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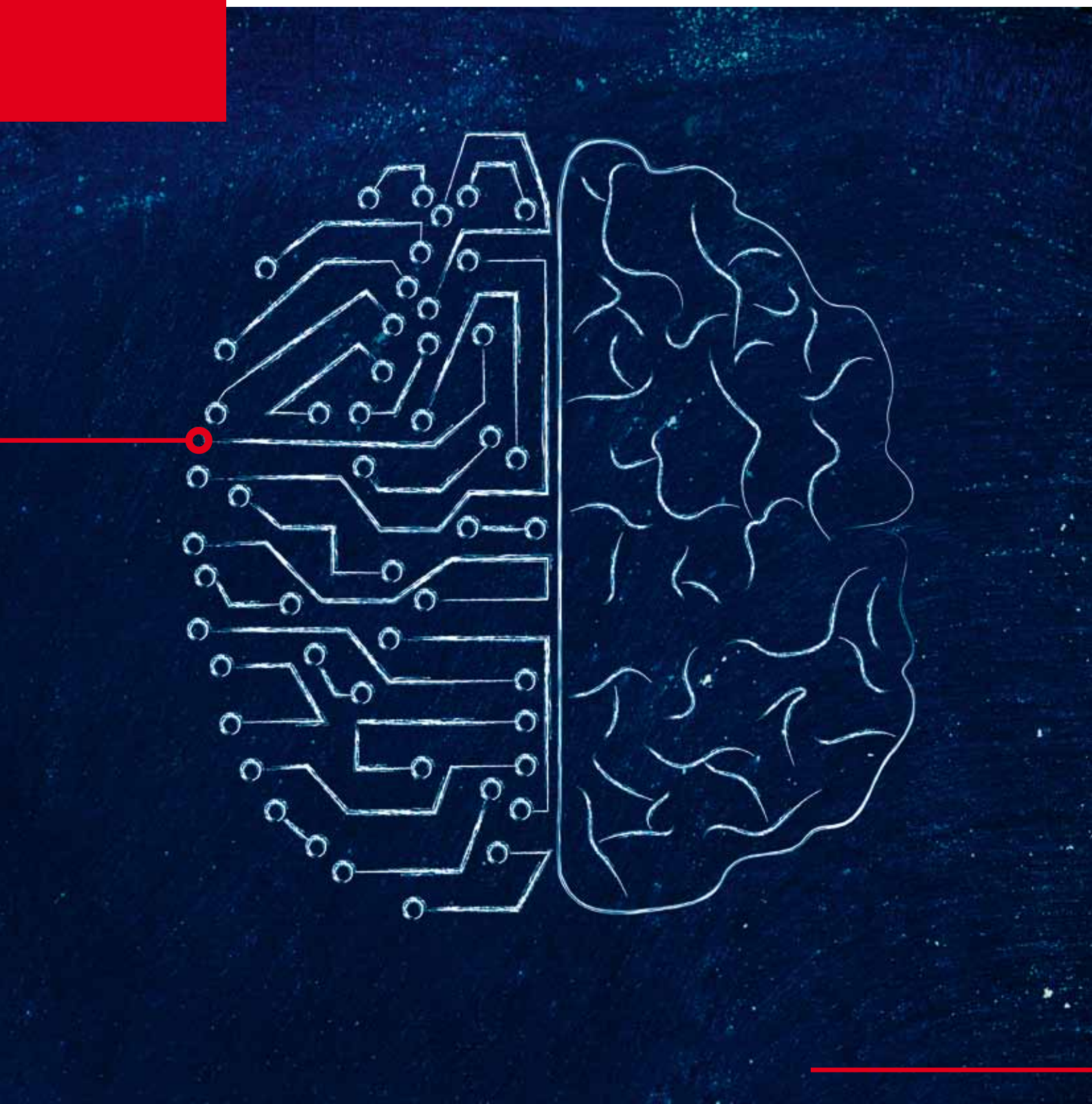
The German employment model, the trade unions and "Working 4.0"



