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**The impact of digitalisation
on job quality and social
dialogue in public services
across the EU**

**Final scientific report of the
DIGIQU@LPUB project**



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DIGIQU@LPUB – Deliverable D5.1

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SECTION 1. PROJECT AND METHODOLOGY

1.1 The project

The DIGIQU@LPUB European research project on 'The impact of digitalisation on job quality and social dialogue in the public services' (DIGIQU@LPUB) aimed to assess the impact of digitalisation on job quality in European public services, from a twofold perspective: workers' own perceptions of the impact of changes in their daily jobs but also trade unions' perceptions and practices in the social dialogue. The project was led by the European Social Observatory (OSE), ran from November 2021 to September 2023 and involved eleven European partners. A detailed presentation of the project, partners and outcomes is available on the website of the project ⁽¹⁾. The project covers eight countries (Denmark, Finland, France, Germany, Hungary, Italy, Poland and Spain) and considers workers' occupations in three public services/sectors ⁽²⁾: electricity production and supply, public administrations (national, regional and local levels) and hospitals.

This cross-cutting deliverable contains: (i) a review of the changes affecting the nature, content and implementation processes of jobs of public service workers, as well as the outcomes for the workers themselves (Section 2). (b) an overview of how the challenges and opportunities for job quality generated by digitalisation in public services are encompassed and addressed in the dynamics and practices of social dialogue at national and sectoral levels in selected EU Member States (Section 3). Examining the impact of digitalisation on job quality, the research questions included the following:

<i>Section 1</i> <i>Impacts on job quality dimensions</i>	<i>Section 2</i> <i>Consideration in social dialogue</i>
<ul style="list-style-type: none"> • What forms does digitalisation of work take? • How has digitalisation changed the nature, content and implementation processes of the tasks involved in the jobs of public servants? • What are the outcomes of these changes for the public service workers themselves? • What are the challenges and opportunities brought about by the digitalisation of work in public services? • Has the digitalisation of work in public services affected the quality of the public services provided to users? 	<ul style="list-style-type: none"> • How does the digital transformation of work impact traditional industrial relations stakeholders and systems and, at the same time, what role do these systems play in the digital transformation? In other words: how do they influence each other? • To what extent is digitalisation gaining a growing role and importance in public-sector social dialogue and collective bargaining? • Which trade union approaches and priorities are better able to address the impact of digitalisation on working life and conditions?

1. <http://www.digiqupub.eu>
 2. For the sake of readability, we will refer to the broad concept of 'sector' in this deliverable. However, it should be noted that, apart from public administrations, these are not sectors in the proper sense. As regards the production and distribution of electricity as well as hospitals and health, it should be borne in mind that the project considers the public providers of these services, which, depending on the country, are subject to varying degrees of co-provision with private sector operators.

<ul style="list-style-type: none"> • Which recommendations can be addressed to national and EU stakeholders, drawing on the present research? 	<ul style="list-style-type: none"> • Which recommendations can be addressed to national and EU stakeholders, drawing on the present research?
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1.2 Methodology and sources

A specific and original feature of DIGIQU@LPUB is the emphasis placed on the experience of workers themselves in assessing the changes that digitalisation has triggered in their daily work tasks and experience. The methodology of the project combined two complementary approaches. Firstly, a top-down perspective involved desktop research reviewing the academic literature and institutional documents related to the impact of digitalisation on job quality and occupational tasks. Secondly, a bottom-up approach was taken, to enrich the exploratory research with assessments by trade union representatives and workers themselves of the tangible outcomes of digitalisation for workers' jobs, and the challenges and practices adopted by trade unions to deal with the consequences of digitalisation. For this purpose, the eight country teams conducted semi-structured interviews with key resource persons in order to emphasize the role of the trade unions and social dialogue in the process of digital transformation of work. Beyond that, each country team organised focus groups with workers from each public sector, in order to optimally grasp workers' perceptions of the impact of digitalisation on their task and job content, and to highlight the opportunities and threats for workers brought about by these new changes. These focus groups made it possible to consult in a structured way a broader base of workers/unionists in the sectors and to compare their experiences of the changes resulting from digitalisation in the content of their daily work. In addition, workers' voices were enhanced by the organisation of an online survey among workers in the three public sectors/services in the eight Member States covered by the study (see Box 1). The web survey provided more quantitative information to the research strands of the project, both to the national case studies and the cross-country analysis.

