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**António B. Moniz**

(e-mail: [abm@fct.unl.pt](mailto:abm@fct.unl.pt))

**Margarida Ramires Paulos**

(e-mail: [margarida.paulos@fct.unl.pt](mailto:margarida.paulos@fct.unl.pt))

Are societal changes new?  
Questions or trends and future perceptions on knowledge-based economy

**IET**  
**Research Centre on Enterprise and Work Innovation**  
**Centro de Investigação em Inovação Empresarial e do Trabalho**  
Faculdade de Ciências e Tecnologia  
Universidade Nova de Lisboa  
Monte de Caparica  
**Portugal**

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#### **Title: Are societal changes new? Questions or trends and future perceptions on Knowledge-based economy**

**Authors:** António Brandão Moniz, Margarida Ramires Paulos

**Institution:** *IET-Research Centre on Enterprise and Work Innovation, Universidade Nova de Lisboa-FCT, Portugal*

**E-mail addresses:** [abm@fct.unl.pt](mailto:abm@fct.unl.pt), [margarida.paulos@fct.unl.pt](mailto:margarida.paulos@fct.unl.pt)

#### ***Abstract:***

With the emergence of a global division of labour, the internationalisation of markets and cultures, the growing power of supranational organisations and the spread of new information technologies to every field of life, it starts to appear a different kind of society, different from the industrial society, and called by many as ‘the knowledge-based economy’, emphasizing the importance of information and knowledge in many areas of work and organisation of societies.

Despite the common trends of evolution, these transformations do not necessarily produce a convergence of national and regional social and economic structures, but a diversity of realities emerging from the relations between economic and political context on one hand and the companies and their strategies on the other. In this sense, which future can we expect to the knowledge economy? How can we measure it and why is it important?

This paper will present some results from the European project WORKS – Work organisation and restructuring in the knowledge society (6<sup>th</sup> Framework Programme), focusing the future visions and possible future trends in different countries, sectors and industries, given empirical evidences of the case studies applied in several European countries, underling the importance of foresight exercises to design policies, prevent uncontrolled risks and anticipate alternatives, leading to different ‘knowledge economies’ and not to the ‘knowledge economy’.

**Key-Words:** Knowledge-based economy; Future trends; Work  
**JEL codes** – J24; O14; O33.

## **Structure:**

- 1. Introduction**
- 2. Contexts of change**
- 3. Knowledge economy or Knowledge economies?**
- 4. Future trends: scenarios about the development of work in Europe**
- 5. Conclusions**

### **1. Introduction**

It is generally accepted that major restructures in the organisation of work are transformed in the context of economic globalisation and rapid technological change. But how can these changes be understood? And what are the impacts on social institutions and workers? This paper will present some results from the European project WORKS<sup>1</sup> (Work organisation restructuring in the knowledge society) that started in 2005 under the 6<sup>th</sup> Framework Programme, with partners in thirteen EU member States, having the main objective the analysis of the forces that brings about those changes, including global value chain restructuring and policy environment.

The paper will focus possible future trends and visions of knowledge-based economy in Europe, beginning with a theoretical approach where is presented the context of change (labour market restructuring, global division of labour, new forms of work organisation and new career trajectories), the problematic of knowledge economy highlighting the heterogeneity of the different states and the different paths of evolution, followed by the main empirical results of case studies that will provide information and trends to the construction of a set of scenarios about the future of work in Europe in a short (2010), medium (2011-2020), and long term (after 2021).

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<sup>1</sup> [www.worksproject.be](http://www.worksproject.be)

## **2. Contexts of change**

Work in the knowledge society is different from work in industrial society. Social and labour market policies on the one hand and economic considerations on the other affect the response of companies to the pressures of knowledge society, pressures to achieve work flexibility and to intensify the use of knowledge. Companies try to cope with the new requires, among other things by implementing changes in the organisation of work, where spatial and/or contractual restructuring of work takes a prominent place. Nevertheless, restructuring of work can take many forms having different consequences for individuals, companies, sectors and countries.

Europe (as well as other regions) went through several changes in the last decades that have caused significant changes in labour market, productive sectors and in occupational structure. The increasing decline of employment in primary and traditional industry and the significant increase of employment in services and professions with high use of knowledge and information, as well as new forms of work organisation, changed the way companies and workers deal with the labour market, the way relations are established and identities build.

