Ursula Holtgrewe, Nela Salamon, Wolfgang Haider

**Service markets, service labour markets and company strategies in Europe. The research report**

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# Content

## 1   Introduction

The UNI Europa project "Shaping Industrial Relations in a Digitalising Services Industry - Challenges and Opportunities for Social Partners", in cooperation with "ZSI – Zentrum für Soziale Innovation" and promoted by the European Commission, aims to identify and analyse change factors and explore new approaches for social partners on the challenges of maintaining effective industrial relations systems in a digitalising services industry. The project strives to provide policy advice for trade unions, social partners and policymakers on necessary adaptations of institutional frameworks for industrial relations, collective bargaining, social dialogue and capacity building for social partners. Challenges and opportunities are identified and analysed in particular with regard to workers' representation at company level and collective bargaining as well as the work and organisation of trade unions in general.

Across the project, we are dividing the investigation into three aspects of services that are clearly interrelated.

- Under the heading of "**Service markets**" we look at changes in service production and delivery through digitalisation (for example, online services and self-service) and also on the impact of these changes on customers and society at large. It is one of the dimensions where rapid changes, disruptive innovations (for example platforms) need to be addressed. Here, we also address the status of services in "industrial" or economic policy in the context of your respective sector and country.

- "**Service labour markets**" addresses the development of service jobs, their quality and quantity. We focus on jobs with intermediate skill levels, and will also address atypical and precarious employment (including self-employment) in your sector/country, the development of skills and re-skilling and policies of addressing them.

- "**Company strategies and work organisation**" looks at the company level and your union's information and experience with companies in your sector/country: We will address transnationalisation of service companies at large, outsourcing and offshoring, working conditions and ways of influencing them, interest representation and participation.

These aspects are pursued in three workshops involving trade unionists, researchers and representatives of international organisations from October 2017 to January 2018. Results of research and workshops will be integrated in two reflection workshops in 2018.

The work conducted in the project consists of

- A literature review updating knowledge gathered in the existing UNI Europa report on service research (Holtgrewe, 2015),
- Three workshops with trade unionists and academic experts:
  - October 19, 2017 with a focus on Service Markets and Service Societies, hosted by UNI Europa in Brussels;
  - December 11, 2017 on Service Labour Markets, hosted by ver.di in Berlin;
  - and February 27, 2018, on Company Strategies and Work Organisation hosted by Unionen in Stockholm;
- a series of expert interviews with 22 trade union and employer experts exploring national and sectoral experiences and policies;
- the preparation of five regional research reports on service markets, service labour markets and company strategies and work organisation.

The knowledge gathered through this research effort is fed into the **collaborative effort** of UNI and its affiliate unions to collect and analyse insight and engage trade unionists in an ongoing exchange over

questions that we think are vital for trade unions in Europe. The aim is to jointly develop strategies and actions that are based on experience and evidence of both unionists and academics.

This report updates the insights of the comprehensive literature review conducted for UNI Europa by one of the authors (Holtgrewe, 2015), gathers the insights of the regional reports (Gasparri & Tassinari, 2017; Haider, Holtgrewe, Ramioul, Salamon, & Vereycken, 2018; Ilsøe, 2017; Kirov, 2017; Sharma, 2017) and the results of the series of interviews with union experts with regard to the changes of service markets and policy initiatives with regard to digitalisation.

Union experts and two experts from the employer side were interviewed remotely, on the phone or using conference software using a guideline covering the subjects of the three reports. Interviews were taped with the agreement of participants and summarised in writing. They were then coded and analysed. The transcripts are the source of quotations here. For interviews conducted in German or Spanish, all translations were made by the authors. A warm thank you goes to all participants.

## 2    Service markets in Europe

### 2.1    *Service markets, sectors and customers*

#### *2.1.1*    European service sectors

Service markets and labour markets in Europe have been expanding in the last decades. Across countries, between 69% and 79% of GDP are created in services, and the share of employment in the service sector is slightly higher. Indeed, employment growth has concentrated in the services, and the service sector has led economic recovery after the crisis. However, service sector expansion represents not just the sector's own economic power but may also reflect a downsizing of other sectors such as manufacturing or construction during the crisis.

The Nordic countries consistently take the lead in various digitalisation indexes, and in the UK, London emerges as a global hub for Fintech start-ups. Southern and Eastern European countries at large are found at the lower end of the various digitalisation indexes. In CEE, the integration of ICT and business services into global and European value chains does not appear to spill over much to the countries' general ICT infrastructure and use (with the exception of Estonia).

Behind expanding service sectors, European countries and regions have distinct profiles of services: reports from Southern Europe (Gasparri & Tassinari, 2017) and Continental Europe (Haider et al., 2018) emphasise the predominance of small and medium businesses in many service industries. Austria and Germany have comparatively small service sectors due to the strength of their manufacturing sectors. Luxemburg stands out for the size of its financial and business services sectors. In Central and Eastern Europe, much of service expansion has been driven by foreign direct investment (FDI) and by the integration of ICT, business services and customer service functions into global value chains (Hardy & Hollinshead, 2016; Kirov, 2017). Conversely, the Nordic countries have both Nordic and foreign multinationals in the services (Ilsøe, 2017a) and also strong and innovative national or regional service providers, and the UK's financial sector dominates the country's entire service sector (Sharma, 2017). Hence, the UK aims for global leadership in the sector of digital services in general, and in financial service innovation in particular.

For the digitalisation of the respective economies, the European Commission's Digital Economy and Society Index provide some indication. Here, the Nordic countries take the lead and BENELUX rank close, followed by the UK and Ireland. Germany and Austria follow behind these and also behind the Baltic digital pioneer Estonia. Spain and Portugal are still above the EU average in digitalisation whereas France is found just below. The segment below average is otherwise made up of CEE countries and the Southern economies of Italy, Cyprus and Greece. Although some of the Eastern and Southern European countries

have emerged as expanding destinations for services offshoring in recent years (Holtgrewe & Schörpf, 2017), this is not mirrored in strongly digitalised economies overall – corroborating Kirov's point that foreign direct investment does not necessarily spill over into country-wide advances in digitalisation (Kirov, 2017). However, the Spanish tourism sector (as well as ICT and Finance also rank highly with regard to digital readiness (Gasparri & Tassinari, 2017), and cities such as Barcelona, Milan or Torino figure as "smart cities" with regard to both public- and private sector digital innovation.

*Figure 1: Digitalisation ranking of European countries, 2017*
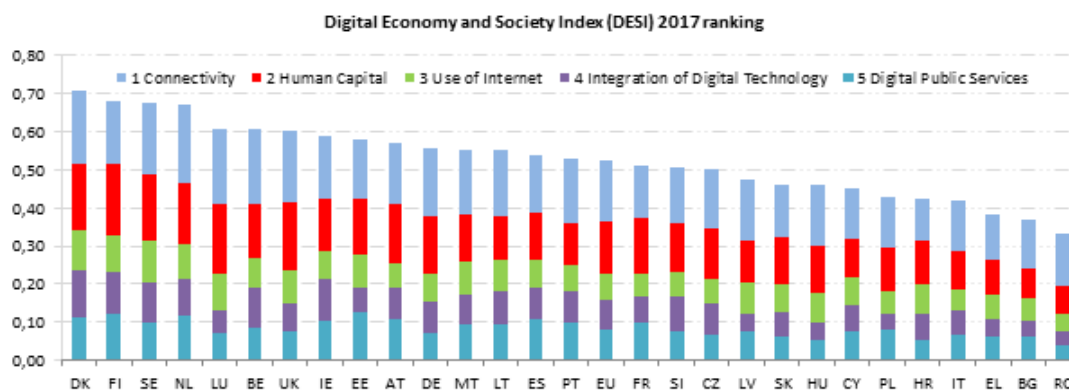


Source; EC 2017

Trade unions thus face quite varied profiles of service economies. We shall see that these profiles shape their outlook on digitalisation considerably. It is national configurations of services, the situation in the respective labour markets in between unemployment and various staff shortages, and sectoral and company-specific experiences that influence the experts' assessments of the situation in their respective country. "Digitalisation" looks and feels very different when viewed from Denmark, Spain or Romania.

For example, we see the high penetration of digital technologies in the Nordic countries where the use of digital and mobile technologies is integrated into everyday life from financial services to education and interactions with public administration. Consequently, Danish or Swedish social partners consider digitalisation as something ongoing, almost unspectacular and trustworthy in a negotiated and regulated context. The Spanish service sector concentrates low- or medium-value-added industries, but Spain still has an advanced telecommunications co infrastructure and 70% smartphones, and a high penetration of platform bookings in tourism. In Romania, the majority of ICT and business services consist of offshored services for the European market. However, this renders the country somewhat vulnerable to further automation: "*countries in the east like Romania, where the whole IT sector is based on such activities to an extent of 75%, will suffer a lot, in my opinion, [this is]why for us it has been a risk to bet everything on this type of service centres. They're not a real true investment – it was rather a job shift from one place to the other because of cost*" (SITT, RO).

### 2.1.2    Digitalising service markets at large

Service research generally shows that service markets are deeply embedded with their societal and institutional environment. Services involve customers and chains of transactions and relationships, "the application of competences for the benefit of another party" (Gummesson, Lusch, & Vargo, 2010). Although capitalist economies have become service economies to a large extent, productivity increases in services have been considered difficult to achieve – but clearly, services have invented specific ways of increasing their productivity and expanding:

- by rendering services more "product-like", standardising and packaging them,

- by customising them and rendering them more complex and responsive to customers' needs,

- or by offering new services that offer experiences or solve problems in new ways.

Service markets thus follow the paths of "productisation" or "servitisation" (Holtgrewe, 2015; Toivonen, 2015), but may also try to combine them(Gallouj, Weber, Stare, & Rubalcaba, 2015). The dominant path depends on the sector, the history, strategies and decisions of service providers and their customers – which are also shaped by the institutional regimes, policies and cultural ensembles around them.

"Productisation", also called "commodification", follows more of an industrial model: standardising and scaling up services, rendering them more space-independent through the use of ICT, also focusing on core competencies and outsourcing services that are considered peripheral. This may increase competitiveness. However, it also shifts the mode of competition, opening up a "commodity trap" (Zysman & Kenney, 2015): productisation creates markets in which competition increasingly takes place over price. This puts pressure on profit margins and also on wages and possibly job quality in the advanced economies. Not least, productised services shift an increasing part of the remaining work involved onto customers' self-service.

"Servitisation" or extension of services (Gallouj et al., 2015) aims at providing functions, solutions, and bundles of products and services to customers in order to handle uncertainties and complexity for them. This is expected to offer higher profit margins, closer customer contact and better utilisation of knowledge in the service relationship (Toivonen, 2015). The strategy allows for ways out of the "commodity trap" – also enhancing products' value-added through combining them with "smart services" (acatech, 2015).

The service research literature argues that digitalisation itself can support both paths – but vice versa, the strategies and services of powerful technology actors also shape the options of service providers and their customers. Gallouj et al. (2015), in a perspective emphasising service innovation, suggest that through mobile and decentralised ICT uses, industrialisation and customisation of services can be reconciled. For example, new delivery concepts in retail or multi-channel service in financial services can combine standardised offers and highly interactive support.

### 2.1.3  Unionists observing service markets

Trade unionists interviewed agree in observing increasing standardisation and productisation in the service sector. The technologies mentioned specifically are the "usual suspects" Internet of Things, artificial intelligence, clouds and platforms. Robotics play a smaller part in services. Blockchain technologies are an issue in the financial sector and around the question of collaboration with startup companies. A Finnish trade unionist adds some more incremental examples of automation/self-service in the space-dependent part of the service sector: self-service in hotels, smart shopping carts, electronic monitoring systems and drones integrated into facility management or security.

German consultants to ver.di see standardisation as the logical outcome and prerequisite of digitalisation – indeed, this has been considered a circular relationship by a vast body of workplace research in the labour process tradition. "*Using IT, things must be standardised*", and before full automation, this means *"industrialisation extends to cognitive labour"*. This entails some de-skilling and the transfer of tacit knowledge and expertise to machines in such sectors as financial services, ICT, retail and also logistics (Daum, 2016; Roth, Zanker, Martinetz, & Schnalzer, 2015). Again, this increases the possibilities for remote service delivery, outsourcing, and further standardisation.

A Romanian trade unionist observes companies' further aims for automation following offshoring: *"[Firms are] looking very much on what kind of activities can be automated within the company – it's often teams of people with fancy names such as 'transformation excellence' or 'business excellence'; what they are put to do is find solutions to eliminate human intervention. It depends a lot on the type of activities in question,*

*or the vision of the corporate management or even the speed at which they want to put in place – but it's not a question of IF, but rather a question of WHEN"* (SITT, RO).

"Servitisation" is mentioned by unionists and also employer representatives from Denmark and unionists from Germany and Austria. A Danish employer representative has a striking example: *"instead of selling you a [duvet] I'm selling you information about the way that you sleep. So you can sell a subscription service with the duvet and data on how well did you sleep, for how long, temperature, signs of upcoming sickness etc. or whatever. They are actually creating technology and trying to come up with different business models that will give them an advantage instead of just selling a dumb product"* (DKDI, DK).

Servitisation ideas mostly come from social partners also representing manufacturing and manufacturing-related services. In Austria and Germany, such services are often still located within manufacturing sectors. Experts from Austrian GPA/djp report that indeed, in a discussion initiative with works councillors from the different sectors represented by the union, the industry representatives were the most sanguine with regard to digitalisation, envisioning an upskilled future of "production as a service". However, if this materialises, it may suggest that *"in ten years' time, trade unions in the compartments as we know them may not be adequate any longer"*.

Within the service sector, the integration of digitally enhanced services across existing sectors appears to be an equivalent strategy of rendering services more service-like. Financial services in Italy provide an example: Following the financial crisis, *"2009-2014, banks only tried to reduce costs. … They are now also creating new business. They are moving around in the financial sector. In insurance of course, the fiscal sector, … real estate: ... it is a chain in which the bank creates the opportunity to sell a house and then give the mortgage, than assist the customers with all the problems he has, also with taxes. So it´s a very integrative chain and therefore a bank must be very big to manage a value chain like this"* (FABI, IT).

Indeed, such a strategy of "sideways" integration of services by large companies may realign entire sectors or segments of sectors and add another layer of volatility to sectoral logics. This is similar to the decided platform strategies aiming directly for "superstar" potential and virtual monopolies. Such strategies are not just pursued by the ICT "Big Five" or the more recent disruptors such as Uber and Airbnb. They form a more incremental equivalent pursued by some European service multinationals. IBM's example can be read in a similar way. Based on the experience of transforming itself from a builder of hardware to a service provider the company according to a trade union expert supporting IBM's works council is currently seeing another strategic "bet on the future" with the potential of transforming entire markets and sectors:

- Developing artificial intelligence and cognitive computing ("Watson") as a service "for anything", "having all the data" and the capacity to analyse them, "and if you want to know, you only find out using Watson".
- and developing blockchain technology to connect "everything online" and become "the one who owns the system".

This expert sees few principal limitations and coordination and management tasks may not be immune to automation either: *"why shouldn't Watson be able to do project management?"* However, experts also see gaps and delays in the full implementation of artificial intelligence to support and/or automate such services. Currently artificial intelligence is not fully self-learning and will not be able to create software by itself over the next 30 or 40 years.

These arguments suggest increasing tensions in service markets and service economies. Beneficial and innovative potentials of digitally enhanced services may be eroded or underdeveloped if service markets become locked into a double-edged logic of concentration: cost-driven "races to the bottom" through productisation and commodification on the one hand, and "winner takes all" configurations of "superstar firms" and platforms driven by network effects on the other.

### 2.1.4 Sector-specific developments

Both the research literature and our interview partners expect digitalisation generally both to further concentrate within service sectors and to render competition more intense. Companies extend their activities across sectors, face new entrants and/or integrate value and business chains. It is not always clear where power and hegemony in these integrated chains will concentrate. Shifts between sectors also present challenges for unions: "escape" from collective agreements, but also competition between unions over organisational domains – that are frequently balanced by increased collaboration.

The ICT sector is clearly central and tends to concentrate its activities in the emerging technologies such as Big Data, Cloud Computing, Security or "Internet of Things" or the networking between applications, functions and companies in general (Daum, 2016). The IBM example amounts to a central position of key technology providers in many value chains that extend across sectors and functions. In addition, companies from other sectors such as banks apparently aim to emulate ICT companies' strategies (World Economic Forum, 2017). However, with regard to some technologies this may be balanced by some uncertainty. A French union representative at the IT service provider Atos observes this with regard to blockchain technologies: "*our customers experiment with block-chain. [I'm]... quite sure there will be something very strong, but no one knows what will be the new business model using this sort of tool. So we are in a sort of ‚before preparation' state. The effects might be positive or negative either for the IT business or Atos itself – but also for current customers. The preparation inside the company is thinking about agility, the professional and digital skills and transformation of the work force*" (CFDT, France). In telecommunications, the migration of telephony to IP protocols and *"from hardware to software"* (Danskmetal DK) changes job profiles together with increasing moves to customer self-service through web platforms.

Postal services and also logistics are immediately affected by digitalisation: here, advanced robotics and automation are central. Logistics take over functions from both manufacturing (contract logistics) and commerce. For postal services, letter-writing is declining in the most digitised countries, but in Germany and Denmark, this has been widely compensated by increases in parcel delivery due to e-commerce. Here, postal services offer warehousing and fulfilment services, and also provide shopping platforms that offer online market access to smaller retailers. Interestingly, the customer service branch of Deutsche Post AG has extended its service offers to a new service that securely establishes the identity of account holders through web or video-chat for online bank and similar services (Daum, Holtgrewe, Schörpf, & Nocker, 2018) – an example of the way services can continue to address the complexities and uncertainties of digitalisation.

E-commerce is shifting functions from retail to logistics and adding some new skills requirements with regard to online marketing and communication. The examples of Amazon, Universal or Zalando are omni-present in the study of digitalisation in e-commerce. Hybrids between e- and regular commerce are developing, known as "multi-" and "omni-channelling" that make shopping possible almost anywhere. Fashion platform Zalando's offers of in-person fashion advice and delivery to complement the company's multi-channel customer service are an example. In addition, manufacturers themselves open flagship stores in combination with online shops, advancing the verticalisation of commerce (see Roth et al. 2015). However, projecting the recent expansion of e-commerce into the future raises the question how much of the possible shift has already happened (Eichmann, Nocker, & Adam, 2016). Cross-border sales are a challenge to the national sectors and states, especially in the smaller countries. The challenge remains for unions to adapt the reach of collective agreements and access to secure employment and "good work" to the emerging logistics and delivery functions. Such functions are increasingly flexible and attuned to customer demand but face the cost-constraints of covering the "last mile" to private households.

In finance, concentration is ongoing and the reduction of branches and general cost-cutting strategies figure in many countries. Smaller banks, savings banks or credit unions are coming under pressure. Banks

across Europe increasingly collaborate with fintech start-ups and invest in them to integrate their innovation. Danish Finansforbundet has joined forces with the banking association Finance Denmark and the City of Copenhagen to become proactive in this field. They are running the Copenhagen Fintech Lab, which offers office space for 100 fintech entrepreneurs at the union headquarters, which allows them to interact and communicate with the frontrunners in future banking (Ilsøe, 2017a). Italian banks also collaborate with the large internet companies that offer payment services (such as Paypal or ApplePay) whereas German banks tend to be sceptical of such co-operations (Roth et al., 2015). In the insurance sector, artificial intelligence is a *"big issue"* already, say German ver.di's consultants. However, *"the state of the art is that we create IT systems that work according to predetermined structures ...[systems] working autonomously – we aren't there yet"*. Indeed, German financial services *"would like to be more advanced than they are"*.

