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The impact of digitalisation on job quality and social dialogue in the public services: the case of Poland

DIGIQU@LPUB Deliverable D2.8

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EXECUTIVE SUMMARY

This report is a Polish contribution to the study of the impact of digitalisation on working conditions in three public service sectors: electricity, public administration and health care, conducted as part of the project 'DIGIQU@LPUB: The Impact of digitalisation on job quality and social dialogue in the public services'. Conclusions were drawn from desk research analysis (encompassing existing literature, legal acts, strategic documents) and from field research, using both quantitative (online survey) and qualitative methods (individual interviews, focus groups). The survey in Poland showed that - despite the country's low ranking in the DESI index compared to other European Union countries - many advanced digital solutions have been implemented in recent years in the public service sectors analysed.

The digitalisation process is particularly advanced in the electricity sector, where intensive modernisation of power plants and transmission networks has already been underway for more than two decades. Currently, the country's electricity infrastructure is fundamentally digitalised and various digital tools are used extensively by employees. In addition, tools have been introduced in recent years to improve the sale of electricity to the end user, based on remote and automated solutions. In the case of the healthcare sector, in addition to specialised equipment for diagnosing and treating patients, and its integration with hospital IT systems, important innovations in recent years include tools for the electronic exchange of documents (e.g. e-prescriptions, e-referrals) between doctors and patients. Additionally, a system for electronic medical records is currently being developed, ensuring that they can be exchanged between hospitals. The public administration sector also has tools for electronic communication between citizens and offices, enabling the former to handle many issues remotely, as well as systems for the exchange of information between public institutions.

The assessment of both the importance of digitalisation and its impact on working conditions varies between the sectors surveyed. Representatives of the electricity sector consider this process to be fundamental and essential to the operation of the sector, while pointing out some challenges that the implementation of certain technologies implies for employees, constituting an additional workload for them. In healthcare, in turn, digitalisation has a more discrete impact on both work content and employment conditions. Representatives of the sector indicate that, in general, digital tools, if implemented correctly, streamline work and reduce the burden of administrative duties. On the other hand, there is no significant impact on the nature of the tasks performed. Digital tools also have no significant impact on various aspects of working conditions, such as working time schedules or autonomy, as these are specifically regulated in healthcare and depend on factors other than the technologies used by employees. In the public administration, digital tools on the one hand standardise administrative processes, making them more transparent and improving the circulation of information, but on the other hand, result in more intensive and routine work. As a general rule, however, the overall conclusion from the cross-sectoral analysis is

that the impact of digitalisation on working conditions, employee well-being and job satisfaction is rather positive. The assessment of digital solutions may be less positive than it could be due to the flawed or at least suboptimal way in which they are implemented, examples of which, in the case of the sectors studied, are the lack of standardisation and integration of IT systems in the electricity sector or the obligation to keep double records (paper and electronic) in some hospitals.
Social dialogue on the issue of digitalisation in the sectors surveyed is very weak at various levels, from national to company level. This is, moreover, a feature of social dialogue in Poland in general, which is influenced, among other things, by the low level of unionisation of employees, the low collective bargaining coverage, with agreements concluded mainly at company level, and the lack of interest among the employers' organisations in participating in collective bargaining. Although the electricity sector stands out positively in terms of the level of unionisation and the presence of a multi-employer collective agreement covering a significant proportion of employees, both there and in the other public service areas surveyed, digitalisation is not a prominent topic of negotiation among the social partners. Digitalisation is also only rarely on the agenda of the tripartite sectoral dialogue bodies, which have a consultative function: the government side initiates the implementation of digital tools, while the trade union side plays a reactive role. Adequate dialogue is also lacking at the company level - in many cases, there were complaints about the absence of consultation on the actual digital tools to be implemented.

SECTION 1. INTRODUCTION

1.1 Purpose of the research

This report presents the results of the national study carried out as part of the international project 'DIGIQU@LPUB: The Impact of digitalisation on job quality and social dialogue in the public services' which covered eight EU countries: Finland, Denmark, France, Germany, Hungary, Italy, Poland, Spain. The study is led by the European Social Observatory (OSE) and is funded from the European Commission's budget line 'Improving Expertise in the field of Industrial Relations'. The project aims at improving understanding of the impact of digitalisation on job quality in the public services, by highlighting the perceptions that workers themselves have of the changes generated by digitalisation in the performance of their daily tasks. The study focuses specifically on three sectors: public administration, electricity and the hospital sector. The project also aims at raising awareness among trade unions and decision-makers of the consequences of the digital transition of work for the public services. Specific objectives include the following:

- To assess the impact of digitalisation on job quality from the perspective of trade unions, but also of public service workers themselves. The intention is to identify the changes affecting the nature, content and implementation processes of the tasks involved in the jobs of public service workers, as well as the outcomes for the workers themselves.
- To explore how the challenges and opportunities for job quality generated by the digitalisation of work in public services are included and addressed in the dynamics and practices of social dialogue at national and sectoral levels in selected EU Member States.
- To enrich the debate about this topic among social partners and to provide advice, through hands-on policy recommendations, to both European and national trade unions and decision-makers, on suitable ways to address the digital transformation of work.

The study in Poland was carried out in 2022 based on a methodology which was the same for all project countries; this allowed for comparative analyses, as the same set of research tools were used in each country. Four main research methods were applied: desk research, individual interviews, focus groups and an online survey.

The desk research examined the documents constituting the country's public policies on digitalisation, public statistics, as well as the literature on the subject available primarily at national level. In-depth individual interviews were conducted with representatives – mainly chairmen – of the most important trade unions in the public administration, electricity and hospital sectors. The key selection criterion for interviewees was membership of one of the three representative trade unions in the country: NSZZ 'Solidarność', Ogólnopolskie Porozumienie Związków Zawodowych and Forum Związków Zawodowych. Between three and five interviews were conducted in each sector –

giving a total number of 12 in-depth interviews in the study. A detailed description of the sample can be found in the introductory part of each sectoral chapter. Also, three focus group interviews were organised – one for each of the sectors covered by the study. The focus groups were attended by regular workers in each of the sectors, who shared their experiences of the impact of using digital tools on their daily work. The individual interviews - due to the COVID-19 pandemic and the limited availability of respondents - were conducted by telephone, while the focus group interviews were conducted by teleconference using Zoom. These remote interviews provided access to interviewees from various geographical parts of the country. An anonymised list of interviewees for the individual and group interviews is attached to the report. In addition, a survey was conducted in the form of an online questionnaire, which was distributed through the sectoral trade unions. The DIGIQU@LPUB survey (DGQS) collected a total number of 542 completed questionnaires, including 447 from the public administration sector, 47 from the hospitals sector, 32 from the electricity sector and 12 from unspecified sectors. Due to the uneven distribution of the sample, the results for the public administration sector will be presented more extensively in this report, while the results for the other two sectors will only be presented in an illustrative way as a background to the qualitative findings. In interpreting the quantitative results presented, account should be taken of the methodological limitations outlined above, which only allow inferences to be made about a group of survey respondents and do not enable conclusions to be extrapolated to the entire sector.

The report consists of four main parts: an overview of public policies and research on digitalisation in the country, the results of the study on the impact of digitalisation on job quality in the three sectors, digitalisation and social dialogue, and the recommendations made by the social partners in the study. At the end of the report is a list of references and annexes with a list of respondents.

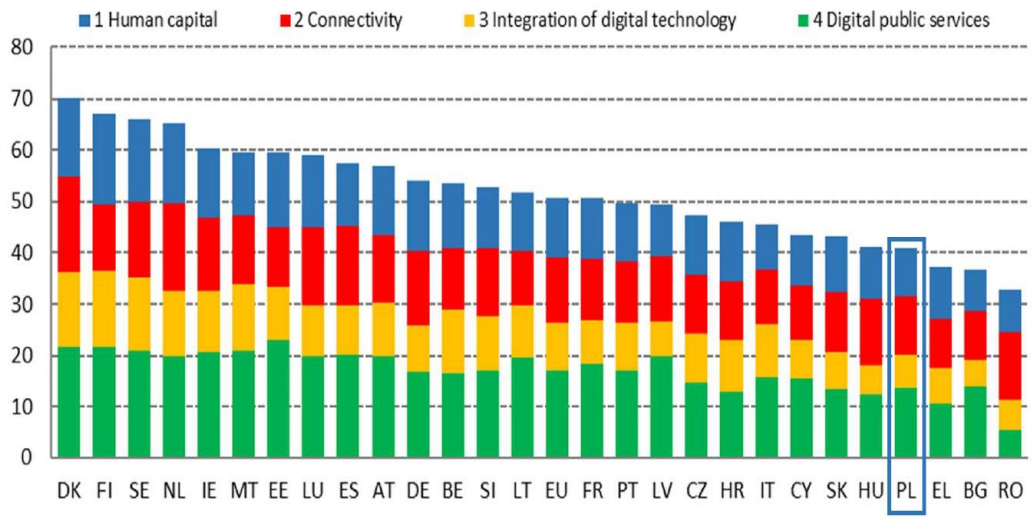
1.2 Digitalisation: state of play and national strategies

1.2.1 Latest DESI Index

Poland is one of the countries with the lowest Digital economy and society index (DESI) in the EU (DESI, 2021). According to the latest report, the country was ranked 24th out of 27 countries with a score of 41 points (EU average: 50.7 points). In each of the dimensions constituting the DESI index, Poland ranks between 21st and 24th in the EU, specifically: Human capital: 24th (score: 37.7 p., EU average: 47.1 p.), Connectivity: 21st (score: 45.3 p., EU average: 50.2 p.), Integration of digital technology: 24th (score: 25.9 p., EU average: 37.6 p.), Digital public services: 22nd (score: 55.1 p., EU average: 68.1 p.). The report notes that some progress has been made in the country in recent years, but given the equally positive developments in other countries this has not been reflected in a change in its ranking. Also, despite the fact that the country has reached the EU average percentage of ICT graduates among total graduates, the shortage of specialists is

significantly affecting businesses' ability to introduce digital technology, preventing enterprises, in particular SMEs, from tapping into the full potential offered by the digital economy.

Figure 1. Digital economy and society index (DESI), 2022 ranking



Source: Digital economy and society index (DESI) Poland, European Commission (2022)

As regards the digital public services dimension of DESI – which is relevant for this report in particular – Poland scores above the EU average in the use of pre-filled forms and access to open data. In other subcategories it falls well below the EU average (e-Government users, digital public services for citizens and for business). The Open Data portal ([1]) (*pl.* Otwarte Dane), the national one-stop-shop portal for open data, gained international recognition in 2020, when it was placed in the highest category (trend setters) in the 'Open Data Maturity 2020' ranking ([2]). The pandemic increased the demand for digital public services - for example, the central authentication service (the 'Trusted Profile', *pl.* Profil zaufany ([3])) noted a significant increase in subscriptions. In 2020, over 4 million profiles were set up, doubling the number of active profiles in comparison to 2019. In turn, this demand speeded up the delivery of digital solutions planned many years before. In particular, the digital wallet for documents and services – mCitizen ([4]) (*pl.* mObywatel) – is considered to be currently one of the most developed European digital identity wallet solutions.

According to the DESI report (2021), 49% of internet users in Poland had contact with e-Government tools as compared to 64% in the EU. Poland also scored below the EU average in regard to the following dimensions: 'Digital public services for citizens' (65 points as compared to 75 points in the EU), 'Digital public services for business' (67 points / 84 points). The dimensions

1. https://dane.gov.pl/
2. https://data.europa.eu/sites/default/files/country-factsheet_poland_2020.pdf
3. https://www.gov.pl/web/cyfryzacja/profil-zaufany
4. https://www.gov.pl/web/mobywatel

'pre-filled forms' and 'Open data' performed better than the EU average (respectively: 65 points, 90% in Poland compared to 63 points and 78% in the EU).

1.2.2 National digital strategy

The highest-level public document bringing together various threads related to digital development is the 'Responsible Development Strategy until 2020 (looking ahead to 2030)' (Strategia Odpowiedzialnego Rozwoju do 2020 roku (z perspektywą do 2030 roku), SOR, Council of Ministers) adopted in 2017 ([5]) by the Law and Justice (Prawo i Sprawiedliwość, PiS) government at the beginning of its first term in office ([6]), and which also covers other priority public policy areas. There is no other strategic document encompassing various programmes and plans implemented by the government. The SOR refers to digitalisation in two key points:

- E-administration (pl. e-państwo), defined as a priority area in the third detailed goal of the strategy 'Effective state and institutions for growth, social and economic inclusion / Skuteczne państwo i instytucje służące wzrostowi oraz włączeniu społecznemu i gospodarczemu'. The SOR assumed the creation of the Integrated State Informatisation Programme (pl. Program Zintegrowanej Informatyzacji Państwa (PZIP), 2019b), which was adopted in 2019.
- Digitalisation (*pl.* cyfryzacja) is listed as one of six areas (as well as human and social capital, transport, energy, environment and national security) impacting how the strategic goals of the SOR will be achieved. The SOR stipulates the setting up of a number of strategic programmes and plans, including the following:
    - National Broadband Plan (2020a) (*pl.* Narodowy Plan Szerokopasmowy). The first version of the National Broadband Plan was adopted in 2014 by the previous government (Civic Platform and Polish People's Party). The Plan was updated in 2020 and covers the period until 2025. It presents the current state of development of the broadband network in Poland and summarises the telecommunications investments to date, including those implemented with support from the EU funds of the Digital Poland Operational Program.
    - Integrated Ongoing Cyberspace Security Management System (*pl.* Zintegrowany System Zarządzania Bieżącego Bezpieczeństwem Cyberprzestrzeni), which was eventually adopted under the name 'Cybersecurity Strategy of the Republic of Poland, 2019-2024' (2019a) (*pl.* Strategia Cyberbezpieczeństwa Rzeczypospolitej Polskiej na lata 2019-2024).

5. The SOR has not been updated since 2020 or replaced by any other national strategy.
6. First term: 2015-2019, second term: 2019 – till now.

- Skills in the information society (*pl.* Kompetencje w społeczeństwie informacyjnym). Currently, the draft 'Programme for the development of digital competences by 2030' was published in early 2021 ([7]), but has not yet been adopted.

- The Open Data Programme (pl. Otwarte Dane Publiczne), which took the form of the Data opening programme for 2021-2027 (*pl.* Program otwierania danych na lata 2021-2027), adopted in 2021.

- Nationwide Educational Network (*pl.* Ogólnopolska Sieć Edukacyjna ([8]), OSE) aiming to create an Internet access network connecting all schools in Poland (approx. 30.5 thousand). The OSE was established in 2018 and is now coming to an end.

In addition to the above-mentioned programmes announced in the SOR, the government is responsible for a number of other public policies and projects in the field of digitalisation. Among them we should also highlight the 'Policy for the development of artificial intelligence in Poland from 2020' (2020b) (*pl.* Polityka dla rozwoju sztucznej inteligencji w Polsce od roku 2020). This discusses AI developments in six areas: society, education, science, business, public affairs and international relations. The strategy defines the values to be observed and goals to be achieved through government action in various contexts. The overarching goal is to protect human dignity while supporting fair competition in international relations, as the use of AI is essential for the competitiveness of economies.

One of the key mechanisms for financing digitalisation in Poland are the funds from the European Union. The document 'European Funds for Digital Development 2021-2027' ([9]) (*pl.* Fundusze Europejskie na Rozwój Cyfrowy 2021-2027) defines three priorities: increasing access to ultra-fast broadband Internet connection (*pl.* Zwiększenie dostępu do ultra-szybkiego internetu szerokopasmowego), advanced digital services (*pl.* Zaawansowane usługi cyfrowe) ([10]) and technical support. The programme will have a budget of approx. €2 billion.

The most recent EU initiative that includes a digitalisation aspect is the Recovery and Resilience Facility. The National Recovery and Resilience Plan for Poland was signed on 1st June 2022 and approved by the Council of the European Union on 17th June 2022 ([11]) - this is a significant delay compared to the other EU countries, which commenced implementation of the national plans in

7. https://www.gov.pl/web/cyfryzacja/kompetencje-cyfrowe
8. https://www.gov.pl/web/cyfryzacja/ogolnopolska-siec-edukacyjna1
9. The programme is a direct continuation of the 'Programme Digital Poland 2014-2020'.
10. This priority covers the following issues: high quality and access to public e-services, strengthening the national system of cybersecurity, digital accessibility and re-use of data, cross-sectoral cooperation on digital solutions to socio-economic issues, support of digital skills.
11. See: https://www.gov.pl/web/planodbudowy/o-kpo

2021. The Polish plan allocates 21.3% of the €35.4 billion funds to the digital transition ([12]). The largest part of the budget - €2.6 billion - is devoted to ensuring access to high-speed internet and deployment of the 5G network. Additionally, €1.4 billion will be spent on the education sector, including developing digital infrastructure and equipment for schools, as well as digital skills for teachers. The funds will also support digitalisation of the public administration: €443 million are foreseen to strengthen the State's cybersecurity capacity and €420 million to digitalise public services, such as the invoicing and administrative procedures related to construction and spatial planning. The start of the National RRP is conditional on compliance with the rule of law, which has been questioned in Poland in recent years - especially the independence of the judiciary system. A recent statement of the Vice-President of the European Commission - Vera Jourova - in the European Parliament might suggest that the funds will not be activated, despite the signing of the Plan by the Council and the Commission earlier in the same month, until substantial reforms are in place ([13]).

The social partners played a marginal role (if any) in elaborating the above strategic documents and they are rarely mentioned as actors involved in implementation of public policies. For example, the social partners are mentioned only once in the document 'European Funds for Digital Development 2021-2027', in the subchapter 'Cross-sectoral cooperation on digital solutions to socio-economic issues' as a target group for the priority, next to citizens, public institutions, research institutions, NGOs, etc. Similarly, the social partners are mentioned only once in the 'Policy for the development of artificial intelligence in Poland from 2020' (2020b), in the chapter setting mid-term goals for the strategy: 'creating conditions for increasing the flexibility of the labour market by appropriate legislative changes and consultation with employers and trade unions in this regard'. The other documents listed above do not mention trade unions or employers' organisations.

1.3 Research on the impact of digitalisation on job quality at cross-sectoral level: state of the art

The issue of the impact of digitalisation on job quality or working conditions has not yet been the subject of in-depth analyses in Poland. This conclusion is based on the desk research carried out in relation to the public administration, healthcare and electricity sectors. There have been a number of studies on the impact of telework on working conditions during the COVID-19 pandemic, but there is a lack of data at the sectoral level.

12. See:https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/recovery-and-resilience-plan-poland_en
13. See:https://www.bankier.pl/wiadomosc/Nie-bedzie-pieniedzy-z-KPO-Reforma-nie-spelnia-kamieni-milowych-Morawiecki-komentuje-slowa-wiceszefowej-KE-8367154.html

According to Eurostat, telework was performed by 4.0% to 5.6% of workers in the period 2011-2019 and rapidly increased in the first year of the COVID-19 pandemic, up to 8.9%. These levels might be considered as rather stable (with the exception of the pandemic period) and low. Compared to the other countries in the EU, telework in Poland was below the EU average. The Eurostat data show that a slightly higher proportion of women in Poland usually worked from home – 4.9% as opposed to 4.3% of men – which reflected the general trend in the EU.

