

RESEARCH IN THE FRAMEWORK OF CESI'S PROJECT "DIWORK - DIGITALISING PUBLIC SERVICES: MAKING IT WORK FOR CITIZENS, BUSINESS AND WORKERS"

EXECUTIVE SUMMARY

2022

Executive summary

The executive summary presents the purpose, methodological approach and key findings of the research commissioned by the European Confederation of Independent Trade unions (CESI) and carried out by Visionary Analytics in the framework of CESI's project "DiWork – Digitalising public services: Making it work for citizens, business and workers", carried in March 2021 - March 2022.

Rationale and scope of the study

The overall objective of this study is to support CESI member organisations (trade unions) in better understanding digital transformation of the public sector, its impacts for workforce, and the way they can support workers through the process of digitalisation.

Usage of digital tools for work purposes and associated developments (e.g., telework) in the public sector have been gaining momentum since the beginning of the 21st century, and have been further accelerated by the COVID-19 pandemic. It is widely acknowledged that digitalisation can make public services more accessible, efficient and of higher quality, while simultaneously bringing economic benefits (e.g., cost-savings) and meeting growing citizens' expectations. However, the central role of workers is often downplayed in the process of digitalisation, as their needs and interests are rarely reflected in how the digital tools are designed and implemented in workplaces. Digitalisation significantly impacts workers, especially in terms of what skill they are required to have to work in an increasingly digital age, and how their working conditions are changing.

In this vein, digitalisation is of key importance for trade unions whose purpose is to protect the interests and wellbeing of workers through maintaining and improving their working conditions. To this end, trade unions should be knowledgeable about digitalisation to be able to support and guide workers through the fair and safe digital transformation in their workplaces.

In terms of the scope, the study focuses on the digital transformation in the four sectors most relevant for CESI¹:

- **Central government administrations, local and regional administration** in all levels and sections of government, agencies and public bodies;
- **Education and training**, with a focus on teachers and educators in primary, secondary and tertiary education as well as Vocational Education and Training (VET);
- **Health services**, in particular hospital staff, nurses and physicians;
- **Postal services.**

Thematically, the study addresses the topics of 1) digital evolution and trends, 2) drivers and opportunities of digitalisation, 3) barriers of and risks associated with digitalisation, 4) implications of digitalisation on work organisation (i.e., working conditions), 5) trade union response (approach and potential actions) to digitalisation, as well as 6) European initiatives in the field of digitalisation of the public sector. The study lists practical recommendations for trade unions on how to support workers through digitalisation. The report is complemented by good practice examples which present exemplary actions and efforts of CESI members and other trade unions (as well as workplaces) that seek to actively address the challenges and reap the benefits of digitalisation.

Methodological approach

The report draws on data collected through a range of methodological tools:

¹ In addition, the study touches upon digitalisation in additional three sectors where large shares of CESI's affiliates are employed, i.e., security and justice, defence and transport sectors.

- **Desk research**, including data from academic and grey literature (e.g., reports by international organisations, European Union agencies, private consultancy companies) and statistical data from OECD, Eurostat, relevant national and international surveys.
- **Survey of CESI members**. The survey was tailored for 6 focal sectors and contained questions that would help to understand trade unions' attitudes towards digitalisation, including the perceived effect it has on workers and their working conditions. Twenty out of 42 CESI members (47%) that were invited to respond to the survey provided complete answers. The sectorial distribution of responses is as follows: 12 for central government, local and regional administrations sector; 10 for education and training sector; 7 for health services sector; 1 for postal services sector; 3 for defence sector, and 3 for security sector.
- **Interviews with CESI member representatives**. Seven interviews were carried out with representatives of SPELC, SDMCG, EUROFEDOP, ALE, ATCEUC, CISAL, FISMIC and FASGA. Interviewees were selected based on their ability to identify and share any good practices of how they approach challenges related to digitalisation in public sector.