Media have been struggling with disruption through digital platforms and distribution channels for a while, especially among younger audiences. Somewhat paradoxically, as production became decentralised through digitalisation, a vertical and horizontal concentration of media and distributor players occurred. In public sector broadcasting, broadcasters' own digital activities are frequently limited by regulation. The large Internet multinationals compete over accessing and redistributing media content, from offering additional distribution channels to own productions (Dolata, 2015). For conventional media and publishing companies, as with banks, collaboration or competition with distributors such as Amazon or Apple appears to be controversial, with varied patterns in varied sectors, but these exert considerable cost and competitive pressure.

### 2.1.5    Platforms in the market

The disruptive potentials of platforms and their regulation are central issues in digitalisation debates. Actual crowdwork platforms for remote professional services and micro-tasks appear to be used to a limited extent in Europe, currently generating between 0.4% (Belgium) and 1-1.4% (Spain) of GDP. Yet a not insignificant percentage of (Western) European workers (some 10-15%, appear to have tried out crowdworking but most use it sporadically for extra income (Gasparri & Tassinari, 2017; Haider et al., 2018; Huws, Spencer, Syrdal, & Holts, 2017). For the lower-income countries of Central and Eastern Europe, no data are available but there are some national platforms identified (Mandl, Curtarelli, Riso, Vargas, & Gerogiannis, 2015) and crowdworkers from CEE appear to be a presence on international platforms as well (Kirov 2017). Our interviewee from Croatian Telecommunications Union HST also supports this: *"There is a lot of engineers, young guys or even students with are working on different platforms for abroad. We understand that this is a special development especially in ICT"* – but trade unions have little contact with this group of workers who tend to consider themselves freelancers.

In Spain, Belgium and the UK industry associations are emerging. While some national and European policy initiatives aim to address concerns over taxation and social security contributions of platforms, others aim to stimulate the sector: Belgium represents a striking example of policy-led liberalisation in favour of "digital" sectors of the economy: Earnings up to EUR 5,000 from non-professional work on certified platforms is only taxed at 10% (Haider et al., 2018). This decidedly favours platform work for "extra" money over regular and professional employment. In the UK, the Taylor report on new forms of working suggests a new working statute of a "dependent contractor" for platform workers (Sharma 2018) whereas mostly unions tend to be in favour of more inclusive approaches (Dølvik & Jesnes, 2017; Haake, 2017; Tassinari & Maccarrone, 2017).

Some unionists point out that not all platforms are by definition hostile to regulation. A representative of Sweden's Ingenjörer points out that platforms may also promote service innovation and problem-solving: *"For some, it belongs to the business model to dump conditions and avoid all kinds of social responsibility, but others set out from the idea of solving a problem, and thus don't want the reputation of being terrible*

*to work for. There are good and bad platforms."* She mentions a Swedish mobility platform with the aim to diminish pollution in city centres, *"stating from the beginning they did not want to become an Uber – they contacted the transport workers union to have an agreement with them once they set up their business."* Similarly, German IG Metall on its platform evaluating crowdworking platforms identifies some with rules and conditions favourable to workers. Examples are software testing platform Testbirds (Deva & Wasza, 2016) or the design and creative services platform Jovoto. Apparently, it is the more specialised platforms that provide skilled or quasi-professional work that also offer better conditions and have an interest in this segment's regulation to ensure a level playing-field.

### 2.1.6 Customers

In banking, commerce, telecommunications and many other services digitalisation means shifting "work" onto customers and consumers. Indeed, automation of work often means self-service. Customers' use of smartphones and mobile internet is pivotal for online service delivery. Even in personal services, marketing, booking, information and reputation increasingly involve platform-based services. Our Belgian interviewee summarises it aptly: *"We are doing the job of the bank but we have to pay the bank to do it."* Indeed, some research argues that a large part of digitalisation in services is "about" the rationalisation of consumption (Staab, 2017) in a context of saturated markets. However, this author thinks it unlikely that this will turn into a sustainable source of economic growth for European societies if at the same time automation in services undermines the income sources needed for that consumption.

Digitalised self-service also covers the entire range of standardisation and servitisation. The Finnish examples of digitised shopping carts build on the established divisions of labour in large supermarkets or shopping centres, with some extra information or tailored special offers thrown in. For advice to customers, interviewees have varied scenarios in mind. There is the mobile-based self-service in the "cashless" societies of Northern Europe where even small transactions can be made through cards and/or smartphone apps. There is also a shift of sophisticated customer advice and support on to customer-to-customer advice through social media or owned platform functions. Providing comprehensive information on products is no longer a sole duty of workers in a shop (or of service providers' marketing and web design departments or consultancies). It is shifted to online ranking and rating systems, where customers themselves are judging their purchased products (Eichmann et al., 2016). Or, the role of customer advisor is automated in itself through the use of chatbots or avatars: *"Just yesterday I saw a demonstration of an avatar, a person that doesn´t exist that answered to a customer and the speech was perfect. Even the things that the AI [artificial intelligence] said were perfect. The customer was served by a machine but this machine has a face, a voice and was able to advise the customer even in very difficult choices"* (FABI, IT).

Nevertheless, customer expectations and requirements continue to play a part in digitalising services. In Southern Europe especially, unionists note an ongoing preference of customers for face-to-face contact. *"The social issue is more important than the financial issue: People in Italy and Greece and Spain still now want to go to a branch, talk to someone that exists and is not an AI and want to share emotion in this case"*, says our FABI interviewee. In call- and service centres, for those interactions that are not covered by (online) self-service, the wish to "talk to a person" is not expected to disappear either (Daum et al., 2018).

Sometimes, this desire is associated with older customers: *"Especially the elderly people are the ones who have the money, and young people have no savings because they struggle with finding jobs."* (FABI, IT). This is mentioned even in digitalised Denmark and also in the UK. There, policy initiatives around "Digital Inclusion" involving banks, IT companies, the NHS and charities aim to provide children, remote and vulnerable groups (such as the disabled, homeless or prisoners) with digital skills to better access digitalised services (Sharma 2017) and thus make further digitalisation easier. On the other hand, the FABI

expert also sees possibilities for alliances with customers where their interests in trustworthy and good-quality products and services can be aligned with those of workers.

Either way, expanding self-service and further engaging customers in hybrid digital/analogue service delivery is ongoing. It is in line with the aims of various service companies to expand their chains of business – but customer contact and engagement remains an area of competition as well. Companies' interest in control over multiple customer interfaces may limit the outsourcing and offshoring of service functions in financial services, commerce or telecommunications. Control over the data that customers generate intentionally or unintentionally becomes valuable across companies' and sectors' traditional domains – and will be one of the sites of ongoing and emerging power struggles between companies, sectors and not least, civil society's interests in privacy and civil rights.

## 2.2   *Service policies and unionists' assessments*

In all countries investigated we find government-led initiatives in favour of digitalisation that address innovation, digital infrastructures and also regulation (Grass & Weber, 2016). However, in Southern and Central and Eastern Europe these are led by the state mostly without involvement of the social partners (Gasparri & Tassinari, 2017; Kirov, 2017). In the UK we find various councils and initiatives of policy and industry leaders (Sharma, 2017). Only in the Nordic and Continental countries do we find a wider range of bi- or tripartite initiatives and discussions. Such initiatives address digitalisation at large, workplace safety, life-long learning, social security (also addressing self-employment), innovation and disruption, and regulation of the platform economy (Grass & Weber, 2016; Haider et al., 2018; Ilsøe, 2017a, 2017b).

### *2.2.1*   Regional variations of service policies

In the Nordic countries, this mostly ties in with the established forms of social partnership. Both employers and trade unions are confident that these modes of negotiation and consensus-building can be sustained.

In Austria and Germany, the policy discourse on digitalisation has been dominated by the term "Industrie 4.0", which eventually was translated across Europe. Large technology providers, consultancies and industry associations gathered various processes of company and sectoral restructuring and various uses of digital technology into a somewhat vague vision of both globally and regionally networked production, supported and coordinated by networks of sensors and artificial intelligences. Critics consider this more of a political marketing and agenda-setting exercise than a technological revolution in the strict historical sense (Pfeiffer, 2017). Indeed, many of the technological developments discussed under this heading have both longer and more incremental histories. However, "Industrie 4.0" has started a comparably coherent debate on digitalisation and its impact on the highest political level in Germany, into which trade unions managed to make inroads. German ver.di and IG Metall especially succeeded in shifting attention towards the implications of digitalization for employees. The heading of "Arbeit 4.0" ("Work 4.0") covers both manufacturing and service sectors. In both Germany and Austria, the debate resolutely addresses the new opportunities of digital technologies. Trade unions and experts close to them are well aware of the risks to social cohesion, distributional fairness, privacy and well-being (Jürgens, Hoffmann, & Schildmann, 2018; Streissler-Führer, 2016; ver.di, 2015). They consistently demand adequate societal "shaping" ("Gestaltung") of the uses of digital technologies and political efforts to ensure the benefits are reaped. A representative of Austria's GPA-djp says, *"The phase of agitation and fright is over, and now the questions are being asked of where to intervene and where to regulate."* Yet, some interviewees in Germany and Austria also note that policy debates can be *"a bit bothersome"* when struggling against *"neoliberal brainwashing"* of policymakers across the spectrum. An observer who emphasises the disruptive potentials of digitalisation sees some wilful ignorance: *"Everybody tries to stop thinking things through"* (ver.di, DE).

Both in Nordic and Southern countries, unionists note a striking increase in political interest during the last years. In Spain especially, the debate is mostly focused on robotisation, but aims for "upgrading the

entire economy" and to find ways of moving the country out of its low-value-added structure characterised by precarious work: *"It's a debate that is very present, because its related to the unstability of work in Spain, job rotation is very high, working poor is a wide spread phenomenon."*, say unionists from CO.OO. Unions in Italy, Portugal and Spain, are also challenging their exclusion and developing their own initiatives, frequently under headings such as "Labour 4.0", and often in collaboration among unions (Gasparri & Tassinari, 2017).

In Central and Eastern Europe, most policy initiatives are aimed at supporting investment in the ICT sector. Romania, for example, offers ICT sector companies reductions in social security contributions and this is also being discussed in Croatia. There, social partners are discussing among themselves, so far with very limited attention by government: *"Mostly they are not listening",* says a representative of HST. This telecommunication union's insight is also sometimes lost as they are only represented in a tripartite dialogue through their union federation – but there are some successes in establishing more specific working groups in which the union itself is represented. In Romania, the picture is similar, due to the detachment of the outsourced business services segment from the rest of the economy: "*unfortunately, digitalisation is not an everyday topic in Romania, nor its impact or its potential negative impact on the 'star' sector of the Romanian economy – the problem is either unknown (which I doubt), but it's being ignored, in the sense of "let companies and workers and whoever deal with it"* (SITT, RO).

Unionists from Continental and Southern European countries and also from Finland and Belgium point out that digitalisation debates and policy development are taking place in contexts of governments' decided anti-union policies. *"In Spain democracy has still not arrived in the companies, there are no models of co-determination like in Germany or Austria. There is no culture of involving stakeholders,"* say the interviewees from CO.OO. In France, unions face the policy of the Macron government who are currently abolishing two out of three representative bodies that were legally required in French companies. *"For example in Atos in France that means that we will have 658 elected employee representatives that will simply disappear. The unions' structure within the company, which was of course the elected members of the bodies, will disappear so it's not good news for unions in private companies in the next years."* In addition, negotiations on working conditions are to be devolved to the company level.

### 2.2.2   Optimists and sceptics: trade unionists' overall views

Opinions of trade unionists and experts vary with regard to the amount of actual and ongoing disruption as opposed to more incremental developments in technology. Slow developments that eventually reach a "tipping point" of disruptive change are a possibility introduced by ver.di's IBM expert. There is a wide range of positions between optimism and scepticism towards the unions' and societies' capabilities to "shape" digital technologies ("Gestaltbarkeit"), and these positions reflect both the national or regional and the professional/sectoral context.

More optimistic positions are found and reported from the Nordic countries (Söderqvist, 2017) where digitalisation has advanced further and apparently has been "normalised" in both everyday life and social partnership, but interestingly, not necessarily in the ICT sector. "*So we are not using a lot of time in discussing how can we prevent automation or digitalization because it´s here and it won't be less in the coming years, we only will see more of it and we will have to face the consequences of it and we will have to provide our members the qualifications so they can meet these trends"*, says the representative of Danskmetal. Danish Industry's interviewee seconds: "*It's a matter of fact, that robots and digitalisation are making our workplaces better, more secure and more competitive".*

Sveriges's Ingenjörer's representative envisions the tempered optimism of both the Nordic countries and the engineering professions: *"Man and machine will rather work together and there will be new kinds of jobs, mixing competences in a new way. Members also not worried, when it comes to engineers. Other than that one will have to up-skill the workforce as a whole - there will be less low-skilled jobs."* From a

different geographic and institutional context, Croatia's HST representative has a similar view: *"The fact that we work in telco gives us the opportunity in the first row what is going on. Therefore we are not so afraid. Yes, there is some change, but it is not necessarily dangerous. You can adapt yourself. We are not in such a negative mood towards digitalization. But on the other hand we also expect from the employer side to involve much more activity in the social way. We cannot only digitalise and not care about the workers. There is the need for some kind of compromise here."*

In spite of their stated aspirations to shape digital technologies, German-speaking unions are more ambiguous or explicitly point out that this takes decided efforts. *"No question digitalisation offers a big chance to enable worker empowerment – shorter working hours and liberation from work"*, says a long-term consultant to ver.di. *"However, on the way towards such progressive solutions, up to now – it doesn't have to stay this way - the conditions for implementation are getting worse"*. Austrian GPA-djp's experts insist on the union's aspiration to positively co-shape all digital developments, from data security and skills to new employment regimes. *–"The risks should be identified, but phenomena of precarisation are not a law of nature"* (GPA-djp AT). Yet the union finds that works councillors' views vary considerably with the sector.

Financial services appear somewhat polarised: In Italy, the sector appears to have worked itself out of the logic of cost-cutting and rationalisation and is looking towards creating new business and integrating the financial services value chain – with uncertain perspectives for employment. The union, FABI is confident of matching the speed of developments that may be slowed down by customers' insistence on face-to-face interaction. In Austria, ongoing cost-cutting and downsizing in the sector leads to more defeatist views of works councillors in financial services, as GPA-djp experts report. Workers in services close to manufacturing or in manufacturing itself see more opportunities for innovation and "production as a service". In the social and care sectors, their view appears to depend on the respective modes of work organisation. IT can provide some support in documentation and make time for interacting with clients or tighten control and monitoring of work.

The representative of Romanian SITT a union specifically organising the Romanian segment of offshored business services, reflects on the timing and the tensions between sectoral, political and regional developments: *"It depends for me a lot on how fast we can move on reskilling and upskilling the people. This is one point. Secondly it depends on the capacity or disability of local management from these [CEE] countries to bring and create new jobs or involve these newly skilled people into more added value activities. The classic lies when we talk about digitalisation – 'yes, jobs will be destroyed but new jobs will be created again' – I don't doubt it but also not see it emerging. More importantly however my question is WHERE these jobs will be created."*

To address these challenges, the unions interviewed see themselves in comparatively good positions. Speed, collaboration with other unions, nationally and internationally, commissioning of research and experience are assets. South European unions emphasise their speed in picking up on new developments: *"It seems that the speed is very high. This tension is evolving in a very fast way and in my opinion only a few unions will be able to react in the right speed. Because now we have all the tools and instruments to react."* Social capital in collaborating with other unions, nationally and internationally is an important element of this – even and especially in an environment that is digitalising more slowly than the frontrunners. CO.OO also sees their research focus as a strength: *"We are also an organisation that is developing a lot of investigative works and we are one of the first organisations that did work like this. Especially in the area of digital platforms and that allows to stay ahead of this process."*

The expert from Sveriges Ingeniörer reflects on the Nordic model: *"We are so proud of the Nordic model and Swedish model, but we have forgotten about how to communicate around it and what needs to be safeguarded to keep it the way it is. We like the flexibility of not having laws regulating the labour markets and conditions but rather having discussions and agreeing, unions and employers together. But in order*

*to keep the legitimacy of the model, organisation is crucial. If you can't get the people to be members, it will fall. So it's really an important question and we have to make young people more aware of this. Perhaps I am being too optimistic, but I kind of feel that people are realizing that the market economy isn't really delivering everything we thought that it would."*

Unionists' views thus converge on the need for decided political efforts, for both maintaining and accessing a changing membership base and also for both the employer side and for companies themselves to take responsibility for the adaptation of skills and other social and welfare state provisions to digitalisation – and the shaping of digital developments according to the standards of European societies.

This brings some unions to discuss organisational changes in their own organisation. Austrian GPA-djp has combined responsibilities for digitalisation and innovation management in one position in its executive board. They explore agile or evolutionary models of organisation for both the union itself. Aims are to upskill works councils to co-manage organisational change in "their" companies and to discuss "good work" in a participatory way with their *members "allowing as a union that there may be total contradictions ... the paternalistic approach has to go, there is no right or wrong".* The union also aims to co-design experiments or in working time, new forms of work organisation etc. with the employer side. Collective agreements could allow opening clauses for social experiments that run over a fixed period of time and are accompanied and evaluated by research: "*After two years for example, we would know what a model of optional working hours really means, what autonomous teams mean, what it really means for economic performance, for job quality, for turnover and sickness levels, and then, the subjects could be adapted."* (GPA-djp, AT).

### 2.2.3    How unions address the variation

We also asked unionists how they perceive this wide variation of national and sectoral viewpoints and approaches. A possible overall working consensus is outlined by Sverige's Ingenjörer's representative: "*It's digitalisation, skills' development, how to make people employable, how to make the companies take their responsibility for an inclusive and sustainable society. We have a lot of common ground. We are aware in Sweden as often being perceived as arrogant and self-sufficient with this fantastic model we have, that works so well with our low unemployment and everything, and I think the international work is so rewarding because you become aware of the differences and it's a key factor to understanding more about why it doesn't work the same way everywhere and how we can help each other through good examples."*

Her Danish colleague puts more emphasis on a certain asymmetry: *"When we are talking to our European colleagues we are delivering a lot of knowledge but we are not getting a lot of knowledge back because they don´t have the experience. They are facing our situation with quite a lot of fear. In fact I had a discussion with a colleague from [Continental Europe] about our system of electronic identification and he was very sceptical. He was concerned about observation, but that is not the way the Danish society is looking at it. They are looking at it as a service"* (Danskmetal, DK).

Our informant from Italian FABI sees the main difference in the speed of digitalisation *"I see that the Nordic countries are moving very well and also digitalisation there is very fast. We in Italy are moving very well as Trade Union but digitalisation is not moving so fast. We are positioned well also compared to the Nordic Unions. This is mostly a question of speed. ...  In  a certain moment the solution created by the north must copy with solution created by the South. We need a merge of these two different solutions because I think there will be a different solution from both sides. At a European level at a certain moment you will need a common solution"*.