Imprint
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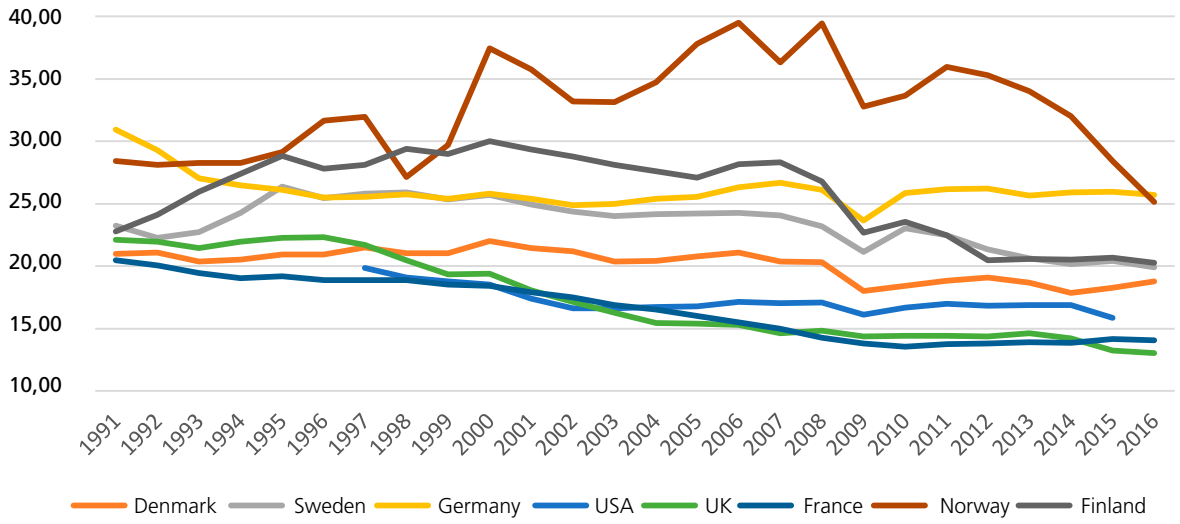
The German model and the digital economy

That the term „Industry 4.0“ –- often taken as a synonymous term to „digitization“, „informatization“ and the „second machine age“ (Brynjolfsson/McAfee 2014) – is so prominent and influential in Germany and so well-known by now that it is even used abroad demonstrates the significant role of industry within the German economic structure. It is regarded as the key driving force of future strategic discussions about the German economy. In other words: It’s the industry, stupid! For a long time, discourse about the post-industrial services society (Bell 1973) has dominated debates within OECD countries. This included the Song of the New Economy, which was sung until the great crisis of 2008. Concurrently, over the past 25 years, industrialized countries have seen a drastic reduction in manufacturing jobs (fig.1).

Figure 1: Share of industry (including energy) in gross value creation, 1991–2016 [%]



Source: OECD 2017a; own compilation

By contrast, Germany has developed from being the „sick man of Europe“ to the currently most stable European economy by modernizing its industry, i.e. manufacturing sector. While the industrial share of the value added in England or France continued to decrease, the industrial cores in Germany were both preserved and constantly modernized. Although the industrial sector also suffered great losses in the crisis years of 2008-2009, this economic sector was nevertheless responsible for the rapid stabilization of the economy as a whole, in particular via using mechanisms of negotiated flexibility at the firm level, such as working time accounts and short-time work, a long-standing instrument of a partial unemployment scheme.

However, the „farewell of the industrialized country“ (Plumpe 2008: 161) forced by some and feared by others, shaped the German debate for many years. Around 1960, about half of the employees in the Federal Republic worked in industry, which in a narrower context decreased to only about 24 percent today (Statistisches Bundesamt 2016a).