SECTION 2. IMPACT OF DIGITALISATION ON JOB QUALITY

Section 2.1 Electricity production and distribution sector

2.1.1 Overview of the sector

The electricity sector - like other parts of the economy - was privatised in the 90s as a result of the transformation process. Currently, there are four large groups, partly owned by the State Treasury: Polish Energy Group (PGE), Tauron, Enea and Energa, which jointly generate approximately 70% of the country's electricity. Additionally, the power grid in the capital city Warsaw is managed by the E.ON Polska company. The energy transmission is operated by the Polskie Sieci Elektroenergetyczne (PSE), which is a fully state-owned company.

According to Eurostat (Structural Business Statistics), the total production value of the sector was €19,220.5 million in 2020, and €19,812.7 million in 2019. Value added at factor cost amounted to €11,294.1 million in 2019 (57.0% of the production value). According to the same source, 103,614 people were employed in 2020 in the electricity sector (defined as NACE D351) in Poland. This is equivalent to 0.65% of total employment. The average monthly salary amounted to PLN 8,661.01 gross (approx. €1,925) in 2021 (PLN 8,521.08 in the public sector and PLN 8,782.42 in the private sector) an increase of 5.3% compared to the previous year (Statistics Poland, 2022). This was the lowest wage increase across sectors, amounting to 0.1% in real terms (after inflation). The great majority of workers have a standard open-ended contract. Some employees with fixed-term contracts and TAW workers are present in such activities as customer service, call centres.

The findings presented in this chapter are based on qualitative research, consisting of in-depth individual interviews and a focus group with union and employee representatives from the electricity sector. Individual interviews (5, see table in Annex.) were conducted with the chairmen of the most important representative sectoral unions: the National Section for Power Plants of NSZZ 'Solidarność', the National Energy Section of NSZZ 'Solidarność', the National Energy Section of the All-Poland Alliance of Trade Unions of Continuous Process Industry Employees, and the National Energy Section of the Trade Union of Engineers and Technicians. One interview was also conducted with a management representative at ENEA responsible for the implementation of digitalisation in the company. The focus group (see table in Annex), on the other hand, included representatives of employees and the above-mentioned unions, as well as from the Association of Energy Workers' Unions, representing different cities in Poland and covering different sections of the energy sector: Tauron Bielsko Biała continuous processes (a dispatcher), PGE Dystrybucja energii in Łódź (electrician), Tauron Polska Energia (electrician) and Turów Power Plant (administrative worker). In addition, the DIGIQU@LPUB (DGQS) survey was also distributed through the sectoral unions but was filled in by only 32 respondents. Due to the very small

number of completed questionnaires, the results of the quantitative survey will be referred to in a limited way and will only be used for illustrative purposes.

2.1.2 History and patterns of digitalisation in the sector

The electricity sector is one of the most digitalised sectors in the country, in order to ensure effective operation of the critical infrastructure and cost-effectiveness of business models in this partly privatised sector. This is true for both electricity production and distribution. Interviewees emphasised that digitalisation processes had already started in the early 1990s and developed in line with technological advances in the area. The solutions applied in Poland appeared almost in parallel with the latest solutions applied in Western European countries. Nowadays, next-generation systems are already in use, and have replaced the old solutions from the 1990s and later: '*I can't imagine operation of the energy industry without digitalisation in order to work in a responsible, efficient, but also safe way'.* (INT3)

Electricity production is fully digitalised and equipped with numerous systems and programmes - especially in the new power plants like block 5 and 6 in Opole ([14]) - enabling management and monitoring of production processes. The distribution of electricity is also fully managed, thanks to digital systems that enable the following: storage of data on transmission network elements, identification of failures and anomalies in the distribution system, remote energy metering from power allocators at the customer's premises, etc. Additionally, there is some supporting software, such as an operational logbook (to record, register all operational activities), a programme for recording power supply interruptions (number of interruptions, duration of interruptions, mode of work for elimination of failures), applications allowing for contact with consumers coupled with a call centre service. Electricians responsible for servicing the power network use tablets linked to the network management system to receive orders, instructions and report on repairs made. This allows them to work and bill fully remotely without having to come to the office. In the company Tauron, the smart grid solution (AMI programme) has been developed in recent years. This allows fully digital communication with clients and remote management of electricians servicing the grid.

General (non sector-specific) digital instruments are also applied in the companies, i.e. *Content Management System (CMS)* or SAP software systems supporting management and human resources (covering leave, business trips, car fleet management, etc.), as well as e-chancellery for the circulation of documents, and electronic signatures within the companies studied. The union representatives interviewed declared that all or almost all human resources (HR) matters are processed through digital software. The office workers also use advanced IT solutions such as Office 365, including MS Teams, Onedrive, Sharepoint, etc.

14. Blocks 5 and 6 in the Opole power plant were opened in 2018.

Digitalisation has affected virtually all types of jobs and occupations in the sector, in the opinions of interviewees and focus group participants. Some of the most important categories are office workers (cognitive work, easiest to perform remotely e.g. during a pandemic), operational and maintenance workers. The latter category includes, for example, energy production workers operating power units (service workers), grid transmission dispatchers, field electricians operating the grid, etc. However, the type of impact and its scale varies depending on the occupation. In response to the DIGIQU@LPUB survey, almost all respondents declared that they used mobile devices as well as information and communication tools in their work.

Due to the digitalisation process, which has been ongoing in the sector for more than three decades already, the challenge is to adapt to the latest solutions used worldwide and to replace old systems. Focus group participants emphasised that modernisation processes often result in incompatibility between old and new systems. This problem is particularly serious when a new system is intended to work with other systems - in such cases, modernisation takes longer and generates more difficulties for both the company and workers. Often, digital systems are supplied by different sub-suppliers, and coordinating their operation and servicing can also present difficulties. The issue of system incompatibility also arises when companies, which usually have their own digital corporate systems, merge. In such situations, usually the acquired company has to introduce the systems of the acquiring company - even if the new digital solutions are less functional than the previous ones.

Focus group participants also emphasised the need to tailor individual digital programmes not only to the specifics of work, but also to the needs of the workers who will use them on a daily basis. Respondents pointed to insufficient consideration of these needs, as well as the incompleteness of the process by which developers create digital solutions. The first versions of programmes usually require many modifications and corrections. The design process should include from the outset a stage for modification and consideration of employee feedback. Focus group participants indicated that managers responsible for designing and implementing digital solutions often focus on achieving quick results and being able to declare success. Consequently, consultation processes on digital tools are rarely or never planned.

> *Managers are held accountable for results and want to see quick success. Programmes are usually delivered by large IT companies, which are able to deliver a good quality product, but the corrections to the software cost twice as much and take much more time. Managers want to prove themselves, and sometimes managers come from other industries, often they are financiers, economists, lawyers. This is the problem of Polish managerialism, which needs to show some success. (FG9)*

2.1.3 Work organisation

Digitalisation is generally viewed positively by interviewees and focus group participants as an instrument for modernising energy production and distribution, and even as a prerequisite for functioning in the modern world. The interviewees emphasised that the introduction of the latest digital solutions and their constant updating improves the efficiency of the electricity network, the quality of the public services provided (minimising power cuts, immediate rectification of faults - including those caused by natural disasters, network stabilisation, remote reading of electricity meters, etc.), but also working conditions. According to the DGQS survey, the majority of respondents assessed positively the impact of digitalisation on the following spheres: public service of respondents in general, society in general, the quality of the service to users, overall quality of jobs and improvement of working conditions in the electricity sector. The respondents were asked to assess the impact of digitalisation on their personal situation. Also in this case, the majority assessed positively the following aspects of their job experience: personal well-being at work and improving job quality.

> *It is difficult to imagine the energy sector without modern digital technologies. It is a matter of civilisation and a matter of energy system security to maintain critical infrastructure at the highest level and at the same time to provide the highest quality public services. There is no going back to analogue solutions. (INT5)*

Interviewees INT1 and INT2 distinguished between the introduction phase of digital tools and the regular operation phase. The introduction of new digital solutions involves an increased workload and learning of new systems, as well as checking that they work properly. It is often associated with increased working hours and higher work intensity. The duration of this period can vary depending on the solution being implemented: from a few months for human resources programmes to several years for the activation of new units in a power plant. Once in the regular operation phase, respondents overwhelmingly pointed to the many advantages and conveniences of digital solutions.

The ENEA Operator pointed out that proper change management is crucial: workers need to be prepared by the provision of adequate information, schedules and training. It was also stressed that time was needed for new skills and proficiency in using the new equipment to become widespread. Such conditions were not fully provided in this company, which generated tensions between workers and the manager implementing the change. The conflict that arose was recognised by senior management and, as a result, another person was delegated to lead the implementation process.

Typically, digitalisation has been associated with increased autonomy of workers in the sector and at the same time more routine work. For example, the work of electricians, who carry out repairs

to the electricity network in the field – also in case of breakdowns – has become much more flexible (INT1, INT3). Full digitalisation of the network has made it possible to obtain real-time information about the state of the network and breakdowns. Electricians receive maintenance work orders remotely. This allows them to arrange their working day flexibly according to their preferences. On the other hand, the routine of work has also increased due to the digital classification of breakdowns (each type of breakdown has been classified), and since the service procedures in each of them have been described. Interviewees INT1 and INT3 indicated that this has reduced the response time for a breakdown, as well as the service itself; electricians can spend more time in the field without having to return to the office, which has increased their mobility and autonomy. As a result, more repairs can be carried out in less time, which has a real impact on the quality of service provided to customers.

There is also more routine work for HR staff using HR software that requires a particular request / event to be graded according to an accepted catalogue, according to INT5. This provides the opportunity for greater transparency and accessibility to employee data, and makes HR processes such as the submission of requests for leave, employee benefits, sick leave, etc., easier and faster. A feature of this solution is routine, which in turn can have both positive (simplicity, understandability, ease of use, also by new incoming employees) and negative sides (not taking into account unusual situations). The positive aspect of greater routine, expressed in the reduced number of mistakes made by employees, was emphasised. Focus group participants complained about the more routine nature of the work. The need to adapt to work patterns imposed by digital systems also affects the work of operational and maintenance workers. They described pressure from the employer to adapt to the working methods imposed by the new systems in a short time (from a few weeks to six months). Because of this, previously used practices had to be modified and, in some situations, eliminated.

> *Digitalisation should not be a tool to put pressure on workers. On the contrary, digitalisation should be a subordinated tool in work management in order to improve both working conditions and the quality of services provided. (FG10)*

The interviewees, representing almost all categories of professions, described reduced work intensity in connection with the introduction of digital solutions, which results from the ordering of procedures, routinisation, introduction of greater transparency and accessibility for employees. Thus, the digital tools used have fulfilled their role to support employees in their duties. On the other hand, however, irrespective of the digitalisation processes, the energy sector is experiencing a labour shortage - especially of skilled workers. A generation gap is also observed, because retiring experienced employees are not being replaced by suitably qualified younger workers. This triggers a tendency towards increased multi-tasking, working after hours and greater work intensity. The facilitating effect of digitalisation is only partly able to mitigate this trend.

An exception among these professions is that of dispatcher (FG8), whose work consists of managing the operation of the electricity network and controlling all network parameters. Therefore, by definition, this occupation involves 24/7 work - three shifts a day - with high work intensity, constantly checking the network parameters and processing data. It is also not routine work, but rather requires a high level of focus and attention. New technologies have made it possible to digitalise all elements of the network and, as a result, the dispatcher is exposed to an enormous amount of data, which has to be received, classified, interpreted and then reacted to. Digitalisation has therefore intensified the work of the network dispatcher. Our interviewee believed that the problem is the lack of hierarchy of information produced by digital tools, and pointed out that this could be a role for artificial intelligence (AI). AI could be used to pre-select and pre-prioritise data. In a second step, the dispatcher would make decisions based on the pre-processed data. The advantage of digitalisation, on the other hand, is that the decisions taken by the dispatcher are better grounded in the data provided by the digital tools.

Focus group participants expressed their concern that digitalisation could be a tool for surveillance and monitoring of workers, which could lead to privacy violations in the workplace. This comment related not only to the use of Closed-Circuit Television (CCTV) in workplaces, but also to location monitoring, following the time and pace of task execution, etc. According to the focus group participants, awareness of full monitoring does not promote work efficiency and, on the contrary, can lead to more frequent errors and mistakes due to the pressure felt by the workers.

2.1.4 Working time

According to Eurostat (SBS), 166,988,553 hours in total were worked by employees in 2019. This is an average of 1,650 hours per individual employee, or 31.7 hours a week. The impact of digitalisation on working time clearly depends on the type of occupation.

For office workers and dispatchers, digitalisation has not fundamentally affected working hours, as declared by interviewees INT4 and INT5. Office workers still work five days a week, eight hours a day. Dispatchers, on the other hand, work three shifts a day, each lasting eight hours. There is also a rotating shift system that minimises unsocial hours. The DGQS survey also showed that digitalisation has not had a significant impact on various working time aspects presented in the questionnaire (such as the number of working hours set in the contract, paid overtime hours, unpaid overtime hours, unsocial working time, number and duration of rest periods, commuting).

Electricians (INT2), on the other hand, have greater flexibility in the arrangement of their working hours. Overtime is also part of the job, when there is a breakdown that needs to be rectified immediately. The electricians' working time is digitally monitored remotely. Both employees and managers have access to the working time register, which increases transparency - also with

regard to the calculation of overtime during breakdown recovery. Service workers operating new power units have reported increased overtime due to the introduction of new technologies and the need to calibrate and service them.

> *With the introduction of the electronic monitoring system, the work of electricians is more flexible. They can plan their working day themselves. They choose the tasks to be carried out in the order that suits them. They save on fuel because they choose the shortest routes. They have more predictability and influence over their work. And they can sometimes run some of their own private errands along the way. (INT2)*

2.1.5 Health and safety and outcomes for workers

According to most of the interviewees, digitalisation processes are improving health and safety standards in their companies (ie. INT1, INT2, INT3, INT4). With technological progress, production processes and energy distribution are better monitored, more transparent and therefore safer. There is also a positive impact on employee safety. The interviewees indicated that a direct result of technological changes is a reduction in the number of accidents at work, less exposure of workers to harmful conditions and substances. Moreover, as employees become more competent in using digital devices, awareness of regulations and proper conduct in the workplace increases. There is also increased awareness of potential risks and types of accidents, which are more quickly identified and dealt with before they escalate. Thanks to digitalisation, procedures are standardised, so the conduct of employees is better targeted. In addition, workers are supported by dedicated health and safety services whose main task is to monitor health and safety at work.

In some professions, digitalisation leads to lower stress levels, e.g. in the case of electricians, according to INT2. Thanks to remote management, they have better access to information about networks and failures and can manage their work more flexibly. Reduced stress levels were declared by office workers after the introduction of an HR management programme. Increased stress under digitalisation, on the other hand, was felt by dispatchers (FG8), who had to learn to process an increasing amount of information and react appropriately in a short period of time. All respondents underlined that the first stage of introducing new digital technologies was associated with more stress, as it required learning to operate in a new environment (INT1). The stress levels were reduced as they became more fluent in their new responsibilities.

The DGQS survey showed that introduction of digital tools and methods has had some impact on physical health: negative (over half of respondents) or positive (1/6 of respondents), as well as on mental health (negative impact on almost half of respondents): mostly increased stress and mental fatigue.

2.1.6 Skills and learning

The processes of introducing new technologies in the electricity sector were usually accompanied by training. The employers both ensured the implementation of digital solutions and tried to prepare workers (or some groups of workers directly affected by the change) to operate the hardware or software in the companies covered by the study. The scope of training and its duration were adapted to the specifics of the digital change and the employee group. Consequently, it lasted from a few days to several months. The longest period of training was conducted in connection with the launch of new units at the power plant in Opole - employees attended a multi-stage course spread over several years (INT1). Often, training was combined with a period of implementation and work with new technologies to test the acquired knowledge in practice. In the second step, supplementary training was provided. Training was mainly conducted face-to-face, but e-learning was used quite often, e.g.: use of the digital human resources programme, training for electricians on the operation of the transmission network. In the case of the introduction of the HR system, the employer provided e-learning to all employees to familiarise them with the system and its possibilities (INT5). On the other hand, HR department employees underwent in-depth training on the use of the system for several months and were also involved in the process of data migration from analogue to digital form. Some of the training in the use of new technologies is mandatory and is related to the need to obtain appropriate certificates and attestations. Such training is conducted regularly, and the employer provides full organisational facilities. In some companies, employee training is regulated by a collective agreement which defines the scope, schedule and group of employees covered by training (INT1, INT2).

When asked about their level of satisfaction with training, interviewees indicated that the employer's actions are needed and helpful, while employees are mostly satisfied with the knowledge and skills provided. Workers want to be given training, while management understands that effective implementation of technological changes requires preparation of employee teams and their support at the operational level `*The employer always provides training to accompany the introduction of new technologies. Employees are generally satisfied with the training and tend to feel prepared to work with the new tools. (INT4)*'

Half of the respondents in the DGQS survey claimed that they needed some sort of training in using digital tools (general literacy or specific digital skills) and 2/3 declared that they received some training of this sort from their employer. Most of the respondents stated that the training matched their needs partly or fully. Moreover, the vast majority of respondents stated that the new digital skills strengthen the variety of their personal skills and open up other job or career opportunities in and outside the current institution.

2.1.7 Reconciling work and personal life

Digitalisation in the energy sector is primarily concerned with how technical processes related to energy production and distribution are monitored and managed. In most cases, the introduction of digital solutions has therefore not had an impact on working time and on the work-life- balance. In the case of dispatchers and service workers, no major differences have been noted in this respect (FG8). Some positive changes were reported by electricians in connection with the fact that they were able to apply more flexible working hours and thus alternate their professional and family duties (INT2).

The exception remains office work which, however, is a supportive service to essential activities, and represents a small proportion of employment in the sector. In this group, however, the greatest change occurred during the COVID-19 pandemic. Office workers, thanks to the earlier implementation of digital tools (intranet, electronic HR programmes, etc.), could start working remotely almost overnight (INT3, INT5). Thanks to this possibility, continuity of office work was maintained without loss of document circulation and employee service in the sector. Office workers working remotely reported a smoother division of work and home duties and indicated an increase in the level of satisfaction with such work organisation. For some workers in this group, working in isolation without the possibility of direct contact with other colleagues was a burden. After the end of the pandemic, however, office workers also returned to working in the office and this is the most common situation in the energy sector: '*Digitalisation has enabled the energy industry to operate without interruption or disruption and reduced infection during the COVID-19 pandemic. (FG8)'.*

According to the focus group participants, other occupations (non-office workers) continued to work on-site during the pandemic period, but specific work arrangements were introduced in companies to maintain a COVID-protection regime and minimise the risk of infection. Companies created multi-variant contingency plans in response to the pandemic, which took into account the decreasing number of active workers due to illness and quarantine, although the most pessimistic scenarios were not put into practice. Workers were provided with personal protective equipment and social distancing was required. In addition, the number of workers per shift was minimised to avoid infections, and they were divided into groups to disable the spread of infection in the event of a possible infection and to be able to replace sick workers. The dispatchers, for example, were separated into small groups in local network monitoring centres and did their work from there, thanks to the high level of digitalisation of the processes. Maintenance work that was not necessary was also postponed and rescheduled. In most cases, solutions were introduced in consultation with the trade unions.

According to the DGQS survey, the vast majority of respondents declared that their job allows for some form of remote work, partly or fully. However, half of respondents work remotely only one day per week or less.