Box 1: The DIGIQU@LPUB web survey

The DIGIQU@LPUB web survey (DGQS) was conducted as a part of the primary data collection for the project, alongside a literature review and semi-structured interviews with key trade unionists, as well as dedicated sectoral focus groups of workers in the eight countries scrutinised in the research. The questionnaire consisted of 37 closed-ended questions and one open-ended question. The questions were divided into several categories, which cover the following topics: individual and job characteristics, incidence and use of digital tools, impact of digitalisation on various job quality dimensions, outcomes for public service workers, workplace practices and workers' rights.

The survey was launched in mid-April 2022 and closed in mid-September 2022. **A total of 5,597 workers from the three public services responded to the survey:** 1,217 from the electricity sector, 2,676 from the public administrations sector and 1,704 from the hospital sector ⁽³⁾.

The survey was distributed by the project partners in each of the respective countries, helped by the co-applicant with the OSE in this project – the European Federation of Public Service Unions (EPSU). The EPSU affiliates in the various public services of the eight countries concerned distributed the link to the survey through their own channels, enabling completion of the questionnaire among their national members. The survey was mainly distributed via targeted emailing of trade unions in the respective countries, with a short introduction, a web link to the DIGIQU@LPUB project and an anonymous link to the survey. Because of this means of collecting the information, the survey sample is what is known as a 'convenience sample'. As such, it is not intended to be representative of the population as a whole in the countries and sectors considered, but only of the population answering the survey. Caution should therefore be exercised when interpreting the results in general terms. The table below shows the distribution of the number of respondents for the whole DGQS survey, and between the three public sectors investigated. The use of italics for the number of respondents from specific countries/sectors indicates weak data sub-samples for which the results should particularly be interpreted with care, given the low numbers of respondents.

	DK	FI	FR	GE	PL	SP	HU	IT	Total
Electricity	<i>3</i>	111	167	<i>26</i>	<i>32</i>	323	<i>92</i>	463	1217
Public administrations	<i>49</i>	1251	<i>91</i>	<i>43</i>	447	399	146	250	2676
Hospitals	133	809	380	<i>52</i>	<i>47</i>	79	<i>48</i>	156	1704
All sectors	185	2171	638	121	526	801	286	869	5597

The detailed results of the DGQS considered in this deliverable are available in a separate statistical annex attached to this deliverable (Deliverable D3.2).

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- It should be noted that the survey sample used in this cross-sectional report is slightly different from that used to compile the survey results in the national reports. A total of 7,621 responses were received. Respondents who gave incomplete answers to certain questions (country, sector of occupation) were treated as missing values and excluded from the calculations for this report.

2. MAIN FINDINGS ON IMPACTS OF DIGITALISATION ON JOB QUALITY

Digitalisation is pervasive and is currently integrated into the working practices of the vast majority of public service workers

The technological changes brought about by digitalisation, the multiplication of digital interfaces combined with the digitisation of documents and the likelihood of staying permanently connected to professional information flows have all contributed to the development of new forms of work organisation, such as remote work and particularly teleworking from home. The incidence of remote work has increased dramatically in recent years among public service workers. In 2022 almost half of the workers surveyed in the project claim to currently have partial or full access to teleworking from home. This proportion falls to around one third of respondents who work at service users' premises, or in decentralised professional structures. Even more than the previous wave of technological transformation in public services (computerisation and networking), in the last five years the digitalisation of work has spread rapidly to all the aspects of daily work, via individual devices such as laptops, tablets and smartphones, and the so-called Internet of Things (IoT). The COVID-19 pandemic acted as a powerful catalyst in accelerating and intensifying the use of digitalised work among private and public workers.

Digitalised tools and methods are widespread in the accomplishment of daily tasks of work in public services

The project survey sheds light on the extent to which digital tools and methods are used by public service workers. More than eight out of ten surveyed workers confirm regular use of tablets, laptops and smartphones, as well as the use of Information and Communication Tools (ICT) in their daily tasks. When it comes to the use of machines operated by digital commands to perform certain operations (for example, lifting heavy loads or persons, monitoring equipment or persons), the share of users is lower, ranging from less than one worker out of ten in the public administration to around one out of four workers in the other sectors. Almost half of the surveyed public service workers in the public electricity production services and the public administration claim to currently have partial or full access to telework from home. Around one third of respondents work at service users' premises, or in decentralised professional structures. Remote work is much less common in hospital services, where almost eight out of ten workers declare that they have no opportunity to work away from their professional workplace.