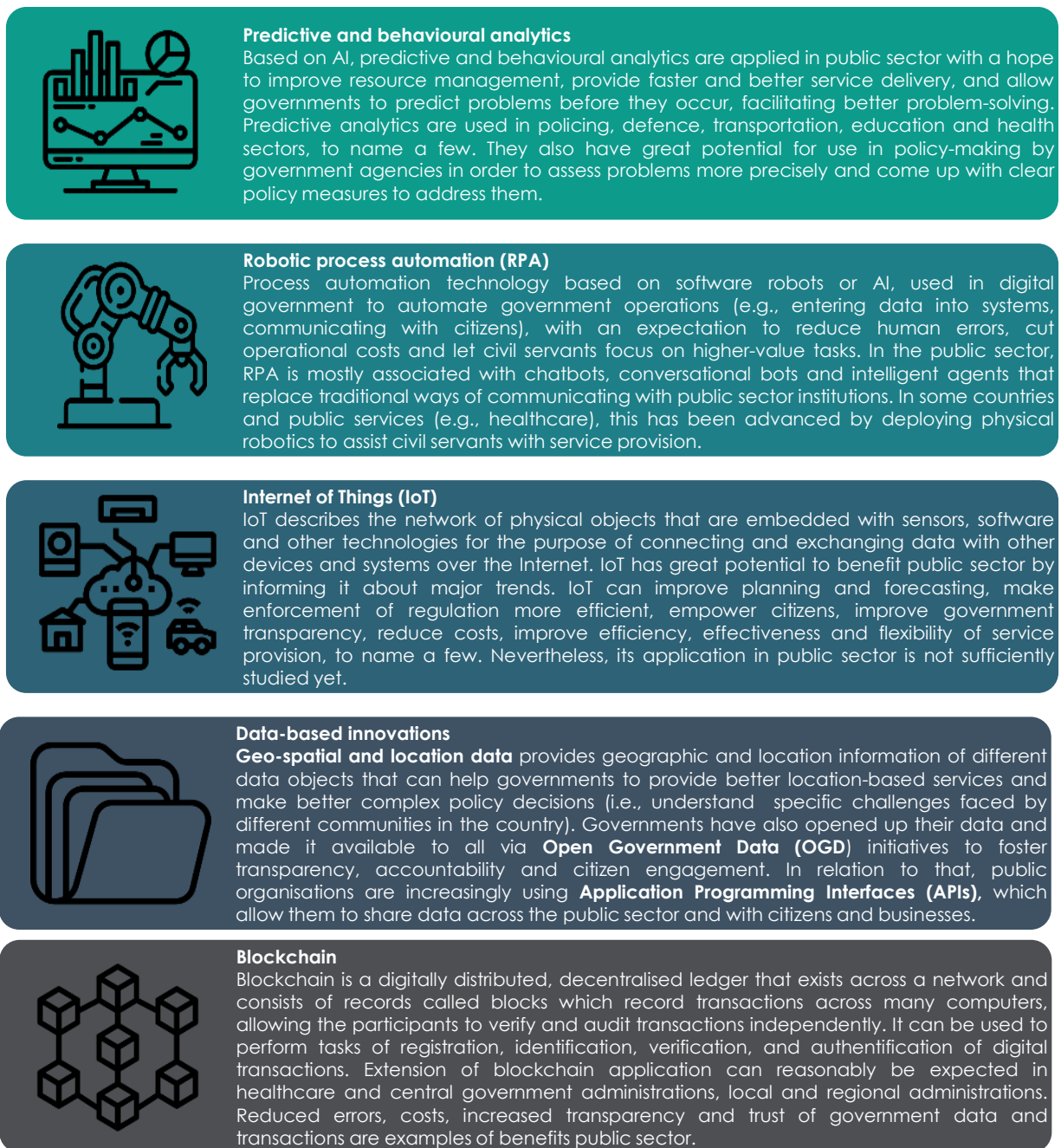
Key findings

Overview of digitalisation in the public sector

Digital evolution and trends

The potential to adopt new digital tools in the public sector was already evident in 1990s with the dawn of the digital age. Since then, the public sector went through several stages of digitalisation, moving from traditional (face-to-face, bureaucracy-oriented) service provision to eGovernment, and then to a more holistic Digital Government, which is integrated, open, smart, and transformed, fostering participation of and collaboration with citizens. This shift goes beyond digitalisation of services and includes improving internal processes, structures and working practices, which in turn affect the workforce significantly. The most widespread digital technologies applied in the public sector are illustrated in Figure 1.