2.1.8 Career prospects and employment security

According to the trade union representatives interviewed, employment in the energy sector is characterised by a high level of stability compared to other sectors in Poland. Employment contracts are almost exclusively used, while civil law contracts are very rare. The electricians working remotely in the field, however, are often self-employed. One indicator of employment stability in the sector is also the fact that all DGQS survey respondents were employed full-time under a contract of unlimited duration. An employment contract is essential to maintain a stable and well-qualified team in a job that involves a lot of responsibility and has an impact on ensuring the continuity of critical infrastructure. Rather, the challenge is to find suitably qualified employees (a labour shortage problem), and there is little turnover in staff teams. The introduction of digital solutions has not changed this general characteristic. Even those who have more difficulty working with new technologies can count on stable employment. The sector has also managed to resist the pressure for outsourcing and workforce optimisation and has managed to retain jobs in energy companies.

Unfortunately, however, a number of unfavourable practices can be observed in energy companies as a response to the labour shortage, according to the focus group participants. These include multitasking, increased work intensity, overtime work, entrusting key jobs to insufficiently trained employees (even student trainees) and, in extreme cases, outsourcing (rarely).

Focus group participants unanimously expressed the opinion that digitalisation in its current form is not, in their view, a way of eliminating workers from the labour market. There is currently a very high saturation of digital programmes in energy companies and there is still a shortage of employees. In particular, there is, precisely, a shortage of employees to operate highly sophisticated digital equipment and programmes, who need to demonstrate creativity and advanced analytical skills. In addition, some work cannot be carried out by digital programmes or even robots, including most network servicing and installation replacement work.

> *Even in the case of smart grids - someone has to supervise this, watch over the functioning of the artificial intelligence. Then analogue human intervention, knowledge, knowledge of the matter, of the terrain, of the procedures to work safely, is essential. Not everything can be written down in standardised procedures. In critical situations, humans always perform best. (FG10)*

2.1.9 Workers' rights

The energy sector stands out positively compared to other parts of the economy in terms of the level of unionisation and collective bargaining coverage (around 90%). These conditions and the stability of employment in the sector mean that workers' rights are better respected than in other sectors. Average salaries in the sector are among the highest in Poland, working time regulations are observed (trade unions have access to working time records and methods of calculating them). In the largest companies, employees have relatively easy access to trade unions - often there are several competing unions at the company level. The trade union leaders in the study did not report any major violations of employee rights, and also declared that the right to information and consultation is exercised in their companies. Both the interviews (individual and group interviews) and the survey showed, however, that workers are rarely consulted in the sector on digitalisation plans, strategies and their implementation.

So far, digitalisation processes have not been the subject of collective labour agreements or work regulations. According to the interviewees, digitalisation has had no impact on employee rights and collective labour relations in the sector. The exception is the introduction of data protection procedures, which have been enforced by pan-European regulations. The topic of the right to disconnect is not discussed in the sector, although trade unionists are aware of the debate that is taking place on this topic at EU level and in other countries. For the time being, trade unions are taking a wait-and-see attitude, hoping that the relevant directive will introduce appropriate standards in this area. The DIGIQU@LPUB survey revealed strong support among the respondents for introducing regulations ensuring the right to disconnect (over ¾ of positive responses), embedded either in the national legislation or in collective agreements.

2.1.10 Conclusions on the sector

In general, digitalisation is seen by trade unions as a necessary process to modernise the workplace and services provided in the energy sector. In the opinion of the interviewees, it is currently difficult to imagine the organisation of work without the use of a wide range of digital tools. Initial fears and doubts accompanying digitalisation have blurred over time, and the return to analogue control would be considered a step backwards. In the opinion of the respondents, the energy sector should adopt all the latest digital solutions in order to provide the latest infrastructure and quality of services. They are also aware that with the European Green Deal, the share of renewable energy sources will increase, and these require the use of modern digital solutions as well.

Based on the experience to date, most of the interviewees and focus group participants are not afraid of losing their jobs or of technological unemployment. However, they realise that the organisation and the content of their work may undergo further transformations, involving even more digital work equipment, e.g. creating intelligent networks, 5G. In the opinion of trade unions,

these changes will entail a need to raise the qualifications of workers, necessary to operate new technologies. They hope for an increase in salaries along with the improvement of employees' qualifications. On the other hand, in the opinion of some trade unions, the development of digitalisation will result in a reduction in the total number of jobs as a result of growing automation of processes. Although there will be new jobs for service technicians and programmers, to support the new technologies, the total number of jobs will be lower. These trade unions also indicate that the development of green energy will generate jobs, but it will be accompanied by a reduction in employment in the conventional energy sector. In this context, trade unions propose to increase investments in renewable energy in Poland (by energy companies and the state) in order to preserve as many jobs as possible in this sector, instead of buying new technologies from abroad.

Section 2.2 Public administration sector

2.2.1 Overview of the sector

Poland has a dualistic model of public administration, consisting of central public administration and local public administration. The central public administration consists of ministries and central offices, which are government agencies, e.g. the Social Insurance Institution (Zakład Ubezpieczeń Społecznych, ZUS), Statistics Poland (Główny Urząd Statystyczny, GUS), the Office of Electronic Communications (Urząd Komunikacji Elektronicznej, UKE), as well as field administration (voivodship offices in each of the 16 regions). As a result of the 1999 administrative reform, local public administration consists of three levels: 16 voivodeships, divided into 373 poviats, divided into 2478 communes. The reform not only introduced a new administrative division of the country, but also equipped the local government with real powers and responsibilities; local government administration receives a secured budget for the implementation of these tasks.

In 2020, 993,300 people were employed in the public administration (all of whom were employees), defined as NACE 84, i.e. 6.3% of the total number of employed people in Poland (Statistics Poland, 2021b). In 2019, this number was 996,000 (ibid). The average monthly salary in the public administration amounted to PLN 6,899.14 gross (approx. €1,535) in 2021, an increase of 6.5% compared to the previous year (Statistics Poland, 2022). The average wage in the central public administration amounted to PLN 7,629.88 gross (approx. €1,695), while in the local administration it stood at a significantly lower level: PLN 5,828.24 gross (approx. €1,295), with the lowest average at poviat ([15]) level: PLN 5,349.13 (approx. €1,188).

The individual and group interviews conducted with representatives of the central and local public administration allowed us to analyse the impact of digitalisation on working conditions in the

15. The poviat is a secondary level of local public administration, between the gmina (the lowest level) and the voivodeship / regional administration (the highest level of local public administration).

sector. The individual interviews were conducted with trade union representatives from the National Section of Government and Local Government Administration Employees of NSZZ 'Solidarność' and the Trade Union of Workers at the Social Insurance Institution. The focus groups included representatives of the following institutions: the central public administration – the Financial Supervision Authority (Komisja Nadzoru Finansowego, KNF), State Fund for Rehabilitation of Disabled People (Państwowy Fundusz Rehabilitacji Osób Niepełnosprawnych, PFRON), local public administration in Warsaw and Szczecin, and the job centre in Warsaw. In addition, this section presents the results of the DIGIQU@LPUB survey carried out among public administration employees, with a sample of 447 respondents.

2.2.2 History and patterns of digitalisation in the sector

According to the Programme for the Integrated Informatisation of the State (2019b), a number of projects aimed at the digitalisation of public services have been carried out and are planned in the immediate future. Under the Programme, citizens, by using a single public administration portal, will gain access to information on the functioning of the entire administration and access to all e-services offered by the public administration in the country. Currently, citizens can already use several hundred public e-services located on various government platforms and portals. These include the obywatel.gov.pl portal ([16]), where many official matters can be handled (issuing identity cards, driving licenses, health insurance cards, registering marital status and children, etc.), the Electronic Platform of the Public Administration Services (ePUAP) ([17]), the Electronic Services Platform of the Social Insurance Institution (PUE ZUS) ([18]), and the biznes.gov.pl portal ([19]), ([20]). In addition, the central and local public administration, as well as government agencies such as the Social Insurance Institution (Zakład Ubezpieczeń Społecznych, ZUS), use specific internal electronic tools to process administrative matters.

Several internal digital systems are used in the central public administration (ministries). This includes:

- electronic document circulation systems (EZD in most of the ministries and EDOK in the Ministry of Family and Social Affairs), which have been widely used in the central public administration in the last decade (or for even longer). The systems have been modified several times, taking into account the increasing digitalisation of documents and official procedures.

16. https://obywatel.gov.pl/
17. https://epuap.login.gov.pl/
18. https://www.zus.pl/portal/logowanie.npi
19. https://www.biznes.gov.pl/pl
20. Links to other public electronic services can be found here: https://www.gov.pl/web/cyfryzacja/e-uslugi

- internal electronic mail used for HR matters and information for workers on leave and social benefits. The system is integrated with the EZD system (but does not work with the EDOK system).
- EIK system (electronic human resources information, pl. elektroniczna informacja kadrowa) that records basic information on employment in an electronic format, such as wages over time (payroll information), the form of contract concluded with the worker, leave register, training attended by workers, etc. The system is accessible online for both employer and individual workers, which allows for remote viewing.

The level of digitalisation in the government agencies examined in this study - the Social Security Institution, the Financial Supervision Authority and the State Fund for Rehabilitation of Disabled People - appears more advanced than in the government ministries.

Digitalisation at the Social Insurance Institution (ZUS) had already begun in the late 1990s with the introduction of a key pension reform in Poland in 1999. Since then, digitalisation has been a continuous process that includes the replacement of analogue data sets on insured persons, payers and benefit recipients, as well as the introduction of numerous applications that enable the digitalisation of ZUS procedures. The central IT system is the Electronic Services Platform of the Social Insurance Institution (PUE ZUS), which aims to serve customers electronically. In addition, there are dozens of other applications and programmes that ZUS employees use on a daily basis. The organisation also has a general SAP software system for handling internal HR matters. Since the digitalisation process has been going on for more than two decades and has been implemented by many contractors and in successive stages, the applications with which employees work are often incompatible and inconsistent. Some applications were developed by external service providers under public procurement, while others were developed by internal IT departments, and still others are leased by ZUS. According to INT8, the commissioning, design and implementation of applications was done without staff participation or adaptation of these solutions to the needs of the staff team. Work is currently underway to integrate individual applications, but this is a piecemeal and very time-consuming process. Paper based processes are now very rare; one example is the sending of decisions to pensioners by letter, due to their low level of digital literacy and lack of computer / internet access.

In the case of the Financial Supervision Authority (KNF), advanced and diverse digital tools are also used, covering many areas of the institution's activities (FG6). Digitalisation has gone so far that paper documentation has been almost completely eliminated from the core activities of the institution. The internal circulation of documents takes place in the SZD programme, and internal communication on the Intranet. Employees also have at their disposal a special HR programme for processing employee matters, e.g. employment information, holidays, employee benefits, etc. Contact with the controlled entity is carried out via the Nets cloud system with the support of

electronic checklist systems. Communication with external entities, as well as within staff teams, is carried out using appropriate communicators, e.g. licensed Zoom or Skype. Employees can also use internal automatic document translation systems. The KNF attaches very high importance to the security of data, personal data and the content of communication, so employees use encrypted pen drives, log-in systems for the programmes used, coded control of information flows. Digital signatures are also an important element of security. The focus group participant (FG6) works fully remotely and lives in a city a few hundred kilometres away from the KNF headquarters, which is possible thanks to the use of digital tools, including a company notebook with software and internet provided by the employer.

Similarly, in the case of the State Fund for the Rehabilitation of Persons with Disabilities (PFRON), there are advanced, multi-faceted digitalisation processes. Internal digital systems include: an electronic document workflow (SZD system), personnel programme (OCP system), system for reporting irregularities to the IT department (ZEN Desk), fully digitalised accounting. Contact with PFRON's clients uses, for example, the Support service system (SOW), for which a focus group participant is responsible. This system is used to process applications submitted to PFRON by individual and institutional clients (e.g.: job centres, social services, employers) and is linked to the systems of the Social Insurance Institution and the National Health Fund. The system is already in use at an advanced level, but work is still underway to process all applications submitted to PRFON electronically. In addition, PFRON uses an electronic signature system and ePUAP.

In contrast, digitalisation processes are less advanced in the local government administration than in the central public administration and governmental agencies (ZUS, KNF, PFRON). Moreover, the level of digitalisation varies greatly: most often small municipalities are slightly digitalised, while large cities and wealthy municipalities are usually much more advanced in this respect. In small rural municipalities, only the most basic digital tools are used: e-mail and computers (but documentation is still analogue), a mandatory electronic Public Information Bulletin ([21]) website (not all rural municipalities have their own website). Large cities, on the other hand, use an intranet for archiving and processing documents, and sometimes for internal communication between officials and various departments; there are also numerous electronic services for the public, e.g.: digital portals for public consultations, electronic registration systems for care and educational facilities, etc. Larger municipalities also cooperate with nationwide public service portals such as mObywatel or ePUAP. For example, the following tools are used in the local governments of Warsaw and Szczecin, whose representatives took part in the focus group: a) internal systems: an internal cloud drive, an internal information system, an electronic document processing system, an IT helpdesk, digital accounting, an electronic employee appraisal system, an online training system, the internal communication programme Dober (similar to Messenger), and

21. https://www.gov.pl/web/bip

MS Teams; b) external systems: application mailbox, Moja Warszawa electronic system (public services, information service), MOBIWawa electronic public transport system, family benefits system, electronic signature and ePUAP, as well as many others. Local government employees stressed - as in the case of ZUS - that most digital systems are not compatible with each other, making their functionality and usability limited. Some data need to be entered several times into different systems, or electronic records need to be duplicated with paper records. As a result, digitalisation brings more work and responsibilities, as well as frustration among employees.

Units subordinate to larger local governments, such as the municipal police, use applications on official smartphones (book of interventions and notifications, database with photos of incident sites, databases of offenders, etc.) or advanced technological devices for measuring smog levels in the city, installed in drones (highly specialised units). The digitalisation and computerisation of local government has been taking place at a varying pace since the second half of the 1990s and is constantly evolving. However, the most advanced technologies have only been introduced in recent years. At the job centre in Warsaw, the main electronic system is SYRIUSZ, which collects and processes current data on clients, ongoing cases, applications, etc. It is a system that enables data to be retrieved from the Social Insurance Institution as well. An e-doc system for the circulation of electronic documents is also used (but not all employees have access to it). There is also a separate 'Cudzoziemiec' system containing a database of benefits for foreigners, linked to the PESEL database (personal identification number and Poland). According to the focus group participants, digitalisation processes are not well developed at the job centre in Warsaw. A huge challenge was the pandemic period, which revealed a serious lack of computer equipment for employees and the inability to perform many activities remotely.

According to the interviewee representing local governments (INT7), the reasons for the low level of digitalisation (especially in small municipalities) are mainly limited financial resources, insufficient competence of local government management in procuring digital tools and insufficient digital skills of the workers themselves in using the new tools. Respondents representing a job centre in Warsaw (FG4, FG5), in addition to the above factors, also mentioned the issue of the obsolete and hierarchical management models applied in the public administration, which is reluctant to build relations with workers based on trust, dialogue, participation. Management models continue to reproduce, in the opinion of respondents, the culture of amber organisations ([22]).

22. Amber organisations are one of the types of organisations (red, amber, orange, green, teal) defined by Frédéric Laloux in 'Reinventing Organisations: A Guide to Creating Organisations Inspired by the Next Stage of Human Consciousness' (2014). They are characterised by a static, pyramidal structure with stacked layers of hierarchy and a clear chain of command. 'Command and control' is the dominant leadership style: decisions are made at the higher levels of the hierarchy, while the lower levels simply follow orders.

> *The amber colour of the organisation's culture is often an obstacle. The management mentality is still rooted in highly hierarchical, paternalistic and bureaucratic structures. Unfortunately, this is often accompanied by a lack of appropriate managerial qualifications, because managers are not professionally trained and therefore prepared for managing workers. So life… (FG4)*

The Programme for the Integrated Informatisation of the State (2019b) as well as the European Funds for Digital Development 2021-2027 and the National Recovery and Resilience Plan for Poland allocate funds to developing digitalisation in local governments, so it may be assumed that these processes will speed up upcoming years and that they will also reach the smallest municipalities ([23]).

Participants in the focus group emphasised that one missing element in the processes and management of digitalisation is worker participation. Digitalisation is treated as a task implemented at the initiative of management, without consulting with employees on plans or individual digital systems. As a result, very often employees are forced to work with programmes that are not adapted to the work content and are effectively dysfunctional. Participants in the focus group emphasised that employees are not seen as a valuable information source in this process and their usability needs are mostly ignored: '*Participation - feedback from employees is not taken into account because it costs money and requires a change in management. Tools are prepared top-down, without verification, without piloting. Procurement allows agile working, but managers do not implement it. (FG2)*'

Despite the difficulties encountered, the digitalisation process was assessed as positive by the respondents in the DGQS. Over 70% said that digitalisation of work is a positive development for the public service they provide, as well as for other aspects such as society in general (65%), the general level of employment (47%), quality of the service to users (68%), reduction of inequalities and discrimination (43%), improvement of well-being in society (45%), overall quality of jobs (52%) and improvement of working conditions in the public administration (53%). Interestingly, digitalisation was not perceived as a way to improve wages in the public administration (62%), and opinions were equally divided in regard to the impact of digitalisation on the work-life balance (38% disagreed, 33% agreed and 31% neither disagreed nor agreed).

A similar picture emerged when respondents to the DGQS were asked about their personal experience of digitalisation. Respondents speak of a positive impact on the following aspects:

23. It has to be stressed, however, that due to the infringements of the rule of law principle by the Polish government, both RRP and Structural Funds may be put on hold by the European Commission: https://notesfrompoland.com/2022/10/17/eu-withholding-billions-in-cohesion-funds-from-poland-over-rule-of-law-concerns/

improvement of personal well-being at work (51%), improvement of job quality (60%), job security and future prospects (46%), making the job more interesting and attractive (48%) and improvement of productivity (54%). Opinions on personal experiences with the work-life balance were equally divided (31% disagreed, 34% agreed and 36% neither disagreed nor agreed).

2.2.3 Work organisation

All those interviewed in the study - individually or in the focus group – highlighted that digitalisation has improved and speeded up the performance of officials. The DGQS showed that all respondents regularly use information and communication tools (like internet, email, etc.) - mostly for the purpose of exchanging emails (35%) - while use of web-based applications of various kinds was less frequent (15%-27%). Only half of the survey respondents regularly used mobile devices such as laptops, smartphones or tablets. Most of them used the devices for the purpose of communicating with colleagues and internal or external services (30%), while other purposes were rarely mentioned (15%-18%).

According to the interviewees INT6 and INT7, administrative processes have become more standardised and transparent as documents are archived and easily accessible in one place; no time is wasted searching for them in different paper collections. 46% of respondents in the DGQS declared that digitalisation allowed them to focus more on significant aspects of their jobs. In addition, in the opinion of interviewees and according to the results of the survey, digital systems improve communication and information exchange. As a result, the work of officials is less time-consuming and more organised. The quality of interaction with public service users was assessed positively by 47% of respondents.

However, with the introduction of digital tools in the public administration, work intensity has increased at both local and central levels, according to interviewees and focus group participants. This conclusion was confirmed by the DGQS: 54% of respondents claimed to have an increased pace of work and work intensity due to the acquisition of digital tools. However, it should be emphasised that the development of digitalisation was also accompanied by an expansion of the scope of officials' responsibilities, for a number of reasons: new requirements related to EU membership, new reporting obligations, an increase in the number of enquiries through the access to public information procedure (increased civic awareness). These parallel processes are difficult to separate clearly from each other, to indicate their individual impact on work intensity: '*The intensity of work in public administration has been steadily increasing for at least two decades now. Above all, this is the result of new responsibilities assigned to various public institutions by the legislator and by EU regulations. At the same time, administrative procedures are being digitalised, which gives even more impetus to these changes and increases the intensity of work. It is impossible to separate these two factors in my view. (INT6)*'

Social Insurance Institution (ZUS) workers also face similar challenges. According to the trade union representative in ZUS (INT8), work intensity is increasing over the years - even more so than in the central public administration. One of the factors in this regard is precisely digitalisation, the emergence of new digital applications that are often not compatible with each other. In some cases, work requires simultaneous confirmation of information in paper documentation and case processing through a digital application, which increases the work.