The term knowledge-based society led many authors to focus in significant work changes, in 'knowledge' as a productive source and also in the analysis of trends about the development and future of work (Stehr, 2001). The shift to a post-industrial society or to a service economy has been initially studied by Fourastié in 1949 and latter by Bell, who tried to systematize the concept, showing what he believes to be a general trend of development in industrialized countries, highlighting some of its main features: the tertiary sector as a dominant sector, a professional structure composed mainly by skilled workers, information as the main technology and codified and theoretical knowledge as central for development. Castells (2002) talks about a new paradigm: the paradigm of information technology, based on flexibility, with the capacity of penetration in all spheres of human life. Some of the major changes that have emerged in the last decades, such as: the strengthening of capital in relation to work, the increasing economic competition, the increasing individualization and diversification of labour relations, the de-regulation of markets, business networking, the increasing pace

and intensity of interactions, among others, were accompanied by equally important social changes, influencing the way life is structured.

The effects of globalisation are increasing, however the supply of labour is still embedded in national frameworks. Since 1980s there has been a continuing growth in the development of a global division of labour, with industries like clothing, electronics and auto manufacture dispersing their production away from developed economies to developing countries, with weaker labour protection and lower labour costs. Processes of internal and external restructuring have led to decentralisation, outsourcing and networking, but also to processes of concentration, consolidation and centralisation (Flecker and Kirschenhofer, 2002). One of the most important changes in work organisation in the last two decades has been the increased use of flexibility to respond to new challenges brought by globalisation, international competitiveness and new technologies. The way companies find to deal with new features of markets are various and sometimes opposites. One could stress two strategic orientations of restructuring: one called by some authors 'low road', where companies strive to achieve competitiveness with cost-cutting, low salaries, weak regulation of labour market, staff reduction, using outsourcing and delocalisation of production; and another called 'high road' based in improvement of efficiency and innovation, investment on qualification and training of workers and new products or productive processes (Brodner and Latniak, 2002).

All these changes that Europe has tried in a recent past have a significant impact on the transformation of occupational identities and forms of social integration. Global context and all its consequences have implications for companies in general and for workers in particular. There are not only rapid changes in skills and knowledge required from workers, but also a widespread intensification of work (Huws, 2003) for many groups of employees. This is not only true for non-standard forms of employment workers, but also especially for managers, professionals, technicians and self-employed workers. This change has blurred the boundaries between work and non-work (Hyman et al., 2003), and also careers become increasingly de-standardised and the life course less uniform and less 'pre-shaped'. The focus on autonomy and employability increases the part of subjectivity in work while at the same time the working environment becomes

more and more insecure and unstable. In Western societies where “we are what we do” and where work as always been considered central to the formation of our character and personality, this new scenarios, despite providing a more dynamic economy, can affect us deeply when ‘attack’ the notions of permanence, trust in others, integrity and commitment, which formed the more routine work a key organiser element in the lives of individuals and their integration into the community (Sennet, 2000). Nevertheless is important to highlight that instability, flexibility and reorganisation have different impacts on occupational careers. The effects will depend on a combination of various factors (e.g. level of qualification), cultural factors (e.g. strong/weak enterprise culture), and also subjective factors (attitudes to work).

### **3. Knowledge economy or knowledge economies?**

Welfare regimes were developed in the industrial era as an outcome of class-conflict and class coalition making. The typology more famous is the one presented by Esping-Andersen (1990) which is composed by three main types of welfare states, in which modern developed capitalist nations cluster: Liberal, Conservative and Social Democratic. The starting point is different, the characteristics of each regime and country are different and because of that the stage of development and the emergence of a different economy, based in knowledge, are also different in each case.

Social and market policies and production regimes have not developed in response to pressures the knowledge society exerts, but instead have developed in response to an earlier pressure: the requirements of industrial society. This pressure is not homogeneous. It is differentiated according to the reconstruction of the pressure made by different class-coalition constellations. The power of labour and other social groups structured the way the requirements of industrial society were re-constructed and translated into social and labour market policies and work organisation (Bannink, 2008). So, each regime had their own answers: in the Anglo-Saxon world, welfare state and work organisation developed under a constellation in which labour was relatively weak vis-à-vis the middle classes; in Scandinavia, were developed under a constellation in