The employment options of low-skill workers have diminished in particular. Nevertheless, Germany stands as one of the most industrialized countries in the OECD today. Decisive factors for the successful adaptation of industry to changing technological, social and competitive environments are processes of „sectoral specialization" (Goring / Schierch 2015: 41), which are supported by a strong focus on research-intensive industries. These primarily include electrical engineering, mechanical engineering, chemistry and vehicle construction (ibid.). In addition, Germany is not characterized by strong industry at the national level as a whole, but has striking regional disparities: the former industrial centres of Germany – the Ruhr, Saxony, but also the Berlin area – have receded and been replaced by Baden-Württemberg and Bavaria as the industrial centres.

Tab. 1: Employment and Gross Value Added (GVA) in Manufacturing and Services (%)

	1970	1980	1990	2000	2010	2015
Employed persons: manufacturing industry	35.8	31.2	28.3	19.6	17.4	17.5
Employed persons: service sector	45.1	53.8	59.9	69.6	73.9	74.1
Gross Value Added: manufacturing industry	36.5	31.0	29.9	23.0	22.2	22.6
Gross Value Added: service sector	48.3	56.6	61.0	68.0	69.1	69.0

Source: Federal Statistical Office 2016.

In 1970 manufacturing accounted for 36.7 percent of gross value added (GVA) compared to 22.6 percent in 2015. The service sector generated about 69 percent of gross value added in 2015. In 1970, its share was only just under half of the GVA at 48.3 percent. Similarly, the share of employment in industry has shrunk: in 1970, 35.8 percent worked in the manufacturing sector, in 2015 17.5 percent. In contrast, about 74.1 percent of the working population are currently working in the service sector. Nevertheless, Germany is one of the few countries that has been able to maintain its industrial share of GVA for the last 20 years.

However, these figures hide the vital importance of industry for the overall economic development of Germany. They ignore that the growth of non-industrial services is often just a result of corporate outsourcing strategies. In other words, growth outside industry often fails to be understood without reference to industrial capabilities. Demand for manufactured goods is spreading to other sectors, generating jobs in other sectors and within its own. Business-related services benefited the most (Edler / Eickelpasch 2013: 16).

The manufacturing industry plays a special role in foreign trade. Although the share of services in the total trade volume has increased noticeably in recent years, trade in goods remains dominant. Over the period 1995 to 2014, the manufacturing sector in Germany recorded a slightly higher growth dynamic than the overall economy. On average, economic output has increased by 1.7% in the manufacturing sector and by 1.4% in the economy as a whole (Prognos 2016). This growth in the manufacturing sector has had a much more volatile course. The slump in the wake of the recession and the subsequent recovery, in particular, were above average in the industrial sector.

In connection with digitization, the question is often raised whether the German social partnership and the accompanying corporatism – in the sense of structured agreements between the state, capital and labour – are coming to an end. In this paper we illustrate how the state and the social partners, the central support framework of the German model, have responded to the challenge of digitization and what design perspectives they see. The initiatives that they have been discussing in recent years are also of strategic interest to the Nordic countries.

It should be noted that the strategic handling of digitization between national economies depends on institutional conditions, traditions and the balance of power, and thus varies accordingly. Therefore, the second chapter first outlines a global perspective on the prerequisites and expected effects of digitized economies. On the one hand, Germany has a stronger position in industrial production. On the other hand, however, the Nordic countries are more advanced in everyday digitization, especially in the services sector. In addition, there are a number of similarities between Germany and the Nordic countries. These can be found, for example, in the idea and practice of productivity, appreciation for industry, an efficient welfare state and strong unions. The third chapter identifies key challenges that shape the technological and work-organizational process of digital transformation. These challenges can be part of an overarching strategic debate whose core idea is: how can technological and economic progress create new social opportunities for the majority of citizens? In order to approach the answer to this question, in the fourth chapter three German initiatives for technological and social innovations are presented and discussed.