According to interviewees INT6 and INT7, work in the public administration at both local and central levels has also become more routine due to the introduction of digital systems in connection with the standardisation of administrative procedures. For example, in the central public administration, the response to a letter is developed in the EZD / EDOK system, in which there are template letters and responses to the most standard queries. Template letters speed up the work of officials and standardise the quality of communication. On the other hand, the clerical language in letters becomes more routine and automated and minor editing errors often occur, e.g. language with male endings and pronouns in a letter addressed to a woman. Similar problems are faced by ZUS employees. The interviewee INT8 stressed that new workers are more likely to get into a routine enforced by digital applications, while older workers tend to check information on the basis of other sources, as a given case may cover a period when regulations have changed. The use of digital tools in the local and central public administration, on the other hand, has not affected the autonomy of work, because this depends mostly on the organisation of work in the team and the degree of freedom decided on by the supervisor, according to INT6 and INT7. This is especially true for the local administration, which to a large extent still remains undigitalised. Digital tools affect the content of the work itself and not the way it is done. ZUS workers even feel increased autonomy in connection with the use of digital tools (INT8), as employees can make decisions on their own without direct supervision by the employer. However, the fundamental limitation is the legal framework within which workers must act. Thus, the extent of workers' autonomy is strongly regulated anyway. According to the DGQS, digital tools give the worker more autonomy to schedule work tasks (48%) and to organise work tasks (48%), as well as improving coordination of tasks with colleagues (50%).

Moreover, digitalisation – according to the respondents to the DGQS – may be useful in managing work: 54% of them declared that digital tools give them better oversight over subordinates carrying out tasks and give a clearer overview of the implementation of their own tasks (50%). In contrast, the question of whether internal or external assessment of work performance by supervisors, direct colleagues and users had improved received an almost even distribution of responses: disagree, agree and neither agree nor disagree.

A significant change in the organisation of work was observed during the COVID-19 pandemic across the public administration at both central and local levels. Due to the introduction of anti-

crisis policies (Anti-Crisis Shield), the workload of individual ministries and public agencies changed. For example, the Ministry of Development, the Ministry of Family and Social Policy, and ZUS received many new tasks to carry out, while the Ministry of Funds and Regional Policy saw a reduction in work intensity due to fewer grant applications and the stopping of some project activities due to lockdown (INT6 and INT8). In offices with increased tasks, staff were challenged by work overload and considerable overtime.

In all public administration institutions covered in this study, remote working started from the beginning of the pandemic, made possible, among other things, by pre-existing digital systems for document circulation and internal communication (INT6). However, not all institutions were able to work remotely. Some institutions were not prepared for remote working at all (for example the job centre in Warsaw, FG4), others had to clearly reorganise their work and upgrade their equipment (for example the ministries (INT6), ZUS (INT8), local governments in Warsaw and Szczecin (FG1, FG2)), while employees of the KNF who worked remotely before the pandemic did not notice any major changes due to the pandemic (FG6). In addition, not all professions could work remotely: people whose work required the processing of documents available only in analogue form, or classified documents, as well as the front officers in local municipalities, were obliged to work in an office.

> *The possibility of using remote working depends on the organisation - frontline workers cannot afford it, while white collars can. This is the fundamental inequality between the two groups. (FG3)*

For those who could work remotely there was no need for new digital systems due to the pandemic, as they were already in place in most of the institutions studied. However, the availability of adequately secured computers proved to be a challenge. At ZUS and local governments in Warsaw and Szczecin (INT8, FG1, FG2), the employer was sceptical about remote working at the beginning of the pandemic, precisely because of the security of the data being processed. With time, however, the employer gained trust in the workers and remote working was allowed. Otherwise, the institutions' operations could have been paralysed, in the assessment of the interviewees. As a result, a significant number of employees were forced to use private computers, which, however, were not always suited to the software used in the office (technical parameters, security, lack of appropriate programs, including statistical programs, etc.). In some institutions - for example in local government in Szczecin – a rotational working scheme was introduced: some employees worked remotely, so that the remaining employees could maintain an appropriate distance in the office, then there was a swap between working remotely and working in the office (FG3).

According to all interviewees and focus group participants, the digital competences of employees were also a challenge, as they had to learn to function remotely overnight (for example, using communicators like Zoom). In response, training in the use of electronic systems was provided, but IT specialists burdened with new responsibilities could only support staff to a limited extent. In both the individual interviews and the focus group, respondents highlighted a clear lack of staff equipped with a sufficient number of computers with software, as well as incomplete training in remote working.

According to the DGQS, which was conducted in mid-2022, only 5% worked entirely from home, 30% declared hybrid arrangements, while another 30% replied that working from home was possible only during the COVID-19 pandemic. The remaining 34% declared that working from home is not possible at their institution. Half of the respondents stated that remote working at the user's home / premises, or a satellite office or structure was also possible, ¼ declared that these options were partly available, and only 19% declared that it was possibly only during the COVID-19 pandemic.

Hybrid working schedules were first established in the public administration after the lockdowns related to the pandemic. As many as 55% of the DGQS respondents declared that they work from home 1 day per week or less, while other options are far less frequent. Over 35% of respondents had difficulty in answering how many days per week they telework. For example, in the Ministry of Family and Social Policy, employees can work from home a maximum of 20% of their working time (e.g. one day a week for full-time employees) (INT6). At the Social Insurance Institution, on the other hand, workers returned entirely to working in the office (INT8). Employees also demanded an allowance to cover expenses related to working from home (to cover electricity, water, internet costs, etc.), but the employer rejected these demands citing a lack of legal basis (INT6). Health and safety in remote working was not an issue, as regulations adopted during the pandemic period allowed remote working without health and safety checks. The issue of higher bills (electricity, water, internet upgrades) was highlighted by respondents from ministries and local governments equally.

In some institutions, however, the opportunity to work remotely is seen as a reward for the employee that has to be earned, rather than a regular work arrangement (FG4, FG5). This is particularly the case in institutions where a paternalistic management model still prevails.

> *Most employees want to work remotely because it is easier to combine work and home responsibilities. In our institution, unfortunately, remote working is looked upon as a reward - this should not be the case. (FG5)*

The DGQS revealed also that 33% of respondents felt that their job does not involve any need to connect from outside their workplace, and therefore they do not feel any pressure to log in remotely. A further 29% do not feel the pressure at all under any circumstances. Only 12% feel the pressure to log in as a result of personal behavioural choice and 11% occasionally feel the pressure from their employer / supervisor. Despite the above answers, 70% of respondents are of the opinion that the right to disconnect is essential in an increasingly connected professional and social environment and that this right should be clearly established, i) in the labour legislation - 78%, ii) in collective bargaining agendas at their workplace – 64%, iii) in sectoral and cross-sectoral collective bargaining agendas – 64%.

2.2.4 Working time

According to the interviewees and focus group participants, the introduction and use of digital tools in the public administration has not had a major impact on working time. This conclusion was also confirmed by the results of the DGQS, where the most frequent answer on various aspects related to working time was 'unchanged': number of working hours set in contract (82%), paid overtime hours (92%), unpaid overtime hours (85%), unsocial working time (75%), breaks and rest periods (76%), commuting to the workplace (78%) and commuting to users' premises (87%). It is worth mentioning that 22% of respondents declared they had experienced an increase in unsocial working time due to digitalisation.

In the opinion of interviewees and focus group participants, digitalisation, rather, had increased work intensity and the number of cases handled. On the other hand, a much greater impact on working time is exerted by the constant increase in the scope of responsibilities in the public administration, which was reported by all interviewees. For example, ZUS has been obliged to deal with the following cases in recent years: benefits for refugees, benefits under the anti-crisis shields, 500+ parental benefits for families with children, new allowances for persons with disabilities (the so-called solidarity allowance) (INT8). Each of these benefits was accompanied by the introduction of a new digital application to check entitlement to the benefit and to carry out the administrative procedure for granting it. As a result, employees feel overburdened with work and are required to work overtime. In many local ZUS offices, staffing is a challenge in order to adequately secure staff coverage for the duties performed.

During the pandemic period, working hours in most of the public administration sector increased, with a shift to remote working (an issue described in the previous section).

2.2.5 Health and safety and outcomes for workers

According to the interviewees, digitalisation in the public administration has had an impact on healthy and safe working conditions. Although the number of accidents at work is decreasing, the need to use digital applications forces people to sit at their desks for longer periods of time and

spend more time in front of a computer screen. As a result, workers move around a lot less. Sedentary work patterns increase complaints of musculoskeletal disorders. Increased intensity of work is more likely to cause stress, increased routine causes fatigue with the duties performed, and in the long term both these factors may lead to professional burnout. Computer work via digital applications can lead to greater alienation of employees and a sense of separation. Communication in the workplace also becomes less personal, anonymous. As a result, individual workers can have a sense of working without a team.

According to the DGQS, 34% of respondents claimed that digitalisation caused a new physical pain/condition or (28%) worsened an existing physical pain/condition. Another 28% of respondents did not notice an impact on their physical heath. The respondents declared the following physical health problems: vision problems – 20%, back pains – 18%, neck pains – 15%, headaches, head pains – 12%, physical fatigue – 12%, hand pains – 9% and others (13%). Also, respondents declared that digitalisation had caused psychological problems (20%) or aggravated an existing psychological condition (7%). This included the following: mental fatigue – 23%, stress – 21%, burn-out – 15%, demotivation – 14%, overwhelming emotional demands – 8%, anxiety – 8%, depression – 6%, sense of isolation / distress – 5%. 61% of respondents did not notice any changes in their mental health ([24]).

2.2.6 Skills and learning

According to the trade unions interviewed, the skills development and training provided in the public administration in the area of digitalisation is not satisfactory. Respondents indicated that training is conducted rarely and is often insufficient. According to the DGQS, some sort of training was provided to 45% of workers (use of specific tools: 26%, general digital skills: 11%, both general and specific skills: 9%). 20 % of respondents said that no training in digital skills was provided, a further 22% said that they learn informally in their workplace.

Some applications - especially in ZUS - are introduced without a training package and the employer expects employees to navigate the application environment from the beginning (INT8). Current workers are often expected to introduce new workers to the digital systems. However, adequate time is not set aside for the implementation period, which is challenging in the case of increasing work intensity and more new responsibilities. New workers can therefore often feel

24. Unfortunately, we were not able to cover this issue in the focus group. It seems that H&S is not a priority issue for the workers with regard to digitalisation. Interviewees did not mention this on their own initiative.

confused and insufficiently introduced to their responsibilities in the entry period. These problems result in more mistakes, longer procedures and frustration among staff.

> *Workers are not always prepared to use digital tools. Training is insufficient, the workers learn by doing (on-job training), one will catch on faster the other slower. Training should be extended and more adapted to the needs of the workers. Younger workers learn faster, and older workers find it more difficult. In-house training comes at the expense of other responsibilities in the workplace. (INT7)*

According to the DGQS, only 24% of respondents were fully satisfied with the training provided, the largest group - 56% - were satisfied only partly. But as many as 60% of respondents declared that the skills development increased the range of their personal skills, opened up other job or career opportunities in the current institution (35%) or outside the current institution (45%).

According to INT6, training - when it is provided - is increasingly electronic (e-learning). This is also subject to criticism from trade unions, who believe that it leads to less interaction between participants and thus makes it more difficult to learn and remember the provided content. E-learning also lacks elements of team building, which is an important part of face-to-face training.
These problems were highlighted during the pandemic period when workers had to start using electronic systems to work remotely. IT staff did provide training on this and support on an individual basis. However, as demand for their assistance increased exponentially, it was not possible to fully equip workers with the necessary skills.

According to the interviewees, however, the issue of digital skills is not perceived by workers in the public administration as a strategic challenge or as a major problem to be tackled. Overwhelmingly, it is hoped that digital competences acquired outside the workplace should be sufficient to perform duties in the workplace. This conclusion was confirmed by the DIGIQU@LPUB survey results: 37% of respondents declared that they already had the required digital literacy skills, a further 31% claimed that they only needed to develop certain specific digital skills, 16% answered that they had to learn both general digital literacy and specific digital skills, while 13% did not require new digital skills.

2.2.7 Reconciling work and personal life

According to interviewees and focus group participants, the issue of work-life balance is a major challenge for public administration workers in general due to the heavy workload and frequent overtime (especially in ZUS). However, due to low salaries in the sector, employees accept overtime work to improve their income - especially those without caring responsibilities. Devoting more and more time to work results in reduced time for family and other non-work responsibilities. Interviewees also stressed that the public administration sector is dominated by women in the

workforce who, often following the traditional family model, are more with caring responsibilities than men. The tension related to the lack of balance between life and work makes some employees - especially women - resign from their jobs: '*Low pay, overload and overtime work make it difficult for us to reconcile life and work. ZUS is feminised, so for these female workers, combining work with caring for children or elderly parents is challenging'* (INT8).

According to the interviewees, digitalisation and the use of digital tools in the administration are less of an issue than overload of responsibilities in reconciling work and personal life. Trade union representatives pointed out that digital tools have made remote working possible and that the possibility to work from home had a positive impact on work-life balance in most cases.

The results of the DGQS remain inconclusive. Respondents were asked the question 'how has the digitalisation of your work affected your work-life balance?', and in regard to various aspects presented in the questionnaire often answered 'neither agree nor disagree':

- It has increased my personal time and the time spent with my family (agree: 17%, neither agree nor disagree: 42%, disagree: 41%)
- It has not really affected the amount of time that I spend outside of my work (43%, 33%, 24%)
- It has increased my work time (online and offline) at the expense of my personal time (24%, 36%, 40%)
- When teleworking from home it is sometimes difficult to combine this work with my household responsibilities (child or elderly care, etc. …) (37%, 41%, 22%)
- When teleworking from home it is difficult to clearly differentiate between my working time and my personal time (39%, 38%, 23%).

2.2.8 Career prospects and employment security

Employment in the public administration continues to be associated with career stability, although salaries remain low. The DIGIQU@LPUB survey showed that over 90% of respondents from the public administration sector worked under a permanent contract with unlimited duration and 97% of them worked full-time. As regards the form of the contract, 74% had an employment contract and a further 21% had a special civil servant contract.

According to the interviewee INT7, especially in smaller towns, a job in the public administration offers career stability. In larger cities, however, it is a challenge to fill vacancies, as the market offers a wider range of jobs and working in the business sector is usually more attractive in terms

of salary and career prospects. According to the trade unionist in ZUS, there are currently 2,000 vacancies in the institution across the country (INT8).

In the opinion of interviewees, the introduction and use of digital tools has not had a major impact on career opportunities or employment stability. Insufficient training provision for employees in the public administration means that they also do not have a competitive advantage in this respect should they wish to change jobs to the private sector.

2.2.9 Workers' rights

According to all interviewees in the public administration sector, digitalisation processes have little impact on the exercise of labour rights. Digitalisation is not subject to collective agreements or negotiations with the employer. Some respondents in individual interviews and in the focus group (NSZZ 'Solidarność', INT6 and Confederation of Labour, FG6), however, pointed out that digital tools facilitated communication and information exchange between union members, and allowed for easier mobilisation of workers in case of the need to protest, or at the time of a significant increase in membership during the COVID-19 pandemic. At the same time, most of interviewees described privacy concerns and felt a threat that correspondence would be made available to the employer. Therefore, in practice, trade unionists prefer to meet physically and use electronic communication for neutral messages. In the job office in Warsaw, there is so much distrust between the employer and workers, that the management did not allow staff to pay and register for union membership fees through internal HR systems (FG4). In contrast, at the Financial Supervision Authority (KNF) - an institution with a high level of digitalisation and remote communication - most staff matters are discussed and negotiated remotely, including wage negotiations (FG6). The union representative also highlighted the benefit of digital solutions in terms of the much lower financial costs of running a union.

At ZUS, in contrast to other public institutions covered in the study, the digitalisation process is subject to social dialogue, as it has been going on for more than two decades and sometimes stirs up controversy also in open public debate (INT8). The progress on digitalisation is presented to trade unions in response to their queries. The unions try to monitor the implementation of digital tools and also to submit suggestions for change, which are collected from the employees. The consultation process in relation to this issue is quite intensive, due to the wide range of digital tools used. The employer tries to respond to the reported comments and to correct the applications, adapting them to the needs of employees and clients of ZUS. According to the unionist in ZUS (INT8) interviewed, however, the employer's response is not always fully satisfactory.

The DGQS revealed that the respondents mostly (54%) did not know whether there was any consultation with workers on the introduction of any digital tools, and 33% of respondents answered that no such procedures were followed. Only 6% answered that formal consultations were made both individually and through trade unions. There were similar answers to the question on the possibilities and options to practically implement more digitalised working methods: 43% - don't know, 42% - no consultations, 10% - individual consultations. And with regard to the question on the digitalisation process and its implementation strategy: 44% - don't know, 39% - no consultations, 11% - individual consultations. The results show a poor culture of involving workers in decision-making processes and in shaping workplaces in the country.

The DGQS respondents were also asked about the effectiveness of trade unions in negotiating sustainable management of digitalisation and technological change at sectoral and company level. The most frequent answer was 'I do not know' – 66% and 63% respectively, and 'not effective at all' – 21% and 20%. Only 14% of respondents declared that unions were at least moderately effective at sectoral level and 17% at company level.

2.2.10 Conclusions on the sector

The Programme for the Integrated Informatisation of the State (2019b) envisages an ambitious process of digitalisation of the public administration. Some electronic services have already been implemented, but their scope will be gradually extended and improved. Digitalisation affects both the delivery of services to meet citizens' needs, but also the ways of organising work inside public institutions. So far, several dozen electronic tools for public services have been implemented, as well as many digital applications used internally by administration employees. Among the institutions studied, the Social Insurance Institution is particularly advanced in terms of digitalisation.

According to trade unions, digitalisation is associated with an increase in the intensity and routine of work, while the level of autonomy of employees does not change or increases only slightly. Digitalisation has no impact on employment stability in the sector. One important period was the pandemic, in which remote communication tools enabled the continuity of the public administration. However, the lack of computer equipment and appropriate software, combined with insufficient IT support, led to numerous problems. Not all employees were able to work remotely, e.g. those handling paper documentation. In the first phase of the pandemic, employers adopted a reluctant attitude towards remote working, but in the second stage they made remote working possible in order to enable the uninterrupted delivery of public services. Another challenge

is the increased responsibilities in most public administrations due to implementation of the 2022 anti-crisis and refugee support policies.

According to both interviewees and focus group participants, digitalisation does not fundamentally affect other elements of working conditions such as working time, work-life balance, career prospects and employment security or workers' rights. In this respect, other elements play a more important role, such as overload of duties, low wages or labour shortage. Trade unions highlighted increased psychosocial risks and musculoskeletal disorders due to frequent computer use. They also pointed to insufficient preparation in terms of digital competences and training, which is not sufficiently provided by the employer. Participants of the focus group highlighted reluctance of the management to involve workers in implementing digital instruments in their daily work, despite the fact that procurement procedures allow for agile work with programmers. They see the reason for this as being the hierarchical and obsolete management structures in their institutions.