Practically, on a transnational level unionists address EU regulation, the role of European works councils and the benefits of overall collaboration. An Austrian GPA-djp expert suggests a *"European white book Labour 4.0"* for which *"the European Commission would need activating"* as issues of work are not sufficiently addressed. CO.OO would like to see a more activist role of the European trade union

movement: *"The union movement on the European level has to understand itself not only as an institution of exchange, but they have to be an active instrument to defend workers' rights. They have to be not only a platform for dialogue but also an instrument for action".*

### 2.2.4    Unions and the big questions: redistribution

German-speaking trade unionists are the ones who also address the wider, macro-economic questions and make connections to the current debates on "postcapitalism" of the left (Mason, 2015) and the ways for progressive policies to reclaim a "narrative" of the future. Ver.di experts look towards a redistribution of automation gains and "digital dividends" between sectors: "*We need to think about redistribution, how to handle the expected gains from digitalisation and to what extent that needs a redistribution towards those socially necessarily services that cannot easily be subordinated to a market logic."* This would mean the sectors of care, social services or education. "*The question is how to organise this – we need to think outside the box and find answers systematically that can be abandoned if they do not work for ideological or economic reasons – to get a grip on digital dividends, you'd have to be a shareholder."*

Unionists here connect to a range of possible approaches and more visionary debates: conventionally, "taxes on robots" and the platform economy are being discussed not exclusively by social democratic parties. Renewing models of shareholding by employees is the approach suggested by the ver.di consultant – but might exacerbate unequal distributions of gains if only the employees of higher-value-added sectors benefit. Finally, liberal thinkers on ICT (Lanier, 2013; Mayer-Schönberger & Ramge, 2017) suggest paying citizens in their role as consumers for the data they deliver to companies that use these data as "raw materials" for new business models and services.

### 2.3    *Conclusions: elements of a services narrative?*

In search of a service-specific vision or narrative, a particular perspective of servitisation can be of interest to service trade unions. If digital technology does not run by itself or automatically but requires complementary innovations to function socially and organisationally, services provide these complementary innovations: "Knowledge intensive business services and organisational innovations will play an essential role in translating the potential of new technology into business results and improved welfare. Identifying and solving the problems of final and business users will be at the core of innovation activities" (Gallouj et al., 2015, p. 6).

These authors emphasise services' contribution to both the creation of economic value, and to the resolution of societal challenges such as digitalisation itself, demographic change and sustainability: "whether the innovation is technological or non-technological, environmental or socio-economic, services play an active role in the production of innovations, not only those that cure or repair damage inflicted on the environment or on individuals' socio-economic well-being but also those that are preventive and proactive (education of populations, training related to environmental norms or labels, etc.)." (p. 18).

Traditionally, this function of providing public goods has been viewed as the domain of public sector services and services in the general interest. However, with both the liberalisation of services and the individualisation of consumption patterns, the divisions of labour between the state, the private sector and households are shifting. This means that the argument can be extended to the function of many private sector services.

This perspective on service innovation suggests a way beyond current concerns over digitalisation and automation. As services specialise in addressing complexity and uncertainty (Jacobsen, 2013, 2017), they have large potential in problem-solving and addressing business as well as societal challenges. Hence, new opportunities may be developed. The condition is that policy, business and civil society actors manage to direct investments and interests into socially embedded services that combine social usefulness and commercial viability. Gallouj et al. (2015) for example suggest the idea of a "supermarket as a public good"

that provides ethical and sustainable goods and orientation and advice for consumers and may also serve as a space for interaction beyond consumption. Authors oriented towards service innovation and "servitisation" thus see expanding opportunities for quality services and a reconfiguration of service markets embedded in service societies. Like the unionists and Nordic employer representatives we interviewed, they agree that such approaches require dedicated, multi-level policy support that, like emerging service value chains, extends across political and social domains.

If this path is not pursued, digitalising economies may well put home-made constraints on productivity growth: Autor et al. (2017) point out that the emergence of "superstar firms" and markets in which the "winner takes most" especially within high-tech sectors slows down the diffusion of technological innovations through the economy. The "slowdown in technological diffusion between the frontier firms and the laggards [is] arising from the way that leading firms can better protect their advantages and contributing to a slowdown in aggregate productivity growth." (p. 23)

In particular the strategies of the "Big Five" Internet companies (Google, Apple, Facebook, Amazon and Microsoft) may get in the way of societally embedded service expansion and innovation: network effects in internet-based (consumer) services are double-sided as not just consumers but also advertisers and content providers drift towards those platforms that have both a larger user and customer base. Dolata (2015) argues that these companies also favour tightly controlled and closed in-house innovation strategies – apart from activities such as app development where external products are integrated through, again, tightly controlled interfaces. These companies clearly shift the balance of power in many service sectors through their sheer weight and economic power and also their omnipresence – but may still be vulnerable to disruption themselves as consumer behaviours and internet practices change.

For trade unions, this configuration is difficult to handle: they have their stakes and membership bases in incumbent service companies that come under the related pressures of digitalisation and globalisation and may shift activities to lower-cost countries or sectors. Some of them in strategic positions may extend their services into new fields and become "superstars". Yet these companies may not always be best-positioned to develop the service innovations that are essential to shaping digitalisation in societally favourable ways – although incumbent companies make notable efforts at service innovation. But beyond these strongholds, trade unions as part of civil society also have an interest in addressing societal challenges and creating societal benefits. If this is where the future job and value-creation potential of services lies, they can ill afford not to involve themselves into other potential-bearing aspects of service and social innovation.

Our analysis thus suggests to take inspiration from the innovative side of services: digital technologies need fitting into their organisational and social environment in order to deliver their potential. Services, and the knowledge, creativity and empathy of service workers provide the complementary innovations that are indispensable for this. They also address the challenges and potentials that cannot be resolved digitally. In this sense, the role of services in a digitalised economy is indispensable. However, there are paths of standardisation, externalisation and deskilling in service delivery as well as asymmetrical, monopolised configurations that undermine these potentials.

Even from this brief outline of academic and union practitioners' insights, we see that the challenges for service trade unions are not resolved by dichotomous thinking. Focusing on "new" or "old" constituencies, technological optimism or pessimism, collective skill upgrading or unconditional basic income is not going to be adequate. We do not know whether the variety of experiences in the service sector represents different positions on one converging trajectory or on different winding paths that may converge or diverge as regional, cultural and sectoral differences are likely to persist. However, they are related and the practice of our interviewees as well as the participants in the project's workshops increasingly consists in consciously relating them.

# 3 Service labour markets and employment relations in Europe

## 3.1 *Digitalisation and employment in Europe*

Digitalisation is expected to have wide impacts on patterns of employment in various dimensions: the number and distribution of jobs, their demands on skill levels, and the development of employment (and service) contracts. Collective bargaining and interest representation are still mostly based on assumptions of "normal" employment relationships, with one employer, work taking place on one site, permanent (full-time) contracts and clear qualifications and skill profiles. However, many jobs, especially the newly developing ones, no longer fit that profile and the service sector in general has more polarised and atypical employment. In some sectors and regions, unions have traditionally represented and bargained for freelancers and other atypical employees (for example in the media, in education or temp agencies) (Haake, 2017; Pernicka, 2005) and also, for example through issuing press cards, mediated access to the professions (Aubert-Tarby, Escobar, & Rayna, 2018). Yet, existing solutions are not easily translated beyond these domains as new types of employment contracts emerge (Mandl, Curtarelli, Riso, Vargas, & Gerogiannis, 2015) and liberalised contracts spread across sectors and organisational domains. Challenges are to extend collective bargaining and interest representation to "new" and emerging types of workers such as crowdworkers (with varying degrees and demand for policy support), and/or to reinvigorate regular "employment 4.0" in an inclusive way.

However, some issues may be less complicated than they look at first sight: For example, Risak suggests regulating platform work in the EU, as it is often transnational, in such a way that the legal default assumption is an employment contract between the platform worker and the platform. This could be rebutted by the platform if criteria for professional or freelance work apply (Risak, 2018).The various functions of an employer which may be somewhat diversified in platform work (similar to agency work or other services on clients' premises) could be subdivided between customers and the platform, but the default status would be clarified.

The variety of assessments of job development in European trade unions can be explained by variation in the national/regional economic performance, industrial relations systems and sectoral specificities that feed into the experiences of the interviewed experts. Areas of consensus among the experts are the need to regulate and shape flexibility in favour of workers and the need to upgrade skills, improve re-skilling and to retain and extend unions' and social partners' influence in skills and training initiatives. Unionists also agree that companies must not be let off the hook of their responsibilities to invest into the workforce.

### *3.1.1* Technological unemployment or new jobs emerging?

The necessary debate on questions of good and sustainable work and employment in digitalized service economies has been somewhat overshadowed by the question of the number of jobs in digitalized economies. The well-known study by Frey and Osborne (Frey & Osborne, 2013) considered some 47% of US jobs as susceptible to automation. Applications of their methodology to European countries yielded similar and even higher predictions (Bowles, 2014). The argument of these authors *was* that new advances in ICT, in artificial intelligence, speech and pattern recognition, data analytics and so on will soon allow the automation of tasks that used to be resistant to automation (such as car driving, medical diagnoses, translation and so on). However, these prognoses tend to confound jobs and tasks: jobs generally consist of bundles of tasks that are more or less prone to automation, and tasks may shift within and between jobs across the skill spectrum: routine service jobs contain and even increase shares of non-routine tasks (such as documentation in care or team *coordination in the flat hierarchies of cleaning), and routine tasks such as admin work encroach on professional jobs (Fernández-Macías, Hurley, & Bisello, 2017; Huws, 2016). Analyses based on tasks ra*ther than jobs thus result in less extreme prognoses. Arntz et al. (Arntz, Gregory, & Zierahn, 2016), thus find only 9% of automatable work in the US, and in between 6% (Korea,

followed by Estonia and Finland) and 12% (Germany and Austria) in other OECD countries. In the view of an Austrian expert "these are effects that could easily be compensated by shortened working hours" (GPA-djp, AT). These authors and also work sociologists Pfeiffer and Suphan (Pfeiffer & Suphan, 2015) emphasise the collaborative, interactive and problem-solving content and competences in many jobs that are considered routine. On the one hand, the mixture of tasks stands in the way of simple 1:1 automation. On the other hand, even if existing jobs are interactive or problem-solving, they may not be immune to more systemic automation efforts – if for example, the problem-solving content is shifted onto customers' self-service.

Evidence from the interviews shows varied assessments of the impact of digitalization and automation on the labour market. The Scandinavian/Nordic experience features low unemployment, high skills and a strong labour market with fewer people entering than exiting it. Respondents of both the union and employer side consider that digitalisation ensures jobs and competitiveness, rather than putting them at risk - along the lines of a picture of the world in which "man and machine will rather work together and there will be new kinds of jobs, mixing competences in a new way" (Sveriges Ingenjörer, SE). In Denmark and also in Germany, digitalisation is also seen as an inevitable and even beneficial response to staff shortages "We do not have the workforce that we need if we don´t digitalise and don´t automate. So in fact people are not so scared about digitalisation and automisation in Denmark. They see it as a needed thing." (Danskmetal, DK). While some jobs are vanishing, others are changing in nature and some totally new ones are emerging. The main challenge in this view is the need to reskill or upskill the workforce. Respondents from the Nordic countries are confident that their countries and social partnerships mostly have the instruments in place to do so, especially on the sectoral level (see below). German ver.di's experts point at the frictions even if job losses overall are limited: "Of course, it does not always work in the way that you look what [tasks] disappear I which occupational group and what is added somewhere else, and how do you manage to include people and upskill them".

Outside of Northern Europe, concerns are considerably more sector-specific. As we have seen, unions representing the engineering professions are mostly more confident. In Spain, telecommunications and media have downsized massively. For retail, the evidence is uneven. Some job losses could be compensated by an increase of customer-focused roles: "In the future, it is likely that the role of shop personnel will become consultative and they give advice and recommendations to customers" (PAM, FI).

The financial sector appears to see the most downsizing at the moment. Italian FABI's unionists see these job losses also in highly-skilled and headquarter jobs in banking but are somewhat confident in the union's capacity to manage these changes through early retirement (paid for by a sectoral fund) and some retraining as banks for a while have stopped hiring young employees. New employment may or may not compensate the job losses in the longer run but is expected in very different fields of technology, analytics, marketing and media – which may make it difficult for a union with a clear professional profile to access the new and more transdisciplinary types of employees. The Irish FSU also sees new jobs emerging with regard to new regulations in banking which requires more work in compliance – but transfers from branch offices to these more centralised functions are often not easy to achieve. Austrian financial services have the most "depressed" works councillors in the view of GPA-djp's experts. *"They have the most scenarios of fear, talk about mass unemployment with great vehemence and are in favour of a need-oriented basic income"*. One of the issues there is that incomes in the well-organised banking sectors are well above those that workers could earn if they moved to similar occupations in different sectors such as retail. Here, re-skilling on its own does not provide solutions to these concerns.

Whereas mostly, logistics are considered prime candidates for job losses, a Belgian unionist sees the sector as expanding in the region, increasingly offering new jobs t the low-skilled: *"They are mostly low-skilled jobs though and that's fine because in the whole society lower skilled people are having difficulties to find a job, so Nike is a good example that people without high skills have chances to get work. ... People*

*are thinking that robots are coming to take the work and they do so for sure: but in this sector, in logistics it's better for the companies if the people are there because they are more flexible than computers. ... Is a surprise for me as well but that´s the reality."* An expert from Austrian GPA points out the risks of sectoral shifts caused by e-commerce: *"it's important that trade unions co-shape the nature and quality of the new jobs arising and make sure the right, already existing collective agreements are applied"* (GPA-djp, AT) – which in logistics tend to be less favourable than in commerce.

The Romanian sector of offshored business services, dominated by multinationals, finds itself hovering uneasily between the recent employment growth (due to cost-cutting and also staff shortages elsewhere that led to relocation) and current shifts in the patterns of offshoring. As wages have increased, companies explore new automation and relocation options: *"Generally we are paying the price for our own success … new jobs come here because of the shortage of people and because of that salaries have increased very fast – faster maybe than the way jobs' activities have increased in the sense of tasks and things you do. So for the same job you would pay maybe 20-25% more now than you would have paid earlier and this obviously has consequences even on ongoing projects."* (SITT, RO). However, neither companies nor politics in the country have explored ways of creating more sustainable jobs with higher value-added, exploring fields of potential growth such as the Internet of Things or the energy sector. While the de-regulation of labour-markets helped create a highly skilled and fast-growing segment, this has to some extent been locked into a dependency on multinationals' restructuring strategies that does no longer look auspicious in the face of automation and further offshoring.

### 3.1.2    Hollowing-out of labour markets: medium-paid jobs and polarisation

Even before current digitalisation debates, labour market polarisation has been observed in both US and European labour markets. This changed the established models of the relationship between technology and labour markets: Skill-biased technological change means that technology substitutes for low-skilled work and enhances the productivity of higher-skilled work, leading to skill upgrading. However, from the 2000s onwards, labour economists found increasing shares of both low- and high paying occupations in the labour market at the expense of the medium-skilled. This has been called routine-biased technological change, and the assumption is that now, ICT substitutes for the routinized work done by medium-skilled employees, whereas both the highly-skilled positions and labour-intensive non-routine but low-skilled jobs (especially in personal services) expand. Upgrading with some polarisation was observed in Europe since the 2000s, and the crisis clearly exacerbated polarisation. It has increased in many European countries, although there are different patterns that do not simply map on the different labour market regimes. Mostly, the share of highly-paid occupations has increased more, but some countries in both the analyses of Goos et al. and Breemersch et al. see higher increases in lower-paid employment (Breemersch, Damijan, & Konings, 2017; Goos, Manning, & Salomons, 2014). Nordic countries tend to have higher and still-increasing shares in the higher-paying occupations and below-average shares in middling occupations. This is supported by a study by Maczulskij and Kauhanen (Maczulskij & Kauhanen, 2017) who show that Finnish workers from declining middling occupations mostly manage to move into the higher-paying ones. Germany and Austria still have well above-average shares of medium-skilled jobs (which are associated with these countries' dual systems of vocational training), and so do Italy and Portugal (Goos et al. 2014). Southern countries have higher shares of lower-paying work, but do not necessarily show disproportionate further increases in low-paid occupations in recent years.

Employment polarisation concentrates in the services, whereas manufacturing has seen more skill upgrading. Real estate and business services are found among both the most expansive and among the most polarised sectors in Europe (Breemersch et al. 2017 p. 7) between 1997 and 2007. Hospitality, Commerce and financial services also have high combined shares of low- and highly-paid occupations. The more recent analyses by Eurofound (Fernández-Macías et al., 2017) cover the years 2011-2017 and find limits to further polarisation for the more recent period (Figure 2). Employment growth still

concentrates in the services, and the private sector services continue to show a polarised development. From 2013, employment in the middle- and lower-paying occupations increases again, and picks up especially in public services, that is, health and education. However, "normal" employment only expands for the highly-paid.

*Figure 2: Heterogeneity in polarization in European countries 1997-2007*
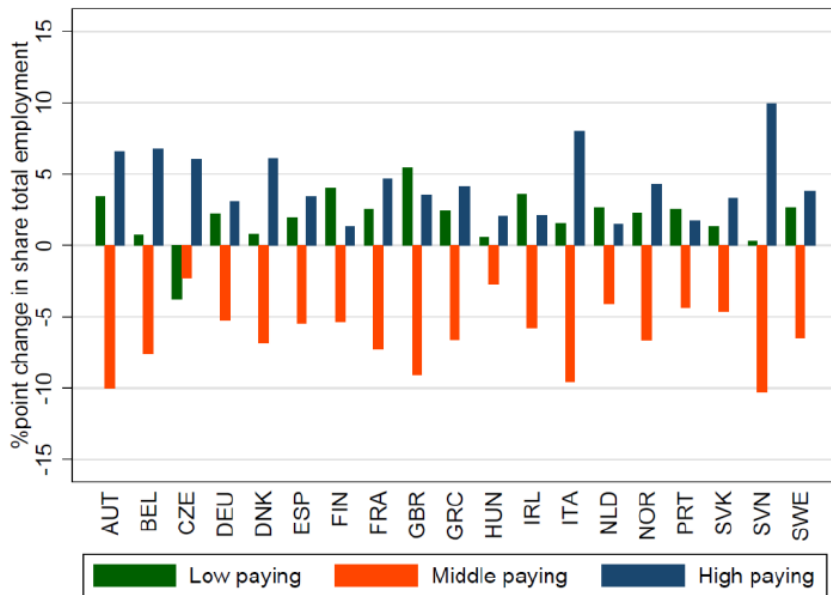


Source: Breemersch et al. 2017, p. 6

*Figure 3: Employment shifts (in thousands) by job–wage quintile and service sector grouping, EU, 2011 Q2–2015 Q2*
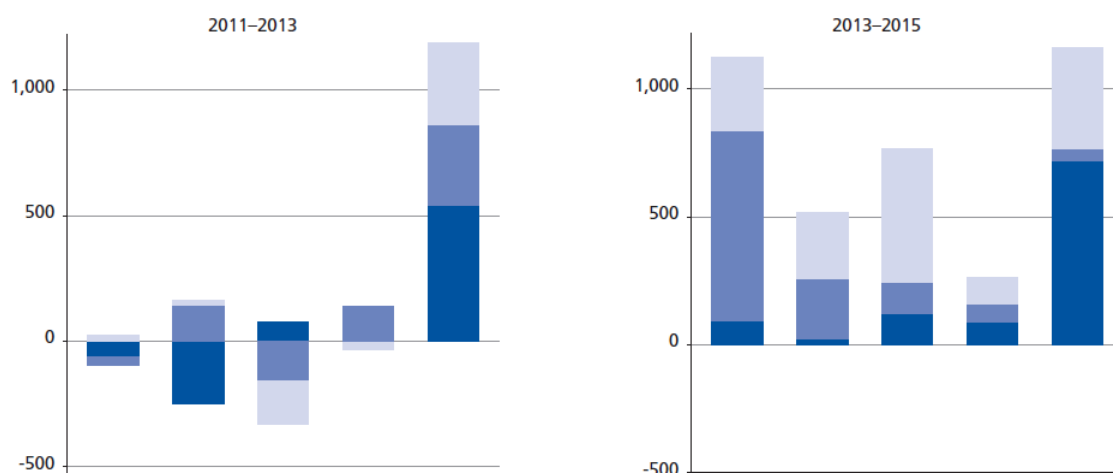


Source: Fernández-Macías, Hurley, Bisello 2017, p. 18 dark: private knowledge-intensive, middle: non-knowledge-intensive, light: public knowledge-intensive services

Apart from technology, polarisation is explained by globalisation and offshoring (mostly in manufacturing, Goos et al. 2014), supply of skills (D. H. Autor, 2015), and also by consumer demand, especially with regard to services. The argument is that higher-earning workers can afford more time-and labour-intensive (personal) services (Cirillo, 2016). This recently led Goos et al. to calculate a multiplier, suggesting that in the high-tech regions of Europe, one high-tech job "creates" up to five non-high-tech jobs in services, and that regions that so far are lagging behind should accelerate their investment into high-tech jobs. However, this discussion tends to focus on personal services such as hairdressers, fitness instructors or baristas (Berger & Frey, 2016) – occupations known for precarious working conditions. If the argument holds, developing regional economies along the lines of a "high-tech-plus-personal services" scenario would risk developing a very polarised labour market. To avoid this, regional development policies would need to balance R&D investment with investment into a wider public infrastructure that favours medium-skilled jobs and pays attention to job quality at the lower end of services.