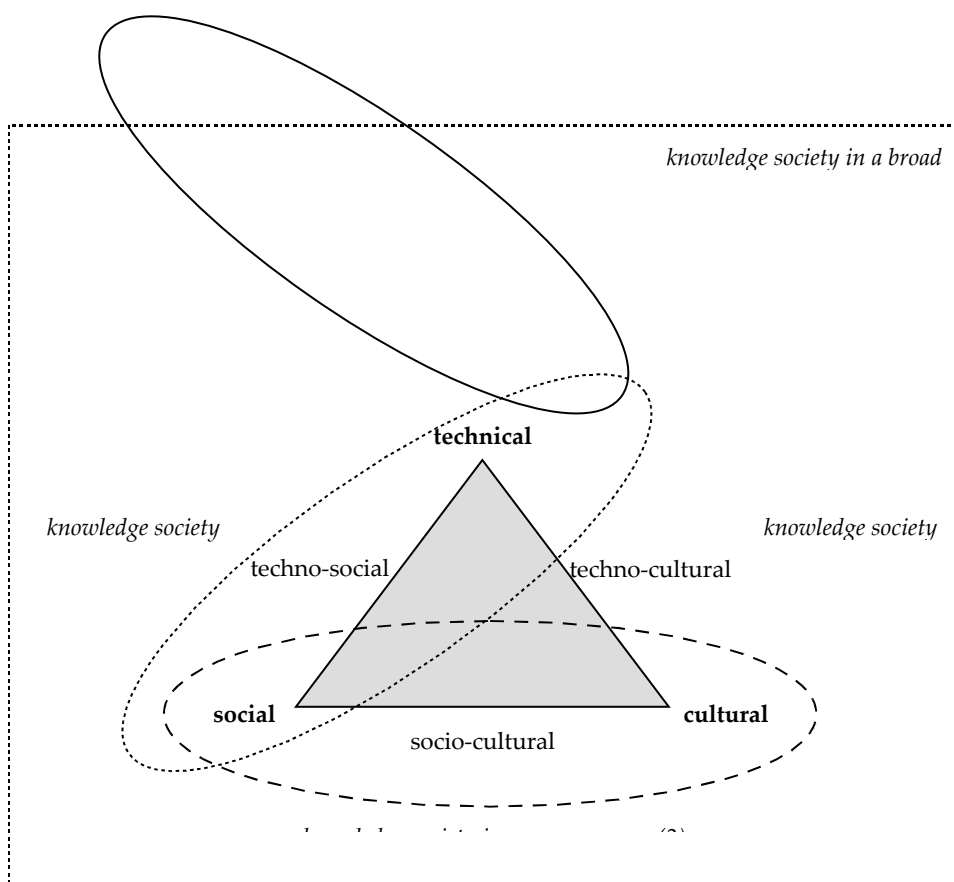
which labour able to forge a broad coalition with other social groups; in continental-Europe, employers and the state worked together in order to control labour.

In short, policy regimes have emerged in response to the requirements of industrial society and they are differentiated according to power constellations that existed at the time, while their structure cannot easily be adjusted. The existing policy function as constraint and adaptation to new economic pressures is only partial. At the same time, each regime may have particular opportunities in response to new challenges of knowledge economy. The three regimes changed in character, but the profound differences between the types remained in place. A ‘divergence’, rather than a ‘convergence’ (Kleinman, 2002) response to increased flexibility requirements took place.

Industrial society was based on and aimed at the ‘homogenisation’ of subjects. The end of the national ‘industrial society’ and the move towards some kind of global society, characterised by a global division of labour, did not necessarily produce a convergence of national and regional social and economic structures. The process of reflexivisation and globalisation (Giddens, 1994) that appear with the knowledge society, brought some main changes: a first wave of change characterised by informatisation and flexibilisation and a second wave that can be typified as ‘cultural fragmentation’. In the current society values and norms are fragmented. Since the ‘homogeneity’ of industrial society gradually disappears, new types of knowledge are needed to bridge different individual and groups (Hoogenboom, Trommel & Bannink, 2005).

In WORKS project it was developed the idea that there is a knowledge society in a broad sense that refers to the society as a whole, and a knowledge society in a narrow sense, concerning a part of global society that has specialised in the development of a specific knowledge type. The next figure illustrate the three types of knowledge societies (techno-cultural knowledge society; socio-cultural knowledge society; techno-social knowledge society), taking into account the type of knowledge that is dominate and the way work is organised, the type of skills that are more necessary and the goods that are produced.

**Figure 1. Knowledge types and knowledge societies**



Source: Hoogenboom, Trommel & Bannink, 2005

(1) The techno-cultural knowledge society might be characterised as the ‘real’ successor of industrial society; (2) The socio-cultural knowledge society might be characterised as the service society, with the core in the production of intangible things; (3) The techno-social knowledge society is specialised in the development and application of the knowledge types required for the production of mass consumer goods.