Figure 1. Key digital technology developments utilised in the public sector



Source: author's own elaboration based on multiple sources.

Drivers and opportunities of digitalisation

The rationale behind digitalisation of the public sector centres on growing citizens' expectations, expected economic benefits that digitalisation can bring and constant technological advancements. Firstly, private sector innovations made citizens accustomed to accessible, high-quality, simple digital services that are personalised, facilitated by transparent and efficient providers. In turn, citizens expect to receive the same kind of services from the public sector as well. Secondly, besides the opportunity to better respond to citizens' needs, digitalisation also offers public sector a chance to gain economic benefits, namely to work more efficiently,

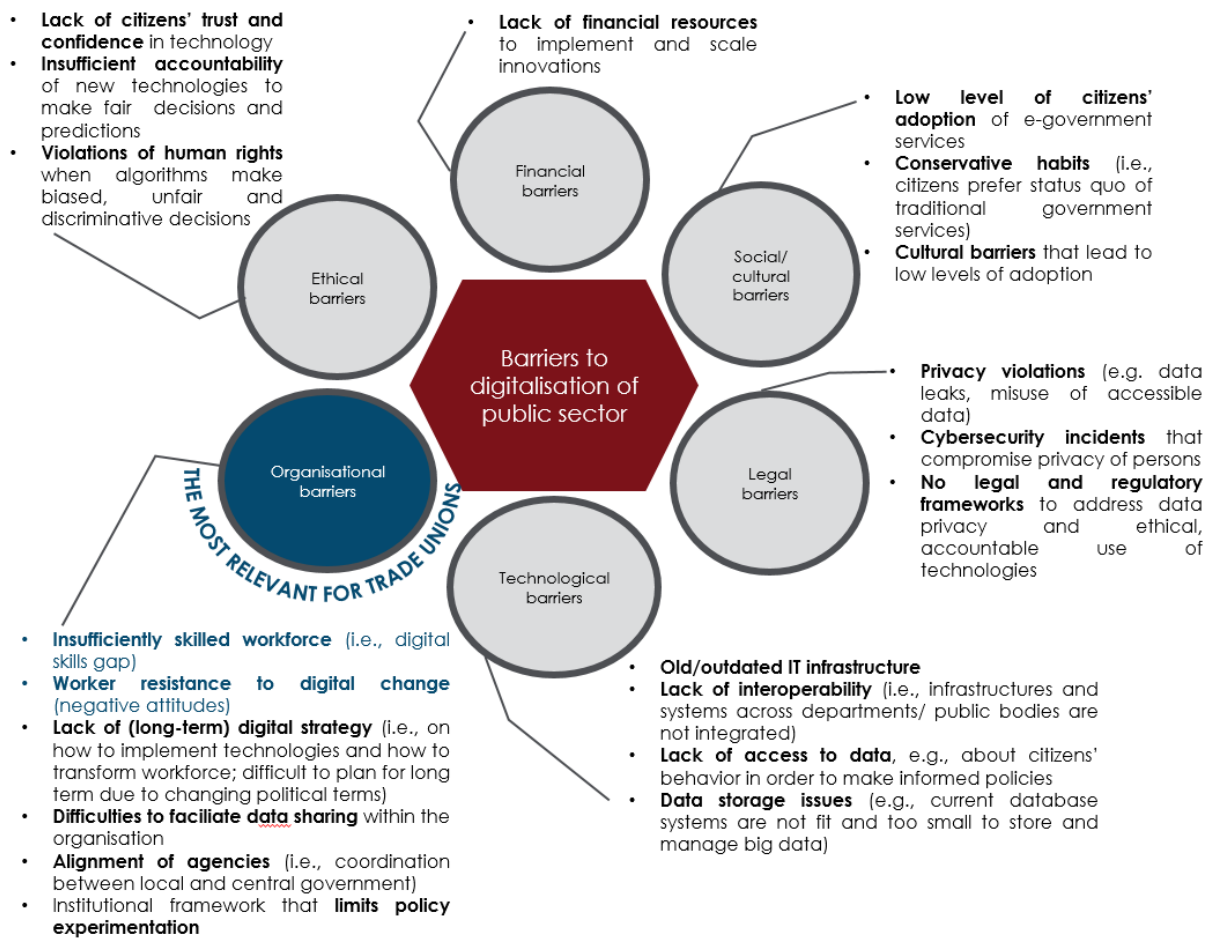
effectively and increase cost savings. Finally, constant technological advancements expand the range of possibilities for the public sector to apply digital tools in new ways (see Figure 1). Since citizens are likely to have even higher expectations, public sector institutions are likely to continue looking for ways to improve service provision and functioning of the sector, and technological advances are not likely to cease- digitalisation of the public sector is rather inevitable and is likely to only speed up and have even more significant impacts for the workforce.