Unionists in the interviews do not often discuss polarisation as such – as mostly their constituencies are found at the medium- to highly-skilled end of the spectrum. Developments on entire national labour markets are not necessarily mirrored in individual sectors or on the company level. Telecommunications is an exception, where our Croatian interviewee sees a polarisation resulting from the downgrading of middle-range jobs in services and customer advice: *"At the same time you are right that in the middle there is a gap. Some of the jobs are lost. You don´t have any need for some advisors in the shop because you can see and read everything in the internet. I mean right now this is an ongoing process, not a rapid process so it takes some time, but there is a pressure from the employer side to have low skilled workers. For our understanding there is still some kind of a skill necessary, but the question is if the employers are still willing to pay it as before. It is not so much a question of skills as it is a question of wages for knowledge or skill." (HST, HR).* This is in line with a recent analysis of the call and service centre sector in Germany (Daum et al., 2018). Although Deutsche Telekom Services for their own employees pursue sophisticated initiatives to upgrade skills and develop the service, in the outsourced call and service centre sector skilled workers find themselves locked into low pay and limited perspectives. Polarisation thus can also be observed as a direct outcome of company restructuring in the interplay of outsourcing and digitalisation in which workers need to handle complex technological transitions while the expected gains are increasingly out of reach for the majority of them (see chapter 4.1.2).

Otherwise, most interviews address patterns of downsizing, new and emerging hiring strategies and centrally, the development of precarious and atypical work with a negative impact on job quality and also on unions' capacities for action. At this point, an interviewee from Austrian GPA-djp sees a limit to the union's aspiration to shaping digitalisation: *"precarisation we don't have to shape, precarisation we must prevent".*

### 3.2    *Downsizing and recomposing workforces*

Companies' downsizing is not necessarily tied to digitalisation directly. This is interrelated with the pressure of shareholders to cut cost, saturated markets, decreased revenues and general competitive pressures. In telecommunications for example, liberalised markets and ongoing restructuring has created continuous waves of restructuring, downsizing and recomposing workforces since the 1990s. This also means that trade unions have gained considerable experience in negotiating social plans and severance packages. The possibilities to do so are of course contingent upon each country's provisions for employment protection (or lack of such protection).

### 3.2.1    Companies' staffing strategies and unions' responses

French IT companies in France aim to shed especially older engineers: *"companies consider their costs to be too high and they solve the necessity to upskill and reskill them – which costs a lot and is not guaranteed to be a success with each individual – not all IT employees can change."* (CFDT, FR). In the sector, so far there is little negotiation over downsizing. In Germany, Austria and also Croatia, legal employment protection requires for layoffs a selection along social criteria and involvement of the works council. Specific collective agreements are used on top of that, setting up funds for retraining as the Austrian "Arbeitsstiftungen" or some offers of advice and possible re-training. In the view of ver.di's consultants, existing collective agreements are, however *"too feeble"*, containing "*more of a little promise that the company will look after you"* (consultants to ver.di, DE). Croatia has similar legal requirements of employment protection to Germany and Austria, but employers are frequently deviating from the rules: "The fact is that most of the employers are not quite educated as how to do it and they are not respecting all the criteria defined by law. We had some lawsuits in telecommunications because the company decided that performance management results should be a criterion for a worker. Problem is that they have taken it as as a measuring criterion and not as an additional criterion. So according to the performance management they decided which workers to lay off. And this was not according to Croatian law."

In contrast, Romania's liberalised labour market has no obstacles to dismissals: "*Be aware the layoffs in Romania are cheap (I would say close to zero), easy to do from a leader perspective. [We] might also suffer extra just because of that. In countries like Romania where you had the Troika intervention or very flexible labour laws and pro-employer, you can lay off people just like that without having to pay ANY compensation"* (SITT, RO).

Nevertheless, Romanian and Croatian unions are negotiating agreements over further training to compensate or even prevent dismissals. In Croatian Telecom, during planned layoffs of 300 workers, HST negotiated an offer of a programme of free, scholarship-based education by the company to those concerned. *"Response of workers was not too high but in the expected values. In future cases this would be a part of negotiating that we have to stick to. (HST, HR).*

Romanian SITT aims to transfer an initiative by Deutsche Telekom in Germany to provide training and prevent dismissals[1] to Romania. The company developed a suggestion in collaboration with ver.di to establish part-time educational leave. Workers would reduce their working hours by 50% to take part in certified further training. For the training time, the company pays another 10% of the salary, the state covers another 20% for one to four years. As a further incentive, employment security beyond the training period could be negotiated in collective agreements. "*From the worker side this is a good idea. This is a clear win-win situation. We are still awaiting feedback from the German side. If it is successful in Germany we would try to implement it. We have spread the word of what the German colleague are doing and the reactions with the unions were quite positive and now we are waiting to announce it to the government*" (SITT, RO).

Italian FABI has a sectoral fund for early retirement and some re-training. This is expected to be working through the massive transition that is expected for the next years since banks have providently not hired new people in the last decade: *"In fact we have a block in the generational change and this allowed banks not to fire the person with maybe 40 years of age. Now this ban is still going on. Banks are not hiring a lot of young people, except for the specialists, but they are small numbers. ... So in ten years we will have a very old population in the banking system and this will even improve the mechanism because people will go into the retirement and I think banks will begin soon to hire new young people."* (FABI, IT).

As this system cannot be expected to scale across sectors (and Italy has a known problem with high youth unemployment), for the country at large this expert sees two possible strategies: a "defensive strategy" would entail a basic income for those affected by digitalisation with the downside that its recipients may remain permanently excluded from the labour market, and a more preventative one of "industry 4.0" that was introduced in 2017. There, the state would help to provide training to those affected before any layoffs.

Some unionists see evidence that companies conduct some of their downsizing prematurely, unrelated to real gains in automation or productivity. Here, digitalisation plays a somewhat virtual part: it raises managers' expectations of possible savings well before the technologies are running. Then, frictions occur between staff cuts and the fact that the actual implementation of the new technologies still requires considerable work by humans. These needs that may or may not be temporary are then filled with the use of more precarious workforces. In Germany, downsizing often happens through partial retirement of older, well-paid employees but *"they are still needed, only [companies] only notice that during waves of layoffs, then they are brought back from partial retirement, maybe with marginal part-time contracts to support the time of transition, when digitalisation was overrated and so was the capacity of IT departments"* (ver.di, DE). In the Croatian telecommunications sector, the layoffs of the last years were replaced with cheaper and more precarious workforces: *"This is not a direct question of digitalization. Digitalisation happens every day. The problem is that the overall load of work is still the same. Right now e.g. in Croatian Telecom we have 2.500 students and agency workers all together. So this is almost 40% of overall workforce that work there. And they are not covered by collective agreements. The reason that we keep this number is that physical work is still needed. Somebody has to connect the wires. This means work is shifting from one work channel to another work channel. You are not reducing work that has to be done but the initial input"* (HST, HR).

Where staff is retained through the transition to new technologies, the transition situation may limit works councillors' attention to automation potentials: *"Especially when new digital technologies are being*

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[1]      https://tk-it-nrw.verdi.de/++file++594240c8af089875906c85a0/download/17%2006%2015%20MI_Bildungsteilzeit.pdf

*introduced, often in the beginning, they don't really work. For example [in telecommunications] the all-IP migration for business clients had the effect that many products didn't work, the new ones do not really exist yet, and the result is more work. And workers and works councillors do not really have a sense of the potential for automation since in the first phase, strain and work intensity increase, ... They say, oh, there is going to be more work anyway, but do not really think about what happens when this implementation has happened" (ver.di, DE).*

### 3.2.2 Age structures and precarious working

In the interviews, discussing restructuring and changing workforces on the company level, we see some distinct patterns that may not be visible in entire national labour markets. In the interplay of downsizing and creating new jobs, unionists show that age plays a central part: older employees are exchanged for younger ones, partly to access new skills at a cheaper price and partly in in relation with more precarious employment statuses and also some de-skilling. The actual interplay is contingent on the respective labour market, the skill demands of the job in question, and the availability of various types of younger and more precarious workers.

While laying off their senior staff, French IT companies hire young cohorts of recent graduates: *The ways IT companies see it is that they have to hire young engineers, fresh off of university/engineering schools. After that most will have to leave after 3-5 years and the company keeps the best inside, otherwise the company would have to give them a raise and so on and they do not want to do that. They are then replaced by new younger ones. ... On the customer side it's the same if you are a young engineer, it's quite acceptable by young engineers – because Atos is doing all they can, to present themselves on the outside and on social media as a great place to work, to have a good image. Young people do it, in order to have a good reference for their CV."* (CFDT, FR). This suggests the younger cohorts of high-tech workers are receiving quite different offers and possibilities in the labour market than their older colleagues. Arguably, the ICT sector's complaints over staff shortages (see section 3.4.1) are exacerbated by these hiring strategies. Workers, especially under conditions of high youth unemployment, apparently anticipate these discontinuities by considering their first and entry-level jobs more as means to an end. This is reiterated in the case of Croatian posted workers in telecom engineering. Equipment manufacturers post workers to higher-wage countries such as Austria and Germany*: "the problem is the fact that these workers are getting Croatian salaries with a small benefit for staying abroad. ... We [the union] … asked them how to help them and how to get them in a better position. But the reaction was: guys, that is another bullet in my CV and I have to do this even if I get paid less. It´s an investment in their future. They were basically asking us not to intervene"* (HST, HR).

In Croatian telecoms, it is both agency workers and students for whom collective agreements and social security contributions do not apply. There, the union is running a campaign to regularise students' employment status: "*Because it happens that students are working for years during their studies and then when they have their degree, they enter the labour market and these years are not appreciated or valued. So basically they start as a rookie without any experience. Therefore we just proposed to the government that they should change the law and students should be regular workers and the fees should be the same. So that the students also have a contribution to this pension fund." (HST, HR).* Addressing agency work is more difficult since legally the union cannot collectively bargain for the entire sector of temp agencies but needs to negotiate with each company separately. This is, however, limited by agency workers' reluctance to organise: "*They are rather afraid to join the Union. They say if they do that they may not renew the contract. They often say that they support us and like us but that they don´t want to be a member. ... The problem is that in Croatia there is a higher rate of unemployment with young people. So they appreciate every kind of work. So if you are working as a temp-agency worker, ‚I´m the last in the chain but at least I´m in the chain.'"* (HST, HR).

### 3.3 *Atypical employment*

#### 3.3.1 Self-employment and precarity

After the crisis, atypical employment has been further increasing across European labour markets, and only since 2014 has permanent employment grown again – but its levels are not back to pre-crisis levels and the shares of temporary employment have increased. However, we do not see a marked expansion of self-employment. It has been hovering around 15% in the EU since 2000, but its contours are changing: increasingly, self-employed workers are found in services and have no employees. A quarter of the solo self-employed in the EWCS reported that they had no employment alternative. The share of part-time self-employed without employees has increased from 1.7% in 2002 to 2.4% of all the workforce in 2015. Self-employment is a form of working with polarised income and working conditions. The Eurofound study on self-employment considers one in four self-employed as vulnerable through economic dependence on one or a few clients, low autonomy and financial vulnerability (Vermeylen, Wilkens, Biletta, & Fromm, 2017). This does not show an overall proliferation of (bogus) self-employment but clearly, not all self-employed are self-determined entrepreneurs.

*Figure 4: Changes in permanent, temporary employment and self-employment, EU 28 2008-2015*
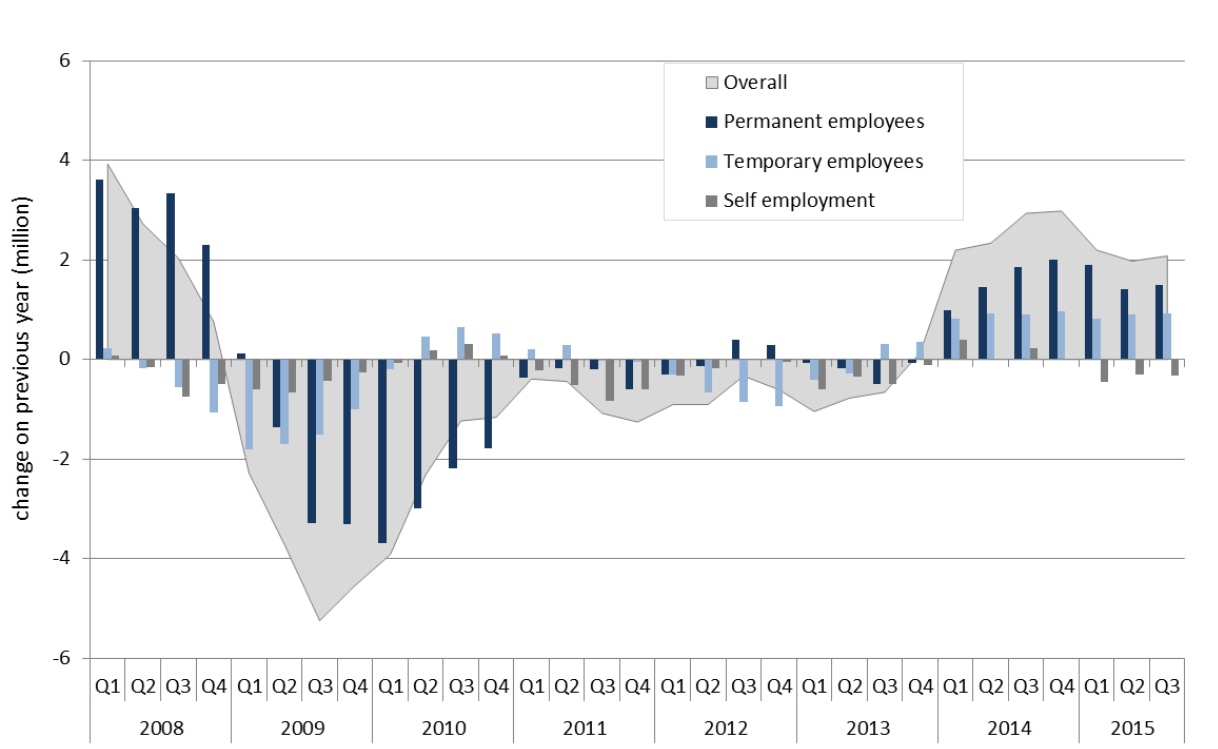


Source: Eurostat, European Commission 2016, p. 30

Unionists note that atypical employment in many European countries is concentrating among new labour contracts. In Spain, according to CO.OO interviewees, *"digitalisation is … enforcing temporary, rotational work through new systems of managing services"* with a focus on involuntary part-time work and further fragmentation of work (Recio, Moreno-Colom, & Godino, 2015) . In Finland, more than 50% of new labour contracts of less than a year's duration are temporary (PAM, FI), and the share for women is significantly higher than that for men. In Germany, one third of new entrants to the labour market only receive a fixed-term contract. There, in retail, logistics and security, marginal part-time contracts (that are subsidised with regard to taxation and social security contributions) have proliferated and are used in a highly flexible way amounting in effect to "work on demand". In the chemical industry in Belgium, it is only the highly-

skilled who are hired on open-ended, permanent contracts. Everybody else is hired through a subcontractor on a temporary contract. Belgium appears to specialise in creating tax and social security exemptions for highly flexible "extra" work (see section 2.1.5). The country has introduced a tax subsidy for "second jobs" in services to people working in a main job at least for 80% of full-time and earn up to EUR 500 or 9.60 EUR/hour in their second job. Unions were opposed but "*It´s a real shame and a disaster for social security because they are not paying for social security. But people like it because it´s five hundred Euros extra in month. We had strikes and demonstrations and we were lobbying of course but we have a right wing government nowadays in Belgium and they are doing what they are doing*" (BBTK, BE).

However, this interviewee cites a company-specific example of collectively agreed flexible working that appears favourable to workers: At the Nike logistics centre, apart from providing work for the low-skilled, weekend work abounds but is managed on a voluntary basis: "*people [are] working only Saturday/Sunday for e-commerce because the business is booming and on the weekend the people have more time to buy some things on the computer.. .. And then it´s ok because if people are willing to do that than it´s ok for me. People are working Saturday and Sunday on Nike and on the rest of the week for another employer but it is their own responsibility. … 12 hours each day and you get paid for the whole week*" (BBTK, BE).

### 3.3.2    Platforms as forms of (non-)employment

These atypical forms of employment and also the newer ones provide the context in which to consider digital-based crowdwork providing either virtual or space-dependent services. Work "on demand" with discontinuous employment and income is also found in other forms of employment, for example in commerce or care (Mandl et al., 2015). Customers and clients shape contracts and working conditions in wide areas of the service sector, and workers are increasingly directly exposed to market volatilities. Especially women workers in personal services find their skilled, responsible and demanding work misrecognised as an extension of care or housework, and in fact as anything but a "real" job (Holtgrewe, 2016).

