Summaries of the book contributions

1. Welcome at the concluding conference | Dr. Massimo Darchini

Participating in the international conference on the Smart Factory Project gives the opportunity to gain an overview of the state of development of "Industry 4.0" and digitalisation and to highlight, especially for Italy, the leading positions in the creative, design, agri-food and traditional manufacturing sec-tors. Incidentally, the digital economy is a joint priority of the Italian and the German Global Summits' presidencies. In the last four years, Italy prepared a comprehensive policy for innovative start-up companies, following repeated government actions – such as National Plan Industry 4.0 – which achieved significant results. Opportunities for international conferences are of fundamental importance; they enable us to share projects and experiences in an international perspective and above all on a European level.

CHAPTER 1 BASICS

2. Opportunities and challenges of digitalisation for work and employment, working conditions and social dialogue | Dr. Erika Mezger

The article addresses opportunities and challenges of digitalisation for work and employment, working conditions and social dialogue. It introduces forthcoming work of Eurofound in this area and suggests a conceptual framework on the digital age. It is underlined that still much is unclear on how our economies and societies will change due to digitalisation. Challenges relate to job losses, the need of continuously updating workers' skills, quality of work, the status and representation of platform workers, emerging new issues in collective bargaining and social dialogue, and social and labour protection. Opportunities can be a positive contribution of digitalisation to economic growth and creation and revitalisation of new forms of work. This could also lead to formalising (initially) undeclared forms of work. The article emphasizes that digitalisation need not be an unchecked process. It's impact can be influenced. There are many ways to frame the conditions of digitally driven new forms of work, such as crowd work via digital platforms and telework/ICT mobile work. Lastly, the importance of monitoring changes in job quality, working conditions and social dialogue in the new world of world is emphasized.

3. Kompetenzen in Digitalisierung und Industrie 4.0 | Bernd Dworschak und Helmut Zaiser

The article addresses the question of competence requirements due to the introduction of Industry 4.0. As Industry 4.0 is still under development and the prevalence is still low, trends in competence demands are made in the context of two opposing scenarios. Actual skill requirements are likely to depend on the question which options between these extreme scenarios companies choose. Selected cases may serve to describe such options and, in conjunction with the scenarios, to make statements about competence requirements at the level of medium and higher qualified labor.

4. Vorausschauende Arbeitsgestaltung als Herausforderung für Betriebsräte. Über die Folgen der Digitalisierung hinter der Digitalisierung | Welf Schröter

The discourses of experience gained from the Forum Soziale Technikgestaltung (FST) assume non-simultaneous processes of implementation. In many companies this takes place under the label “Industry 4.0”, which can be described as accelerated “catching-up digitalisation” (Schröter). About three-quarters of all current 4.0-technology implementations address the introduction of long-established basic technologies. The real new challenge lies in the application of so-called "self-learning" or partially autonomous or even "autonomous software systems". Trade union action requires new competences and a change of perspective from “catching-up digitalisation towards “autonomous software systems”.

5. Why Do Smart Factories Need Smart Welfare States? | Prof. Dr. Daniel Buhr

Digitalisation is entering all areas of the economy, society and politics. On the one hand, these innovations create new opportunities for cooperation and production, while, on the other hand, they force these societies to adapt (job loss, qualification, social security system for click- and crowdworker). This can be termed an external modernisation effect on welfare states. But there are also internal modernisation effects: digitalisation of public services i.e.in the area of health and care, education etc.. One objective of this article is to compare the development of external (i.e. Industrie 4.0) and internal modernisation (i.e. digital public services) in different welfare states. According to the seminal work of Esping-Andersen and others, these welfare states can be clustered into different types: liberal, conservative, mediterranean, post-socialist and social-democratic. How far have internal and external modernisation progressed in individual welfare states? What further developments can we expect – and what does these mean for equality?

6. Proaktive Gestaltung von Industrie 4.0 - die arbeitspolitischen Ansätze der IG Metall | Dr. Raphael Menez

The IG Metall is an important actor in the transformation of industrial and business sector politics in Germany. It is enforcing a pro-active approach in companies, where the core industrial policy issues of Industrie 4.0 have to be negotiated in a participation-oriented manner. The IG Metall is breaking new ground and supports with the nation-wide project Work + Innovation (A + I projects) socially-oriented implementation projects of Industry 4.0 on the company level, where company representatives and the employers jointly tackle the challenges of Industry 4.0. The first results of the A+I project show that orientation towards social dialogue in combination with a proactive role for the corporate actors are the decisive factors for a successful employment-oriented implementation of Industry 4.0. The project results also illustrate that approaches to an employment-oriented labor policy lead to good digital Work 4.0 as long as the companies social partners agree on a common understanding of the role of humans and technology in the digitalisation process. As part of the A + I project, new learning and training formats were developed for the qualification of work councils and employees.

CHAPTER 2 REPORTS FROM THE PROJECT COUNTRIES AND REGIONS

7. Sweden | Kent Kling

The Swedish part of the Smart Factory project started with an own created survey. The results were well matched with the results of the three common surveys. A slight majority of the Swedish respondents to the survey stated, that in general terms technical development and digitalisation will not re-place manpower in their workplace. However, digitalisation will probably facilitate flexible work situations like distance work. This impression is strengthened since a large majority believe the digital world will create a constant accessibility between employees and their work task.

The surveys show a significant need of lifelong learning and increased competences in the coming years. Education is a keyword. When it comes to the regulation of the workplace, similar results were found. The need for collective agreements remain central.