The importance and inevitability of digitalisation was further highlighted by the COVID-19 pandemic. On one hand it made public sector to complete years of anticipated digitalisation in a few weeks, showing that it is capable on adapting and relying on digital tools for service provision. On the other hand, it pointed out the unpreparedness of many organisations and of the workforce to go through digital transition.

Barriers of and risks associated with digitalisation

It is important to not overemphasize the positives of digital transformation as it can also bring negative effects to all stakeholders involved. For example, digitalisation can lead to discrimination and biases towards certain groups of labour force; it can cause confusion as to who is responsible for how new technologies work and affect citizens and workers; it can cause data privacy and cybersecurity concerns. These and other concerns prevent public sector from digitalising (see Figure 2). Barriers and issues that are of the most relevance to trade unions relate to workers' capacities and attitude towards digitalisation.

Figure 2. Barriers to digitalisation of public sector



Source: Barcevičius, E., et al., 2019; 57; Riedel, 2021; Lemke et al., 2021; UN, 2020; Ostroff, 2006.

Recommendation: trade unions should be aware about the current and foreseeable key developments of digitalisation and how these developments affect workers in practice. To this end we recommend for trade unions to:

- Conduct surveys of workers or organise discussions where they could share their experiences with using digital tools for work, and how it impacts them on a daily basis. This would allow trade unions to hear a first-hand experience and learn more about how digitalisation of workplaces look in practice. Such discussions could also involve employers.
- Make an effort to identify and follow relevant research on digitalisation and its impacts on workers, e.g., European Commission's eGovernment benchmark, thematic ILO, JRC, Eurofound, other studies. This study can provide a useful starting point to identify the most relevant research, which also includes studies that are predicting future trends.

Workers' attitudes

Workers' attitude towards digital change can be a barrier to digitalisation and is an important element that trade unions can shape and thus help workers to cope better with the change. Workers' attitudes towards digitalisation are informed by a range of factors, including their previous experience with digital tools, their level of digital skills, as well as if they see evidence that it will be beneficial for them.

Workers tend to resist digitalisation due to a few reasons:

- They do not believe that their organisations are prepared for it. CESI members from healthcare and central, local, and regional government administrations believe that in workers' opinions their workplaces are ready for digitalisation. Workers in the education and training sector have slightly less in the organisational preparedness of schools to go through digital transition.
- They fear organisational change. Civil servants are more risk averse towards organisational change generally, as they fear the unknown and especially the possible negative outcomes of the change. However, more CESI members believe that workers do not fear digitalisation and would not like to avoid it
- They are not sufficiently involved in the process of digitalisation. Workers may resist digitalisation if they are not consulted when digital tools are introduced in their workplaces, making them feel like they have no say in the matter and can in no way influence the change. Generally, civil servants tend to be less confident that their employers would involve them in decisions about introduction of new technology. CESI members representing workers from the health sector confirm this finding by indicating that employees feel like they do not have a choice in and an influence over how their work is being digitally transformed. Nevertheless, trade unions from education and training and central, local, and regional government administrations sector remain more positive.