*Figure 5: Shares of extensive crowdworking among crowdworkers by country*
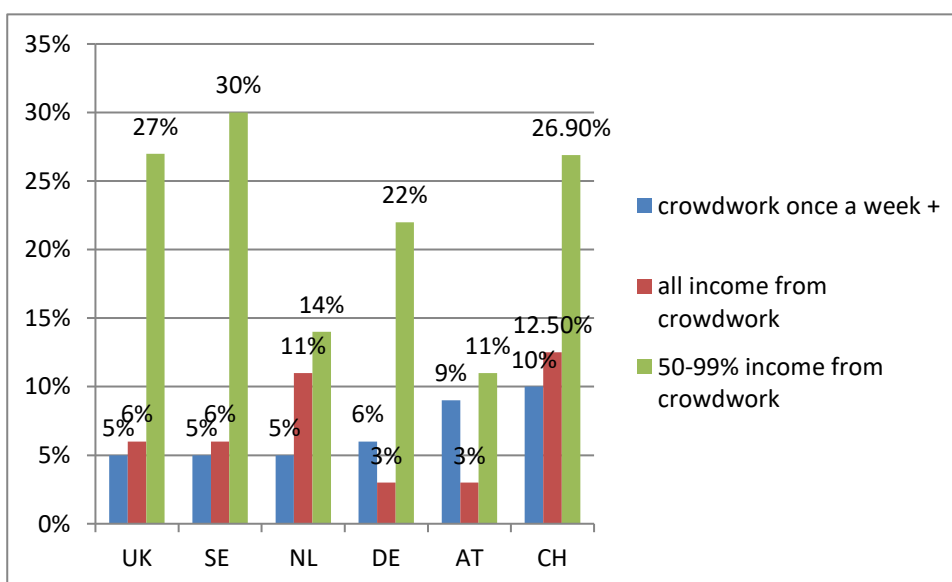


Source: Huws et al. 2017 a and b.

A series of recent surveys by Ursula Huws and colleagues, commissioned by FEPS and UNI Europa, provides some insight into actual numbers, albeit on the scale of medium-sized online surveys: So far, crowdworking is mostly an "extra" job and not much of a regular source of employment. Sizable minorities

of respondents said they had searched for crowdwork, but fewer had obtained any. Only 5% of respondents in the UK, Sweden and the Netherlands, 6% in Germany, 9% in Austria and 10% in Switzerland work on a platform on a weekly basis. Between 3% and an exceptional 12.5% (Switzerland) of crowdworkers receive their only income from crowdworking. In between 11% (Austria) and 30% (Sweden) reported earning more than half of their income this way.

Hence, crowdworking currently is a minority activity in Europe, and the ambitious experiments of for example IBM a few years ago have apparently been put on ice. Nevertheless, as people and companies generally gain experience with platform-based services, their uses will become clearer and will be pursued more proactively. Some uses of platforms may complement digitalisation in somewhat ironic ways: clickwork for tagging images and complementing image or language recognition fills the gaps in tasks that artificial intelligence cannot deliver for now. Overcoming the costly "last mile" to the customer or end-user is not just an issue for e-commerce or food deliveries but also for the installation of the multitude of standardised sensors, routers and other hardware related to the Internet of Things. For such space-bound operative and highly demand-driven work tech companies already imagine the use of platform workers.

Unionists currently confirm the limited relevance of platforms in their respective labour markets – but platforms may be found outside their scope. In Spain, platform work also appears to affect higher-skilled tasks such as translation services, engineering or legal advice. In the Nordic countries, domestic services appear to be expanding. In Croatia, some of the young and mobile groups of highly-skilled ICT engineers and students appear to find work on foreign platforms but this group of crowdworkers consider themselves entrepreneurs rather than employees.

From the company side, platform work mostly appears to be used for marginal activities or to a limited extent, which also means, there is no immediately perceived competition of employees and crowdworkers. In Croatia they are used in the ICT sector and there is some transnationalisation: *"basically there are a lot of small companies, start ups and ICT providers or integrators which are using different types of platforms, even some developers and software engineers that are not in Croatia" (HST, HR).* In Germany, *"at IBM … hundreds of jobs should have been assigned through platforms. But if Deutsche Bank in recent years puts three projects on Jovoto [a creative industry platform] and some freelancers participate, that is no immediate concern of employees and the works council does not look too closely either."* (ver.di, DE). Hence, the fact that currently platform developments are occurring slower than expected a few years ago, should not entirely distract unions' and policymakers' attention from the need to extend labour market regulations to new forms employment.

3.4 *Skills and training*

The literature widely agrees on the expected skill demands of digitalised services. ICT skills are considered critical, but in a wider view, workers will need those skills that are complemented by ICT and other technologies: problem-solving, creativity, collaboration and interaction (Brynjolfsson & McAfee, 2014). Even the sought-after ICT skills increasingly need to be complemented by such abilities.

*3.4.1* ICT staff shortages and how to address them

In the EU-27, the numbers of ICT graduates have declined from a peak in 2005-6 in many countries, especially at the levels of vocational and pre-vocational programmes and of first-stage tertiary education. This decrease concentrates in countries as diverse as the UK, Belgium, Romania and Italy, whereas some Eastern-European countries and Austria have seen an increase by 50%.[2] The lack of ICT professionals by

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2        http://euskillspanorama.ec.europa.eu/docs/AnalyticalHighlights/ICTProfessionals_en.pdf

2020 is currently estimated at some 756,000 of which 226,000 are at management level (Hüsing, Korte, & Dashja, 2015). Indeed, unionists find that the ICT sector reports shortages in such diverse countries as Denmark, France, Romania and Sweden. Regional differences also play a part, with less staff available in rural regions. As we have seen, the emphasis of companies on recruiting recent graduates may not help. An interviewee from Sveriges Ingenjörer points out that the market does not appear to be responding as it would be expected to: *"This year, the wages [reported in the union's membership survey have gone up a bit, but apart from that, despite of all the talk on shortage, we have not seen an equivalent rise in wages. So we assume the companies are buying competence from somewhere else."*

The Romanian ICT sector mirrors that situation, with similar consequences: *"the latest figures show there is a shortage of 20000 IT specialists – this definitely impacts potentially existing plans of expanding ... highly value-added activities. We're trying to do as much as possible – for example involving girls and women in IT, trying to reach people from economics and production lines towards low-end IT jobs, or trying to be as creative as needed, in order to increase the availability of people."* (SITT, RO). However, this is undermined by emgiration and brain-drain. There are several reasons for this: the apparent lock-in of the Romanian ICT sector into low value-added activities that are prone to further relocation and automation (see chapter 4.1.2), companies' unrealistic expectations of cost-savings, and frequently the hierarchical and pressurised working cultures:*"Despite the shortage of people in the sector, don't imagine that within it workers are treated in a correct manner."* In sum, *"Instead of finding ways of utilizing the workforce more efficiently or finding ways of bringing more value-added activities and using the people you already have in your companies, they […] are aggressively cutting projects and letting people go."(SITT, RO).*

All of this and the persistence of expected skill shortages suggests tensions around skills that are not simply addressed by increasing the output of graduates in sciences and engineering or by proclaiming life-long learning. Both Swedish and Romanian interviewees point out a certain hypocrisy in the debate: *"„They want to get more people into engineering and nag about the shortages, but they don't want to pay for it"* (SI, SE*). "Whenever we're talking about digitalization, […, you'd only see the idea of digitalisation along with the one of professional reconversion, training, all these together. But in real life you would only see the first one and how cost efficient it can be and you don't really see the second one with reskilling. Especially in a country in which it's cheap or even close to zero to fire people. Why would you invest in their reskilling when you can fire them, and if at some point in life you would have new projects with high added value positions or whatever, you can just hire new people if you can find them."* (SITT, RO).

Ironically, the country has an example of an ICT-company-owned training facility that provided sustainable skills but has been closed down following a series of mergers and acquisitions: *"the [company name] University had its own building full of classrooms, with trainers, with people specialized in different technologies, programming languages etc. I've learned so much there – more than in school. Now for years that centre is closed. I have lot of friends that tell me, ... I'm looking to hire at least 5-10 people who were trained at our university for a new project, because I know I can rely on them – and I'm always thinking, guys you have the proof, the model right in front of your noses. Why don't you try it again?"*

### 3.4.2 Skill development in general

The pattern of widely proclaimed skill needs and some likely and increasing underinvestment in skill development is not only found in the ICT sector. Behind the wide consensus on skill upgrading, we find a range of gaps and also blockades for various reasons: diverging interests of workers and employers, diverging time horizons and institutional walls, for example between the general education system and the increasing short-termism of skill demands, and the persistent inequalities in access to training and education.

Overall access to training is known to follow the St Matthew's principle that more will be given to those who have: the more highly-skilled and securely employed receive more training. For example, while

almost half of the permanently employed have access to in-work training, it is only 32% of employees with fixed-term contracts and 19% of the self-employed (Vermeylen et al., 2017). This already suggests that the proliferation of precarious and atypical employment risks severe underinvestment in human capital both by companies and societies.

Unionists and employers agree on the need for a general upgrading of skills but also on a general acceleration of changes. *"Agility will become essential"* (CFDT, FR), and *"demand for more education and continuing professional development is increasing because the technological development is so fast – you cannot rely on a good basic education all through your career, one needs to keep up, more than this was the case before."* (SI, SE). Considering that ICTs are increasingly utilised outside the ICT sector, "transdisciplinary" skills and competencies are also expected to gain in importance: *"For the things that cannot be quantified, you need damned good and skilled people that also need to master the technology, otherwise we'll end up in the matrix",* says an expert from ver.di. Prognoses on "big data" and the Internet of Things etc. suggest that they challenge established divisions of labour between technology and other fields. This could lead to a change in focus on ICT skills beyond the conventional distinction of ICT qualifications and user skills. Hence, more advanced ICT skills could be made more accessible to workers with experience and skills in application fields of ICT, including older workers or workers with discontinuous careers.

However, forecasting capabilities for new and emerging skill needs are unevenly distributed. The Nordic countries' social partners but also Spanish CO.OO feel they have good capacities in place and that anticipated changes can be swiftly translated into adequate training measures. Italian FABI found its own initiative, developing a "new banking model" with matching training blocked by the employer side: *"at the moment only few banks are interested in this. But the bank system as a whole is not so fast in this way."* (FABI, IT). German ver.di and Austrian GPA-djp argue that companies need their own strategic planning of skills and training needs. Yet they are somewhat uncertain about companies' abilities to plan: *"you'd like to forecast the future and be able to tell what the sectors look like in 10 or 15 years, but companies themselves either don't know or don't share the knowledge, and that makes predictions difficult",* say ver.di's experts. Notably, there is clearly a difference between "not knowing" and "not sharing". This may be exacerbated when in a "big data" scenario, the capacities to assess developments with regard to future strategic planning concentrate among private companies and consultancies. In such a situation, states, labour market institutions, researchers and social partners may find it difficult to sustain both their knowledge bases and a public and democratic discourse on the impact of digitalisation.

Nevertheless, GPA-djp's Austrian expert in particular focuses on the need for a holistic approach to change management: *"that digitalisation is about change management and that in the future, good skills need to be supported and HR is getting more important in spite of the technology moving into that function, consultants tell companies that. Would the social partner say that in its political speechmaking? More likely they would argue that employees are too little skilled".*

The Nordic countries report that their system of vocational skill upgrading, led by the social partners on a sectoral basis is sufficiently agile to weather changes. In Sweden, the "crown jewel of the Swedish model" is a social-partner based model that offers training, coaching and support in job search to those laid off by companies under a collective agreement. It *"works extremely well, everybody's pleased with it, but it is reserved for the ones already on the inside"* (SI, SE). Workers hired through agencies or outside collective agreement remain excluded, and this is seen as a problem if precarious work or self-employment expands. In Denmark, further training is also developed by social partners: *"We have such a flexible education system in Denmark. It is built up so that always the social partners define the different contents of educational trainings. As soon as we have identified a lack of skill we can have a new training course approved by the ministry of education in the time of six weeks from the time we have identified the needs"* (DKDI, DK). Collective bargaining also foresees sectoral funds for annual educational leave in which wages

are paid in between 85% and a 100% of a person's salary. Some of the funds are also redistributed towards unskilled workers. In Germany, part-time educational leave so far is implemented in collective agreements in the insurance sector and in Deutsche Telekom and suggested by ver.di, IG Metall and also the education union GEW to policy as a general law (ver.di, IG Metall, & GEW, 2017). However, unionists expect it will be difficult to roll out such arrangements in further collective agreements as the availability of e-learning may crowd out other arrangements for learning.

Nordic unionists note that links between (re-)training and the general education system could be improved. University education remains based on full-time studies over a period of three to five years, and switches between both modes of learning are difficult. Our interviewee from Danskmetal points out that currently, in Denmark *"if you have university training then you cannot go back and have educational training with public funding"* whereas *"nowadays the members need to mix academic qualification with education from the vocational level. So we are working on changing legislation so this will be possible*." Generally, unionists think further training is best located close to companies and the workplace, and a strong role of social partners in training provision is favoured: *"you cannot just rely on the education system, until that can deliver it often takes 20 years"* (GPA-djp, AT).

In spite of the political agreement on skill improvements, in several countries sectoral and social-partner driven models of further training are now exposed to private-sector competition. In Spain, CO.OO experts say *"The union has a long tradition in working in work orientation and we have our own space where we do investigations on the topic of new qualifications that are needed. We also have a high qualification on how to teach that."* Public funding used to be available for this, and training included in some collective agreements. However, "*today, this system has been put on the free market. Everybody can offer a programme of formation and until the labour reform this system was linked to the development of collective agreements, today its also separated from this. A system that was important in this intermediary segment was privatised and weakened."* (CO.OO, ES). In Denmark, some public funding also used to be used for further training. However, legal constraints favour purely private-sector delivered trainings such as the proprietary certifications offered by IT monopolists such as Microsoft or Cisco: *"the law says that a course was already given by a private firm that the content cannot be provided by a partly public financed course. … the consequence of that is that some of our members are not getting the education that they probably need because the private companies use their position to increase the prices."* (Danskmetal, DK). In France, the government plans to direct more of the sectoral training funds to the training of the unemployed and have companies provide training for their own employees. However, internally provided training is at risk of cost-cutting or outsourcing: *"in the modern world today in a company, the temptation to deliver Google or internet trainings free of charge for the company is an issue, and also … the other point is that when you use external skills you do not have to spend money for training for them"* (CFDT, FR). In order to ensure transferability of skills, France has introduced a digital "personal activity account" to ensure that workers can retain their social rights and entitlements across jobs and employment statuses. Through both employed or self-employed activity or government awards based on needs, for example low skills, citizens collect points, which can be used for educational activities, financial support for starting a business or leave for family obligations or social commitments. The points are preserved if an individual's employment status changes, so that they can access to benefits in less stable periods of employment (Grass & Weber, 2016). For the present, in spring 2018 the outcomes of the initiative are not clear yet.

On the side of workers, the low-skilled tend to be underrepresented in training measures. They have less experience in formalised learning, may expect less benefit, and especially with low unemployment prioritise earning their living. In exhausting jobs or working at unusual hours, time for learning can also be a constraint. This does not only affect the poorly skilled. Unionists acknowledge some responsibility for workers to invest and engage in further training, but are wary of training demands shifted into workers' spare time. Firstly, this may exclude workers with care or other responsibilities outside of work.

Secondly, it is a general matter of workers' capacities for training: *"In Germany, across all service sectors, we have an average of four hours overtime work per week. We have the impression that ever more work must be done in the same time and that workers often do not necessarily think their performance targets are realistic. And that is the framework in which things like training are to take place as well"* (ver.di, DE). *"It's not enough that we work 8-9 hours a day, that we have a family, a child to take care of – now you have to find time to redevelop yourself every 2-3 years. It's impossible. For me that's the main issue – that companies don't invest in the re-skilling of us people."* (SITT, RO). Finally, unions insist that companies that benefit from the skill upgrades should not be exempted from the responsibilities to provide training and invest in people.

As vocational training and further training are accelerated and need to respond quickly to changing needs, digital learning environments and new approaches to learning (e.g. simulators) are expected to have a larger role in the future of training and learning in the workplace. Yet, interviewees are concerned over the quality of such training. For companies it may be tempting and cheap to assign self-learning remote courses, and for circumscribed subjects it may be effective if the skill base is already in place. Possibly, the potential for high-quality virtual or mixed training that is developed close to the workplace is currently underexplored. One interviewee argues that to be able to perform in more complex tasks, some face-to-face instruction is needed and his union has found some evidence: *"Especially in IT, when you want to learn programming – you need trainers, directions, you need […], activities – not something that happens overnight"* (SITT, RO). Romanian SITT actually conducted an experiment to assess the labour market success of recipients of online and live training respectively: *"We tried to do a statistic and did [simulated] job-interviews – if you have a person that learns the main skills needed via an online platform or in school or other types of live classroom training, … almost every time the successful ones are the ones that attended a class or learned something at school. The company would prefer those people over the ones that acquired knowledge through the virtual learning processes. This […company] internally promotes the all-virtual training. Do you see the hypocrisy in this?"*

3.5    *Conclusions: skill upgrading at risk*

In sum, the challenges of digitalisation on service labour markets are not entirely new. From a labour market perspective, digitalisation is likely to exacerbate currently observed trends of polarisation, precarious employment, and volatile labour markets. Indeed, its effects are hard to distinguish from those of transnationalisation and company restructuring. Unionists' views on the impact on overall employment vary with the respective labour markets. In the Nordic countries, the constellation of strong labour markets, support for re-training and skill upgrading is expected to be sustainable. In telecommunications and the financial services, unions have considerable experience in handling company downsizing and restructuring already. Favourable initiatives beyond the use of early retirement mostly amount to investment into re-training and skill upgrading. Ideally, this occurs to prevent dismissals and is related to future jobs in the company itself or the sector, but currently, it mostly compensates for dismissals. In those countries where sectoral funds are not established, new arrangements between social partners, companies and the state providing some mixed funding may be needed for example for part-time educational leave. Indeed, South-Eastern European unions aim to transfer such initiatives across countries.

However, the relation of company downsizing to automation is not simple. We also find a tendency for companies to exchange older, more expensive workers for younger ones who can expect less continuous employment. Indeed, some downsizing appears to be premature, before any productivity gains through the introduction of new technology actually materialise. The frictions and delays of working with immature technologies in an understaffed environment then are likely to be passed onto workers. They contribute to the work intensification discussed in chapter 4.2.34.2.3

This evidence also shows the uses of more precarious work. In services, this is somewhat traditional as staffing levels are adapted closely to customer demand. However, newer forms of atypical employment such as the diverse forms of working "on demand" add to conventional part-time or fixed-term employment. In several countries, young workers and their first-time jobs run an especially high risk of precarity. The use of platforms is part of this context. At present, they are not very common, especially not as a main source of income but this may change, especially in those countries and regions with high unemployment and with limited expectations on the regular labour market.

In this context, unions and also policymakers and employer associations agree on the need for skill upgrading and for more dynamic and responsive systems of further education. However, the rhetoric does not necessarily translate into solid investment into human capital. Training and re-training still is most accessible to the already higher-skilled and those with regular employment in well-organised sectors. Unionists are also concerned that increasingly, the effort and investment is shifted to individual employees – in sectors where overtime and high workloads already present challenges to work-life balance. The availability of online training and learning may exacerbate this, increasing the expectation of managers that training can be delivered at low cost. Putting all this evidence together, there is clearly a risk of severe underinvestment by companies and societies into vocational education and training. The widespread complaints over skill shortages especially in the high-tech sectors may be home-made to some extent, as employers focus their recruiting efforts on recent graduates with a short-term perspective. For many companies, it will require considerable efforts to move towards the self-reflexive and sustainable strategic human resource and change management that would be required.