The impacts of digitalisation on work are ambiguous and vary according to the individual characteristics of public services' workers and the nature of their occupations

The DIGIQU@PUB findings on the consequences of digitalisation on the job quality of public service workers also highlight the ambivalent nature of these changes for public services and their workers. On the one hand, digitalisation undeniably contributes to a certain improvement in the work carried out by public service workers, and hence in the quality of the services provided, in terms of efficiency and effectiveness. Expected positive impacts on the job quality of workers include greater flexibility in time and space (remote work), more autonomy at work, reduction of routine repetitive tasks, better work-life balance, improved collaboration, communication and knowledge sharing with colleagues and users, the reduction of absenteeism, and physical and mental health outcomes. All these changes are expected to improve the job performance and ultimately job satisfaction of public service workers. On the other hand, there are also negative impacts of digitalisation on workers' well-being. To mention just a few: work intensification, de-personalisation of service tasks (less 'social time'), individualisation of work relationships with colleagues and managers, control and monitoring of workers and their job tasks, blurring of boundaries between work and private life, physical and mental health hazards.

The ambivalent effects of digitalisation on the nature of work organisation in the public services generate paradoxical tensions for workers: they must cope with these in order to strike a proper balance. Among others, these tensions include greater flexibility in time and space vs. respect of effective contractual working hours, work-life balance vs. hyper-connectivity, individualised work vs. teamwork, enhanced information vs. information overload, increased autonomy vs. increased control, upskilling vs. deskilling, better public services vs. distancing from the users.

For the majority of public services workers digitalisation has not changed significantly the different aspects of their job quality

The evidence collected in the DIGIQU@LPUB project shows ambiguous perceptions among public service workers of the impact of digitalisation on the features of job quality. According to the web survey of the project, the main emerging picture is that for roughly one half of the respondents, digitalisation has had a neutral (no change) impact on job quality, for around one third of workers it has had positive effects, while for about one fifth of respondents the change has been seen as negative. Obviously, this aggregated overview masks a certain variability between the aspects of job quality, the sectors and the countries considered. For instance, workers from the public hospital and healthcare services stand out from the other public services considered in the project by expressing stronger negative impressions and less frequently positive perceptions. The prevalence of 'no change' and positive assessments of the impact of digitalisation on job quality by a majority of public

workers in the survey seems to indicate that digitalisation is perceived by workers as an additional factor, rather than the cause of fundamental changes in the quality and organisation of work in the public services. Technical advances allowed by digitalisation exacerbate trends towards reorganisation, flexibilisation and individualisation of work which were already affecting EU public services. These trends are the outcome of the packages of reforms implemented as part of the process of privatising public services, the overwhelming application of the 'New Public Management' organisational paradigm in a context of constrained austerity of public expenses, including limitations of public workforce size.

Digitalisation has ambiguous impacts on job quality, notably concerning work organisation

The assessment of the workers from the public administrations and public electricity production and supply services, when questioned in the project survey on the impact of digitalisation on work organisation, is mostly positive. As well as a positive assessment of the impact of digitalisation on work organisation, there are also significant negative aspects. In the hospital sector, contrasting with the two other public service sectors, this assessment is mainly negative. There is a positive perception of, for instance, digital tools used to improve individual flexibility and autonomy at work, to allow flexibility and optimisation of the availability and circulation of information, standardisation of procedures and ultimately to enhance the quality of the public services provided to users. Negative aspects include the increased intensity and pace of work, the 'paradox of autonomy' (4), and digitalisation-related risks associated with the pervasive real-time monitoring of work and workers.

The rapid spread, in the public services, of alternative working practices allowing workers to perform job tasks outside the usual workplace, such as remote work, has generated more individual opportunities but also responsibilities for workers and employers

Partially freed from time and space restrictions (working anytime anywhere), these new forms of work give workers greater flexibility to adapt their workplaces, their jobs and their working times to their respective needs. The use of these alternative forms of work accelerated significantly following the drastic adjustments to working practices resulting from the prolonged closure of workplaces during the COVID-19 pandemic. However, there are marked differences in the incidence of remote