All in all, CESI members' survey revealed that workers in the public sector hold rather positive attitudes towards digitalisation. They do not fear it, and, on the contrary, are eager to take part in it (with the exception of the central government, local and regional administrations sector).

Digitalisation is not only about providing workers with a functioning digital equipment; it requires long-term vision and plan on behalf of employers, who should be able to justify digitalisation to workers, clearly stating its purpose and putting in place strategies to help workers to adapt to the change. Such approach makes workers perceive digitalisation as more of a positive development if they fully understand its purpose and its possible effects on their work.

Recommendation: trade unions can shape workers' attitudes towards digitalisation in order to create an environment where workers do not fear the change and are willing to support it. To this end we recommend for trade unions to:

- Through discussions identify information needs of workers, i.e., what kind of information they lack or would be interested in (e.g., statistics of the spread of teleworking, upcoming trends and new

technological advancements, legislative initiatives that affect their work, how they can benefit from digitalisation and what disadvantages they can expect, etc.)

- Organise awareness-raising campaigns to provide workers (especially those unaware about the potential of digitalisation) with the most relevant information on digitalisation and its impacts. This can range from simply sharing the link to relevant studies, news articles, blog posts via email or social media, to producing and sharing periodical newsletters, where the most relevant information is summarized in an easy-to-read way.

Digital skills

Digitalisation changes the competence requirements for workers, increasing the demand for digital skills - a mix of hard and soft skills, a convergence of technical and creativity ability. As the employment is growing in knowledge-intensive sectors and declining in agriculture and manufacturing sectors, most of the workforce in Europe (90% of occupations) is required to have at least some kind of digital skills (mostly such basic skills as using a word processor, searching for information using ICT, communication through email, video calls). More advanced digital skills (such as programming or using software for design, calculation, or simulation) are required of such occupations as professionals and technicians. Workers who lack basic digital skills have difficulties in finding employment and lack better income prospects.

Nevertheless, despite this proven importance of digital skills in today's labour market, around 34% of European labour force lacked basic digital skills in 2019. The digital proficiency tends to be lower among older people, those with lower levels of education, and those residing in Southern, Central and Eastern Europe (as opposed to younger population with higher levels of formal education living in Western and Northern Europe). Digital skills gap is a key barrier to digitalisation, which makes digital transformation more of a struggle to workers who are not skilled in using digital tools on a daily basis for their work purposes.

Recommendation: trade unions could make an effort to narrow the digital skills gap, which is the major barrier to digitalisation, preventing workers from enjoying any benefits it has to offer. To this end we recommend for trade unions to:

- Advocate for facilitation of training for workers on the necessary digital skills and the use of specific digital tools before/while they are set up in workplaces. Encourage employers to provide workers with training opportunities that are accessible (i.e., at convenient time and place, not expensive) and relevant (i.e., tailored to specific needs of individual workers/worker groups)
- Make an effort to identify (e.g., through surveys of workers or employers) or learn through published research about what kind of skills are and will be needed for workers in the future.
- Allocate part of trade union resources to organise training on digital skills, e.g., train in-house staff to provide these trainings or hire external professionals and organise periodical training sessions to update digital skills or one-off trainings on the use of specific software.