## 4   Company strategies, work organisation and digitalisation

Company strategies of transnationalisation and restructuring of value chains are closely related to work organisation and job quality. They also shape the impact of digitalisation since digital technologies do not determine work organisation directly. There is wide agreement that digital technologies can be implemented in alternative ways:
- enabling "responsible autonomy" and "discretionary learning", worker empowerment and collaboration
- or favouring tight regimentation and control, de-skilling and fragmentation (Hirsch-Kreinsen, 2014; Lorenz, 2015).

In general, Nordic and Continental trade unions, building on their various workplace design and innovation traditions, emphasise the possibilities of empowered "smart" working, flexibility in the interest of workers as well as companies, and of close interaction and collaboration supported by technology. There are some impressive examples of discretionary learning and participatory work organisation, for example in Deutsche Telekom and the German "cloud and crowd" project (Bormann, 2017a). However, in national and sectoral contexts that are characterised by marketisation and cost-based competition, the transfer of such pioneering models may become increasingly difficult.

To assess and influence impacts of digitalisation, trade unions do well to explore the possibilities of shaping digitalisation in favourable ways and many of them are committed to this approach. Nevertheless, they must be aware of the context and the constraints of company strategies that extend beyond the individual firm, along value chains and networks of production and service delivery. This can increase the tensions between representing core and more peripheral workforces. As dominant companies in a sector or value chain realise higher shares of profit and further improve their position (D. Autor, Dorn, Katz, Patterson, & Van Reenen, 2017), they may still be able and willing to invest into exemplary practices of work organisation, but transferring such models to other parts of the economy may become more difficult and requires dedicated efforts by social partners and policy.

### 4.1    Outsourcing, offshoring and transnationalisation

Outsourcing and transnationalisation of service functions have taken place in several directions (Figure 1) and in several waves. Space-independent services in ICT and various generic back-office or knowledge-intensive functions have been outsourced to offshore service providers or offshored to owned subsidiaries. Space-dependent services have been outsourced domestically. Digitalisation is mostly considered an enabler of outsourcing and restructuring as it allows to deliver increasing parts of services remotely or to manage space-dependent services in this way. In this sense, *"digitalisation has put a turbo on globalisation"* (SI, SE), extending transnational competition not only to low-skilled qualification segments but also to highly skilled workers (e.g. engineers, software developers, financial advisers etc.).

### 4.1.1    Digitalisation and outsourcing

Digitalisation in combination with outsourcing and offshoring creates new forms of work and types of employment that may increasingly affect more highly skilled and professional functions. This process of outsourcing and transnationalisation reduces the room for manoeuvre of unions, as they *"lose in their strongholds and may not be fast enough in the new areas"* (ver.di DE).

*Figure 6: Outsourcing and offshoring – the terminology*
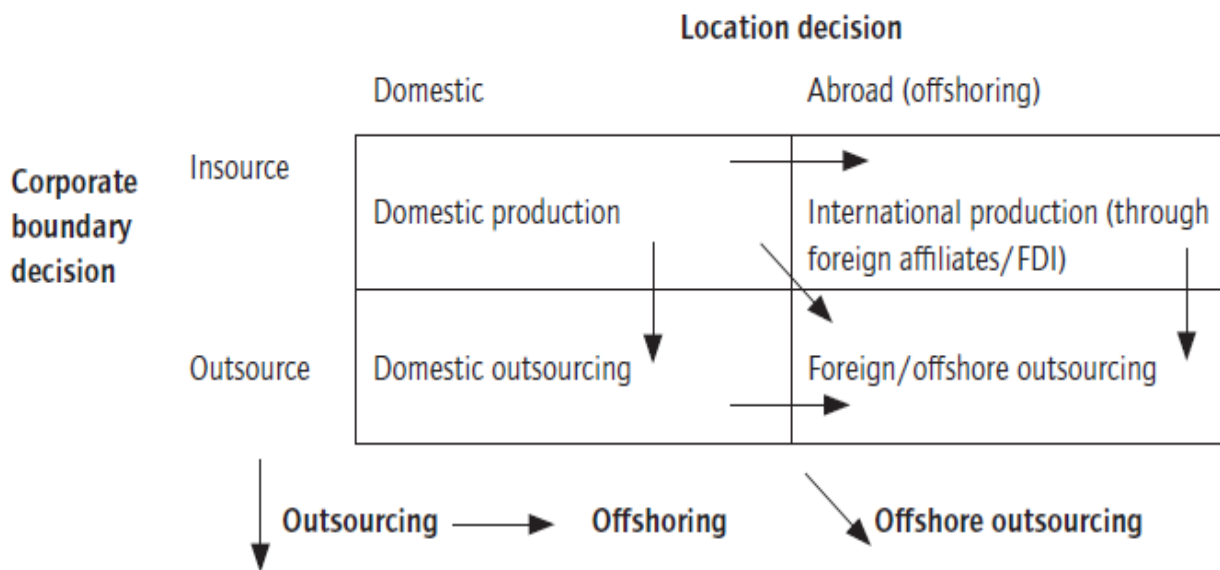


Source: (Drahokoupil, 2015), p. 11

Most evidence of offshoring and outsourcing shows increased standardisation, pressure and less autonomy of the work that is shifted outside the company or its location of origin. Cost-cutting still appears to be the most common motive, but the availability of skilled workforces, quality requirements and coordination needs can be limiting factors. Cases of transnational collaboration and responsible autonomy also exist but are reported less frequently (Hardy & Hollinshead, 2016).

### 4.1.2    Unionists' evidence on outsourcing and offshoring

Descriptions of outsourcing vary with unionists' national and sectoral outlook. Mostly, digitalisation is expected to facilitate and boost outsourcing and offshoring, but some counter-tendencies are also found. Some interviewees argue that digitalisation and also platforms lower transaction costs and thus enable further outsourcing or offshoring. Others point out that these costs are both high and unpredictable and that automation is more likely to replace outsourcing: *"Maybe cleaning services are outsourced but*

*everything related to the core business of companies is getting ever more data-intensive – companies will reconsider … with the increasing convergence of manufacturing and services in all sector everything gets more customer-focused and the customer with all their data is the cash cow*", argues an expert from Austrian GPA-djp. As the business potential of aggregated customer data becomes central, companies may be interested in retaining analytics and expertise inhouse although the large providers of business services develop and offer such services to offer to their customers.

Through domestic outsourcing, wages and employment conditions have been mainly shown to decrease. A recent study using German social security records was able to show this for the entire German labour market: the outsourcing of generic services such as cleaning, catering, security and logistics decreased wages in these functions by 10-15%. Services outsourcing alone accounted for some 10% of the increase in German wage inequality since the 1980s (Goldschmidt & Schmieder, 2015). Indeed, the outsourcing of services to generic providers is one part of the expansion of service sectors across Europe in the last decades (Holtgrewe, Kirov, & Ramioul, 2015). It is a feature of all service sectors investigated and not a new phenomenon.

In cases of domestic outsourcing, employment and wage standards can be sustained beyond legal requirements *if* transfer arrangements are collectively agreed at the point of origin *and* interest representation either exists or can be quickly transferred to the destination company. German energy provider E.ON provides an example: its IT was outsourced to T-Systems and HP and the transfer agreement protected employment standards for five years. At T-Systems they were quickly transferred into T-Systems's collective agreements without any losses to workers. HP had no company-specific agreements and after five years, protection ended and some workers faced worse conditions (ver.di, DE).

Transnational offshoring and outsourcing of ICT, generic business services and customer service is continuously changing and shifting its shape. Entering expanding markets and accessing new workforces plays a part in addition to cost saving. In Spain, the big telecommunications operator Telefónica with its mobile brand Movistar expands its position in Latin America and asserts its place as market leader in Spanish speaking countries. Danish TDC in 2014 established a Danish-speaking call and service centre in the German city Flensburg right across the border[3] where staff cost is 30% lower and Danish-speaking workers are available. They also offshored a call centre to London where it was run by customer service multinational Sitel. This company hired Danish-speaking students interested in living and working abroad but turned out to be unsuccessful*: "It has caused a lot of unsatisfied customers and it has been too expensive on this side. So in fact they are now in a process where they are getting all the workforces that they have outsourced back again."* There was a *"big loss of competences in this process. Because you fired all the experienced Danish workers and hired young and unskilled Danish workers who just had a few weeks of learning about the products."* (Danskmetal DK). Similarly, multinational service providers consolidate multilingual customer services in cities such as Lisbon or Athens, also expecting to rely on young mobile workers with a mind set on international careers in marketing (Holtgrewe & Schörpf, 2017).

In the ICT sector, a recent study commissioned by UNI finds that offshoring and outsourcing has become more "systemic". Dominant companies retain strategic control over governance and integration and relocate even former "core" functions such as R&D, software architecture and sophisticated development. Generic, space-independent functions have been consolidated into large shared service centres or, in telecommunications, network operations centres (Holtgrewe & Schörpf, 2017). From 2000

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[3]       https://www.shz.de/lokales/flensburger-tageblatt/wer-daenisch-kann-ist-klar-im-vorteil-id6642636.html visited May 5, 2018

onwards Central and Eastern Europe (Hardy & Hollinshead, 2016), and after the crisis of 2007ff. South European countries such as Portugal or Greece have emerged as nearshoring destinations.

However, our interviewees from the telecommunication and offshored services sector in Croatia and Romania report that this development is currently changing. Expansion of the outsourced business services segment is stalling in these countries. In Croatia, *"IBM is the only bright example of bringing jobs to Croatia. Other multinationals are keeping the number more or less steady. They are not reducing much workers but they are not hiring either. Especially in the telco sector the numbers are quite steady."*

SITT's expert from Romania has an explanation: *"in the last two years this is what we've observed, the shift from the previous model …. For example all the European activities were more or less concentrated in a near-shore centre which would have been in Eastern Europe. Not only Romania, but also the Czech Republic, but we see the shift to the new model, which comes with a dip in the number of people being hired in these centres. So in the little bit more expensive countries like Slovakia or the Czech Republic, [employment] decreases and in countries which still are attractive from a cost perspective it's either zero increase in the number of jobs or a very slow increase. … Currently we are negotiating such a reshaping of the model within [a large provider of outsourced services ] and out of 120 people in T. [city] only 30 new positions will remain in T., the vast majority will go to India and the rest of the activities will be done by digital tools".*

He concludes, *"outsourcing is just a step before automatization, but the idea is, companies more or less enjoy the digital in the sense of cost efficiency, not having legal holidays or sick leave or whatever, but still there is a little bit of a lack of confidence in doing everything digitally. So especially the companies offering outsourcing solutions ... try to combine the two in such a way that it's acceptable to the client".* One reason for service providers to further consolidate services in India (and possibly, other offshoring destinations such as the Philippines) may be the anticipation of further automation: in larger units, service providers can more easily shift workers between projects. Providers of back-office services are initiating this shift, followed by IT services.

The speed of this shift is indeed considerable and raises questions about the sustainability of the policy of focusing on large-scale foreign direct investment in the service sectors of CEE and South European countries. Knowledge-intensive services for a transnational market may not necessarily "move up the value chain" into more value-added activities (Dossani & Kenney, 2003). They may lock a country's service economy into functions that are by definition space-independent. Jobs thus may be transitory if local management and policy do not manage a transition into more sustainable types of employment: *"Perhaps I'm a bit pessimistic, but this is because we expected more from the sector than what is currently happening and Romania is a country that didn't manage to squeeze the know-how brought by the multinational companies into developing its start-ups." You might see some, but we could have done more. … I've seen too much trapped within the multinationals, this comfort zone … - they thought this model would last forever, and then came the layoffs. We are probably now starting to wake up from that illusion more or less*."

Both nationally and transnationally, the option (or threat) of relocating work puts pressure on work and workers (D. Autor et al., 2017; Doellgast, Sarmiento-Mirwaldt, & Benassi, 2016). In the European destinations of outsourcing, workers and unions may consider their working conditions not bad compared to working for national or local companies. Still, they are frustrated by a sense of being locked into low and stagnating wages and a lack of perspectives. Companies are also more pro-actively screening global markets in terms of employment potentials and new sources of talent. IBM for example has been exploring the African market for future activities, as remote working makes it possible to contract workers from everywhere in the world without even shifting business premises.

### 4.1.3    Reshoring

Recent analyses of restructuring (mostly with a focus on manufacturing) suggest some possibilities for reshoring (Hurley, Storrie, & Peruffo, 2016). Indeed, in the postal and telecommunications sectors, there are also some instances of customer services that are relocated to their countries of origin for closer proximity to the end-customer, for example in the call and service centre sector in Germany (Daum et al., 2018). The evidence from our interviews confirms a small but observable tendency that companies in some regions of Europe are reshoring some of their services. In Denmark. Spain and Italy, unionists report that banks, retailers or telecommunications providers are reconsidering their decisions to offshore. However, this is often aligned with automation of the more standardised functions and their replacement by web-based self-service. Generally, the issue of quality in the production of services, the data intensity of some services and customer demands appear to be crucial factors contributing to this tendency. Yet in other cases, quality seems to be a negligible factor for outsourcing companies. Companies "*really don´t care anymore*" (SITT, RO), as either they or their customers have learned to manage or suffer lacks of quality in service production.

An Italian attempt at regulating offshoring is worth mentioning: there, call centres have often been relocated to Albania or Romania. Recently, a law was issued that obliges customer service representatives to state to the customer which country they are calling from. The intended effect appears to be some reshoring of customer services if customers prefer them delivered domestically. However, this does not necessarily mean employment gains in Italy if services are replaced by self-service or automated call services are becoming an option. However, our interviewee from FABI points out that there may still be gaps between the possibilities of automatic speech recognition in English and other languages. All in all, the relationship of outsourcing and offshoring with digitalisation is not deterministic. It can be an argument for reshoring service production, but is also a way of making outsourced or offshored services more manageable, controllable and predictable.,

### 4.1.4    Platforms as outsourcing destinations?

Generally, digitalisation is mostly considered an enabler of outsourcing and restructuring when increasing parts of services can be delivered remotely or online. Platforms can be considered a continuation of this process, offering one further option to outsource domestically or transnationally. In a "platform economy", companies are expected to compose large parts of their value creation from an array of cloud- and platform-based generic services. Platforms make use of isolated and very precarious workers who are assumed to be self-employed for either projects or small modules of work ("clickwork"). From a work organisation perspective, tasks need to be circumscribed and specified to considerable detail – or workers are bearing the risk and time losses of imprecise task descriptions. For this reason, new value chains emerge around platforms as intermediaries specialise in breaking down clients' problems into specified tasks (Lehdonvirta & Ernkvist, 2011).

Platforms thus are designed to further increase the control and power of clients and shift further risks to workers. From a value chain perspective the use of platforms continues an ongoing pattern of "marketisation" and increased competition among firms, workers and segments of the labour market that has been observed in non-platform services for a longer period. Companies continue to externalise risk to workers and subcontractors (Greer & Doellgast, 2017).

IBM had made its somewhat notorious attempt to pioneer the use of crowdworking for regular software development work with its "Liquid" programme from 2010 onwards. This used both an internal and external crowdsourcing platform (Elance) with globally standardised databases for skills and performance appraisals, project descriptions, project management tools and accounting standards. It was not just works councils and trade unions who objected, but project managers were reluctant to implement the programme as well (Kawalec & Menz, 2013). Currently, the efforts apparently have died down. A ver.di

expert sees no evidence that the company is pursuing the subject further and indeed the programme was found to be close to damaging the company's image as an employer. The internal tool for evaluation and reputation ("Bluepoints") apparently was unsuccessful as well but *"this can be ramped up again quickly"*. French IT services provider Atos is currently using platform work "*rather as a support function than the core of the activity*" and as an option with a mid-term perspective: "*Atos tries to solve all the problems of one client and in using technology, today we are still under a global organization not really mature to be able to expand the use of this sort of platforms – they do not think about organizing internal platform as it has been done by IBM for example.*" Here, the business model is based on an integrated approach to ICT services that would require enormous management effort if it was to be delivered through crowdwork.

In sum, there are three reasons for the limited use of platforms at the moment. Arguably, a comprehensive use of crowdsourcing would require an amount of standardisation of processes and work packages (modularisation) that currently is not easy to achieve (Holtgrewe, 2014). The reassembly and coordination of crowdsourced tasks thus takes increased management effort and generates considerable transaction cost. Again, customer needs and expectations may limit overly ambitious initiatives by service provider companies. In addition, currently tech labour markets in many places give the much-desired young and highly-skilled engineers options beyond crowdworking. Finally, platform-based strategies that limit a company's role to intermediation, branding and strategic control of customer relations may put the core company at risk of disruption by platforms itself. All of this may explain why currently companies are approaching the subject of crowdworking somewhat tentatively. However, these arguments echo those about offshoring at large that focus on likely quality problems and transaction cost. In the case of offshore outsourcing, we have seen that business services providers are recently embarking on aggressive automation strategies that – if and when they work and are accepted by clients – are likely to change the global offshoring landscape considerably. In a similar way, the current limited uses of crowdworking may be a temporary configuration. They may change if for example, farther-reaching automation strategies require less or different work and make the modularisation of remaining labour-intensive tasks easier.

## 4.2 *Work organisation*

Digital technologies do not determine work organisation directly. There is wide agreement that they can be implemented in alternative ways: enabling "responsible autonomy" and "discretionary learning", worker empowerment and collaboration or favouring tight regimentation and control, de-skilling and fragmentation (Hirsch-Kreinsen, 2014; Lorenz, 2015). These types are also known as the "high" or "low road" of work organisation. Californian innovation economists Zysman and Kenney summarise the underlying logics: "First, are workers considered assets whose understanding and knowledge are to be augmented and developed? Or are workers simply costs which need to be contained?" (Zysman & Kenney, 2017).

### 4.2.1 Convergent forms of work organisation

Apart from these alternatives, there is also evidence of convergent patterns of digitised work organisation across sectors and skill levels. Knowledge workers in companies, academia or freelance functions will recognise the features of work that Ursula Huws describes this as "logged labor". Much of it also applies to the less knowledge-intensive functions where work is subdivided, increasingly performed on demand and governed through technological planning and coordination tools: "labor is logged: logged in the sense of being chopped up into standardized units; logged in the sense of being connected online, and logged in the sense of being recorded for future analysis. …. Each unit of production is nested into a larger hierarchy of electronically-managed coordination. And each of these units, under pressure to keep costs as low as possible, seeks to minimize them by externalizing as much labor as possible to its users, or the next level down in the hierarchy" (Huws, 2016).

Notably, this "logging" involves considerable amounts of self-service that people perform in both consumer and worker roles: "You need a database with everybody's details in it? Don't waste money on a data entry clerk. Make all users fill in the online form and enter their own details. You need to be sure that a project will be completed on time? Make all team members log their hours as they go along and introduce penalties for failure to meet targets. Any given transaction may take only a few minutes or even seconds, but multiplied across a whole economy, having everybody book their own tickets, submit tax returns, upload articles, order groceries, update their profiles, and log their own working hours saves millions of dollars in wages not paid — and adds cumulatively to the cyber-bureaucratic load of unpaid 'consumption work' required for everyday survival." (ibid.)

The interplay of the diverse roads of service work organisation with the logic of "logged labor" shows in the different issues that are associated with digital technologies from a workers' and union perspective across all sectoral boundaries. Remote work, workload and performance appraisal are the areas of work organisation that are being addressed by our interviewees.