Challenges to employment in the face of the digital economy

Digitization is proving to be a global megatrend with enormous impact on politics, business and society. A central interface for the changes in the different subsections brought about by digitization is work society and gainful employment. What are the challenges for employment prospects and qualifications? Moreover, is it not conceivable that the so-called platform economy can lead to a fundamental transformation of the employment relationship?

Employment

There is much controversy about the effects of the considerable rationalization potentials on employment. The starting point for the international debate is the much-cited study by Frey and Osborne (2013). The authors see around 47 percent of all employees in the United States at risk. These work in occupations where jobs could be eliminated through digitization over the next 20 years. However, when adopting a more fine-grained approach disentangling specific tasks, the imminent automatization risk is estimated to be somewhat lower (see Bonin/Gregory/Zierahn 2015 and Dengler/Matthes 2015, 2018). The focus of the debate is not just the quantitative dimension of lost or emerging jobs. Of central importance is also the question of whether there is an increasing polarization in the labour market and to what extent shifts between companies and industries result. The current forecasts are different from the already completed innovation and rationalization measures. In the past, the jobs of low to medium-skilled workers were usually replaced by machines. On the other hand, in the current digitization push, automation potentials can be identified for the entire qualification spectrum (Ittermann / Niehaus 2015: 40 ff.).

Qualification

With regard to the described transformation processes in the labour market, the issue of qualification is given a central role. In recent decades, an increasing polarization of the labour markets can already be witnessed. Rationalization potential can be identified as the cause of well-structured and rule-oriented activity profiles based on algorithms (Hirsch-Kreinsen 2015: 19). The question therefore arises whether a revaluation or devaluation of activities in the middle qualification segment takes place. At the same time, labour market access for people with low skills is becoming increasingly difficult. The question of simple work takes on a special significance. On the one hand, a further erosion of this form of employment is assumed. On the other hand, technological innovations such as data glasses and tablets can compensate for educational deficits.

At the same time, the requirements for work content and processes as well as the necessary qualifications and competences change at faster intervals. Occupational requirement profiles are becoming more demanding, networked and complex. Competencies such as abstract thinking, information management and process responsibility are gaining in importance (Ittermann / Niehaus 2015: 46 ff). As a result, qualification, lifelong learning and continuing education are becoming increasingly important.

Transformation of gainful employment

Digitization opens up new perspectives and opportunities for gainful employment. Digital networking facilitates time- and location-independent work. This goes hand in hand with increased autonomy and compatibility of work and life for employees. However, the increasing interconnectedness generates considerable amounts of data that allow employees to be monitored. At the same time, new forms of employment are developing that radically differ from traditional employment relationships. On internet-based platforms, crowdworking creates employment relationships beyond the traditional employer-employee relationship. Individual work assignments are removed from the operational context and put out to tender on Internet-based platforms. Crowdworkers, in principle, are faced with worldwide competition. Moreover, existing social protection and participation rights do not apply to these new forms of employment.

These outlined aspects show how intricate the complex challenges of digitization are. This leads to the urgency of a digitization debate that does not only refer to technological innovation but also thinks along social opportunities and innovations.

Societal dialogues on the digital economy and work

For a long time, technical aspects were at the forefront of digitization. Over the past three years efforts have been made by the Federal Ministry of Labour and Social Affairs (Bundesministerium für Arbeit und Soziales) (BMAS) to develop answers to the social and work-related issues posed by digitization. Particularly noteworthy here is the process of dialogue under the generic term „Working 4.0" to create a green and white paper on the subject. Even though the Industry 4.0 debates were an important starting point, the entire working world is the reference point for Working 4.0.