4. On the one hand, digitalisation has the potential to increase worker autonomy, by enhancing availability and circulation of information while reducing routine repetitive tasks. On the other hand, digitalisation comes with new routine repetitive tasks (such as reporting) that partly replace previous analogue routines. Digitalised work also amplifies the near real-time monitoring of job tasks and workers. The use of management algorithms in certain digital applications to operationalize the workflow is another factor reducing the autonomy of public service workers. This creates a 'paradox of autonomy', where workers may simultaneously experience greater freedom and greater surveillance.

work across the sectors under scrutiny. The various forms of remote work ⁽⁵⁾ are generally more widespread in the electricity and the public administrations sectors. In contrast, teleworking is much less common in the hospital sector, where almost eight out of ten workers have no opportunity to work away from their professional workplace.

Digitalisation increased work intensity and overload of public services workers, but is not necessarily perceived as the main cause for this

The public workers surveyed mainly state that digitalisation has not changed features of their contractual working time. Interviewees and focus group workers provide a more nuanced view. They stress that labour intensity and work overload have indeed been increased by the digital standardisation of tasks. However, they relativise the importance of its effect by referring to the influence of other structural factors specific to the public services, such as the ongoing staff shortages or the underfunding of services. The impacts of digitalisation on work intensification mentioned by the interviewees and the workers included: the massive flow of monitoring and reporting information generated in real time by digitalisation; decentralisation; the significant increase in teleworking among workers; a tendency to give more work to people who are teleworking because of distrust among managers; the limited possibilities, or impossibility, for teleworkers to make use of existing negotiated procedures in the workplace to regulate working time (fixed time slots, start and end time pointers).

Enhanced reconciliation of work and private life does not emerge as a benefit of digitalisation for the public services workers surveyed, nor as a major concern for them

The issue of work-life balance and the blurring of work-life boundaries was rarely mentioned in unionists' interviews or in the workers' focus groups, while the survey results tend towards a relatively neutral assessment of this issue. This may be partly because reconciliation was discussed beforehand, in connection with other closely related topics concerning work organisation and working time, notably overtime, overload and the prevalence of teleworking. However, in the electricity sector, some of the reports draw attention to the intrusive and disruptive effects on the work-life balance of the increasing use of digital tools and devices that imply a perceived and/or real need to be constantly connected. Some workers from the public administrations underline the limited but nevertheless welcome existence of legal tools (laws, collective agreements) governing the use of telework and the protection of private life (right to disconnect). In the hospitals, dedicated web

5. There are three main forms of remote digital work: teleworking from the worker's home, in satellite decentralised workplaces, or at users' premises/homes.

platforms or instant messaging group apps enable medical technicians, and particularly nurses, to be contacted at any time to meet service needs and staff availability issues.

For about half of the public service workers surveyed, the digitalisation of work has not impacted their state of physical and mental health, but around one third of workers report a negative impact of digitalisation on their physical and/or mental health

The main physical disorders reported are vision problems, back pains and neck pains, followed to a lesser extent by headaches. The main mental health issues mentioned in the survey are mental fatigue, stress, demotivation and anxiety. Another common feature of the three sectors, reported by about half of the workers in the project survey, is the increased exposure to psychological risks, including harassment or bullying by colleagues and managers, but also verbal or even physical violence from colleagues and managers or from users of public services. Mental health problems have been related to the increased stress among workers, generated by enhanced work intensity resulting from the use of digital tools and the greater flexibility in work organisation. The individualisation of digitalised work and the resulting social isolation of workers were highlighted as among the factors generating stress and mental exhaustion, with damaging outcomes such as nervous breakdowns or burn-out.

Nearly two thirds of public service workers acknowledge the need to be trained in digital skills and report that formal training is given by their employers

For around one out of four surveyed workers, however, the learning is informal and takes place on the job. Around three out of five workers assess that the matching of training with their personal needs is limited, and that regular updates are necessary. The use of digital tools for training and learning is seen as a positive contribution of digitalisation, but some negative aspects are also highlighted, such as the lack of certification of many digital training modules. In a context of work overload, moreover, it may be difficult to take e-training courses during working hours, so this is frequently postponed to outside statutory working time, increasing the risk of overtime and unpaid working hours; also, e-training deprives workers of the dynamic of learning through direct interaction with the trainer and also with colleagues, and potentially increases the inequalities between workers, for instance between older staff and younger workers already at home in a digital culture.