### 4.2.2  Remote working and work-life balance

Flexibility in the interest of workers is predominantly associated with work-life balance. Here, the possibility to work from home or remotely by using digital technologies and communication methods can save commuting time and allow to adapt working hours to workers' life situations and preferences. However, this is inextricably related to extended working hours (often unpaid) and "boundaryless working", stress and psychosocial health risks due to isolation. Unionists across Europe are well aware that members generally are in favour of homeworking options but that these have their downsides: *"From the one hand this reduces costs, reduces time for workers to come to work, but from the other hand it benefits workers as well because they are not spending time travelling. It´s also easier from the point of organisation. But it could also be a problem for the workers' position as you have no separation from work and private life. It could bring imbalance in working life. That´s one thing. … Additionally there is a social component if you are working from home. That means that you don´t have your colleagues. You can´t talk to them. It also emphasizes stress." (HST, HR).*

This is supported by a recent report by Eurofound (Messenger et al., 2017). It finds that across the EU some 17% of workers work remotely. The majority (10%) does so occasionally, for example using a weekly home office day. 5% do "highly mobile" work, working from different sites and/or while travelling, and 3% work from home regularly. Shares vary considerably between countries, with Denmark, Sweden and the Netherlands taking the lead (at 30% and above) and Eastern and South European countries hovering at 10% or below. Professionals, managers and other knowledge workers and also men report a higher incidence of mobile working in general, but in several countries more women are working regulary from home. Teleworkers and ICT-based mobile workers are found in most countries (except the UK) to work longer hours than non-mobile workers. Especially very long working hours above 48 hours a week are more frequent. Apparently, replying to emails and phone calls outside of regular or contracted working hours explains much of this extra work. Much of this is informal and unpaid.

This is what German sociologists and unionists call "boundaryless work" („entgrenzte Arbeit") and expect to undermine rather than support work-life balance. A recent German study on workers' increased availability through mobile technology finds that workers' agency in negotiating boundaries of work should not be overlooked (Menz, 2017). However, workers tend to draw boundaries to work demands mostly after a work-related crisis of overload or burn-out. To reduce demands on workers' availability, analyses of concrete demands and modes of work organisation are necessary. Solutions that address root causes entail interventions into work organisation: a redistribution of responsibilities, a redefinition of customer interfaces, skill upgrading to increase capacities for problem-solving (p. 42). The transnationalisation of work also plays a part in mobile work: *"You work all around the globe and all*

*around the clock,"* says an expert from Sveriges Ingeniörer. When work is divided across time zones and still requires coordination, online meetings extend the working day. In such contexts, working from home is both a problem and a solution or a "lesser evil": for some workers, early morning or evening online meetings or mail communications have less impact on the organization and quality of daily life than very long days in the office.

Nevertheless, unionists are concerned about stress and psychosocial strain, and Messenger et al. also conclude with regard to the health impacts: "The results suggest that the health and well-being of these [mobile] workers could be improved by tackling work intensity, ensuring there is support from colleagues and managers and eliminating the need for employees to frequently work in their free time" (Messenger et al., 2017, p.40).

So far, a considerable amount of teleworking is not formally regulated either on the company or sector level, but informally agreed on. Unionists logically suggest more regulation and enforcement that assures workers' longer-term interest and companies not shedding their responsibilities for job quality. Examples are possible inspections of home workplaces for health and safety standards, agreed time corridors for workers' availability and unavailability and generally, an obligatory documentation of working times. Ver.di's experts summarise: "*you have to use these potentials because workers want that but you … need frameworks and rules that protect workers, that they can fall back on, also to be able to say stop at some point.*"

### 4.2.3   Workload and work intensity

An increasing workload is one of the key issues associated to changes in work organisation due to digitalisation. Especially in terms of health and well-being of workers, the regulation of intensity of work and the general work load is of key importance. Even autonomous and empowered forms of work in the digital economy are increasingly pressurised by increasing demands, extended needs to collaborate space-independently and across time-zones, and the possibilities of mobile communications. In this way, remote working is only one of the changes that digital possibilities bring. Again, these can be used in ways that enable worker-oriented flexibility, discretion and improve work-life balance (Wajcman, 2015) but this requires overall favourable conditions. Importantly, the strains of "boundaryless working" and all-around availability are not just a matter of the highly-skilled and well-paid. They are also found among worker groups with limited discretion, such as cleaners and their frontline managers. Their work itself is conducted on clients' sites and is space dependent, but they need to compensate low-staffing levels and unpredictable client demands with ad-hoc flexibility that is often organised through mobile phones and in this way comes close to "work on demand" (Sardadvar & Holtgrewe, 2017). Unionists refer to the increases in psychosocial strain and related sickness absences in many European countries.

Company agreements, for example in Germany, Spain and France[4] aim to regulate availability of workers and establish a "right to switch off" electronic devices. They oblige both management and co-workers to respect these rights, for example send messages later. Technical enforcement of such measures through pop-up windows admonishing senders of evening e-mails is considered. Such initiatives need to be aware of the complex interactions of company policies and the flexible and diverse work habits of workers in

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[4]       https://www.eurofound.europa.eu/observatories/eurwork/articles/france-first-company-level-agreement-on-digital-transformation-signed-at-orange

diverse life situations. Since 2017, France has established a legal "right to switch off": companies with more than 50 workers are required to set 'connection hours' agreed with employees' representatives.[5]

Workload indeed appears to be critical for the use of digital technologies in workers' own interest. It may neutralise gains in work-life balance and worker-oriented flexibility. However, it is an area in which works councils have limited power. Ver.di's experts say, they have a clear view on the subjects of work intensity, performance and health but influence is limited: *"we have a good idea of the imbalances, good analyses and we can apply this to the shopfloor level. But in many areas we don't have the instruments to win through together with the works councils."*

### 4.2.4    Performance appraisal, work control and monitoring

Use of digital technologies, offshoring and the possibility to involve customers in quality monitoring all increase the possibilities for systematic monitoring and performance appraisal. This has become a real issue for unions trying to protect standards in employment as pressure increases and competition among workers is intensified and globalised with negative impacts on privacy and psychosocial well-being.

There are of course uses of performance monitoring that make sense to coordinate work, identify training needs or even provide unions with information to negotiate on. Indeed, monitoring systems can be configured in ways that favour those beneficial uses. Ver.di's experts on "good work" give an example: in technical services, technicians' location information can be used to save travel time and schedule work effectively. However, comprehensive tracking would be overly intrusive. The solution is to check location in a data-protected area only if necessary. *"If I have an incident somewhere, I can check who is nearby and get maybe three names and can then check who has capacities. No other data are released".*

Otherwise, unionists mostly discuss performance appraisal with regard to sales targets in telecommunications and banking. In the long Taylorist tradition known from industry, moving and unachievable targets are issues, especially in saturated markets as in Croatian telecoms: *"What we are seeing in different companies is the fact that they don´t have a standard value, no norm for the expected work. They change it from one observed period of time to another. … The productivity may be increased e.g. through digitalization, improvement of services etc. but the problem is that the increase in targets is much higher than the increase in productivity"* (HST, HR). Italian banks also see sales pressure exerted although a national agreement requires reachable targets and prohibits sanctions for not reaching them: *"sometimes at the end of the day they receive a mail at midnight giving pressure for the next day. We are managing this system on a national level, but this is especially happening with small banks and it's easier to manage in big banks."* (FABI, IT).

However, sales targets, performance appraisal systems and increased pressure are not new in the service sector. Digitalisation enables more intense monitoring in a recursive way: firstly, digital tools directly support the processing of performance-related data, and secondly, in digitalised workplaces more and more varied data are generated that could be used for performance appraisal. A recent British study of performance management techniques and technologies finds that in the 2010s annual performance appraisals are being replaced with more continuous monitoring and digitally-supported uses of diverse quantitative and qualitative data, and more frequent feedback. Digital reputation assessment and mutual feedback play a part here, and partly dilute the role of performance managers as now it is colleagues and customers who provide feedback. The authors suggest that this has the effect of making dismissals on performance grounds easier for management, especially with regard to ageing workforces in the UK: "The

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[5]        https://www.eurofound.europa.eu/observatories/eurwork/articles/spain-axa-recognises-workers-right-to-turn-phones-off-out-of-working-hours

advent of continuous PM [performance management] represents a further increase in management control, not only making it possible for sanctions to be triggered at any point, but also giving employers a new confidence in the apparent robustness of subjective review evidence." (Williams & Beck, 2018, p. 33). This does not mean that data are simply standardised and that algorithms take the decisions, but that management gain new discretion in weighting and interpreting these data. It is worth considering how unions can use their co-determination rights over privacy and data protection in those countries where they are strong, if data sources multiply. This will require more transparency over productivity and workloads if unions are to gain more influence in this crucial field. *"If there is no transparency on how technology is affecting my work, than it is hindering the negotiation of collective agreements"*, say CO.OO's experts from Spain. Possibly, the GDPR's provisions offer opportunities but enforcing transparency and existing rights in a context of increased technological complexity is likely to be an ongoing struggle.

Our interviewee from Romania's SITT observes a somewhat cynical use of performance management in the context of the new type of service offshoring-cum-automation: *"They actually put workers to find solutions to digitalize and automate their own jobs. More or less these are things that are included in the performance measures. How many ideas have you had of how to divide/automate your job?"*

### 4.3    *Unions' initiatives addressing work organisation*

### 4.3.1    Contested terrain: Reduction of working hours

As digitalisation shows its potential for both automation and intensification of work, the question of working time reduction comes up, but in our interviews is only addressed by unionists from Germany, Austria and Belgium. In Austria, the employer side pushes for flexibilisation in the direction of longer legal working hours. GPA-djp's expert comments, *"new technologies … could allow for everyone to work a bit less. They should relieve us at last and yet the employer side says, now at last we must work more flexibly, and the work of individuals is to be subsumed under the interests of the machine. That has nothing to do with the computer as such, but is the typical subject of a class struggle"* as employers, arguably following the Marxian labour theory of value (Mason, 2015), aim to have machines run longer as productivity increases. German service trade union ver.di is developing a common position on working time reduction to push that agenda forward, but experts are aware that in practice it is tough to implement, especially in sectors complaining about staff shortages. They favour days off over a shortening of weekly working hours as these are harder to implement. An interviewee from Belgian BBTK union summarises the concerns: In cases of shorter working hours, *"mainly people have higher pressure because productivity is rising and they have less time than before but they have to work more. Because if we say in a collective agreement that we reduce working hours from 36h/week to 35h/week, nobody hires an additional person but people have to work harder to do their jobs so they can cover for the missing hour"*.

### 4.3.2    Union practice: supporting works councils

In daily union practice, the groundwork of work councils is essential to exert influence on working conditions and work organisation, to remain up to date on emerging issues in the workplace and to keep up close contact with the constituency. Vice versa, unionists in Germany, France and Austria point out that work councils need increasing support by the union as the subjects they have to deal with proliferate. Secure employment, skill upgrading, health and safety and privacy are all subjects affected by digitalisation and the restructuring of work, and are becoming more complex in the process. Management decision making and planning increasingly takes place transnationally and across company boundaries in lengthened value chains. However, co-determination and consultation rights are regulated by national labour law and still assume conventional, circumscribed workplaces, jobs and employment contracts. Austrian GPA-djp is developing a strategy of qualifying works councillors to proactively co-manage organisational change in favour of workers. The union aims to offer information, skill upgrading and tools

and measurements for a company's digital readiness. Indeed, the union is developing a so called "Digi-check" - an instrument to assess the digital readiness of companies with regard to work organisation "*with the central question which model of work organisation is right, not just what the right skills are, to understand a company as something organic and not a collection of individuals with different skills*". This approach is advanced in close cooperation with work councils and a consultancy, and it could be up-scaled to other EU countries. Apparently not all works councils are enthusiastic about the union's new initiatives. The expert observes a certain "fortification mentality" of work councils in some sectors Austria, with a focus on securing existing rights. In addition, the union also aims to increase their support of workers in companies without work councils like in the creative, consulting or advertising services.

In Germany and Austria, privacy and data protection come under comparatively strong co-determination rights of works councils, and in data-intensive companies these absorb a considerable part of works councillors' capacities. However, the extended use of digital technology renders complexity higher and makes it more difficult to use these rights, especially as co-determination only affects the introduction of new IT systems – a time when key decisions have been taken and adaptations may be hard and costly to achieve. An ambitious project of Deutsche Telekom Service's works council aimed at designing digitalised customer services in a participatory way (Bormann, 2017b). Participants in the project developed a new procedure which is piloted since 2017 in a framework company agreement. The works council is informed about new systems with impact on employees at the earliest possible time. If skills or wage brackets change or systems are used for performance measurement, the works council gets involved already in the planning stage. "Works councillors no longer approve finalised IT system but are creatively involved in the process" (Bormann 2017, translation UH).

In France, unions struggle against the Macron government's downsizing of the number of union representatives in a company. *"That means that unions will have to re-invent the way they are developing today – because today the number of the unions [members'] is driven strongly by the work within the company, union delegates around the bodies and all the elected members and this perimeter will be seriously reduced so unions will have to think about the consequences of that. Help of unions to union delegates in the companies will have to seriously be changed and increased."* (CFDT, FR).

All these approaches aim at enhancing works councils' capacities for more proactive interventions. They develop co-designing and co-management roles and may well tie into workplace innovation and open innovation approaches of management that aim to engage employees' creativity and innovative potential in product and process innovation. However, this requires already favourable company and innovation cultures and may not be easy to achieve in the more conflictual, pressurised or customer-driven segments of the service sector. Anti-union policies as in Spain or France also jeopardise such innovative uses of workers' and works councillors' ideas and creativity.

*4.3.3*   Union practice: Organising, bargaining and fighting

Participatory and proactive co-management cannot be the only approach towards digitalisation by unions. Work intensification, low and unequal pay, and downsizing of companies require the entire array of collective action, and interviewees provide a range of examples and scenarios where bargaining successes breed further success in organising. Even a company's outsourcing may provide strategic opportunities for the union. Our interviewee from French CFDT points out that offshoring of the HR leaves the union as the unique provider of face-to-face advice to employees: "*In the company today unionists can deliver answer to employees' questions in a much faster and easier way, especially if HR is an internet service delivered by a team in the east of Europe or Spain or Portugal. We have the chance to help in a company where there is no more human to address*."

German ver.di had a considerable organising success in resisting downsizing at German IBM in 2017 that was not foreseen in the collective agreement. Of a planned 1000 jobs to be cut, 300 employees took a

voluntary package and of the remaining 600 people that were terminated, 300 sued the company. 150 of these were supported by ver.di, who trained up its legal protection officers, accompanied by protests and publicity. All of these cases were won by ver.di, and the company forewent an appeal. *"Basically, they rolled on their backs and said, you won"* says ver.di's negotiator and reports a huge success in organising at the company, tripling or quadrupling its membership base.

Romanian SITT, in a more hostile environment in which the recognition of a union in a company already requires union density of 50%, successfully won a collective agreement in the Romanian subsidiary of a large IT service provider. *"To imagine, [...] when we started the negotiations, only one manager showed up - that was the HR manager - completely unprepared, having not even a pen and just asking, what the hell do you want. This was our starting point and the fact that we've managed to make them sign an agreement with quite a lot of extra money was a huge victory."* This initial arrogance of management mirrored a working culture in the company based on pressure and a rigid hierarchy: *"here is no cooperation, no decency within this relation, ... this privileged class high above in the company and all the others, pressured with performance management systems, you can't imagine the ways these people are put under pressure and harassed psychologically within such a company."* Still, the agreement was concluded *"three hours close to a strike"*. It might have escalated further and been even better in the view of our interviewee, but was accepted by a majority of workers. Beyond the immediate results, the larger success was to *"put in place the union tradition maybe, because we [took] the people through all the steps, ... everything was decided by vote, and ... I would say the biggest victory is ... a cultural transformation in the company, and it's results we'll see from now on. ... People understood how you can fight for a collective agreement and what I now tell the management is that all workers have a copy of it in their pocket"*. Management remains hostile and uses the performance appraisal system to fight back: *"what they've done is [attack] the union leaders, giving them the lowest level in performance management – now we have a huge fight with them – this is clear discrimination against them … There is zero protection for union leaders, in any type of union activity, so every person you see in a private company, especially a multinational in Romania, doing union work, they have definitely decided to sacrifice themselves."*

These contrasting examples could of course be complemented by the better-known struggles at Amazon that are *partly* conducted transnationally (Ruckus, 2016) and by many others, but in the context of this study are mostly illustrative. They are somewhat polarised: the well-established interest representation in a union stronghold such as Deutsche Telekom allows for a thoroughly designed participatory project that innovates both the customer service and the abilities and powers of the works council. In France, unions struggle against the downsizing of their presence in companies, but our interviewee sees the removal of on-site human resources management as an ironic opportunity nevertheless, which wll require increased union support and capacities. Here, the mantra of "doing more with less" applies directly to the unions' practice. Vice versa, Romanian SITT, also in the face of a not-expanding sector of outsourced services and a decidedly anti-union environment of politics and management, has notable successes in both organising and collective bargaining and does not hesitate to appreciate its support by UNI Europa. Hence, this contrast is somewhat emblematic of the heterogeneity of service sectors and industrial relations landscapes in Europe – but it also reminds us that these heterogeneous situations are interrelated in the structure of transnationalised digitalised services. The shape of this structure is thus influenced by conflicts, negotiations and collective action at both ends of the spectrum and in between.

## 4.4   *Conclusions*

Exploring company strategies and work organisation we see how the subjects of service markets, labour markets and company strategies are interrelated: Digitally enhanced standardisation enables modularised services that enable new divisions of labour between companies, continuous restructuring of value chains and the recomposition of workforces. All of this has impacts on work organisation and the

possibilities of interconnected companies and workers to make use of the digital possibilities to organise work more autonomously or flexibly.

Considering outsourcing and offshoring, the relations with digitalisation are nevertheless complex. The destinations of recent service offshoring in South-Eastern Europe report a stagnation of the offshored business services and aggressive automation strategies (in combination with further consolidation in India) of the providers of such services. In the countries of origin, the clients of business services sometimes reconsider their offshoring strategies and aim to use automation to reshore or reintegrate some services. Management and quality problems and transaction costs appear to play a part here. Control over customer data is also an issue and appears to be contested between clients and service providers. Platforms are used somewhat tentatively in this context, mostly for circumscribed and somewhat non-core tasks, but this may change again.

Work organisation comes under pressure in this context of workforces and company units that compete internationally, with "machines" or with customer self-service. Workloads and strain mostly increase, and digital technologies enable more finely-grained management control and performance appraisal. This may appear more "objective" than appraisal by persons but the multiplication of data sources also creates space for more arbitrary and intransparent assessments. For works councillors, to ensure and use their co-determination and consultation rights requires considerable skills and circumspection, and unions are aware of their role providing support. Nevertheless, even in deregulated and hostile environments, we encountered collective bargaining successes.

Nevertheless, work can be organised in empowering, self-determined ways or in ways that limit managerial control and "boundaryless work" – if interest representation is in place and has some legal instruments to influence work organisation. Some initiatives addressing work organisation look somewhat defensive like the "right to switch off" whereas others use the techniques of service and social innovation to (re-)design jobs in future-oriented ways. However, both – like the union successes in more conflictual contexts – open up spaces for alternatives and may contribute to further changes in company-specific and wider working cultures and modes. One of the inroads for unions brings us back to the services narrative of chapter 2.3: In services especially, workers, machines and customers cannot just be set against each other in competition. In order to deliver and innovate services and create positive externalities in the process, they also need to collaborate. As we have seen, neither digitalisation nor current policies, markets or company strategies are likely to automatically deliver good services in this sense. Hence, unions may be in a position where it is essential to connect the various viewpoints represented in this report, those from established strongholds, new initiatives and competent navigators between them. "

# 5   References

acatech. (2015). Smart Service Welt. Umsetzungsempfehlungen für das Projekt Internetbasierte Dienste für die Wirtschaft. Abschlussbericht.