Dialogue process Green Paper and White Paper „Working 4.0"

The dialogue process for Working 4.0 is a new form of discussion and debate within the topic of work in the future. It was initiated in 2015 by the BMAS and lasted until 2016 (s. Table 3). It pursued the intention to break up the predominantly technology-centred discourse that was conducted in the context of the Industry 4.0 debate. With the goal of a „new mission statement of work", technical innovations should be accompanied by appropriate social innovations. To achieve this goal, a broad social dialogue was set in motion. This took place with consideration of the relevant actors from society, politics, science and the enterprises. The aim was to identify policy options and possibilities for action in order to exploit the opportunities offered by digitization and to adequately address the challenges and risks involved (BMAS o.J.). One basis was offered by the BMAS (2015) and published in the „Green Paper Work 4.0".

Table 2: Milestones in the dialogue process Working 4.0

Date	Milestone / Theme
22 April 2015	Start of the dialogue process "Thinking ahead!"
April 2015	Appearance of the "Green Paper Working 4.0"
12 June 2015	1st expert workshop
14 September 2015	2nd expert workshop
5 November 2015	Start of the Futurale Filmfest
30 November 2015	3rd expert workshop
February 2016	Publication of the workbook 01
15 March 2016	Halftime Conference / Value Worlds Tool
23 September 2016	Publication of the workbook 02
29 November 2016	Final conference on the dialogue process
End of 2016	Appearances of the draft version "Weißbuch Arbeiten 4.0"
14 June 2017	Workshop Talks / Experiment Rooms / Appearance of the Workbook 03
August 2017	Publication of the workbook 04

Source: Own compilation.

As part of this process, an understanding of the relevant social action areas for the digital work society took place. A special feature of the process was its twofold dialogue structure: the „normal" expert dialogue (expert workshops) was flanked by a public dialogue (social media, citizen survey, film festival) (Federal Ministry of Foreign Affairs). The results of the dialogue process can be found in the „White Paper Working 4.0" published in 2016 (BMAS 2017). The future digital work society is concerned with the question of how work will be done in the future and not with the question of whether work will be done in the future. Central reference points are the development of employment (automation, rationalization and algorithmization), new forms of work (crowdworking, solo self-employment) and changes in flexibility requirements (working hours and place of work). The following discourses seek answers to these challenges.

Risk: Massive job losses - Answer: Qualification

It is assumed that digitization effects in the labour market are not only reflected in a reduction in jobs through automation and rationalization, but at the same time create new jobs with new skill requirements. As a result, the labour market balance of digitization will not look as negative in the long term as the much-quoted study by Frey and Osborne (2013) for the US or McKinsey (2017) for Germany predict. The BMAS expects a loss of 1.7 million jobs by 2025. At the same time, this would be opposed by the creation of 1.7 million new jobs (IAB 2016: 61). As a result, a central starting point is the expansion of individual and needs-based further education and qualification offers so that employees can keep up with technological innovations. Among other things, three concepts are discussed. First, a „legal right to further education", especially for unemployed people who cannot find a job within three months. Secondly, the „unemployment allowance Q", which should allow people in a training a longer draw of unemployment benefits. Third, the idea of an „employment account" as an alternative to basic income. Each adult could get an account of about 20,000 euros, which can be used at one's own discretion for further education, qualification or a start-up. Many of these elements emphasize the idea of prevention. In the overarching sense, the idea behind this is to enable a transition from the more reactive unemployed to preventive labour insurance.

Risk: Un-limiting work - Answer: Fair flexibility compromise

A company's flexibility requirements (for example through just-in-time production) are counterbalanced by individual needs and wishes for flexible working time and place on the part of employees. The policy objective is a life-course oriented employment and social policy that enables a compromise between these dual flexibility requirements and is sensitive to changing needs and preferences along the professional life. For this purpose, an „electoral working time law" is planned, which enables flexible working by opening clauses in the working time law. Thus, based on collective bargaining agreements, new working time models are to be tested. The experimental framework, which explicitly includes the social partners, covers two years. However, the legislative initiative of Labour Minister Nahles failed towards the end of the 18th legislative period in 2016. The „right to non-accessibility" has long been under discussion in order to facilitate a better demarcation between work and leisure in work processes that are independent of time and place. Examples are the rules set out in company agreements for handling e-mails during holidays and after working hours at BMW or VW. A uniform framework that combines legal and collective regulations could ensure operational accuracy.