Section 2.3 Hospital sector

2.3.1 Overview of the sector

In 2021, 801,600 people worked in the entire area of human health activities (NACE 86), including 164,400 men and 637,200 women. This number is equivalent to 4.8% of all persons working in the national economy. In the previous years, the number of people working in the sector fluctuated quite significantly: between 2016 and 2019 there was a reduction from 722,600 to 685,300, followed by an increase, especially fast, of as much as over 80,000, between 2020 and 2021. In 2021, a significant number of people working in the sector were over 50 years old - as many as 41%. In turn, people aged 65 and over accounted for 5.1% of all employment in the sector, which should be considered a high value compared to the entire national economy (2.3%).

As for the individual categories of employees in the sector, at the end of 2020 there were 153,499 doctors authorised to practice in Poland, an increase of 14.3% compared to 2010 (Statistics Poland, 2021a: 50). At the same time, there were 303,211 nurses (7.4% more than in 2010), and 39,792 midwives (a 16% increase) (Statistics Poland, 2021a: 50). The demographic structure of these professions shows a significant feminisation of the sector. The phenomenon of ageing of the working population is also observed. The most numerous age group among doctors are people over 64 (25.3%). In the years 2005-2020 their number increased from slightly more than 20,000 to nearly 40,000. The group 55-64 also increased in number. At the same time, the number of doctors in the middle age categories, i.e. in the age groups 35-44 and 45-54, decreased, although between 2019 and 2020 there was a slight reversal of the trend for the first of these groups. In previous years, this group recorded a particularly rapid decline - from over 31,000 in 2005 to

22,000 in 2019. On the other hand, from 2010 an increase was recorded in the lowest age group (up to 35 years of age): by 2020, the share of this group in the total number of doctors reached 20.1% (over 30,000 people) (ibid: 51).

Similar, but even more unfavourable trends are observed in the case of nurses. Since 2011, there has been a significant decrease in the size of the 35-44 age category - from 92,000 to only 26,700(!) in 2020. This means that this group has shrunk by 71% over 10 years. In the 45-54 age group in the same period, there was a very slight upward trend, and this group is now the most numerous - it encompasses almost 100,000, i.e. about one third of all nurses. The increase in the size of the 55-64 group was greater, and the largest increase was recorded in the 65+ group. This category has increased about threefold over the past 10 years, now covering almost 60,000 nurses. The group under 35 is the least numerous (10.1% of the total). Their numbers increased, although not very quickly, in 2011-2019, then fell in 2020 (ibid: 52).

Similar trends - consisting in a decrease in the number of employees in middle age categories and an increase in the number of the oldest workers - could be observed among midwives in recent years, although in the case of this professional group there is a more marked increase in the number of employees 35 years of age and below - from approx. 5,000 in 2011 to approx. 7,000 in 2020 (ibid: 53).

As indicated above, the medical professions in Poland are strongly feminised, especially nurses and midwives, laboratory diagnosticians and pharmacists. Also, among doctors, women constituted the majority (57.6%) in 2020 (ibid: 59).

A significant human resources problem in healthcare is the constant shortage of staff, with a small number of available doctors and nurses for a given population (241 and 499 per 100,000 in 2020, respectively) (ibid: 56). Some specialists are in particularly short supply, such as dermatologists and oncologists (ibid.). The availability of doctors and nurses differs among various regions: surprisingly, the availability is greater in less urbanised and less developed regions (ibid: 55). The audit conducted by the Supreme Audit Office (Najwyższa Izba Kontroli, NIK) in one of the regions revealed significant shortcomings related to the shortage of staff in intensive care units, including, among others, temporary absence of patient-facing staff with appropriately high qualifications (NIK, 2022).

It was possible to conduct four interviews with representatives of trade unions present in the sector, including an expert from the National Health Care Section of Poland's largest unitary trade union, NSZZ 'Solidarność', a representative of the regional authorities of the largest trade union of nurses and midwives, a representative of the authorities of the trade union for radiographers, and the chairwoman of the public services section of the largest national trade union confederation,

OPZZ. The latter person comes from a large federation of health care workers, of which she was chairwoman for many years. At the same time, the current leadership of this federation was unwilling to grant an interview despite strenuous attempts and exchanges of letters on the matter.

The same was true of the largest medical workers' union. Overall, persuading representatives of the sector to be interviewed proved to be a major challenge, which may in part be due to their significant workload. The possible reason is that, as a rule, even those holding the highest union positions in the health sector are simultaneously working in their profession. It is also possible that for some organisations, digitalisation is not an important issue - nurses seem to have the greatest interest in it, as reflected in their most positive response to the survey invitation. The FGI interview was attended by six representatives from the health sector, including only one trade union representative - from NSZZ 'Solidarność'. In addition, a representative of the 'Digital Nurses' association and the following employees of various hospitals participated: a laboratory diagnostician, the head of the hospital's medical records department, the head of the hospital's ICT department and a hospital ICT technician. As in the case of the electricity sector, a small number of completed questionnaires were obtained during the online survey in Poland (47), which makes it necessary to treat the results obtained as illustrative or orientational only, as they do not provide a reliable basis for statistical inference.

2.3.2 History and patterns of digitalisation in the sector

In recent years, digital tools have been introduced that significantly change the way work is performed in healthcare entities and how certain services are provided to patients. The following solutions should be indicated here:

- Patient Online Account (IKP) accessible through a trusted profile, introduced in 2018.
- Digital sick-leave notes (e-sick note, Polish: e-zwolnienie, e-ZLA), introduced in 2016. It can be issued by a doctor or medical assistant, and then is automatically sent to the individual profile of the insured person on the Electronic Services Platform of the Social Insurance Institution (Zakład Ubezpieczeń Społecznych, ZUS). Thanks to this, the employee does not have to hand the sick leave note to his/her employer, as the document is immediately visible in the nationwide IT system. The doctor issuing the e-ZLA has access to the patient's data and his/her employer based on the personal identification number of the former, to simplify and speed up the process of issuing the document. The e-ZLA may also be issued using an application on a mobile device, e.g. during a home visit (Patient's Portal, 2022).
- Digital prescriptions (e-prescription, Polish: e-recepta), introduced as mandatory (with some exceptions such as pro auctore and pro familia prescriptions) on January 8, 2020 (Ministry of Health, 2019). An e-prescription is the electronic equivalent of a paper prescription. In order to collect medicines from the pharmacy, the patient has to provide the pharmacist with a four-

digit code received by SMS or e-mail and a personal identification number, or provide an information printout. An e-prescription is information about a drug prescribed for a patient and is saved on an Individual Patient Account. The electronic record is transferred via the system from the doctor to the pharmacist, and from there to the institution that reimburses the drug, which is the National Health Fund (Narodowy Fundusz Zdrowia, NFZ). The electronic patient record will contain information about the doctor who dispensed the medicine, the dosage and its price. The e-prescription was introduced by a separate legal act, the Act of March 1, 2018, amending certain acts in connection with the introduction of e-prescriptions (Journal of Laws of 2018, item 697). It modified, among others, the pharmaceutical law, the Act on healthcare services financed from public funds, the Act on the professions of doctor and dentist and the Act on the information system in healthcare.

- Digital referral (e-referral, Polish: e-skierowanie), introduced as mandatory in 2021. Thanks to this tool, the patient can receive a digital referral to specialist treatment or to a hospital. Until January 8, 2021, it was also possible to use the paper version of the referral. After that date, all the types of referrals included in the statutory regulations function only in digital form. The patient only needs the PIN code and his/her personal identification number to be able to use the referral (Patient's Portal, 2021).

The entity responsible for these solutions is an organisation called e-Health Centre (Centrum e-Zdrowia, CEZ), an agency of the Ministry of Health.

The solutions were introduced gradually, i.e. for some time, traditional analogue solutions functioned in parallel with them. Financial incentives were provided to institutions for early implementation of the new tools.

Additionally, in recent years, the introduction of electronic medical documentation systems in hospitals in Poland has continued. The term 'electronic medical documentation' was introduced into the national legal order by the Act of 28 April 2011 on the information system in healthcare (Journal of Laws of 2011, No. 113, item 657). Electronic medical documentation is understood as a set catalogue of medical documents bearing one of the available and accepted types of electronic signatures listed in the Act. This form of documentation will become mandatory for all medical entities from July 1, 2022, and each medical event will be reported to one nationwide e-health system. Medical entities, if necessary, will exchange the documentation of a given patient. However, for several years now, electronic documentation has been gradually introduced in hospitals. According to an interview with a representative of the nurses' trade union, there has not been a single nationwide solution for handling documentation in individual hospitals. Various solutions developed by a number of different entities have been implemented in different medical entities. The state of implementation and the assessment of the usefulness and ergonomics of

these solutions from the employees' perspective are also different, as discussed later in the report. According to the same interviewee, the largest, specialised hospitals in large cities have the most effective solutions: '*Nurses from inferior poviat hospitals, such as those who come to us for internships, during their specialisation, are surprised how many electronic items we have to care for patients'* (INT10).

Digitalisation has also resulted in a number of tools for the direct diagnosis and treatment of patients. In an interview with a representative of the nurses' trade union, who works in the intensive care unit, she tells us that for many years modern electronic solutions have been gradually introduced in this type of units, to measure the vital parameters of patients and to conduct therapy in a life-threatening situation. In the respondent's opinion, intensive care units were ahead of other organisational units of hospitals in terms of digitalisation. Over the years, more and more modern devices with an increasing degree of automation and improved ergonomics have been used - for example, analogue knobs have been replaced over time by liquid crystal touch displays. Another field in which digitalisation has been taking place for a long time is radiology-based imaging diagnostics. These changes, which started in the 1990s, consisted of a shift from traditional photography using certain chemicals to photography using digital detectors. Then, already in the present century, solutions for transmitting the image by electronic means were introduced. The devices are currently being improved, as the photo exposure process is being automated: this was indicated by a representative of the trade union representing radiographers.

According to an online survey, just over half of those surveyed use digital mobile devices such as laptops, tablets and smartphones in their daily work. Fewer than one fifth use digitally controlled machines, while just over three quarters regularly use means of communication such as email, the Internet or other networks. The ability to work remotely turns out to be low, which, due to the nature of the tasks and the frequent need to work directly with the user, is not a surprise: only one in 20 of those surveyed can conduct their work completely from home, and slightly more than one in 10 can do it partially. They are also very rarely pressurised by superiors or colleagues to 'log in' outside working time – in the light of the survey, this is a marginal phenomenon in the sector. Interestingly, despite this, the respondents in the survey declared – perhaps based on the experiences of relatives or friends, or on wider observations of the world of work - that the right to disconnect is, in their opinion, an important or very important issue (2/3 of the answers in total) that should be clearly regulated by law (3/4 of the answers).

2.3.3 Work organisation

In general, the above-mentioned solutions did not have a radical impact on the organisation of work in the health facilities, as declared by the representatives of the trade unions interviewed. Medical procedures take place subject to a certain regulatory framework, and there is a clear

organisational structure and hierarchy within the medical staff. The changes, as will be described in detail in the following sections, are largely limited to the nature of specific activities: working with printed documents has been replaced by activities consisting in handling dedicated applications. This, in turn, requires employees to change certain habits. A representative of a sectoral trade union covering various occupations in public healthcare (INT9), referring to the issue of routine tasks, indicated that one 'kind of it was replaced by another', as some processes replaced others (e.g. transmission of certain information by e-mail, while in the past the telephone or traditional mail was used for this purpose). In the opinion of this respondent, the employee's autonomy depends on his/her position in the organisational structure of a medical facility. However, he admitted that the use of electronic documents allows for continuous control of the work process. As an example, he mentioned the case of checks on whether the doctor has verified the patient's entitlement to reimbursement of certain medical services. Due to the inclusion of documents such as e-prescriptions or e-referrals in the national ICT system, such checks are now easier, and the doctor may be financially responsible for not verifying the patient's entitlements.

In turn, a representative of the nurses' union (INT10) felt that working with electronic forms of medical documentation may cause a worker to fall into a routine, and in turn to miss some important observations. At the same time, in her opinion, the digital equipment of hospitals reduces the autonomy of her professional group in such a way that doctors have greater insight into the work of nurses and can verify their truthfulness in certain situations. These devices record the patient's condition and store information on whether certain events took place during someone's duty hours, such as cardiac arrhythmias.

Focus group participants emphasised that the digitalisation of the workflow in the hospital makes the work of many employees more efficient, due to a certain standardisation of the information exchanged. For example, the nurse receives the doctor's instructions regarding the medicines to be given to the patient in a much more precise way - the system does not allow errors in the prescription of a medicine, the name or dosage must correspond to the actual specification of the given medicament. This makes the nurses' work more comfortable and at the same time improves patient safety. The cost, on the other hand, is the longer time taken to prescribe the medicine from the doctor's perspective. On the other hand, however, the many standardised questionnaires speed up the work, make it less routine and allow a better focus on the substantive aspects, as ready-made templates can be used.

> *there's a disease entity or a course of surgery where there's a standard of practice. There is the ability to edit and the ability to paste in finished sketches. This can reduce routine. Staff edit depending on the patient certain data, whereas some care patterns or course of surgery are routine, nothing special happens, it makes it easier to enter the content of the documentation. (FG12)*

The laboratory diagnostician also agreed that this feature of the digital tools for exchanging information makes everyday work easier.

In the online survey, the majority of respondents were positive about the impact of digitalisation on work in their sector, more than 50% answered 'strongly agree' and 'somewhat agree' to the statement concerning improved quality of jobs as well as working conditions, and 60% when asked about the impact on the quality of services provided to users.

2.3.4 Working time

Before discussing the assessment of the impact of digitalisation on working time in the hospital sector, we should describe the general problem posed by the issue of working time in healthcare in Poland. Doctors and nurses have very long average working hours, caused, among other things, by significant labour shortages in the sector (Bury, 2018; NIK, 2015). The problem is exacerbated by the burden on medical workers of excessive reporting obligations and other administrative activities.

According to the audit results of the Supreme Audit Office, the use of digital solutions, such as e-referrals, can significantly reduce time-consuming administrative activities (NIK, 2021). This is all the more important as the same audit revealed a significant burden on medical workers with such tasks, which were not sufficiently delegated to employees such as medical assistants, medical secretaries and registrars. The possibility of ordering nurses or midwives to independently continue the patient's treatment was not used, or these employees were not authorised to do so. Neither were activities such as issuing e-sick notes, e-prescriptions or e-referrals entrusted to lower-ranking medical personnel. At the same time, it has been estimated that, on average, it takes 26 to 41% more time to issue a paper referral than to make an e-referral, depending on the type of medical procedure (ibid: 15). At the same time, about 90% of the employees surveyed in the inspected entities gave a positive assessment of the convenience of the IT systems used and agreed with the statement that they support work.

A representative of the trade union covering various occupational groups in public healthcare (INT9) was of the view that the impact of digital solutions on work intensity and time is complex. Undoubtedly, they allow employees to perform certain activities faster, but additional factors also

matter. He indicated three important ones: 1) the level of digital qualifications of the employee and proficiency in using digital technologies, 2) the position they hold in the organisational structure along with the related entitlements, as well as 3) the IT tools already used in a given medical entity. The last factor is related to the issue of interoperability of the solutions described in 2.3.2 with internal IT systems used in hospitals and usually provided by private companies. As indicated in the report already quoted from the Supreme Audit Office, hospital systems are not always fully integrated with the national system when handling - for example - e-referrals (ibid: 15). The problem, especially with regard to older employees, was in some cases poor digital competences, which, especially at the initial stage of implementation of new solutions, made it difficult to use them. Currently, in the opinion of the same trade union representative, this is no longer a big problem, thanks to, among other things, training courses, helplines and manuals, which were made available at the time of the introduction of specific solutions (see section 2.3.6). Additionally, if an unsolvable technical problem occurs, it is possible to issue a document (referral, prescription, etc.) in paper form. According to the interviewee (INT9), there is also a very small group of doctors - mainly older ones - who still try to issue paper documents, despite the fact that the electronic version has been widely introduced. This, in turn, may make the work of recipients of these documents (diagnosticians, pharmacists, doctors), who are already used to using digital solutions, more difficult. Thus, in such cases, the time taken to handle such a 'traditional' referral may even be longer than before the introduction of e-referral.

> *Classically, two sides of the coin. One is that it made it easier, if a person… there are several levels. The implementation of these applications depends, one, on the level of one's digital qualifications, two, on the position in a given medical entity, because this is related to the entitlements, and three, on the IT tools that these entities have. (...) My older colleagues said that you just need to learn it and get used to it. You reach to the hotline and the tutorial, and in cases where both do not help, it is [the document] simply issued on paper. (INT9)*

With regard to digital tools related to the treatment and monitoring of the health condition of patients in the hospital's intensive care unit, mentioned by the representative of the nurses' union (INT10), they are assessed as positive by employees because they reduce the intensity of work, simplifying it and shortening the time needed to perform certain activities. For instance, in the past, some measurements - such as blood pressure - had to be performed by a nurse in person, which was not always an easy task. Currently, this measurement is performed on an ongoing basis by the equipment to which the patient is connected.

On the other hand, the assessment of the impact of electronic health documentation is more complex. It turns out that in some hospitals there were errors in the introduction process – on which there was no consultation with nurses, as the respondent indicated – which even increased the intensity and time taken to do work. The biggest problems are maintaining the obligation to

also keep documentation in paper form, different structures of e-documentation and traditional documentation, the quantity of e-documents, or even the lack of a sufficient number of computer workstations for entering documentation.

> *We were about to switch to all electronic documentation by the end of last year. And it is very difficult, because despite the fact that the hospital has received a subsidy to introduce this digitalisation, there are so many documentation stations that we do not have enough computers. If there are four nurses in the ward and we have one desktop computer, not connected to the patient monitoring system, where I have to enter everything that I observe in the patient's electronic card, and I keep a paper card, it is a very big problem for us. (INT10)*

At the same time, the respondent expressed the conviction that in hospitals where there has been a complete transition to electronic documentation, this tool facilitates the work of nurses.

> *If (...) only electronic documentation was left, I think that it would only be easier, and my friends would appreciate it. Where there has been a complete shift to this electronic documentation, it seems to me to be a convenience for nurses. If I have a patient who [is not in intensive care], comes for diagnostics, I can prepare some templates for a report and make a copy-paste, and I have a report on twenty patients written in five minutes. I would write it by hand for two hours. (INT10)*

Also during the focus group, a representative of the nursing profession (FG12) pointed to the problem of parallel keeping of both paper and electronic documentation. However, she assessed that full implementation of the latter and elimination of the former will reduce the time needed and make nurses' work easier. Another focus group participant, representing the hospital administration (FG14), also indicated that, from the perspective of older medical workers (although in her opinion many of them are trying to intensively increase their digital competences), digital tools mean more work. She also mentioned some particular technical difficulties hindering optimal implementation. For example, the IT system of a hospital may not contain functions that enable comfortable use of tablets.

2.3.5 Health and safety and outcomes for workers

Unfortunately, there have been no studies on the impact of new digital solutions on occupational health and safety in the area of healthcare. Also, the interviewee representing a trade union covering various occupational groups in public healthcare (INT9) was not able to address this issue in detail. He only raised the problem of the general overload of medical staff with administrative tasks, as well as the considerable volume of medical records that must be analysed by doctors as

part of their duties. Therefore, in the respondent's opinion, any solution that automates and/or accelerates administrative activities or speeds up the process of document analysis should be seen as positive, as it reduces the risk of the impact of prolonged sitting for medical workers on their skeletal system.