Arntz, M., Gregory, T., & Zierahn, U. (2016). *The Risk of Automation for Jobs in OECD Countries* (OECD Social, Employment and Migration Working Papers No. 189). Paris: OECD. Retrieved from http://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries_5jlz9h56dvq7-en

Aubert-Tarby, C., Escobar, O. R., & Rayna, T. (2018). The impact of technological change on employment: The case of press digitisation. *Technological Forecasting and Social Change*, *128*, 36–45. https://doi.org/10.1016/j.techfore.2017.10.015

Autor, D., Dorn, D., Katz, L. F., Patterson, C., & Van Reenen, J. (2017). *The fall of the labor share and the rise of superstar firms*. Cambridge, Mass.: MIT/NBER. Retrieved from https://economics.mit.edu/files/12979

Autor, D. H. (2015). Why Are There Still So Many Jobs? *Journal of Economic Perspectives*, *29*(3), 3–30. https://doi.org/10.1257/jep.29.3.3

Berger, T., & Frey, C. B. (2016). *Digitalisation, Jobs and Convergence in Europe: Strategies for Closing the Skills Gap*. Oxford: Oxford Martin School. Retrieved from https://www.oxfordmartin.ox.ac.uk/downloads/reports/SCALE_Digitalisation_Final.pdf

Bormann, S. (2017a). *Wie Betriebsräte den digitalen Wandel gestalten. Erfahrungen mit dem Projekt P.A.K.T. 2020 im Kundenservice der Telekom*. Berlin: ver.di. Retrieved from https://innovation-gute-arbeit.verdi.de/++file++5a79bcdae58deb52c24dce5f/download/Fact-Sheet%20Nr.%204.pdf

Bormann, S. (2017b). *Wie Betriebsräte den digitalen Wandel gestalten. Fallstudie über das Projekt P.A.K.T. 2020 im Kundenservice der Telekom*. Berlin: ver.di. Retrieved from https://innovation-gute-arbeit.verdi.de/++file++5a79bdf356c12f02212d8fa2/download/Studie_PAKT%202020_final.pdf

Bowles, J. (2014). The computerization of European jobs.

Breemersch, K., Damijan, J. P., & Konings, J. (2017). *What Drives Labor Market Polarization in Advanced Countries? The Role of China and Technology. VIVES discussion paper 61*. Leuven: VIVES. Retrieved from https://feb.kuleuven.be/VIVES/publicaties/discussionpapers/DP/dp2017/vives-discussion-paper-61-labor-market-polarization

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age. Work, progress, and prosperity in a time of brilliant technologies*. New York, London: Norton. Retrieved from http://www.worldcat.org/oclc/867423744

Cirillo, V. (2016). Employment Polarisation in European industries. *International Labour Review*. https://doi.org/10.1111/ilr.12033

Daum, M. (2016). *IT-Dienstleistungsbranche: Die Branche, ihre Unternehmen und Beschäftigten im Zentrum der digitalen Transformation*. Stuttgart: input Consulting. Retrieved from http://www.input-consulting.de/files/inpcon-DATA/download/IT-Branchenanalyse-INPUT-2016-final.pdf

Daum, M., Holtgrewe, U., Schörpf, P., & Nocker, M. (2018). *Call- und Service-Center im Wandel: Konsolidierung der Kundenservice-Dienstleistungen*. Düsseldorf: Hans-Böckler-Stiftung.

Deva, S., & Wasza, V. (2016). Testbirds - software testing solutions in the crowdsourcing industry. In Wobbe, Werner, Bova, Elva, & Dragomiresco-Gaina, Catalin (Eds.), *The digital economy and the single market* (pp. 66–64). Brussels: Foundation for European Progressive Studies. Retrieved from http://www.feps-europe.eu/assets/4200c007-f19f-4aec-be49-1789d5804674/book-feps-hd-okpdf.pdf

Doellgast, V., Sarmiento-Mirwaldt, K., & Benassi, C. (2016). Contesting Firm Boundaries. Institutions, Cost Structures, and the Politics of Externalization. *ILR Review*, *69*(3), 551–578. https://doi.org/10.1177/0019793915624088

Dolata, U. (2015). Volatile Monopole. Konzentration, Konkurrenz und Innovationsstrategien der Internetkonzerne. *Berliner Journal für Soziologie*, *24*(4), 505–529. https://doi.org/10.1007/s11609-014-0261-8

Dølvik, J. E., & Jesnes, K. (2017). *Nordic labour markets and the sharing economy*. Copenhagen: Nordic Council of Ministers. https://doi.org/10.6027/TN2017-508

Dossani, R., & Kenney, M. (2003). Went for Cost, Stayed for Quality? Moving the Back Office to India.

Drahokoupil, J. (2015). Introduction. In J. Drahokoupil (Ed.), *The outsourcing challenge. Organizing workers across fragmented production networks* (pp. 9–21). Brussels: European Trade Union Institute.

Eichmann, H., Nocker, M., & Adam, G. (2016). *Trendanalysen zu Entwicklungen im Online-Handel und Folgewirkungen auf Beschäftigungsstrukturen in Österreich. Forschungsbericht im Auftrag der Kammer für Arbeiter und Angestellte Wien*. Wien: FORBA. Retrieved from https://media.arbeiterkammer.at/wien/PDF/studien/Online-Handel_2017.pdf

Fernández-Macías, E., Hurley, J., & Bisello, M. (2017). *What do Europeans do at work? A task-based analysis: European Jobs Monitor 2016*. Luxemburg: Publications Office of the EU. Retrieved from https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1617en.pdf

Frey, C. B., & Osborne, M. A. (2013). The future of employment: how susceptible are jobs to computerisation.

Gallouj, F., Weber, K. M., Stare, M., & Rubalcaba, L. (2015). The futures of the service economy in Europe: A foresight analysis. *Technological Forecasting and Social Change*, *94*, 80–96. https://doi.org/10.1016/j.techfore.2014.06.009

Gasparri, S., & Tassinari, A. (2017). *Shaping industrial relations in a digitalising services industry: regional report for Central and Eastern Europe*. Vienna: ZSI. Retrieved from http://unieuropaprojects.org/content/uploads/2018-02-21-regional-report-southern-europe.pdf

Goldschmidt, D., & Schmieder, J. F. (2015). *The rise of domestic outsourcing and the evolution of the German wage structure. NBER Working Paper 21366*. Cambridge, Mass.: NBER. Retrieved from http://www.nber.org/papers/w21366.pdf

Goos, M., Manning, A., & Salomons, A. (2014). Explaining Job Polarization: Routine-Biased Technological Change and Offshoring. *American Economic Review*, *104*(8), 2509–2526. https://doi.org/10.1257/aer.104.8.2509

Grass, K., & Weber, E. (2016). *EU 4.0 – The Debate on Digitalisation and the Labour Market in Europe. IAB_discussion paper 39/2016*. Nuremberg: IAB. Retrieved from http://doku.iab.de/discussionpapers/2016/dp3916_en.pdf

Greer, I., & Doellgast, V. (2017). Marketization, inequality, and institutional change: Toward a new framework for comparative employment relations. *Journal of Industrial Relations*, *59*(2), 192–208. https://doi.org/10.1177/0022185616673685

Gummesson, E., Lusch, R. F., & Vargo, S. L. (2010). Transitioning from service management to service-dominant logic. *International Journal of Quality and Service Sciences*, *2*(1), 8–22. https://doi.org/10.1108/17566691011026577

Haake, G. (2017). Trade unions, digitalisation and the self-employed – inclusion or exclusion? *Transfer: European Review of Labour and Research*, *23*(1), 63–66. https://doi.org/10.1177/1024258916679580

Haider, W., Holtgrewe, U., Ramioul, M., Salamon, N., & Vereycken, Y. (2018). *Shaping industrial relations in a digitalising services industry: regional report for Continental Europe*. Vienna: ZSI. Retrieved from http://unieuropaprojects.org/content/uploads/2018-02-23-regional-report-continental-europe.pdf

Hardy, J., & Hollinshead, G. (2016). 'Clouds' in the Desert? Central and Eastern Europe and Ukraine in the New Division of Labour for Business Services and Software Development. In J. Flecker (Ed.), *Space, Place and Global Digital Work* (pp. 83–104). London: Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-48087-3

Hirsch-Kreinsen, H. (2014). Wandel von Produktionsarbeit - 'Industrie 4.0'. *WSI-Mitteilungen*, *67*(6), 421–429.

Holtgrewe, U. (2014). New new technologies: the future and the present of work in information and communication technology. *New Technology, Work and Employment*, *29*(1), 9–24.

Holtgrewe, U. (2015). *Services research along the service process. An overview study to support UNI Eruopa's services policy project*. Wien: FORBA. Retrieved from http://www.uni-europa.org/wp-content/uploads/2016/06/FORBA-study-Service-Research-Report.pdf

Holtgrewe, U. (2016). Working in the low-paid service sector: What is to be learned from the analogue world? In Wobbe, Werner, Bova, Elva, & Dragomiresco-Gaina, Catalin (Eds.), *The digital economy and the single market* (pp. 93–110). Brussels: Foundation for European Progressive Studies. Retrieved from http://www.feps-europe.eu/assets/4200c007-f19f-4aec-be49-1789d5804674/book-feps-hd-okpdf.pdf

Holtgrewe, U., Kirov, V., & Ramioul, M. (Eds.). (2015). *Hard work in new jobs. The quality of work and life in European growth sectors*. Houndmills, London: Palgrave.

Holtgrewe, U., & Schörpf, P. (2017). *Understanding the impact of outsourcing in the ICT sector to strengthen the capacity of workers' organisations to address labour market changes and to improve social dialogue*. Vienna: FORBA/ZSI. Retrieved from http://www.forba.at/data/downloads/file/1251-FB_10_2016_Final_Report.pdf

Hurley, J., Storrie, D., & Peruffo, E. (2016). *ERM annual report 2016: Globalisation slowdown? Recent evidence of offshoring and reshoring in Europe*. Luxembourg: Publications Office of the EU. Retrieved from https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1652en.pdf

Hüsing, T., Korte, W. B., & Dashja, E. (2015). *E-skills in Europe 2020. Trends and forecasts for the European ICT professional and digital leadership market.* Bonn: empirica. Retrieved from http://eskills-lead.eu/fileadmin/lead/working_paper_-_supply_demand_forecast_2015_a.pdf

Huws, U. (2016). Logged In. The new economy makes it harder than ever to untangle capitalism from our daily lives. *Jacobin*, (June 1, 2016). Retrieved from https://www.jacobinmag.com/2016/01/huws-sharing-economy-crowdsource-precarity-uber-workers/

Ilsøe, A. (2017). *Shaping industrial relations in a digitalising services industry: the Nordic case*. Vienna: ZSI. Retrieved from http://unieuropaprojects.org/content/uploads/2018-02-21-regional-report-northern-europe.pdf

Jacobsen, H. (2013). Social research on services and service work in Germany - from the 'service gap' to service professionals. In W. Dunkel & F. Kleemann (Eds.), *Customers at work. New perspectives on interactive service work* (pp. 17–39). Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.

Jacobsen, H. (2017, October). *The provision of services to customers - what kind of service societies do we want? Contribution to the*. Presented at the UNI Europa Workshop: Service Markets. Shaping Industrial Relations in a Digitalising Services Industry, Brussels.

Jürgens, K., Hoffmann, R., & Schildmann, C. (2018). *Let's transform work! Recommendations and proposals from the Commission on the Work of the Future*. Düsseldorf: Hans-Böckler-Stiftung. Retrieved from https://www.boeckler.de/pdf/p_study_hbs_376.pdf

Kawalec, S., & Menz, W. (2013). Die Verflüssigung von Arbeit. Crowdsourcing als unternehmerische Reorganisationsstrategie – das Beispiel IBM. *AIS-Studien*, *6*(2), 5–23.

Kirov, V. (2017). *Shaping industrial relations in a digitalising services industry: regional report for Central and Eastern Europe*. Vienna: ZSI. Retrieved from http://unieuropaprojects.org/content/uploads/2018-02-21-regional-report-northern-europe.pdf

Lanier, J. (2013). *Who owns the future?* New York: Simon & Schuster.

Lehdonvirta, V., & Ernkvist, M. (2011). Knowledge map of the virtual economy. Converting the virtual economy into development potential.

Lorenz, E. (2015). Work Organisation, Forms of Employee Learning and Labour Market Structure: Accounting for International Differences in Workplace Innovation. *Journal of the Knowledge Economy*, *6*(2), 437–466. https://doi.org/10.1007/s13132-014-0233-4

Maczulskij, T., & Kauhanen, M. (2017). *Where do workers from declining routine jobs go and does migration matter? Working Papers 314*. Helsinki: Labour Institute for Economic Research. Retrieved from http://www.labour.fi/?wpfb_dl=4494

Mandl, I., Curtarelli, M., Riso, S., Vargas, O., & Gerogiannis, E. (2015). New forms of employment.

Mason, P. (2015). *PostCapitalism: A Guide to Our Future*. London: Allen Lane.

Mayer-Schönberger, V., & Ramge, T. (2017). *Das Digital: Markt, Wertschöpfung und Gerechtigkeit im Datenkapitalismus*. Berlin: Econ.

Menz, W. (2017). *Erweiterte arbeitsbezogene Erreichbarkeit. Ausprägungen, Belastungen, Handlungsstrategien*. München: ISF. Retrieved from http://www.isf-muenchen.de/pdf/Erweiterte_arbeitsbezogene_Erreichbarkeit.pdf

Messenger, J., Vargas Llave, O., Gschwind, L., Boehmer, S., Vermeylen, G., & Wilkens, M. (2017). *Working anytime, anywhere: The effects on the world of work*. Luxembourg, Geneva: Publications Office of the EU, ILO. Retrieved from https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1658en.pdf

Pernicka, S. (2005). The Evolution of Union Politics for Atypical Employees: A Comparison between German and Austrian Trade Unions in the Private Service Sector. *Economic and Industrial Democracy*, *26*(2), 205–228.

Pfeiffer, S. (2017). Industrie 4.0 in the Making – Discourse Patterns and the Rise of Digital Despotism. In K. Briken, S. Chillas, M. Krzywdzinski, & A. Marks (Eds.), *The New Digital Workplace. How Technologies Revolutionise Work* (pp. 21–41). Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.

Pfeiffer, S., & Suphan, A. (2015). The Labouring Capacity Index: Living Labouring Capacity and Experience as Resources on the Road to Industry 4.0. Working Paper 2015 #2.

Recio, A., Moreno-Colom, S., & Godino, A. (2015). Out of sight: Dimensions of working time in gendered occupations. In U. Holtgrewe, V. Kirov, & M. Ramioul (Eds.), *Hard work in new jobs. The quality of work and life in European growth sectors* (pp. 189–207). Houndmills, London: Palgrave.

Risak, M. E. (2018). *Fair working conditions for plaform workers. Possible regulatory appoaches at the EU level*. Berlin: Friedrich-Ebert-Stiftung. Retrieved from https://library.fes.de/pdf-files/id/ipa/14055.pdf

Roth, I., Zanker, C., Martinetz, S., & Schnalzer, K. (2015). *Digitalisierung bei Logistik, Handel und Finanzdienstleistungen. Technologische Trends und ihre Auswirkungen auf Arbeit und Qualifizierung*. Stuttgart: ver.di Landesbezirk Baden-Württemberg.

Ruckus, R. (2016). Confronting Amazon. *Jacobin*, *2016*(3). Retrieved from http://jacobinmag.com/2016/03/amazon-poland-poznan-strikes-workers

Sardadvar, K., & Holtgrewe, U. (2017). Flexibilität mit Grenzen: Büroreinigung im Modus des Gebens und Nehmens. *SWS-Rundschau*, *57*(2), 211–231.

Sharma, A. (2017). *Digitalisation of the Service Industries in the United Kingdom*. Vienna: ZSI. Retrieved from http://unieuropaprojects.org/content/uploads/2018-02-21-regional-report-uk.pdf

Söderqvist, F. (2017). A Nordic approach to regulating intermediary online labour platforms. *Transfer: European Review of Labour and Research*, *23*(3), 349–352. https://doi.org/10.1177/1024258917711375

Staab, P. (2017). The consumption dilemma of digital capitalism. *Transfer: European Review of Labour and Research*, *23*(3), 281–294. https://doi.org/10.1177/1024258917702830

Streissler-Führer, A. (2016). *Digitalisierung, Produktivität und Beschäftigung. Erstellt für Bundeskanzleramt*. Wien. Retrieved from https://www.digitales.oesterreich.gv.at/documents/22124/30428/Studie_Digitalisierung,+Produktivit%C3%A4t+und+Besch%C3%A4ftigung/4fa3af4d-bc03-416c-87a0-33f2707ac88f

Tassinari, A., & Maccarrone, V. (2017). The mobilisation of gig economy couriers in Italy. *Transfer: European Review of Labour and Research*, *23*(3), 353–357. https://doi.org/10.1177/1024258917713846

Toivonen, M. (2015). Opportunities and challenges in Finish service business. In *Service Economy Revolution and Digitalisation - Finland's Growth Potential* (pp. 68–109). Helsinki.

ver.di. (2015). *'Good work' and good services in the digital world. Resolution of the 4th Federal Congress of the United Services Union ver.di, September 2015.*

ver.di, IG Metall, & GEW. (2017). *Weiterbildung reformieren. Sechs Vorschläge, die wirklich helfen*. Berlin/Frankfurt am Main. Retrieved from https://www.deutscher-weiterbildungstag.de/wp-content/uploads/2017/11/2017-10_Weiterbildung-reformieren.pdf

Vermeylen, G., Wilkens, M., Biletta, I., & Fromm, A. (2017). *Exploring self-employment in the European Union*. Luxembourg: Publications Office of the EU. Retrieved from https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1718en.pdf

Wajcman, J. (2015). *Pressed for time. The acceleration of life in digital capitalism*. Chicago: The University of Chicago Press. Retrieved from http://www.worldcat.org/oclc/874902027

Williams, G., & Beck, V. (2018). From annual ritual to daily routine: continuous performance management and its consequences for employment security. *New Technology, Work and Employment*, *33*(1), 30–43. https://doi.org/10.1111/ntwe.12106

World Economic Forum. (2017). *Beyond Fintech: A Pragmatic Assessment Of Disruptive Potential in Financial Services*. World Economic Forum. Retrieved from http://www3.weforum.org/docs/Beyond_Fintech_-_A_Pragmatic_Assessment_of_Disruptive_Potential_in_Financial_Services.pdf

Zysman, J., & Kenney, M. (2015). Where will work come from in the era of the cloud and Big Data? Will escaping the commodity trap be our undoing? BRIE Working Paper 2014-6.

Zysman, J., & Kenney, M. (2017). Intelligent Tools and Digital Platforms: Implications for Work and Employment. *Intereconomics*, *52*(6), 329–334. https://doi.org/10.1007/s10272-017-0699-y