The impact of digitalisation on job security and career prospects is perceived differently by individual public service workers

According to the project survey, for approximately four out of ten workers digitalisation has had no repercussions on their job security and career prospects, whereas about one in three workers see

these effects as positive, and another third of workers see them as negative. This more negative sentiment is more prevalent in the hospital sector than in other sectors. The topics of job security and career prospects are scarcely discussed in the national reports, and if so, mainly to highlight the expected positive effects of learning new digital skills on career prospects.

Workers' rights: very few information/consultation procedures have taken place across the sectors

Across all the sectors, fewer than 10% of the public service workers questioned in the project survey state that they have benefited from a formal information/consultation procedure, either at individual level, through the unions or through a combination of the two methods. Almost one in four workers stated more affirmatively that no information and consultation procedure on the implementation of digitalisation had been organised in their workplace. Around half of the workers in the public services did not know whether a formal information/consultation procedure had been organised in their workplace.

The right to disconnect is overwhelmingly perceived by public service workers as an important right to consider in regulation and social dialogue

Just over a third of workers in the public services feel pressure to be permanently or frequently connected. The vast majority of respondents (generally more than three quarters of responses) from the three public services emphasise the importance to them of the right to disconnect as a workers' right, and the need to include it in labour law and social dialogue at all levels, from cross-industry to the workplace level.

There is a generation gap in the learning and implementation of digitalisation

While gender, education or origin were rarely mentioned, by the unionists interviewed or the workers taking part in the focus groups, as factors holding back digitalisation in the public services, the existence of a generation gap in the acquisition and use of digital tools was highlighted several times, and for all sectors. Older workers have greater difficulty in learning and integrating digitised work and need to be given special attention in this respect.

Digitalisation is enabling and/or exacerbating a gradual weakening of public workers' relationships at the workplace

In individual interactions within working teams, digital modes of communication (emails, video conferencing, instant messaging groups), the increased use of remote working possibilities and/or digital task planners are increasingly replacing direct physical interaction with colleagues. For some

public service workers, the digitalisation of tasks fails to include 'unproductive but socially useful time' in the digital planning of tasks. These moments of exchange, for informal communication with users, are valued by public workers (and users) and are perceived as being at the heart of their work and the public services' role vis-a-vis citizens. This potential conflict of values can cause a feeling of demotivation among public workers and increase risks of depression or burn-out.

Digitalisation alters the traditional hierarchical structure while allowing unprecedented permanent monitoring of work and workers

For some, the introduction and implementation of digitalisation has generated some mistrust in the hierarchy and a feeling that the hierarchical relationship has become weaker, as digital tools can sometimes partially replace managers in the planning and organisation of work tasks (algorithmic management methods ⁽⁶⁾). A related negative concern is the potentially excessive and unprecedented level of surveillance of work and workers' performance allowed by digitalisation. The pervasive nature of digital tools implies a de facto increase in the monitoring not only of work but also of workers, anywhere and at any time. This brings risks related not only to the permanent monitoring in itself but also to deferred use by managing software and its underlying algorithms of the raw mass of information collected during the process in order to evaluate the work/worker's performance.

3. INTEGRATION OF DIGITALISATION ISSUES IN SOCIAL DIALOGUE PRACTICES

Numerous points emerged from the extensive study conducted in the eight countries. While some applied to all eight cases, others were related to specific national contexts. We gathered sufficient empirical evidence to confirm the widespread assumption in industrial relations literature that '*institutions matter*', with their consequent variety of models ⁽⁷⁾.

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6. According to Ponce Del Castillo and Naranjo (2022), algorithmic management could be defined as automated or semi-automated computing processes that perform one or more of the following functions: (1) workforce planning and work task allocation, (2) dynamic piece rate pay setting per task, (3) controlling workers by monitoring, steering or rating their work and the time they need to perform specific tasks, nudging their behaviour, (4) measuring actual worker performance against predicted time and/or effort required to complete tasks and providing recommendations on how to improve worker performance and (5) penalising workers, for example, through termination or suspension of their accounts (Ponce Del Castillo, A. and Naranjo, D. (2022), *Regulating algorithmic management - An assessment of the EC's draft Directive on improving working conditions in platform work*, ETUI Policy Brief 2022.08, European Trade Union Institute, Brussels).
 7. Crouch C. (1994) *Industrial Relations and European State Traditions*, Oxford University Press; Ebbinghaus B. and Visser J. (1999) "When institutions matter: Union growth and decline in Western Europe, 1950–1995", *European Sociological Review*, Volume 15, Issue 2; Hall P. and Soskice D. (2001) *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Oxford: Oxford University Press.