The scenarios present in the next point about the future of work in Europe are built taking into account this model of development. Changes in work organisation and restructuring in the knowledge society are being produced by companies and individuals, making strategic choices in response to a policy and economic contexts. These contexts function as a regime, supporting specific types of action and operating



against others, having different responses to the changes imposed by the knowledge society (increased flexibility requirements and/or increased knowledge intensity of work).

#### **4. Future trends: scenarios about the development of work in Europe**

The purpose of prospective methodologies is to help in political decisions. The more useful ones describe possible future conditions of the main variables, during a period of time. In this sense, scenarios are a central aspect to the foresight studies, which can be seen as a description of a plausible reality, of what could occur in the future if some specific indicators change. A scenario is not a future prevision but a foresight method, which describe trends and paths and their possible evolution.

The future is multiple and undetermined, it is open to the decisions of a set of actors and because of that one should not look to the future as an extension of the past. Michel Godet, working in the Research Centre of Prospective Studies of Paris, presents the foresight exercise as an 'intellectual indiscipline', looking to the future as something clearly different from the past. The problems change faster than can be resolve and that is why is more important foresee those changes than find solutions to past problems (Godet, 1993). The past will determine the future, but also our image about the future will change and direct our present. It is this representation, the image of the future that limits the present time. So, prospective is a reflexion to illuminate present action with the light of possible futures.

To Godet, to have credibility and utility scenarios have to respect four main conditions: relevance, coherence, credibility and transparency. It is possible to construct three kinds of scenarios: possible scenarios, that have everything we could imagine; achievable scenarios, everything that is possible taking into account the constraints; desirable scenarios, that are in the possible area, but not all are achievable.

In general, scenarios are being used to describe a future history - i.e., the evolution from present conditions (for example, labour market, technology, organizational models, economical structures, social behaviours, and industrial relations) to one of several futures. This approach can lie out some causal chains of decisions and circumstances

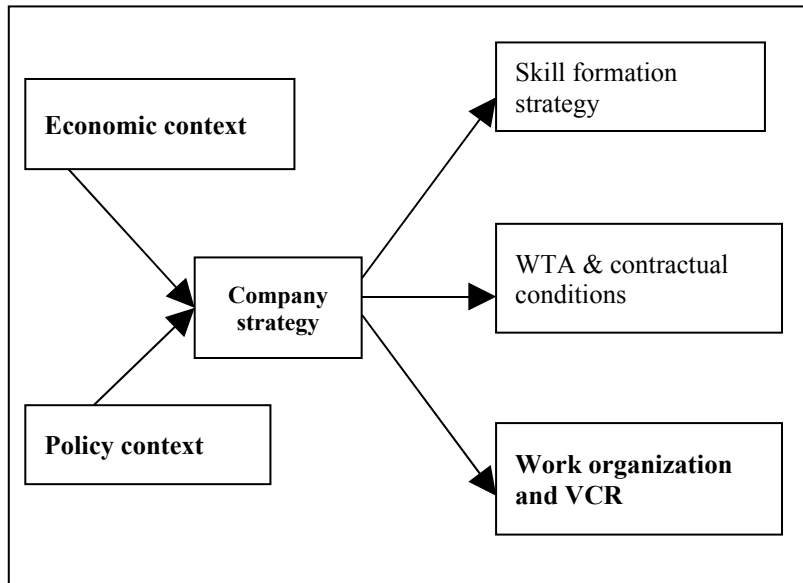
that lead from the present, emerging dependent variables. The display of the variable conditions can reveal the quantitative dimensions that will enrich the narrative of those “futures”. Defining a large number of alternative worlds is often neither necessary nor desirable. The final selection of “future worlds” should consider the sufficiency to present a range of opportunities and challenges. Nevertheless, it should be small enough in number to handle. Four to five scenario “worlds” seems ideal to capture that range (Moniz, 2008).

The project WORKS project is now elaborating a set of scenarios<sup>2</sup> about the possible futures of work in Europe with the aim of supporting employment policies more efficiently. Scenarios will be constructed with the base of different models of welfare-states in different organisational systems, developing possible visions of work evolution in different models of knowledge societies. These scenarios will be constructed in different steps. The first one is the definition of a set of dimensions and variables (1 – political context, eg. regulation, bargain, social dialogue; 2 – economical context, eg. globalisation trends, occupational profiles; 3 – business strategies, eg. skills policies, flexibility; 4 – quality of life, eg. work conditions). The different combination of these dimensions will lead to a distinct evolution of states, so the second step is to establish a typology of contexts with the illustration of causal relations between national social policies, labour market (political context), economical and technological features (economical context), business policies (business strategies) and the results for the quality of life and work conditions.

