Index, the Better Life Index... Like their ancestor, the Indicator of Human Development (currently in the process of being revamped), they are made up of key variables supposed to give us a better idea than GDP of the state of health or wealth of a society. This competition opposes nothing less than world views; it is thus crucial to grasp their significant features¹⁸ (Méda, 2013). Proposals to redesign firms' accounting methods have also been forthcoming, as in CARE (*Comptabilité Adaptée au Renouveau de l'Environnement* [Accounting adapted to the Renewal of the Environment]; see Richard, 2012) which, were it applied, would oblige firms to assume responsibility for damage caused to our natural capital and to human labour 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".

4.3.1 The need to care

Those approaches are supposed to allow the substitution of productive efficacy (measured solely by the greater amount of quantities produced) by 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 –including me – 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 labour. 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* – the aim of the ILO – obviously entails many changes, both the definition and function ascribed to a firm and the application of new rules on an international level.

Weber (2001) defended the idea that capitalism was a permanent quest for maximum profit and therefore implied a specific sort of firm: "But capitalism is identical with the pursuit of profit, and forever renewed profit, by means of continuous, rational, capitalistic enterprise" (p. 17). 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 require the development of a different sort of dynamics and a different sort of firm? Robé (2012), a Jurist has shown that Milton Friedman's definition of a firm (which has the exclusive responsibility of making a 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 has in recent years highlighted the fact that other objectives should be considered to be legitimate pursuits for a firm and also that it is necessary to demonstrate and promote different forms of organization, enabling the unique character of a firm to be that of a project of collective creativity different from the classical forms of commercial exchange (Baudoin, 2012).

¹⁸ *Net Savings Plan*, 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 artificial capital that could be just as satisfying.

4.3.2 Reintroducing ethics into economics

Producing “cleanly” or “decently” – ecologically and socially – imposes the need to respect strict rules across a sufficiently large geographic area so as to minimize the risks of dumping, and a control system. During the nineteenth century, it was precisely such a system of social rules and regulations over the entire territory (particularly concerning working time and actual working conditions) that allowed improvements to be made in working conditions and workers’ health care. It is high time the rules were refreshed, adapted to our times and to the new risks threatening our societies, in particular by honouring agreements on maximum greenhouse gas emissions and pollution levels. 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 a tonne 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.

This process would require a large number of countries to be compelled to respect the rules: if not, there would be a risk of social or environmental dumping, already the case today with the offshoring of dirty and filthy production to countries where the rules and regulations are not as strict. The ideal situation would obviously be one where worldwide institutions would prescribe the norms, organize their distribution, control their application and punish those who violate it. One can imagine a World Organization for the Environment that would set greenhouse gas quotas, as well as the International Labour Organization having more power than it has today and a specific body to monitor conflicts modelled after the World Trade Organization’s (Delmas-Marty, 2004) that supervises social norms. Another solution might be to apply those rules to a single zone, the EU for example. Objectives decided for that zone would be adapted to the territories and the different units of production and consumption concerned.

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 compete for the largest parts of the market. A group of associations have recently proposed setting up an alternative commercial mandate in the EU: this would be a totally new procedure, initiating, negotiating and concluding trade agreements that afford 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).

4.3.3 Beveridge back?

Such a process – the ethical control of production, converting polluted sectors to clean sectors, dematerializing and decarbonizing the economy, securing transfers of manpower, setting up public policies and institutions to organize the transition by stressing the quality of work and employment – would doubtless require a wartime or crisis economy similar to the one described by Lord Beveridge in his 1944 book, *Full employment in a free society*. Many authors point to the magnitude of the threefold crisis we are facing – economic, social and ecological – stressing that it requires policies and means radically different from the ones prevailing in normal times, in particular because it is necessary to

organize the coordination of myriad operations on several different levels. As a liberal, Beveridge considered that, in order to secure individual freedoms, the state must establish very strict rules, which would alone be capable of guaranteeing the sustainability of society. Considering that full employment was one of the central pillars of a free society, Beveridge listed the four criteria to make it possible: organization of massive public spending and investment to uphold economic activity, applying a policy of low prices for basic consumer goods and promoting a vigorous redistribution of income through social security and progressive taxation; controlling the localization of industry; organizing the mobility of the workforce; and entertaining trade relations only with countries that apply a policy of full employment, balance their accounts and avoid 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 exercising the responsibilities that such circumstances placed on it, Beveridge saw it as the major determining factor for upholding freedom.