3.1 Variations across countries

The following results emerge from the cross-country comparative analysis:

In Finland and Denmark, where union densities are some of the highest in the world, the three sectors under scrutiny are even more unionised than average. The two-tier collective bargaining system covers almost 100% of the sectoral workforce. Given this background, the digital transition of work is embedded in well-established social dialogue practices, both formal and informal. The ongoing digitalisation has not given rise to any particular controversies, although only a few aspects of digitalisation are directly addressed in sectoral collective agreements. Other issues are higher on employee and union agendas, including welfare state reform in Finland and some industrial unrest in Denmark among specific segments of the public-sector workforce, including hospital nurses. However, in both countries, the social partners seem to have faith in the capacity of their system of industrial relations, broadly based on social dialogue for a and informal cooperation at plant and workplace level, to successfully cope with the new challenges.

In Germany, our example of the Continental model, the digital transition has progressed differently, at differing speeds and to differing extents in the three sectors. Trade unions appreciate the positive effects of the ongoing work transformations but are afraid of situations 'dictated' by market forces alone. They also have major concerns about data protection. Most collective agreements are concluded at a decentralised level, where workers' representatives have strong participatory rights. The issue of data protection is a major concern, very much discussed. The role played up to now by sectoral agreements is unsatisfactory from a trade union perspective. In general, digitalisation in Germany seems to be driven by top-down strategies, rather than integrated and comprehensive approaches.

In the three Southern European countries, the three public services are all very unionised, while collective bargaining coverage is almost 100%. Framework agreements and a two-tier collective bargaining system dominated by the sectoral level play a very important role, including in digitalisation issues. The basic approach of the trade unions is not to hinder digitalisation, as reflected in its relatively minor importance in collective agreements, where it is rarely referred to explicitly. While the main French trade union confederations approach and interpret the ongoing transition in different ways, the Spanish unions complain that they are barely involved. In Italy, unions are attempting to play the consultation and joint examination card, as set out in the collective agreements. In these three countries, apparently more so than in the other countries, sectors of the trade union movement express worries about and criticise the ongoing digitalisation, warning of negative consequences on employment, working conditions, quality of life, and union rights.

In the two Central Eastern European countries, the entire industrial relations system is weak. Despite some formal tripartism, state unilateralism prevails. Collective bargaining at sectoral and multi-employer level exists only in the electricity sector, where coverage is peculiarly high, whereas in hospitals and public administrations coverage levels are minimal (1-2%), with any collective agreements only existing at decentralised level. In all three sectors, digitalisation and its effects are generally not addressed in collective bargaining, and do not feature among workers' and unions' priorities. The digital transformation is generally welcomed as an opportunity, albeit only when the workforce is well prepared. Great faith and emphasis are placed in continuing vocational education and training (CVET). However, the functioning of tripartite bodies needs to be improved, as does the consensual and preventive management of digital transformations of work.

3.2 Variations across sectors

In the cross-cutting analysis, we observed a wide range of practices. Within every national socio-economic and institutional framework, the specific characteristics of each of the three sectors matter. This is particularly true of the employees' legal status (enshrined in either private or public law) in these three sectors, where the role of the state as an employer and any adverse impacts on the supply of essential services to citizens can be very significant.

3.2.1 Electricity sector

Two collective bargaining remits (in most cases industrial and multi-utility) and levels (national industry-wide and company) exist in all eight countries, with the exception of Spain and Germany where there are no national agreements covering the whole sector. Collective bargaining coverage is very high everywhere, peaking at between 90 and 100% in some countries, as in the two Nordic states, France, Spain, Italy, but also Poland. In Denmark, local negotiations play an influential role, but the general terms and conditions are still set by sector-based bargaining following the lead of the manufacturing industry. The weight of the once fully state-owned companies, although weakened by the liberalisation of the last 20 years, still influences employers' approaches and managerial cultures in countries such as France and Italy where sectoral industrial relations are highly structured. EDF (France), ENDESA (Spain) and ENEL (Italy) – in the industrial branch of the sector – are big multinational corporations, with strong and long-established good practices, also in transnational company agreements (TCAs).