On the other hand, the opinion of the representative of the nurses' union was different, as she pointed to the negative impact of ubiquitous displays on the eyesight of employees (the representative of the radiographers' trade union also indicated this problem): '*Due to the fact that there is a lot of electronics at work, my colleagues get tired more. Eyes… a lot of us wear glasses. Nobody cares that this can happen because of the constant presence of electronics. I used to have two lights during the night shift, now the whole room is lit up. (...) Here I was sitting over the report, now I am sitting in front of the monitor all the time'* (INT10).

Focus group participants too, especially interviewee FG12 (nurse), tended to highlight the adverse effects of looking intensely at computer monitors on employees' eyesight. On the other hand, the same interviewee (FG12) indicated that digitally controlled patient lifting aids could help nurses and members of hospital support staff to avoid musculoskeletal problems.

The interviewee INT10 also referred to stress, which can sometimes be associated with the operation of new devices. Some of her colleagues are concerned that they may damage the complicated digital devices used in hospital wards. On the other hand, digital equipment in intensive care units may reduce another source of stress, namely related to certain painful medical procedures. They become less invasive. The new tools make it easier to monitor the patient's health condition while reducing punctures, which, especially in the case of the youngest patients, mitigates their suffering and anxiety, thus improving the mental state of employees. The issue of stress also came up during the focus group, with interviewee FG12 pointing to problems of older workers, less familiar with modern technology and, in her view, not always provided with adequate training in the use of newly implemented digital tools. Also, a representative of the hospital IT department (FG15) mentioned the frustration and aggression sometimes shown by medical staff members when certain tools fail.

2.3.6 Skills and learning

Training in and learning new technologies were an important part of implementing digital solutions. In the budget of the Ministry of Health, sufficient funds were secured to make medical personnel acquainted with the use of these tools through free training, including online training, as well as electronic tutorials and a dedicated hotline, which allowed employees to learn new solutions in a relatively short time. The representative of the trade union covering various occupations in the sector (INT9) assessed that the content of the trainings was valuable (although their completion did not involve passing state exams) and there are now far fewer complaints

about problems with using new solutions than at the beginning. Therefore, it can be assumed that they have been successfully adopted by the majority of the medical personnel.

The nurses gave a less clearly positive assessment of the training in new tools. The representative of the nurses' trade union expressed her opinion that her hospital lacked sufficient training in the use of electronic documentation, which, for other reasons described in section 2.3.4, is a problematic tool. She noted, however, that in wards other than the intensive care unit, where work is performed at a slower pace and the scope of activities performed with the patient is narrower, her colleagues probably had more time to learn these tools, and thus the training process was more effective.

Also the survey shows a mixed assessment of the availability of training on the tools being implemented. Only just over a third of the respondents indicated that they had had the opportunity to receive such training, while less than a third declared that they learn new technologies informally in the workplace, for example by taking advice from colleagues.

At the same time, the study revealed some other positive observations related to the professional group of nurses. First, the member of the trade union representing them said that the introduction of e-prescriptions encouraged nurses to issue prescriptions to patients for medicines previously issued by a doctor, as part of continuing treatment. This possibility was introduced relatively recently, in 1 January 2016, through the amendment to the Act on the profession of nurse and midwife (Warmińska & Urban, 2016). Initially, however, not many nurses took advantage of this opportunity because they were afraid of making a mistake and saw some inconveniences related to issuing traditional prescriptions. The introduction of e-prescriptions improved this situation, thus increasing the scope of activities undertaken by nurses, extending the range of their professional skills.

> *When the e-prescription was introduced, it was made easier for nurses who... [interrupted thought] Before that, they had to go to the National Health Fund, get prescription forms and then write them out. It wasn't until e-prescriptions became available that more nurses started writing these prescriptions. Because first of all, this application sees my mistakes and immediately indicates that, for example, a nurse cannot prescribe a given drug. This encouraged more of my colleagues to write prescriptions. (INT10)*

A representative of the nurses' union (INT10) also described the increased access of her professional group to knowledge resources in the form of digital repositories or electronic courses. There is an electronic training platform available at the hospital level, thanks to which employees do not have to leave the facility to improve their skills. Using the application, they can train themselves during their duty hours, and even update some professional qualifications, e.g. those

needed to perform blood transfusions. However, the interviewee was informed by nurses in some other hospitals that employees there were expected to use such tools outside of working hours. Nurses may also not have access to knowledge bases in hospitals in smaller cities.

At the same time, it seems that digitalisation can also discourage certain good practices and weaken skills due to the delegation of certain activities to the computer. A representative of the radiographers' trade union – referring to trends observed in various countries, not only in Poland – indicated a tendency to increase the radiation doses during the examination of the patient. When there is no risk of overexposure of the image thanks to computer controls, technicians no longer strictly follow the principle of dose minimisation, which is important in this profession. At the same time, this phenomenon can be considered as an example of reduced autonomy, understood as control over one's own work.

> *People start to take the easy way out of positioning and projection, and this is starting to reflect on the quality of examination. They no longer remember about the basic conditions that should be used for a given body part, for a given organ, because it is all done by the machine. It starts to look a bit like an 'idiot camera'. (INT11)*

However, an example of opposite attitudes among employees came from a representative of the nurses' trade union. Many nurses do not fully trust digital equipment and closely monitor its operation, which in some situations may turn out to be important for the patient's health. In the interview, an example was given of an employee who quickly realised that the pump used was delivering the drug into the patient's bloodstream at much too fast a pace. A later court case (the employee was threatened with the loss of the right to practice her profession) showed that she had performed the required activities correctly. The error resulted from the use of an incorrect component, for which the liability lay with those responsible for conducting the tender for the purchase of equipment for the hospital. In the opinion of the interviewee, an important feature of electronic equipment is storage of information about the parameters that have been set, which in such situations allows the employee to prove that they did not make a life-threatening mistake.

2.3.7 Reconciling work and personal life

Generally, in the opinion of the representative of the trade union covering various occupations in the sector (INT9), digital solutions have no impact on work schedules or total working time. He is not aware of any changes in the work regulations of medical facilities caused by the digital solutions analysed here. Consequently, the impact on work-life balance is not significant (as also confirmed by the focus group participants, including in particular interviewee FG12). There is one positive exception to this, although it does not relate closely to the functioning of hospitals. For medical workers who provide services outside the place of employment, in the patient's home (e.g. primary health care, long-term care), the number of cases in which it is necessary to return to the facility or contact its staff to fulfil administrative tasks has decreased. Certain documents can be

issued or verified online anytime and anywhere, e.g. on the way home. This can therefore have a positive impact on the reconciliation of work and private life.

The results of the online survey confirm that the overall impact of digitalisation on the work-life balance is small. Less than one fifth of respondents spoke of such an impact in the health sector. Even smaller was the proportion of respondents indicating a direct impact of digitalisation on their situation, e.g. on the amount of time they can spend with their families. This was just over 1/10 of respondents, with no people strongly agreeing with the statement on this topic.

2.3.8 Career prospects and employment security

In the opinion of the representative of the trade union covering various healthcare occupations, the digital solutions analysed have no impact on staff professional development prospects. These are closely related to the specific structure of medical professions and specialisations. The acquisition of new digital competences as a result of mastering new solutions, such as issuing an e-referral, does not lead to the acquisition of new entitlements, nor is it associated with passing any state exams. Therefore, it is not reflected in formal qualifications, the job position or the employee's remuneration.

The impact of new health protection solutions on employment security is similarly questionable. Their use takes place within the framework of established medical procedures, and the digital tools themselves only modify the technical aspect. The powers to implement these procedures are vested in representatives of specific professions and specialisations. It is therefore not possible, for example, for lower-level personnel to take over the duties of doctors. At best, they can support the latter in simpler tasks, such as administrative matters or continuing the patient's treatment.

According to the representative of the nurses' trade union, digital tools have no impact on job security for her professional group. There are no reasons to dismiss nurses as a result of digitalisation. At the same time, however, in her opinion digitalisation may cause other staff members (doctors, managers) to be indifferent to the important problems of this professional group: employee shortages and the resulting overload of duties. The convenience of digital tools is used as an argument to claim that their work is not as hard as it really is : '*They don't care that there aren't enough of us in the system. They say: <<you have this, that and that. It is easier for you now>>. Especially older doctors say: <<remember how you did this, and this>> [before digitalisation]'* (INT10).

2.3.9 Workers' rights

The analysed solutions do not directly affect employees' rights to representation, consultation or information. The representative of the trade union covering various occupations in the sector mentioned, however, that in recent years, remote electronic communication technologies

(videoconferencing software, instant messaging) have become popular among trade unionists. They are used both in communication between trade union members and between unions and the employer, contributing positively to ensuring workers' rights. A representative of the nurses' trade union spoke in a similar vein. New digital tools such as instant messengers (e.g. WhatsApp) make it much easier to organise and communicate with employees. In turn, having a computer makes it possible to easily search for knowledge in the field of labour law.

2.3.10 Conclusions on the sector

The analysed solutions have not caused a radical change with regard to the quality of work in the hospital sector, associated with the specific nature of the sector. It is strongly regulated by law, characterised by strictly defined procedures and clear job hierarchies. The new digital solutions, such as e-prescriptions or e-referrals, facilitate the daily work of medical personnel and simplify and shorten some procedures. However, it seems that they do not introduce any fundamental changes with regard to work organisation, work time and schedule, work-life balance or the structure of work positions. At the same time, in some hospitals, some mistakes resulting from the careless implementation of digital tools have caused problems for nurses, such as an increase in work intensity. This professional group also feels that they now have less autonomy in their work due to increased monitoring by doctors.

Section 2.4 Overall sectoral cross-cutting conclusions

In the studied sectors, digitalisation is a phenomenon that significantly influences various aspects of the work performed, although it has not resulted in radical organisational or working time changes. It is also assessed rather positively by the trade union representatives interviewed, although their assessment depends on the context of the introduced changes. It may be adversely affected by careless implementation or mistakes made during it, but also by additional circumstances, such as if employees are burdened with increased tasks. In the latter situation, although performance of tasks with the use of digital tools simplifies and speeds up procedures, employees may experience increased work intensity, as can be seen in the public administration sector. The analysed cases of implementation of digital tools also show the importance of taking into account the 'human factor'. The implementation should be accompanied by the provision of effective training (this was achieved in relation to e-health solutions, for example) and the right attitude of managers, respecting the employees' abilities to adapt to new technologies (which was missing in the case of one senior manager in the field of electricity, leading to the dismissal of that person under pressure from trade unions).

The digitalisation process changes certain practices and habits of employees. It also generates some new problems and difficulties in place of the old ones. For example, the number of accidents at work may decline, but at the same time there are increasing health problems resulting from long periods sitting in front of a computer and staring at a screen. The impact on work autonomy

varies - for some employees it increases due to the ability to make certain decisions independently, for others - such as nurses - it decreases due to the increased capacity for monitoring by doctors. Among the interviewees, the dominant belief is that work is overall becoming more routine, although, in some cases, the use of standardised digital forms may significantly shorten the time needed to perform specific administrative tasks. The work-life balance is unlikely to improve, unless it is possible to work remotely from home. Since the end of the pandemic, staff have not been teleworking in some cases, as shown by the example of ZUS employees. Thus, we can assess that digitalisation resolves some old problems of employees and improves some aspects of work, but also generates new challenges.

SECTION 3. DIGITALISATION AND SOCIAL DIALOGUE

Section 3.1 Introduction: the national system of industrial relations

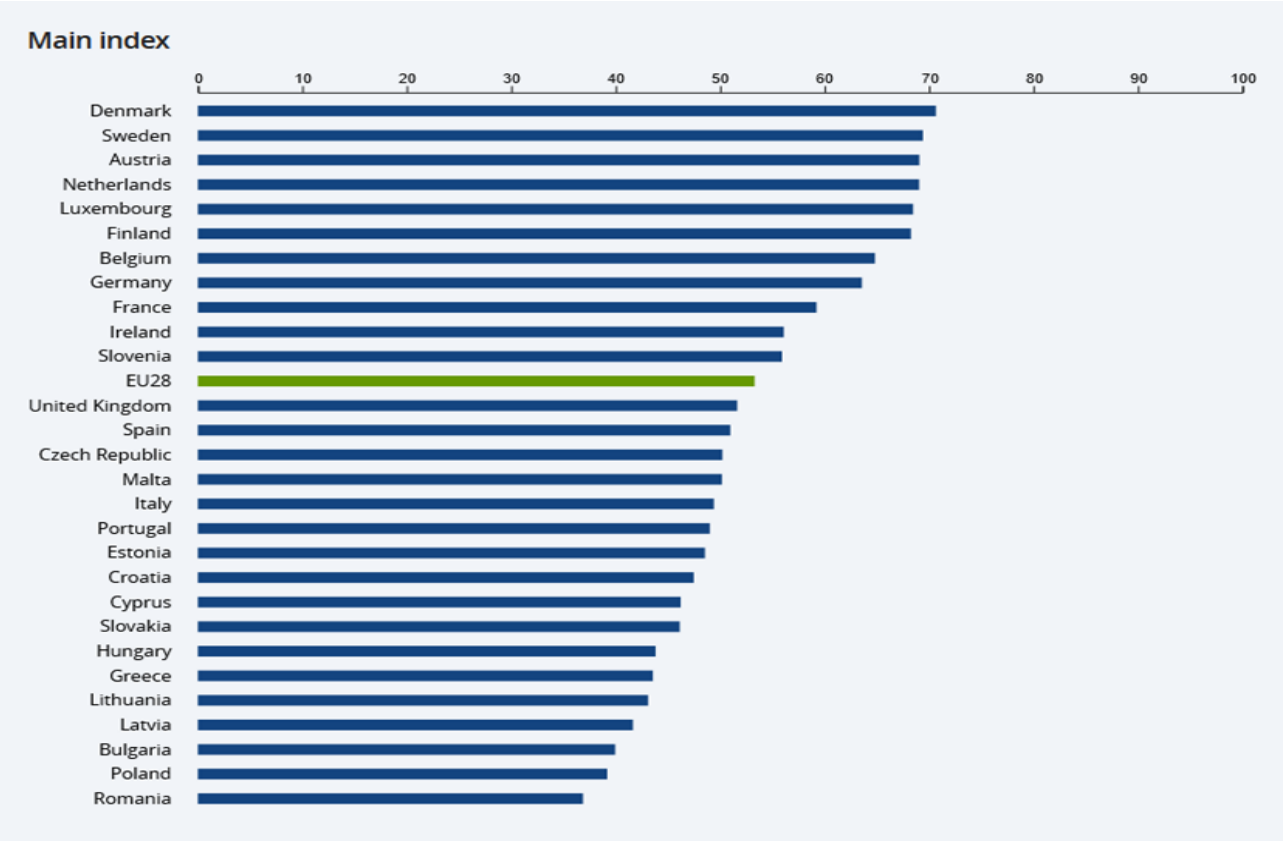
The Polish industrial relations (IR) system is the standard Central and Eastern European model, which is often described as hybrid. It is made up of remnants of post-socialist solutions, new elements of the system shaped during the transformation in the early 1990s, and EU legislation. As a result, the model contains elements of pluralism, neo-corporatism and statism. In the literature, one can find various attempts to describe this model: 'corporatism in the public sector, pluralism in the private sector' (Morawski, 1995), 'illusory corporatism' (Ost, 2000), 'pluralism' (Meardi, 2002), 'fake corporatism' (King, 2007), 'mixed' or 'empty case' (Bechter, Brandl, Meardi, 2012), and recently, 'emerging neo-etatism' (Czarzasty, Mrozowicki, 2018). Gardawski (2003) also used a term: 'Competitive pluralism' reflecting the fragmentation of trade unions and inter-union competition.

The industrial relations system in Poland is characterised by a high level of decentralised collective bargaining, underdeveloped sectoral collective bargaining, and relatively weak institutions for social dialogue at the national level. Collective bargaining coverage is less than 15%; and single-employer agreements prevail over multi-employer ones, while sector-level bargaining is virtually absent. In 2017 there were only 86 active multi-employer collective agreements covering some 390,000 employees (i.e. some 2.7% of employees), of which 76 covered administrative and technical employees in educational institutions, according to the Ministry of Labour (recent available data). In February 2021, the ministry reported that 61 agreements remain on the register, with 197 additional protocols. Collective agreements rarely occur in private companies but are more often used in the public sector as well as in foreign-owned companies. According to the National Labour Inspectorate, the content of collective agreements has been successively reduced over the years to a situation in which they usually just repeat the generally binding regulations of the labour law, with a view to retaining labour protection as labour law becomes liberalised. Collective bargaining is focused mostly on wages and less often on working time. Other issues are rarely a subject of collective bargaining - including the digitalisation processes pursued by companies.

Poland ranks low in the industrial relations index developed by Eurofound (2018), which comprehensively measures four dimensions of country performance – industrial democracy, industrial competitiveness, social justice, and quality of work and employment. The country has been classified in the cluster of market-oriented governance models, together with Estonia and the United Kingdom, due to the weakness of the social partners, very low levels of collective bargaining and rare or absent concertation, with very uncoordinated and decentralised collective bargaining systems at institutional level. In this cluster, the state also plays a minor role in collective bargaining, combined with a more active role in other areas. The study underlines the

role of the tripartite mechanism for setting the level of a statutory national minimum wage and the rights of works councils or employee representation within organisations mandated by law (as a result of Directive 2002/14/EC regarding information and consultation).

Figure 4. Industrial relations index (period 2013-2017)



Source: Eurofound (2018), Measuring varieties of industrial relations in Europe: A quantitative analysis, Publications Office of the European Union, Luxembourg.

Trade union structures are based on company-level trade union organisations, which must number at least ten employee members (regardless of the employment form). As a result, the dispersion of trade unions is considerable and higher-level structures at sectoral and central level are much weaker. In practice, about 40% of workers have no access to trade unions as they are employed in micro-enterprises employing less than 10 workers. According to recent data, in 2021 trade union density amounted to 11%; and this level of trade union membership has remained stable in recent years. However, a process of decline in this respect has been observed since the nineties.

Currently, there are three representative trade union organisations and six employers' organisations at peak-level; these are entitled to sit in the Social Dialogue Council (RDS), a national-level tripartite social dialogue body. The representative social partners include the following: trade unions - NSZZ „Solidarność', the All-Poland Alliance of Trade Unions (*Ogólnopolskie Porozumienie Związków Zawodowych, OPZZ*), Forum of Trade Unions (*Forum*

Związków Zawodowych, FZZ) and employers' organisations - Employers of Poland (*Pracodawcy Rzeczypospolitej Polskiej*), Confederation Lewiatan (*Konfederacja „Lewiatan*'), the Polish Crafts Association (*Związek Rzemiosła Polskiego*), Business Centre Club, Union of Entrepreneurs and Employers (*Związek Przedsiębiorców i Pracodawców*), Polish Entrepreneurs Federation (*Federacja Przedsiębiorców Polskich*).

The Social Dialogue Council was established in 2015 after the crisis of the Tripartite Committee in the period 2012-2015, in order to revive social dialogue at the national level. The main task of the RDS is to advise on draft legislation and government strategic documents related to collective labour relations. One of the key powers of the RDS is the annual consultation on the statutory minimum wage, minimum statutory hourly wage and pay increase indicators in the public sector, which is the main wage negotiation mechanism in the country at the supra-company level. Consultation in the RDS on legal acts is important in view of the fact that supra-company collective agreements do not play a great role in the country, and therefore the law is the strongest factor regulating collective labour relations in Poland. The RDS currently operates 21 tripartite sectoral committees and two subcommittees ([25]), including the Energy Sectoral Committee ([26]) and the Healthcare Sectoral Committee ([27]). There is no committee covering the public administration sector. There are also eight cross sectoral thematic RDS teams ([28]), including the Public Services Thematic Team ([29]) covering the National tax administration team, the Uniformed services team and the Temporary healthcare thematic team. No RDS team has dealt with the issue of digitalisation. At the regional level, the regional social dialogue councils discuss local-level issues and play an advisory role on issues relevant for the social partners.