Platform Economy: Regulatory Perspectives for Crowdworking

Crowdworking is synonymous with the transformation of labour markets. In platform economics, Internet platforms convey work orders between clients and contractors. The latter are called crowdworkers. This form of contracting changes employment and work organization. Crowdworker activities no longer take place in the context of the operation. In addition, an employer-employee relationship is replaced by a contractual relationship between client or platform operator and contractor. Crowdworkers are therefore considered as solo self-employed and not as dependent employees. Thus established and existing forms of social regulation of work lose their validity. Crowdworkers lack all rights that identify the status of dependent workers. The further development and handling of the crowdworking phenomenon is thus relevant from both the labour market and the welfare state perspective.

Perspective of the unions

Unions have intensively dealt with the subject of platform economy or crowdworking for several years. The topic is not only dealt with in the organizations, but also discussed intensively in public. This is evident in the efforts of IG Metall and ver.di, the two largest German unions. They discuss solutions from different perspectives and have developed their own concrete offers for this group. At IG Metall, which dealt with this topic at a very early stage, increasing international cooperation has also set in over time (see Table 3). This is reflected, for example, in the possibility for workers to rate the fairness of treatment and the working conditions when using particular platforms on „faircrowdwork.org“. Noteworthy is the joint statement of seven international trade unions on dealing with platform-based work developed by IG Metall leadership (IG Metall et al., 2016). Among other things, the Swedish union Unionen participated in the discussions and the declaration. IG Metall has changed its statutes on its 23rd Trade Union Congress 2015 and now permits solo self-employed to become union members.

Table 3: IG Metall's activities related to crowdworking

09/2012	Crowdworking as a topic at the annual "Engineering and IT Conference".
10/2014	Book Release: Benner (2015) on Crowdwork.
05/2015	Launch of the website "faircrowdwork.org" for the evaluation of crowdworking platforms.
10/2015	Statute change on the 23rd IG Metall union day to allow membership for solo self-employed.
12/2015	Book release: Schröder / Urban (2016) on good digital work.
01/2016	Statutory amendments come into force.
04/2016	First meeting with relevant German platforms. First meeting with international actors, with the aim of a joint statement on platform work.
06/2016	Workshops with crowdworkers from different German platforms.
07/2016	Start of the BMBF cooperation project „Cloud and Crowd (cooperation with ISF, LMU, University of Kassel, ver.di, andrena objects).University of Kassel, ver.di, andrena objects).
12/2016	Publication of the „Frankfurt Declaration on Platform-based Work" (result of the international meeting in April 2016).
01/2017	New version of the „Code of Conduct" of several crowdworking platforms with the participation of IG Metall.
03/2017	First Transfer Conference of the BMBF Cooperation Project „Cloud and Crowd".
06/2017	Relaunch of the website „faircrowdwork.org". Press Conference „Crowdworking in International Comparison" for the publication of the study „Crowdwork - A Comparative Law Perspective" (Waas et al., 2017).
11/2017	Platform economics as a topic at the annual „Engineering and IT Conference".

Source: IG Metall 2017; ISF 2016; Own compilation

At ver.di, solo self-employed have been able to become members since its founding in 2001. Today ver.di organizes about 30,000 solo self-employed who are addressed by the „mediafon" with a specific communication medium (see ver.di o.J.).