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<sup>2</sup> WP12 – Thematic report 8 – *Change processes and methodologies of future perspectives of work* (Moniz, Paulos, Bannink, Ossewaarde, Krings & Nierling, 2008)

**Figure 2 - Model of changes in work in the knowledge society**



The next step is the analyses of the organisational and occupational case studies, which enable us to outline the relation between the changing economic and political context of companies and the strategies with respect to work substance and organisation that companies pursue.

The empirical research was collected with 58 case studies (organisational and occupational) applied in some selected business functions (research and development; production; logistics; customer service; and information technology), inside specific sectors: clothing industry, food industry, IT industry, Public sector organisations and services of general interests. Inside each business function some occupational groups we also analysed: designer, research, production workers, skilled and semi-skilled workers, front office employee and IT professionals. Each business function located in a particular sector was studied in a range of countries with diverse employment and welfare regimes (liberal, conservative, socio-democratic etc). This made it possible to analyse the influence of institutional frameworks on the consequences of restructuring.

There are significant differences between the observed countries and sectors, especially in the public sector where institutional context have a stronger influence, but there are also some common trends, because of the increase importance of economic context. One can highlight the main trends identified in the case studies, common to the majority of companies and sectors that were studied:

- Fragmentation of work;
- Standardisation and formalisation of work;
- Emergence of new functions and occupations;
- Acceleration of work process;
- Intensification of work;
- Shortness of time horizons;
- Bigger heterogeneity of business process;
- Bigger importance of the client in organisation of work.

The workers are also affected, but in different ways. According to some conclusions of occupational case studies one can say that this increasing economic pressure affects all workers groups. The main consequences are speeding up processes and work intensification (designers), market orientation and broadening of skills (ICT workers), flexibilisation of production modes and higher level of insecurity (production workers) and customer orientation as in market services (public services).

The information collected in the case studies about each dimension and variable enable the identification of the main components of the scenarios, trends and evolutions. Because of that it is also relevant to present here the main results to each analysed sector in what concern future perspectives and main trends:

### **Clothing industry**

- Concentration in core activities (design, logistics, marketing, sales), outsource the production functions to low cost regions;
- Specialisation in functions considered strategic, the one's that are more profitable (conception, development, financial operations, high quality products);
- Increase instability of jobs and contracts;
- Intensification of work;

- An increase of shift work (1996 – 13%; 2004 – 18,9%), of temporary work (1996 – 8,9%; 2004 – 9,3%) and part-time work (1996 - 10,7%; 2004 – 12,4%) in EU-15;
- Decline of jobs, especially ‘blue collar’ work’ (between 1996 and 2004 declined 32% in EU-15 and 15% in NMS)
- General increase in the use of flexibility: trend to work longer hours and to intensify work process.

### **Food industry**

- Is the largest sector in EU;
- Full-time employment prevails, with a trend to become atypical and sometimes precarious;
- Trend to outsource lower skilled work with some limitations (proximity to markets and assurance of quality);
- The sector remains traditional and low skilled;
- ‘Learn by doing’ is the most common way of training and acquisition of skills;
- An increase of shift work (1996 – 17,6%; 2004 – 26,1%), of temporary work (1996 – 11,6%; 2004 – 13,3%) and part-time work (1996 – 11,2%; 2004 – 13%) in EU-15;

### **IT industry**

- Strong individualisation and low regulation;
- Substantial increase of jobs (between 1996 and 2004 increase 106% in EU-15 and 48% in NMS), although it still represent a low share in total employment;
- Emergence of global supply companies, increase of internationalisation and complexity of value chain;
- Move to market and client orientation;
- Intensification of work;
- Change in skills needed, technical and also non-technical ones;
- Majority of workers have a high level of education;