Committing our countries to the ecological transition today demands a steering capacity of the state probably as resolute as that during the Second World War and the reconstruction that followed, when national accounting and planning were developed in close association, and the issue was to rebuild our societies on new foundations. How can one imagine that defining the sectors whose conversion must get under way as quickly as possible would not demand serious planning by the state? How could it be done without defining the outlook for occupations and ambitious qualifications, conceived after much brainstorming with social partners and scholars from all disciplines in order to identify both the sectors of activity and the trades of the future? Stronger state intervention means a more collective definition of priorities in terms of social needs; it is the result of citizens deciding together what socially useful production is. Taking ethical considerations into account as part of the new definition of progress means exactly that: the need to re-establish production in a process of collective choice, within a framework of precise criteria.

Far from being contradictory, the solutions to social and ecological questions constitute a formidable opportunity to recover full employment and transform work. They suppose a clear break with the growth paradigm (Bailleux and Ost, forthcoming), adopting a new representation of the world – especially a renewed anthropology and cosmology, henceforth centred on incorporating and embedding human societies in nature – and abandoning the simplistic categories which have guided us. They also demand the adoption of international rules to guide our actions, new accounting systems and the reinvention of productive institutions whose main vocation is not just plain efficacy (ignoring their effects on nature, work and social cohesiveness), but the satisfaction of human needs with the obligation to respect ethical norms. Through a high-level of mobilization of civil society, one might 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 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 Labour Code was being written, that – as was the case for the three types of political regimes that came in succession (patriarchy, monarchy and democracy) – the same might occur for the three types of economic regimes: that the family communism of the past and the conventional regime of capitalist, unequal sharing of today, be followed by a regime of proportional or cooperative sharing, one “that is applied more or less completely in production cooperatives” (Boissard, 1910, p. 4), where the most complete form of sharing is carried out by, or at least, within a stabilized wage employment regime, where the representation of workers is assured to the same extent as that of those who provide the capital.

5 Conclusion

The paper has provided the notion of work in a historical perspective, considering the fact that new meanings have enriched it over the centuries. We then examined the multiplicity of meanings, which have created a diversity of ways of relating to work, sketching a panorama of Europeans' expectations and how they are (or are not) satisfied with the reality of work as we know it. The paper then provides the effects of these changes on work and employment and the discourse currently in vogue according to which the technological revolution under way is leading inevitably to radical transformations, questioning in particular the technological determinism underlying that view and analysing the policies it implies. The paper then analysed the future of work in the coming decades in the light of the three broad scenarios, which are competing to present 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 major adjustments are needed for the wage employed 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 labour has benefited until now but which appear to be contradictory to the need to be competitive.

Neither of these scenarios is of the sort that could meet the huge expectations placed on work today. Both also choose to bypass the immense ecological challenges that confront all societies. However, far from succumbing to technological determinism, we can, in some conditions, transform that threat into an opportunity and turn ecological conversion into a chance to reconnect with the objective of full employment and to reduce the intensity of work. Such a programme demands that the Philadelphia Declaration or the Havana Charter be updated, i.e. by aiming not to separate economic efficacy from social justice.

In this paper, for heuristic reasons, each scenario and its consequences for work was examined individually, as well as its capacity to meet the expectations placed on work. But we might realistically imagine that they could develop simultaneously, to varying degrees and in various combinations. Though the scenarios of dismantling labour laws and of the technological revolution are perfectly compatible, one can also imagine them developing in such a way as to accommodate programmes of investment in the ecological transition; and it is possible that the technological revolution is particularly geared to sustaining a programme of ecological conversion. Changing labour laws could very well take place at the same time as the latter.

If we adopt the specific viewpoint of this article, which aimed to take the measure of present-day expectations concerning work and to grasp which strategies could best succeed in satisfying them, the answer seems obvious. Dismantling labour laws is accompanied by poor working conditions, which is contradictory to the expectations for self-fulfilment and personal development placed on work. Thus, the technological revolution as well as the ecological conversion may lead either to improvement or to decline. Though the emphasis placed on the ecological emergency seems, more than the two other scenarios, liable to bring about a relocalization of activities and a reduction in the intensity of work that should also not be taken for granted. Being concerned by one's natural heritage does not automatically imply being concerned by one's "social heritage", and particularly by the quality of work. We must consequently end by suggesting that at any rate, be it a question of technological evolution or of taking ecological questions seriously, their impact on human labour must be a priority and decent work a self-evident aim, and guaranteed in all cases.

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