Table 4: Ver.di's activities related to Crowdworking

Date	Milestone / Theme
09/2008	Publication of "Berliner Manifest" Public Services 2.0. Strengthening public services in the information society!
08/2012	Book publication: Bsirske et al. (2012) "Boundlessly networked? Trade Union Positions on Network Policy ".
10/2012	Publication "Crowdsourcing and Cloudworking: Dangers to Society and Employees" ("Berlin Crowdsourcing Cloudworking Paper").
09/2014	First Digitization Congress "World of Work, Self-Determination and Democracy in the Digital Age".
06/2015	Second Digitization Congress "Work 4.0: Dignity, Self-Determination, Solidarity and Good Work in the Digital Society!"
09/2015	Union Day resolution on "Good work and good services in the digital world". Publication Special Issue AiB with the topic Crowdworking.
12/2015	Book release: Schröder / Urban (2016) on good digital work.
07/2016	Start of the BMBF cooperation project „Cloud and Crowd" (cooperation with ISF, LMU, University of Kassel, ver.di, andrena objects).
10/2016	Third Digitization Congress „Work and Society 4.0: Co-determine, co-design!" Publication: Discussion paper „Work 4.0" needs equal participation! More participation and democracy in the digital workplace.
03/2017	First Transfer Conference of the BMBF Cooperation Project „Cloud and Crowd".
11/2017	Fourth Digitization Congress „Public Service of the Future - with: // design".

Source: Own compilation.

On the content level, four dimensions play a special role in the question of dealing with the crowdworking phenomenon:

1. Employment status: Classification between self-employment and dependent employment.
2. Social protection: Existing legal regulations and rights are linked to employee status.
3. Earnings: Existing legal regulations on minimum wages do not apply to the independent contracting of self-employed workers.
4. Codetermination and advocacy: Company codetermination rights are linked to the operating concept. Antitrust and competition law limits the self-organization of the self-employed.

The handling of these four dimensions is not only reflected in central trade union documents (IG Metall et al., 2016). They are also among the identified areas of action that were commissioned by the union-friendly Hans Böckler Foundation in 2015 in the „Work of the Future". The proposals for action and food for thought outlined after a two-year consultation process in the Commission's final report (Jürgens et al., 2017) often coincide with the positions formulated by trade unions and the Federal Ministry of Foreign Affairs. In particular, the Commission considers a redefinition of the concept of worker and company to be central to the future structure of the work society.

In many issues around platform economics and crowdworking, the positions of employers and trade unions are contradictory (see Table 4). The unions see extensive regulatory needs. The employers and/or employer-related actors respond primarily as a regulatory opponent. Fundamentally, unions see crowdworkers as workers or employees. They are economically dependent on the platform or on the clients. A redefinition or adaptation of the existing concept of workers must take this into account. At the same time, the question of social security and the minimum wage would be superfluous.

Without employee status, compulsory coverage for crowdworkers would have to be created or the social protection system would have to be converted into a civil insurance scheme. As regards funding, the contractors and/or the platform operators should be required to contribute or be taxed effectively on their own contributions. The working conditions could also be addressed by defining minimum terms of conditions for which the platform operator can be held liable. At the same time, minimum wages or compensation arrangements should ensure that the earnings of crowdworkers do not fall below the existing minimum wage level.

With regard to codetermination, a redefinition of the operating concept is considered necessary. This should be extended to crowdworkers – as well as to other groups of workers who are not yet tied to the operation as a territorial unit. Thus, these groups, because they contribute to the creation of operational value added, would also fall under the existing operational codetermination rights.

Table 5: Regulation of crowdworking – Social partners' positioning

Date	Trade unions	Employer / business / industry associations
Employment status	Legal clarification is necessary, if crowdworkers are self-employed (factual/economic dependence). This requires clarification of the status of platforms or clients in terms of employer function. If crowdworkers are not employees, then they may be able to create special employment status (in Germany, there are already employee-like persons).	As solo self-employed, crowdworkers are not personally dependent on platforms or clients. No need for regulation as existing regulations on the delimitation of dependent employment and self-employment, temporary employment and contracts for work as well as bogus self-employment are sufficient.
Social Security	Introduce mandatory old-age provision or create civil insurance/ employment insurance. Using the platforms and/or clients to finance the contributions.	Self-employed are independent and self-determined responsible for security. Compulsory insurance is hostile to employment and therefore at best a precautionary obligation to a minimum security level is conceivable.
Earnings	Introduction of minimum wages or a remuneration system at the level of the minimum wage or local standard wages of traditional employers taking into account the qualification. Profit sharing in sales by copyright. Minimum requirements for terms and conditions for which the platforms are liable.	Service is provided independently and the fee is subject to the free contract.
Codetermination and advocacy	Extension of the operating concept so that crowdworkers and outsourcing are subject to codetermination. In addition, facilitating the self-organization of crowdworkers by giving unions access to platforms and exceptions in competition law that allow solo self-employed collective bargaining.	No expansion of codetermination is necessary, as the crowdworking phenomenon has too little relevance.