8. Report on the result of the interviews made with experts of CCOO de Catalunya for the "Smart Factory" project | Laura Diéguez Ferrer and Daniel Garrell Ballester

There is not a unique vision among the interviewed individuals regarding the adding of digitalisation to the world of work. On the one hand, there is a perception that the implementation of these technologies is an opportunity to improve the quality of work; on the other, it is clear that there is a fear regarding the negative effects that it can have on labour conditions of workers as well as a need for an active presence of trade union organisations in this process so that it may not only be conducted by companies. The key subjects, that have appeared, are: a) the need and the right of all workers to be trained; b) the non-discrimination, either a direct or indirect one, on the grounds of gender or age; and c) how the change of work systems is dealt with, so that the number of jobs lost can be in general mostly reduced through a process of transition from the analogical to the digital model, based on collective bargaining.

9. Deutschland/Baden-Württemberg: Ergebnisse und Interpretation einer Expert_innen-Befragung zu den Veränderungen der Arbeit in den Unternehmen aufgrund der Digitalisierung und Technologisierung |Dr. Harald Kohler und Karl-Ulrich Gscheidle

The article presents the content analysis of eleven expert interviews in Baden-Wuerttemberg on the changes in work in companies due to digitalisation and technologisation. The expert interviews were used to investigate future changes in the area of work in companies through digitalisation and technologisation. Thus, the future industrial relations were the subject of the survey. The survey results are presented according to the six topics. The surveyed experts stated that, the digitalisation and technologisation in the companies will to lead to major changes and thus to changing industrial relations in Germany/Baden-Württemberg, which involves risks but also offers opportunities.

10. Country Report: Italy - Industry 4.0 developments and processes from the perspective of Lombard experts |Dr. Miriam Ferrari, Luis Lageder, Dr. Luca Lombi und Norbert Kreuzkamp

The so-called fourth industrial revolution creates processes of change of which trade unions need to be aware of and understand at the right time. The union CISL Lombardia has therefore included the two unions FIM (Industry) and FEMCA (Energy, Fashion, Chemicals, Pharmaceuticals and Plastics), which are both subject to these changes. Italy is one of the most industrialised countries in Europe and the processes of change and digitalisation are in full progress. This technology-induced process does not only affect selected sectors of the economy but also permeates, albeit at different pace, production, trade and services. While in the service sector digitalisation replaces work and threatens jobs massively, it obviously plays a different role in the manufacturing industry: Here, it is the driver of innovation and it revolutionises the technological processes of work. Interviews with employee representatives and trade unionists suggest that in future the processes of change initiated and associated with digitalisation might exclude weaker groups from the world of work.

CHAPTER 3 RESULTS OF THE DELPHI ONLINE SURVEY ROUNDS

11. Digitalisation and Industry 4.0 – Macroeconomic Aspects in four European regions | Dagmar Bürkardt

One of the central questions in the debate about digitalisation and automation, in Germany with the focus on industry 4.0, is the impact on labour market, employment and qualification. The optimistic perspective of a coordinated high tech capitalismus in their own country with investment in education and new forms of social security systems seems to be quite realistic for the experts in Sweden and Germany, whereas the experts in the two southern European countries expect for Italy and Spain a scenario with digitised centres and social/regional division. The expectations for Europe as a whole are similarly critical. A rather small impact of digitalisation on the labour market on the macro-economic level is expected assuming, that new products, business models and positive demand effects could create new jobs. But at the same time an accelerated structural change is taking place with considerable shifts and adaption processes between sectors and professions. On this background investment in education, new forms of work organisation, structuring of political framework conditions and industrial relations are playing a crucial role. This has been shown in the findings of our survey in the four European countries, but also in the comparison of automation risks in different OECD - countries. The interviewed experts of trade unions and works councils in all four countries involve themselves in the processes of transformation as key actors, beyond the social partnership in a narrow sense towards a participation in structuring the political framework conditions.

16. How to deal with change | FEMCA CISL, Lombardy | Sonia Cataneo

The involvement of trade unions is a major challenge, and also an opportunity. There is a need for adequate protection for workers engaged in digital work, for avoiding a new form of digital precariousness. It is of great importance, to ensure the right to information and consultation of workers' representation bodies in these processes, both at company and sector level, national and European level. Only if the workers' representatives and the trade unions have sufficient information and consultation rights, then it will be possible to act and use the period of transition to the digital era to establish good corporate and business standards for negotiating good collective agreements to deal with change. The new digitised organisation of work within companies will likely lead to a reduction in the number of traditional members of the union on which the organisations themselves are based to-day. Unions have to rethink how to adapt their structure and culture to this new scenario. The role of workers' representation bodies – business committees and above all European Work Councils – will have to be reconsidered so that they can actively support trade unions' action in defence and support of the workers.

17. Mitbestimmt die Zukunft der Arbeit gestalten | Martin Kunzmann

Predictions on the substitutability of human labor are too rigid and too much centred on technology to be able to derive perspective for action. Essential aspects of work processes and work organization remain neglected. Technology development and application are complex social processes that are influenced by many factors. Trade unions and employees are actively involved in the negotiation processes in order to influence them in the spirit of good work. Central political conflict areas have already emerged in the digitalisation discourse and concern (flexible) working hours between work on demand and self-determination as well as sufficient framework conditions for the increasing need for further training for employees. In order to be able represent the interests of the employees in the process of change at all, the participation rights of workers' councils must be extended and the collective bargaining coverage of companies must be increased. The working world 4.0 will not happen without humans but the need for action and the potential for conflict are enormous. In order to achieve social transformation, politics must get over their tendency to centre exclusively on technology as well as its faith in the markets.