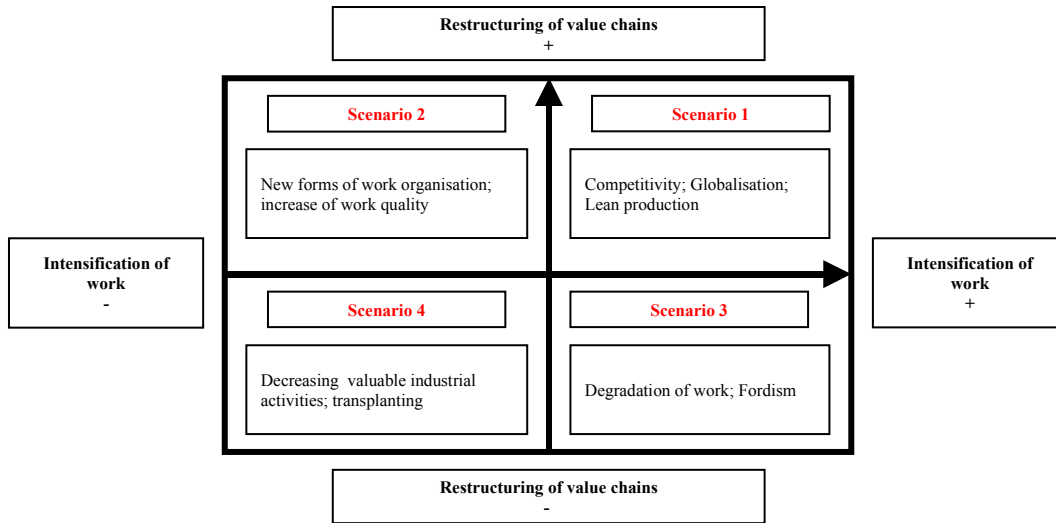
- Specialisation of localisations in specific knowledge and competences;
- Increase use of flexibility;
- Increase of standardisation and speed;
- Significant opportunities of formal training;
- An increase of shift work (1996 – 2,5%; 2004 – 4,2%), of temporary work (1996 – 7,9%; 2004 – 8,4%) and part-time work (1996 – 8,1%; 2004 – 9,6%) in EU-15.

### **Public Sector**

- Small increase of employment (between 1996 and 2004 increase 5,8% in EU-15 and 7% in NMS);
- Trend to less regulation due to restructuring and privatisation;
- Strong unions;
- An increase of shift work (1996 – 12,4%; 2004 – 14,7%), of temporary work (1996 – 9,8%; 2004 – 10,9%) and part-time work (2004 – 20%) in EU-15;
- Outsource become common especially in specialised services like IT or tasks that can be standardise;
- Increase importance of the client, privatisation;
- Acceleration of work;
- Increase use of flexibility;
- Decrease of job security and staff reduction in general;
- Lack of training policies.

The final scenarios about future of work in Europe are still under construction, and will be built under the model presented before. Nevertheless is possible to present some examples taking into account the steps presented before and the development of work already identify. The first example is constituted by four scenarios based in the evolution of two main variables of our research: value chain restructuring and work intensification.

**Figure 3. Four scenarios of evolution of work**



Source: (Moniz, Paulos, Bannink, Ossewaarde, Krings & Nierling, 2008)

Another possibility is a dual scenario based in the actual possibilities and alternatives of work organisation restructuring, like flexicurity versus classical social-democratic models, where both assumptions imply an increase of work intensity. Scenario 1 *“The dark side of flexicurity”*: Period 1 (short term) – until 2010 - quick growth of globalisation and strong investment on ICT; Period 2 (mid term) – 2011-2020 - Major increase on ICT investments, upsurge of company knowledge requirements, new experiences with work organisation; Period 3 (long term) – after 2021 - continuous investment on ICT, capacity of increased flexibility. Scenario 2 *“The liberal Lisbon process”*: Period 1 - quick growth of globalisation, strong investment on ICT; Period 2 - major increase on ICT investments, upsurge of company knowledge requirements, new experiences with work organisation; Period 3 - continuous investment on ICT, capacity of increased flexibility.

## 5. Conclusions

The knowledge-based society has brought with it several changes, some radical, which continue to exist and to have profound impacts on life's structure in society. The increase importance of service-based sectors, the power of knowledge and 'knowledge workers', the information and communication as central features of development, in one hand, and the quick diminishing of traditional and more manual sectors, like agricultural, fishing, manufacturing on other industries, introduce new ways of seeing work and life, new forms of organise work, new skill needs and also new fears and opportunities.

It is therefore increasingly important to think about work in a long term, to build policies and strategies that address the nature of rapid and continuous changes in our daily life. In this sense, foresight exercises become crucial as a tool to visualize possible futures, emphasizing and highlighting the benefits and constraints that present policies can have in a near or a more distant future.

The scenarios developed possible future visions of work evolution in different models of the 'knowledge economy', and tried to take into account the various aspects of the system as a whole.

Prospective exercises about the future of employment are tools used by politicians and companies as part of decision-making strategies, and so it is increasingly important that they become more frequent in national and international contexts.

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