Section 3.2 Trade unions' position on digitalisation at national level

European social partners framework agreement on digitalisation

As a result of signing the European social partners framework agreement on digitalisation ([30]), the representative social partners in Poland have undertaken some activities to discuss the content of the agreement and its implementation at national level ([31]). The discussions focused mostly on the right to disconnect. So far, the social partners have organised only one seminar entitled '*Digitalisation in the world of work*' in the Centre of Social Partnership 'Dialog' ([32]) on 26 April

25. See: https://www.gov.pl/web/dialog/trojstronne-zespoly-branzowe
26. See: https://www.gov.pl/web/dialog/zespol-trojstronny-ds-branzy-energetycznej
27. See: https://www.gov.pl/web/dialog/zespol-trojstronny-ds-ochrony-zdrowie-przy-ministerstwie-zdrowia0
28. See: https://www.gov.pl/web/dialog/rada-dialogu-spolecznego3
29. See: http://rds.gov.pl/zespoly-rds/zespol-problemowy-ds-uslug-publicznych/
30. ETUC, Business Europe, CEEP and SME United (2020), *European social partners framework agreement on digitalisation*.
31. This included translation and approval of the translated text by the representative social partners in Poland in early 2021
32. The Centre of Social Partnership 'Dialog' is a public institution supporting social dialogue at the national level - especially the operation of the Social Dialogue Council. According to the statutes, the Centre 'is

2021([33]), which took as its subject the implementation of the content of the framework agreement on digitalisation. Some further meetings are planned for 2022.

Telework

As a result of the COVID-19 pandemic, some temporary measures were introduced by the government to regulate telework. Article 3 of the Act of 2 March 2020 on specific solutions related to the prevention and combating of COVID-19, other infectious diseases and crisis situations caused by them allowed a worker to work from home if they have the technical conditions, skills and capabilities to perform such work. In particular, telework may be performed using means of remote communication. In 2021, the government announced their intent to enact a new law introducing telework to the Labour code as a permanent option. This legislative initiative was the key response to the phenomenon of working from home which rapidly emerged under the impact of the pandemic in 2020. Due to the necessity to provide a legal basis for telework, the temporary measure was adopted quickly without any consultations with the social partners, while the Draft Act of 8 February 2022 amending the Labour Code Act and certain other acts (and its previous versions presented to the public) introducing telework as a permanent solution was discussed in the Social Dialogue Council. Trade unions expressed their concerns regarding the additional costs of telework, which must be borne by workers, and the extension of working hours often beyond the working time standards set out in the Labour Code, due to blurred boundaries between work and family life ([34]). The unions suggested introduction of a supra-company agreement setting out the principles governing teleworking, and standardisation of the minimum rate of the cash equivalent for teleworking. They also objected to provisions stating that it is the responsibility of workers to adapt working conditions at home to comply with health and safety regulations.

All representatives of trade unions interviewed for this study claimed that their main activities so far have consisted in participation in meetings, seminars, training sessions and other experience exchange initiatives, to build their own knowledge about the issue of digitalisation and its impact on the economy and workplaces. There are no sectoral or national level initiatives that cover both trade unions and employers' organisations. There are also no provisions related to digitalisation in collective agreements (CA) (also due to the marginal role of CA in the national industrial relations system). So far, the social partners have not come up with their own initiatives in the area of public policy or collective bargaining (CB). At this stage, social partners take a receptive approach

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to create conditions for mediation and counselling in the prevention, mitigation and resolution of social conflicts and to support institutions of social consent'.

33. Conference '*Digitalisation in the world of work*' (Minutes of the conference at CPS 'Dialog' webpage Konfederacja Lewiatan webpage and NSZZ 'Solidarność' webpage)
34. See:https://www.solidarnosc.org.pl/dokumenty/biuro-prezydium-kk/prezydium/item/20520-decyzja-prezydium-kk-nr-74-21-ws-projektu-ustawy-o-zmianie-ustawy-kodeks-pracy-ustawy-o-rehabilitacji-zawodowej-i-spolecznej-oraz-zatrudnienia-osob-niepelnosprawnych-oraz-ustawy-o-promocji-zatrudnienia-i-instytucjach-rynku-pracy-ud-210, https://www.opzz.org.pl/aktualnosci/kraj/nowe-zasady-pracy-zdalnej

focusing on capacity building. Respondents from both trade unions and employers' organisations expressed the opinion that currently digitalisation is not an important point for discussion in the social dialogue bodies. Currently, such issues as the just transition, climate change, the energy system and obviously COVID-19-related points are at the forefront of the discussions.

Section 3.3 Electricity production and distribution sector

3.3.1 Collective bargaining in the sector

Compared to the other sectors, industrial relations are well developed in the energy sector. Trade unions are present in all four major companies (PGE, Tauron, Enea, Energa) and are included in company level collective bargaining. The unions include the following: NSZZ 'Solidarność' (National Section for the Energy Sector and National Section for Power Plants), Association of Energy Workers' Unions (*Zrzeszenie Związków Zawodowych Energetyków*, ZZZE, affiliated to the OPZZ), Trade Union of Engineers and Technicians (*Związek Zawodowy Inżynierów i Techników*, ZZiT, affiliated to the OPZZ), All-Poland Alliance of Trade Unions of Continuous Process Industry Employees (*Ogólnopolskie Zrzeszenie Związków Zawodowych Pracowników Ruchu Ciągłego*, OZZZPRC, affiliated to the Forum of Trade Unions). The above unions are affiliated to representative national-level social partners and are therefore entitled to be represented in the RDS, including the Energy Sectoral Committee. Only NSZZ 'Solidarność' is a member of the European level social partners – IndustriALL - while the other unions remain absent from the EU level social dialogue. None of the unions in the energy sector are members of EPSU. The above unions cover different categories of workers and are present in different parts of the sector. They also differ in terms of ideology and their approach to social dialogue (see Gardawski, 2003 on conflictual pluralism).

There is only one employers' organisation in the sector - the Association of Polish Power Industry Employers (*Związek Pracodawców Energetyki Polskiej,* ZPEP), which has been established recently (in 2019) after the liquidation of the Union of Heat & Power Plants Employers (*Związek Pracodawców Elektrociepłowni*, ZPEC) and the Union of Employers of Power Plants (*Związek Pracodawców Elektrowni*, ZPE). The ZPEP brings together all companies (nearly 40) belonging to the four largest groups of energy companies (PGE, Tauron, Enea, Energa) and covers over 90% of the sectoral workforce. The liquidation of the former employers' organisation resulted in cancelling of the multi-employer collective agreement covering most of the energy sector, to which it was a signatory.

3.3.2 Role and importance given to digitalisation in the national industry-wide agreements

The previous chapter highlighted that the digitalisation of the energy sector is primarily employer-driven and supported by trade unions and workers in general. It is seen as an evolutionary process

of modernisation of the sector that has been progressing for at least two decades, intended to ensure the highest quality of public service and efficient operation of the country's critical infrastructure. Trade unions see many advantages of digitalisation, including improved working conditions. At the same time, they do not see digital tools as a fundamental threat to the stability of jobs. On the contrary, they see investment in modern digital solutions as a way of improving employees' qualifications and an opportunity for higher wages in the future. Respondents emphasised the role of employer-provided training in the acquisition of new skills and the use of new digital technologies in the energy sector.

Despite the high collective bargaining coverage and trade union density in the sector, digitalisation issues are not covered by collective bargaining or collective agreements. Collective agreements focus rather on wages, employment plans and social benefits. Some agreements also include a training schedule, but training in the use of digital tools is not explicitly mentioned. With the obligation to ensure the protection of personal data introduced by law in 2018, regulations in this area and relevant policies have been established in other documents - separately from collective agreements.

3.3.3 Trade union approaches and priorities for the collective bargaining agenda on digitalisation

In the opinion of respondents, the issue of digitalisation has never been a subject of bargaining between the employer and trade unions. The unions perceive the progressive digitalisation and evaluate it positively in general terms, but they do not see the need to have it as a subject of negotiations with the employer. They seem to accept the solutions proposed by employers and try to adapt to them. Instead, they prioritise wage and social issues or the implementation of the European Green Deal.

In contrast to trade unions in the public administration sector, remote working is also not a major challenge for the energy sector, as it is very rarely used in these companies. The COVID-19 pandemic did require remote working for some office workers, but they have now returned to in-office mode and have no plans to develop remote working in the future. On the issue of the right to disconnect, unions in the energy sector are only observing the European debate and are not active participants, as potential regulations in this area will affect the sector to a very limited extent.

3.3.4 Conclusions on the sector

Trade unions now see digitalisation in terms of opportunities rather than threats. Previous concerns about technological unemployment and job losses in the sector have disappeared with the development of new technologies in the workplace. While unions forecast a reduction in employment in the sector due to automation, this will consist of a reduction in the need for new

manual workers while maintaining the employment of existing workers with appropriate training. They also see opportunities for new jobs for the highly skilled workers who will be needed to operate the new technologies.

To a much greater extent, trade unions see the European Green Deal as a challenge for the energy sector, as more than 70% of the Polish energy mix is based on hard coal and lignite. In the coming decades, Poland will therefore be obliged to increase the share of energy from renewable sources. Here, however, trade unions see an opportunity to employ workers who are able to install, operate and maintain photovoltaic panels, windmills, etc., which are based on advanced digital solutions.

At the same time, the process of digitalisation is seen by the unions as an issue of little relevance to collective labour relations, although they recognise its impact on the quality of work.

Section 3.4 Public administration sector

3.4.1 Collective bargaining in the sector

The unions include the following: NSZZ 'Solidarność' (Secretary of Public service workers, especially the National Section of Government and Local Government Administration Employees), the All-Poland Alliance of Trade Unions (Secretary of Public service workers), All-Poland Trade Union of the National Fiscal Administration (*Ogólnopolski Związek Zawodowy Krajowej Administracji Skarbowej*, OZZKAS, affiliated to the OPZZ), Federation of Customs Service Trade Unions *(Federacja Związków Zawodowych Służby Celnej*, FZZSC, affiliated to the OPZZ), Federation of Trade Unions of Tax Employees (*Federacja Związków Zawodowych Pracowników Skarbowych*, FZZPS, affiliated to the FZZ), Trade Union of Ministry of the Interior and Public Administration Employees (*Związek Zawodowy Pracowników Ministerstwa Spraw Wewnętrznych i Administracji Publicznej*, ZZPMSWIAP, affiliated to FZZ), National Trade Union of Employees of ZUS 'Independents' (*Krajowy Związek Zawodowy Pracowników ZUS „Niezależni'*, KZZP ZUS, affiliated to the FZZ), Trade Union of the Workers of the Social Insurance Institution (*Związek Zawodowy Pracowników ZUS*, ZZP ZUS). A number of public service trade unions are also provided by the local authorities, e.g. firefighters', heating, water and sewage, public transport, municipal and housing unions, etc. The above unions are affiliated to representative social partners at the national level and are therefore entitled to be represented in the RDS, including in the Public Services Thematic Team. Only NSZZ 'Solidarność' is affiliated to EPSU and therefore involved in EU-level social dialogue, while other sectoral unions are not actively present in the European social dialogue. The multiplicity of trade unions shows the diversity of the public administration itself and the perspectives of different groups of workers. It is also an indicator of the pluralism and fragmentation of the labour movement in the sector (and the whole economy). One of the

structural factors shaping the position of workers and trade unions in the public administration is that these workers have no right to strike (Act on resolving collective disputes, 1991).

On the other side of collective labour relations in the public administration sector, there are no employer organisations that meet the statutory definition. The employer at the company level is obviously the individual central and local public administration units and public offices. The role of an employer organisation is fulfilled partly by associations of local governments, e.g: the Association of Polish Cities (*Związek Miast Polskich, ZMP*), Association of Polish Poviats (*Związek Powiatów Polskich, ZPP*), Union of Polish Metropolises (*Unia Metropolii Polskich, UMP*) or the Union of Rural Communes of the Republic of Poland (*Związek Gmin Wiejskich Rzeczpospolitej Polskiej, ZGW RP*), as well as other local government unions at regional level. However, their main purpose is not so much to fulfil the role of employers' organisations in collective labour relations, but rather to represent the interests of the different levels of local government in relations with key stakeholders, e.g. government, ministries, parliament, other such organisations at home and abroad. Only the Association of Polish Cities and Association of Polish Poviats are members of The Council of European Municipalities and Regions (CEMR) and therefore take part in EU-level dialogue.

There are no supra-company collective agreements in the public administration sector, and collective bargaining coverage is less than 1%. Collective employment relations are settled either through legal regulations (legal acts or resolutions) or at company level. Moreover, according to the Labour Code, certain public administration workers cannot be covered by collective agreements. This group includes civil servants, as well as state and local government workers employed on the basis of election, appointment and vocation.

3.4.2 Role and importance given to digitalisation in the national industry-wide agreements

As it was stressed earlier, collective agreements are not important in the public administration sector. Only single company-level agreements exist in some local governments, e.g. in local government institutions in Częstochowa. In addition, some public administration workers are excluded from the possibility to conclude collective agreements and also some workers do not have the right to strike. Thus, in particular, digitalisation is not subject to collective agreements.

However, some elements of digitalisation can be the subject of dialogue at company level. Both in the central public administration and in the Social Insurance Institution, the key challenge raised by trade unions in their talks with the employer is the overload of duties, which increases with the assignment of new tasks by the legislator. Nowadays, almost all tasks in the public administration are performed with the use of some kind of digital tools and it is difficult to separate the

digitalisation issue from other fundamental problems of the sector. As a result, workers point to an increase in the intensity and routine of work - including linked to the use of digital tools.

In the Social Insurance Institution, where digitalisation processes are advanced and have been going on for more than two decades, unions are involved in advising on the development of new digital applications for customer service and internal work in the institution, as well as making comments on IT systems already in place. Due to the important role that these digital tools play for working conditions, trade unions conduct constant monitoring of the quality of these systems and are involved in the ZUS digitalisation process. Comments made by trade unions are often taken into account by the employer (and IT system developers), but not always. Trade unions point to a number of drawbacks and challenges in working with these IT systems: their low level of integration and incompatibility with each other, incomplete digitalisation of databases, failure to take into account legislative changes in some systems, etc. Another challenge is the lack of training or insufficient training for employees - especially those workers starting out their jobs in ZUS. Senior staff are burdened with the responsibility of training new staff, but this is not part of their job description and they do not have time set aside for it.

The conditions for remote working during the COVID-19 pandemic were also discussed between the public administration unions and employers. A key challenge was securing a sufficient number of computers with appropriate software, as well as data security (the latter theme was particularly important in the discussions held at ZUS). The unions also demanded an allowance for working from home to cover the increased expenses involved (electricity, internet, water bills, etc.), but these demands were rejected because there was no legal basis for them. Health and safety in remote working was not an issue, as regulations adopted during the pandemic period allowed remote working without health and safety checks.

3.4.3 Trade union approaches and priorities for the collective bargaining agenda on digitalisation

The main way to shape working conditions in the public administration sector is through legislation rather than collective agreements. Therefore, trade unions focus on participating in the consultation on legislation via their representatives in the Social Dialogue Council. In recent years, the most important digitalisation issue has been the regulation of telework, which is to be introduced into the Labour Code as a permanent solution. During the COVID-19 pandemic, only temporary legislation was adopted in this regard, which is due to expire in August 2022. Trade unions have made a number of comments on the Draft Act of 8 February 2022 amending the Labour Code Act and certain other acts intended to regulate telework. These include: the costs of telework, which workers must additionally bear, and the extension of working hours often beyond the working time rules set out in the Labour Code, due to blurring of boundaries between work and family life. The unions proposed a supra-company agreement setting out the principles

governing teleworking and standardising the minimum rate of the cash equivalent for teleworking. They also objected to provisions stating that it is the responsibility of workers to adapt working conditions at home that comply with health and safety regulations.
When asked about other digitalisation issues in the survey, respondents pointed to the need to implement the European social partners framework agreement on digitalisation. The issue of the right to disconnect is of special interest to the unions, and they have declared their readiness to discuss the regulations at European and national level. However, the unions have not yet proposed any solutions in this regard.

3.4.4 Conclusions on the sector

Digitalisation is a marginal issue on the agenda of the trade unions in the public administration. It is not the subject of collective agreements due to their almost complete absence from the sector. The unions see, however, the prospect of progressive digitalisation in connection with the Programme for the Integrated Informatisation of the State (2019b). In some institutions such as ZUS, the implementation of IT systems is subject to constant monitoring. Unions also played a role in shaping working conditions for telework at company level during the pandemic period, by reporting on employees' needs for access to computers, software and training, and unsuccessfully demanded payment of work-from-home equivalents. Representatives of sectoral unions are making demands to their national peak-level organisations and calling for the regulation of telework.

Trade unions in the public administration highlight the problems of low wages, work overload and overtime, staff shortages (especially in larger cities) and insufficient training. Issues related to digitalisation - with the exception of telework - are not high on their list of priorities.

Section 3.5 Hospital sector

3.5.1 Collective bargaining in the sector

In the healthcare sector in Poland, there are trade unions representing all three main union centres (All-Poland trade unions/federations representative at the national level pursuant to the Act of 24th July 2015 on the Social Dialogue Council and other social dialogue institutions, Journal of Laws 2015 Item 1240):

1) NSZZ 'Solidarność', the National Healthcare Section (*Krajowa Sekcja Ochrony Zdrowia)* - a sectoral structure within the unitary trade union NSZZ 'Solidarność' - this is the largest trade union in the country, bringing together at company level employees representing various medical professions.

2) All-Poland Alliance of Trade Unions (OPZZ) - the largest nationwide federation of trade unions in the country, covering the Federation of Trade Unions of Healthcare and Social Assistance Workers (*Federacja Związków Zawodowych Pracowników Ochrony Zdrowia i Pomocy Społecznej*, FZZPOZiPS) and a number of smaller unions combining representatives of particular medical professions, e.g. the Trade Union of Operational and Anaesthesiology Nurses (*Związek Zawodowy Pielęgniarek Operacyjnych i Anestezjologicznych*, ZPOiA), National Trade Union of Physiotherapy Workers (*Ogólnopolski Związek Zawodowy Pracowników Fizjoterapii*, OZZPF) and Trade Union of Anesthesiologists (*Związek Zawodowy Anestezjologów*, ZZA).

3) Trade Unions Forum (FZZ), the second largest nationwide federation of trade unions, which covers: the National Trade Union of Nurses and Midwives (*Ogólnopolski Związek Zawodowy Pielęgniarek i Położnych*, OZZPiP) - the largest trade union of nurses, the All-Poland Trade Union of Doctors (*Ogólnopolski Związek Zawodowy Lekarzy*, OZZL) - the largest unitary trade union representing doctors, as well as several unions representing more specific professional groups, such as the All-Poland Trade Union of Radiographers (*Ogólnopolski Związek Zawodowy Techników Medycznych Elektroradiologii*, OZZTME) and the National Trade Union of Medical Rescue Workers (*Krajowy Związek Zawodowy Pracowników Ratownictwa Medycznego*, KZZPRM).