The findings for the two Central Eastern European countries are striking, in that the electricity sector is one of the very few where the quality of industrial relations reaches levels similar to those of Western European countries. Backed by higher union density, widespread workplace representation and a two-tier collective bargaining system, multi-employer agreements achieve coverage significantly higher than the national averages.

The overall impression is that digitalisation is not yet a major issue addressed by collective bargaining, at least not explicitly in the agreements. In Denmark, shop stewards negotiate locally, with a key role played by the daily informal exchange of information, also on this topic. In Germany, where teleworking remains limited, trade unions complain of underperforming collective bargaining and codetermination, although the agreement on digitalisation for the federal government is the one example identified where the issue has been negotiated with a focus on employment protection and training. In France, consultation is rare and sectoral agreements do not cover teleworking or the right to disconnect, although some experiments are ongoing at company level, especially on teleworking and digital training. No sectoral collective agreement exists in Spain, where agreements are concluded at company level only. 'Agile' working is well regulated in Italy, at both sectoral and company level, with the adoption of a 'Statute of the person', emphasising work quality and employee wellbeing. Generally speaking, in all eight countries, the unions are calling for better regulation of teleworking – through both collective bargaining and employee involvement and participation – for more control over working time, the prevention of health and safety risks, and for a good work-life balance.

3.2.2 Public administrations sector

In public administrations, an employee's legal status, whether entirely and specifically rooted in public law or fully or partially enshrined in private law, is quite important, especially in some countries. In Poland and Hungary, from this point of view, civil servants are subject to the Labour Code and legislation, and are not permitted – or only to a strictly limited extent, *de jure* and *de facto* – to exercise key social rights such as the right to strike or collective bargaining. State and public administrations deliberate unilaterally on working conditions, with human resource management consultative forums the only possibility for employees and their representatives to make their voice heard. The situation is completely different in all the other countries studied, where public sector workers with private-law employment relationships usually have the right to strike and collective bargaining prerogatives. Collective bargaining coverage is usually 100% and the two tiers are centrally coordinated. Generally speaking, digitalisation has not been addressed in specific chapters or clauses in the collective agreements, even in countries where industrial relations are robust and forward-looking, as in Finland and Denmark. In Germany, where union density in the public administrations is much higher than the national average, the collective bargaining system is highly centralised and coverage is close to 100% (93%). However, the solutions adopted concerning the digital transition differ greatly between administrations. Although they do not play a central role in collective bargaining, framework agreements on teleworking have been signed in France and Spain, whereas Italy seems to be the only country where digitalisation has been addressed as important (in the June 2022 national collective agreement for the 'Central Functions' sector). With regard to trade union approaches and priorities, the Nordic unions have faith in their cooperative and consultative way of tackling workplace change. Rejecting the privatisation and outsourcing of public

services, the German unions stress the issues of job security, the right to upskilling in the case of digital transformations, and 'good work' as a precondition for better services to users and citizens. Teleworking tops the agendas of trade unions in the three Southern European countries, where the aim has been to defend workers' rights and guarantee their working terms and conditions. In Poland and Hungary, while the digital transformation is not at the top of their agenda, unions have achieved general regulation of teleworking, making its voluntary nature clear and enforceable.

3.2.3 Hospital sector

In both Nordic countries, collective bargaining in this sector is centrally coordinated, boasts 100% coverage and is highly formalised in terms of consultation and cooperation. The sector is facing massive challenges, with severe staff shortages, and the bargaining agenda has been dominated by this question and how to improve pay and conditions. In this context, digitalisation as such is a secondary issue in collective bargaining. The situation in Germany reflects the sector's tri-partite structure (public, private, non-profit). In general, there is a low level of digitalisation in the hospital system, and the topic is not always explicitly mentioned in the agreements. In the three Southern European countries, the hospital system is increasingly decentralised, coming under the jurisdiction of the regional authorities. This fragmentation affects the digital transition, as seen by the diversity of standards and practices. New digital systems are often decided on by hospital directors, with no real consultation or negotiations with employee representatives. The Covid-19 pandemic had a major impact on the sector, underlining the shortage of staff and unbearable workload following years of budget cuts. In the case of Italy, 'agile' work or teleworking is one of the topics most focused on in the new collective agreements.