Source: Own compilation.

Lessons from the German example and lessons for MOE

The performance of the German economy is based primarily on the sectoral specialization of research-intensive industries. This is flanked by a „corporatist" interlocking of economy, science and state partial taxation and a flexible and robust labour market system, which focuses on skilled workers. At the moment, there is much to suggest that this strong position of German industry simply cannot persist. Structural investment and innovation problems are obvious. New initiatives need to be taken to open up new growth opportunities.

In order to anchor Industry 4.0 as the basis of a new growth cycle, various initiatives and strategies have been pursued since the turn of the millennium. A comprehensive networking strategy between classic industry and digitized structures is only slowly beginning to emerge in Germany. At the same time, initiatives that seek to achieve a leap in rationalization by means of automation leaps and comprehensive networking of individual parts of the value chain are not new in Germany. Because economic success did not materialize as quickly as desired and US and Asian IT companies continue to set the tone, over time a certain technological dependence of German industry on American and Asian technology companies has emerged. Increased international cooperation, such as the „Industrial Internet Consortium", is now trying to improve one's own competitiveness.

Industry 4.0 is embedded in the structures of cooperative governance of German capitalism, which range from corporate and regional to federal. Considerable attention was achieved through the communicative strategy and the involvement of associations and science. The involvement of the trade unions has also provided an opportunity to break up the technological constriction that has been criticized in many places and to conceive of Industry 4.0 as a project of social innovation and social policy. The need for this is demonstrated by the fact that not only job losses, de-qualification and new skill needs are more important, but that new forms of performance and behavioural control and social polarization are to be taken seriously as threats. The field of development potential ranges from the comprehensive automation-related elimination of simple jobs, their upgrading of qualifications, to new forms of digital work on platforms and in clouds. Despite all the problems associated with this, Industry 4.0 is an opportunity for the German model. The key to the success of Industry 4.0 is likely to be in the large companies that set the standards that guide SMEs. It is also necessary to intensify networking with international competitors, not only at European level.

The positioning of the social partners in the digitization challenge is characterized by a fundamentally positive approach. In particular, the unions from the beginning do not appear as digitization objectors and modern machine strikers. They emphasize the opportunities offered by digitization without losing sight of the risks that they demand. Trade unions started to develop their own positions very early and to proactively make suggestions. With regard to the further development of the industrial locus of Germany – and thus on the level of technological innovation – there is a programmatic target consensus with the business associations. In the other areas – which are particularly related to the level of social innovation – there are persistent divergences of interest in the design perspective, especially in the areas of benefits, data protection and working time policies. Particularly interesting are the interests between unions and employers' associations in the evaluation of crowdworking in the context of platform economics.

The creative will to be found among the social partners finds its equivalent at the state level. The political initiatives Working 4.0 and Industry 4.0 use cooperative platforms in order to explore common perspectives between the players involved. In this way, the risks associated with digitization should be reduced while at the same time opportunities should be exploited and the necessary framework conditions established. To achieve this, the initiatives focus on strengthening social partner and company negotiation processes. Therefore, the oft-rumoured end of German corporatism does not yet appear. Rather, we can expect a process of permanent adjustment and innovation when dealing with changing circumstances.

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