Among the above organisations, only FZZPOZiPS appears on the list of members of the EPSU federation.

The opposite side of the sectoral system of collective labour relations is very poorly represented. Among the employers' organisations, the following can be listed: the All-Poland Association of Poviat Hospital Employers (*Ogólnopolski Związek Pracodawców Szpitali Powiatowych*, OZPSP), Private Medicine Employers (*Pracodawcy Medycyny Prywatnej,* PMP) and some regional organisations, such as the Association of Employers of Lower Silesian Hospitals (*Związek Pracodawców Szpitali Dolnośląskich*, ZPSD).

There is almost no collective bargaining in the health sector. According to a Eurofound study, in 2018 the coverage of the sector by collective agreements was as little as 2% (!) (Eurofound 2022: 24). Collective bargaining, if conducted, takes place at company level (ibid), which is a typical situation in Poland. In the course of the current study, however, no cases of medical facilities were identified in which a collective agreement was in force or was being negotiated.

In an interview, a representative of a trade union covering various medical professions told us that the most common way in which the sectoral social partners are involved in developing national

public policies is participation in social consultations, i.e. issuing opinions on draft legal acts relating to healthcare. At the same time, there are two tripartite teams within the Social Dialogue Council, the national advisory body of tripartite social dialogue. The first is the Tripartite Sectoral Team for Healthcare (within the Ministry of Health). This is a sectoral body existing since 2005, made up of representatives from the Ministry of Health, the Ministry of Education and Science, the Ministry of Family and Social Policy, the Ministry of Finance, the Ministry of Funds and Regional Policy and the Ministry of Development, Labour and Technology, as well as from nationwide representative trade unions (NSZZ 'Solidarność', OPZZ, FZZ) and representative national employer organisations (Employers of the Republic of Poland, Lewiatan Confederation, Polish Craft Association, Business Centre Club and the Association of Entrepreneurs and Employers).

The second tripartite body within the Social Dialogue Council is the Sub-Team for Healthcare within the Problem Team for Public Services. It also includes representatives of the Ministry of Health and other relevant ministries, representative trade unions and employers' organisations ([35]). During the Covid-19 pandemic and six months after the epidemic was lifted, this body was replaced by the Ad-Hoc Tripartite Team for Healthcare. A representative of the trade union federation, who has been involved in the functioning of these bodies for many years, explained why there are so many teams dealing with healthcare issues. Firstly, she indicated that the main and most active body was always the team at the Ministry of Health, listed first above. However, this is not one of the structures of the Social Dialogue Council - at most its members can formulate conclusions to the Council if, in their opinion, the problem is particularly important. At the same time, there is a tripartite team for public services, which covers a wide range of issues (including, among others, education, public administration and tax services). Hence, a separate health care sub-team was created, which was replaced during the pandemic with an ad-hoc team to raise the profile of the issues discussed in connection with the challenges posed by Covid-19 and its impact on the functioning of the healthcare system.

3.5.2 Role and importance given to digitalisation in the national industry-wide agreements

As indicated above, collective bargaining is almost absent from the health sector. There is also no habit of concluding agreements for the entire sector. Generally, issues related to employment and working conditions are regulated through legislation. Social partners which are representative at the national level are primarily involved in issuing opinions on draft legal acts in the course of public consultations. This was also true for the implementation of the particular digital tools described in this report. For example, in April 2018, the Sub-Team for Healthcare discussed the implementation of the Internet Patient's Account (CPS Dialog 2018). According to the representative of a trade union covering various medical professions (INT9), all tools implemented

35. Details on the composition and history of this team are currently not available.

by amending acts or regulations were subject to consultation: opinions were submitted on the draft legal acts and discussed during meetings of relevant tripartite teams. However, it should be emphasised that the positions of trade unions and employers' organisations are not binding on the government. They may be taken into consideration, but this is not always the case.

It also seems that in the last two years, the consultation agenda within the aforementioned tripartite bodies has been dominated by current events, such as the COVID-19 pandemic or the recent influx of refugees from Ukraine. The implementation of digital solutions - if not related to these issues - was not a priority issue for the social partners. Also, certain issues that have long been the subject of disputes, such as the level of remuneration of middle-level medical personnel, seem to be a more important topic of discussion amongst stakeholders in the healthcare system. In the opinion of a participant in the aforementioned social dialogue bodies, the issue of digitalisation of healthcare, including the introduction of e-health tools, has sometimes been discussed among social partners in recent years. At the same time, she could not recall any in-depth discussion on the impact of digitalisation on various aspects of work in healthcare. In her assessment, the discussion could to some extent cover issues related to occupational health and safety (e.g. standards related to looking at a monitor screen). She also admitted that most of this dialogue involves the trade unions and employer organisations giving opinions on the draft legal acts. At the same time, the process is not always implemented completely correctly: sometimes the ministry does not meet deadlines, giving too little time to deliver opinions. Legislative changes can also be introduced through a parliamentary initiative (i.e. a member of the Sejm, lower chamber of parliament), which, unlike government drafts, allows the government side to skip the public consultation stage.

> *I do not remember any… maybe there was a specific topic mentioned somewhere on the occasion or on various matters, but generally I do not remember such a topic… that it should be discussed more extensively. (...) More by the way, or when discussing that another element of the e-health system is being introduced. It was more in the form of issuing opinions on legal acts or regulations if new elements were introduced. (INT12)*

3.5.3 Trade union approaches and priorities for the collective bargaining agenda on digitalisation

Due to the lack of collective bargaining, we can only discuss broader attitudes of trade union representatives towards digitalisation, which may result in them issuing specific positions in the course of social consultations conducted within tripartite social dialogue bodies. Based on the interviews, it can be concluded that these attitudes range from moderate interest (digitalisation is taken into account as a factor that may affect certain aspects of work, and therefore should be included on the agenda of the stakeholder debate, but not as one of the most important topics) to disinterest. An example of this other end of the spectrum was a representative of the trade union

for radiographers, who declared in the interviews that he did not see digitalisation as a significant issue that required discussion or a specific intervention from public policy makers.

However, the attitude of the representative of the nurses' trade union is different, as she works in the intensive care unit on a daily basis and sees the influence of digital tools on the situation of her professional group. It was this respondent who described the greatest shortcomings of the tool implementation process. She said, among other things, that nurses are not consulted on these tools at either sectoral or hospital level, which makes the implementation process worse than it would be if their opinions were taken into account.

> *If the nurses could be more involved in the preparation of these documentation applications, or in the implementation of this documentation in the hospital, it would make our work easier. Because the worst way to learn is to learn from mistakes. And we could learn together with the person who introduces it. (INT10)*

From the perspective of this respondent, the only form of interaction related to the digitalisation process were conferences organised by the Ministry of Health, but these were only intended to inform employees about the new tools – the role of nurses participating in them was thus completely passive. She also pointed out that the issue of digitalisation was on the list of ten points of contention during a collective dispute initiated at her hospital in 2020 and still pending. The nurses are calling for unified digital medical documentation between wards and the implementation of a training system related to it.

3.5.4 Conclusions on the sector

The impression may be given that only part of the medical community sees digitalisation as a problem that requires in-depth debate and consideration of the views of employees. These are the nurses, who have been experiencing problems resulting from excessive workload due to labour shortages for years. Within the institutional framework in Poland, it is very unlikely that these tools will become the subject of social dialogue in a way that is binding for policy makers. There is no collective bargaining in the sector and the government side arbitrarily decides which views of the social partners will be taken into account. The functioning of the healthcare system is regulated exclusively by means of legislation. In order to effectively influence the situation of the employees they represent, trade unions must focus on involvement in tripartite social dialogue bodies at the national level, and this is often not enough to push through their demands, of which those related to digitalisation are seen as less important. Hence, in addition to participating in tripartite bodies, in recent years unions have been forced to organise protests, such as 'White Town' – a protest occupying tents set up at the site of the Chancellery of the Prime Minister.

Section 3.6 Overall cross-cutting sectoral conclusions

In all the sectors analysed, the impact of digitalisation on employment conditions is generally not a subject for collective bargaining. The reason for this is the general weakness of this form of social dialogue in Poland. While collective bargaining agreements exist in some sectors, notably in industry, for example in the electricity sector, even then they mainly cover basic or 'traditional' issues affecting employment conditions. The most common form of social dialogue are talks of a consultative nature within the relevant tripartite teams of the Social Dialogue Council. By participating in these, as well as by submitting opinions on draft legal acts in their bilateral relations with ministries, social partners try to influence legislation, which is virtually the only mechanism for regulating public policies in individual sectors. Thus, we are dealing with a state-driven social dialogue system, in which the government side in many cases initiates certain changes – including digitalisation of certain public services – and the unions play a reactive role, adapting to the current direction of government activity.

The drawback of such a system is undoubtedly the fact that employee representation always remains a step behind the decision-makers, and its influence on the changes introduced in the field of employment is therefore limited. This is especially true of such dynamic phenomena as digitalisation. And although some social partners ignore these phenomena, middle-level personnel in particular may experience the negative effects of the introduction of new solutions without due consideration of the voice of employees and a thorough consultation process.

SECTION 4. RECOMMENDATIONS TO NATIONAL AND EU STAKEHOLDERS

Section 4.1 Recommendations to national stakeholders

Providing recommendations to national stakeholders is not a simple task in the light of the survey findings. They indicate at best average, and usually low, interest in digitalisation as a phenomenon affecting working conditions and requiring intervention by social dialogue organisations. The weakness of social dialogue in Poland manifests itself not only in the usually low level of unionisation - which affects the social legitimacy of these organisations - but also in the rather basic range of issues they deal with in their advocacy of workers' interests. Digitalisation is far down the list of interests of unions, which on a daily basis negotiate basic employment conditions or wage levels. There are some exceptions to this rule, such as the trade union for nurses (which is at the same time, by Polish standards, a highly representative organisation), but even in these cases, other issues on the social dialogue agenda seem to distract from the subject of this study.

The activities of social partners at the level of national policymaking are therefore reactive in nature - consisting of submitting opinions on draft legislation and rarely addressing the issue of digitalisation - and social dialogue at the sectoral level is almost absent in Poland. Nevertheless, a certain path for arousing trade unions' interest in these issues may be the company level. It is at this level that an effective social dialogue takes place in Poland in some cases, sometimes including collective bargaining; at this level, moreover, there are mechanisms such as the Social Labour Inspectorate (an institution for bottom-up monitoring of working conditions, falling within the competences of company trade unions). At the same time, participants in the survey were most likely to criticise the lack of mechanisms for consulting on the technical aspects of the ICT systems being implemented. One way in which unions could demonstrate their effectiveness vis-à-vis their membership would be by putting pressure on the authorities and managers of individual organisations/companies or their subsidiaries to take into account the voice of the users of the digital tools being implemented. Employees want to have a say in the design of the systems they use, as they know best how particular tools should be designed to enable them to work as efficiently and comfortably as possible. At the same time, implementation of consultation mechanisms seems to be relatively feasible.

Another issue, this time mainly concerning the national social dialogue, which shows some potential for interest on the part of trade unions, is the right to disconnect. Both the survey and some of the interviews, especially in the public administration, show that this is an important issue for workers. Trade unions should take these views of representatives of their membership into account and make more vigorous efforts to introduce appropriate legislative solutions on this issue.

Section 4.2 Recommendations to European stakeholders

There was no response to the question on recommendations to be addressed to European stakeholders from the trade union leaders interviewed. Therefore, an additional interview was conducted with a representative of a peak-level trade union organisation.

In the view of the interviewee (INT13), trade unions in Central and Eastern Europe mainly expect binding legal regulations - at both EU and national level - to protect workers' rights, working conditions and workplaces. This is related to deterioration of trade union power and of the role of collective bargaining in this part of the European Union. From this point of view, trade unions are pinning some hopes on the European Commission's Communication on Social Dialogue, due in the first half of 2023. It is supposed to address, among other things, the question of the possibility of transforming European social partners agreements into 'hard rules', in the form of a directive. The planned communication comes in the wake of an ECJ ruling unfavourable to trade unions, which gave more leeway to the European Commission to decide on social partners' requests for the transformation of ~~autonomous~~ agreements into a directive. Trade unions hope that the Communication will indicate the way forward for how such a transformation mechanism would work and clarification of its legal status. They also expect the ETUC and the sectoral European organisations, including EPSU, to actively lobby representatives of the European Commission to propose solutions favourable to the unions.

In the opinion of the interviewee, the current framework agreements of the European social partners, for instance on digitalisation, play a positive role, but they are not binding and their implementation does not always bring tangible results in terms of improving working conditions or establishing solutions to the challenges of digitalisation. The value of these agreements is to initiate discussions at national level, raising awareness among different stakeholders, including employers and legislators, for example on the issue of the right to disconnect.

The interviewee pointed out that there are situations where dialogue at EU level is used as an excuse by the national government to stop legislative work. Such a situation is encountered in relation to the current negotiations at the EU level on the regulation of the right to disconnect. The Polish government does not want to take up this (inconvenient) topic with the national social partners until the negotiations at EU level are completed. From this point of view, it is important to have a timetable for the negotiations at EU level and to coordinate this work with the national unions in order to aim for solutions that are favourable to workers, and to deliver them in an acceptable period of time.

Another far-reaching recommendation made by INT13 is the establishment of a trade union capacity-building funding mechanism, which would be anchored at EU level. The task of such a fund would be use public funds to support activities directed at increasing the capacity of the

social partners to conclude collective agreements - especially at sectoral level, as well as transnational company agreements (TCAs) - and to organise workers. Current EU sources of funding address issues other than these priorities. While trade unions are of course keen to benefit from funding for research and social dialogue, these funding mechanisms do not necessarily address the key needs of CEE trade union organisations.

According to INT13, Polish trade unions (but also unions from Central and Eastern Europe more broadly) express their dissatisfaction with the ETUC's soft stance on the role of transnational company agreements, which was expressed during the 14th Congress in Vienna in 2019. Polish unions would like to see TCAs as a binding instrument – through an optional legal framework – for upward convergence of social standards and working conditions in multinational companies and sectors, transnationally. The European sectoral social partners as well as the European works councils play a key role in this process. At present, it is only possible for trade unionists from national branches of transnational corporations to exchange experiences and try to push head offices towards the adoption of uniform corporate standards. However, there is no instrument in the form of a TCA, which would enable the conclusion of binding agreements with the status of hard regulations.

In the next stage - when priority, binding and sustainably raised labour standards in the EU have been resolved - it will be worthwhile to have activities such as exchanges of experience and knowledge between trade unionists from different countries concerning digitalisation. Many levels of exchange of such experiences can be imagined, e.g. with regard to the implementation of Recovery and Resilience plans, in which considerable resources are to be allocated to digitalisation ([36]), or regarding the European Green Deal, which presents digitalisation as a way of reducing CO2 emissions. There is also a need for training for union leaders to familiarise them with the risks of digitalisation, and with solutions from other countries to protect workers' rights and working conditions (good practices). On the other hand, at the national level, there should be appropriate funding mechanisms for training workers to acquire the necessary competences, for upskilling, reskilling, etc. in the context of the digitalisation of workplaces.
In the final part of the interview, the interviewee regretted that Polish trade unions are not very familiar with the threats and regulatory loopholes that enable digital business giants to operate as they do. In contrast to NGOs dealing with the digitalisation of the economy, trade unions do not raise the issue of fair taxation of digital business in order to use resources at the national level where added value is generated, or the issue of regulations preventing manipulation, the spreading of fake news or the influencing of democratic procedures.

36. It is worth noting that the European Commission has still not released RRF funds for Poland due to justified doubts over breaches of the rule of law. From this point of view, it would be helpful to benefit from the experience of other countries which are already advanced in the implementation of RRF projects.

SECTION 5. REFERENCES

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Annex 1. List of interviews

ID	Gender	Institution	Sector	Occupational group	Position	Date	Method
INT1	M	National Section for Power Plants of NSZZ 'Solidarność'	Electricity		Chairman of the National Section	20.05.2022	phone
INT2	M	National Energy Section of NSZZ 'Solidarność'	Electricity		Chairman of the National Section	13.05.2022	phone
INT3	M	Manager at ENEA	Electricity		Manager at energy company responsible for digital processes	17.05.2022	phone
INT4	M	National Energy Section of the All-Poland Alliance of Trade Unions of Continuous Process Industry Employees	Electricity		Chairman of the National Section	17.05.2022	phone
INT5	M	National Energy Section of the Trade Union of Engineers and Technicians	Electricity		Chairman of the National Section	13.05.2022 and 17.05.2022	phone
INT6	M	National Section of Government and Local Government Administration Employees of NSZZ 'Solidarność'	Public administration		Member of the Board	10.06.2022	phone
INT7	M	National Section of Government and Local Government Administration Employees of NSZZ 'Solidarność'	Public administration		Secretary of the National Section	07.07.2022 and 08.07.2022	phone
INT8	F	Trade Union of the Workers of Social Insurance Institution	Public administration		Chairwoman of the union	16.05.2022	phone
INT9	M	National Healthcare Section of NSZZ « Solidarność »	Hospitals		Expert, adviser	27.04.2022	Ms Teams

INT10	F	All-Poland Trade Union of Nurses and Midwives	Hospitals	Nurses	Member of the National Board	10.06.2022	Google Meets
INT11	M	All-Poland Trade Union of Radiographers	Hospitals	Radiographers	Chairman	28.05.2022	phone
INT12	F	Al-Poland Alliance of Trade Unions (OPZZ) - Public Services Section	Hospitals		Chairwoman of the Public Services Section	11.08.2022	Face to face interview
INT13	F	Expert Office, NSZZ 'Solidarność'	Cross-sectoral		Expert	04.01.2023	Face to face interview

Annex 2. List of focus groups

Public administration – 17.08.2022 – online – 2h 10min

ID	Gender	Trade union affiliation	Sector	Occupation
FG1	F	Warsaw City Hall, Confederation of Labour	Public administration	Manager
FG2	F	Szczecin City Hall, Confederation of Labour	Public administration	HR specialist
FG3	F	Szczecin City Hall, Confederation of Labour	Public administration	Accountant
FG4	F	Job centre in Warsaw, Confederation of Labour	Public administration	Employment agent
FG5	M	Job centre in Warsaw, Confederation of Labour	Public administration	Employment agent
FG6	M	Financial Supervision Authority, Confederation of Labour	Public administration	Auditor
FG7	M	State Fund for Rehabilitation of Disabled People, Confederation of Labour	Public administration	Support Service (SOW) specialist

Electricity sector – 25.08.2022 – online – 1h 56min

ID	Gender	Trade union affiliation	Sector	Occupation
FG8	M	National Energy Section of the All-Poland Alliance of Trade Unions of Continuous Process Industry Employees	Electricity	Dispatcher
FG9	M	Association of Energy Workers' Unions, PGE Dystrybucja in Łódź	Electricity	Electrician
FG10	M	Association of Energy Workers' Unions, Tauron Polska Energia	Electricity	Electrician
FG11	M	National Energy Section of the Trade Union of Engineers and Technicians	Electricity	Administrative worker

Hospitals sector – 6.10.2022 – online – 1h 51min

ID	Gender	Trade union affiliation	Sector	Occupation
FG12	F	none; A representative of the 'Digital Nurses' Association	Hospitals	nurse
FG13	F	none	Hospitals	laboratory diagnostician
FG14	F	none	Hospitals	head of the hospital's medical records department
FG15	M	none	Hospitals	head of the hospital's ICT department
FG16	M	none	Hospitals	ICT technician
FG17	M	National Section of Healthcare of NSZZ « Solidarność »	Hospitals	physician, doctor of medicine