In Poland, the hospital sector is state-regulated. Some consultation is formally allowed, whereas collective bargaining only takes place at hospital level, and thus covers a mere 2% of the workforce. Digitalisation is not a priority for the social partners, and the sectoral unions have moderate to no interest in it. In the Hungarian hospital system, collective bargaining is banned and there are no regular forums to discuss strategic issues. The unions are very much focused on calling for full recognition of fundamental union rights, appealing to the ILO to fight the violation of these rights. In this context, the digital transition is low on union agendas.

3.2.4 The three sectors in a nutshell

Summing up, of the three sectors investigated, the one with by far the highest level of similarities across the eight countries is the electricity sector. The main reason for this is that the West/Central-East divide is much less strong than in the other two sectors. In all eight countries, social dialogue and collective bargaining are autonomous and quite effective in terms of consistency (union density), the role of sectoral or multi-employer agreements, and collective bargaining coverage. Best practices were identified in several countries, also with regard to national industrial relations traditions in

general, with unions more pro-active, collaborative and innovative in anticipating change. The opposite was true for the other two sectors, in which the West/Central East divide is much more pronounced. While in Western European countries, most key industrial relations indicators are comparable among public administrations, hospitals and other national sectors – with, for example, private-law employment relationships, relatively autonomous industrial relations and high levels of collective bargaining coverage – this is not the case at all in Poland and Hungary. In these two countries, employees’ legal status and working conditions are entirely ruled by law and unilateral managerial decisions, severe restrictions and prohibitions apply, and collective bargaining is minimal and completely decentralised, or even fully absent.

One important finding of this study is that, across the countries and sectors under scrutiny, there were fewer references and quotations relating to the digital transformation of work and services than expected. Indeed, it is rare for the notion to be mentioned at all in collective agreements. It may be referred to in cases where the national industry-wide level is predominant, or in collective agreements at company or plant level. Where references to digitalisation exist in collective agreements, the most important and common issue to date is teleworking and, in particular, the full maintenance of employee rights (both individual and collective), an acceptable work-life balance, ad hoc health and safety measures, the right to disconnect, and the right to sociability.

What is more widespread in most of the countries and sectors is the role of tripartite consultation and fora. Arrangements generally seem to be highly informal and unilaterally decided by management, as digitalisation is considered a sub-area of work organisation and therefore a prerogative of human resource management. In this context, trade union rights and powers, where not protected by law and/or social partner autonomy, may be at risk: this was a concern that emerged from most of the case studies, notably during the interviews and focus groups. This risk could occur as an effect of growing individualisation of employment relationships and by the social isolation of digital workers. Teleworking can indeed undermine employees' capacity to organise and act in defence of their rights. *'How can employees be reached by collective representation organisations when they have no fixed place of work? And how can co-determination be organised in such a company?'* asks the author of the German case study ⁽⁸⁾.

Not much attention seems to have been paid in social dialogue in the eight countries to the digital divide among citizens and users of the new platforms, mostly in relation to some key public services ⁽⁹⁾. This is especially the case in countries where the level of digital literacy remains inadequate and

8. Öz F. and Hamburg I. (2023) How digitalisation shapes job quality and social dialogue in Germany's public services. DIGIQU@LPUB project. OSE Working Paper Series, Research Paper No.58, Brussels: European Social Observatory.

9. Although this is not expressed in the social dialogue, it was mentioned by several of the interviewees and focus group attendees as important as well, see Peña-Casas R. and Ghailani D. (2023) The ambivalent and ambiguous impacts of digitalisation on job quality of workers in public services in the European Union: the case of electricity production

uneven, where elderly and less educated or technologically skilled people find it difficult to access new digitalised services, including vital provision such as health services. There are very real risks of new forms of social exclusion, as already identified by polls and surveys of people's daily life and experiences ⁽¹⁰⁾.

Several country reports emphasise that European social dialogue could play an important role in supporting social dialogue in the different countries under scrutiny, promoting negotiations between the social partners on matters related to digitalisation in the different areas and at various levels. This brings us to a set of policy implications drawn from the research.

and supply, hospital, and public administration sectors. DIGIQU@LPUB project. OSE Working Paper Series, Research Paper No. 61, Brussels: European Social Observatory, September.

10. Among others, see Rogers E.M. (2001) *The Digital Divide*, *The International Journal of Research into New Media Technologies*, Volume 7, Issue 4, December. According to a survey conducted by the Italian trade union CISL, 8 out of 10 elderly people, especially in some southern regions of the country, risk being excluded from digital services including crucial ones from the health and public administration sectors.