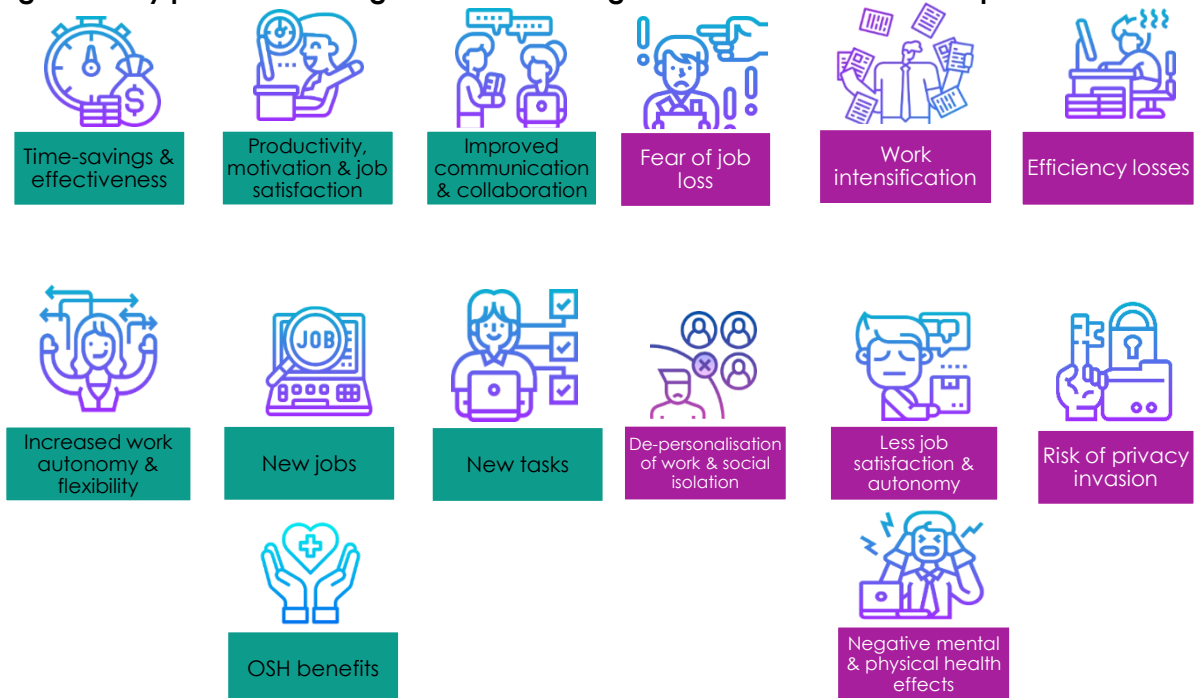
Implications of digitalisation on work organisation

Digitalisation changes how work is organised in the public sector, as it introduces new processes to provide public services, new management methods and techniques, as well as new ways of working. The four key changes in work organisation due to digitalisation are the following:

- **Flexible working arrangements** (telework). The prevalence of workers using flexible working arrangements is increasing, although they remain less popular in the public sector.
- **Automation**. Around 22% of jobs in Europe (most likely those consisting of manual tasks) could be automated by 2030, which is especially alarming for postal and courier activities in the public sector.
- **New forms of worker management** expose workers to increased levels of surveillance and monitoring, especially as a result of the pandemic.
- **Changes in human-machine interaction**, as workers are no longer controllers of digital devices, but are also supervising their work.

Such transformation means that workers experience changes in their work environments. These changes in work organisation have the potential to bring both benefits and disadvantages to workers (see Figure 3).

Figure 3. Key positive and negative effects of digitalisation on workers in the public sector



While on one hand, telework, for example, can give workers more autonomy and flexibility, on the other, it can intensify their work and blur their work-life balance. Similarly, while new ways that workers are managed can decrease occupational safety and health risks, on the other hand it can cause them mental health problems such as increasing levels of work stress. This shows that digitalisation is not a good or bad development in itself as its outcome and the impact it has on the workers depends a lot on how well the process is designed and implemented, if workers' needs are taken into account. To this end:

Recommendation: trade unions should be active in consultations and negotiations on the implementation of new technologies in workplaces in order to represent workers' need regarding digital tools and how they could be applied. Therefore, we recommend for trade unions to:

- Highlight to employers the importance of a fair digitalisation process which requires participation of workers. If needed, actively encourage employers to set up consultations with worker representatives before they plan adopting digital tools.
- Gather workers' opinions/views on digitalisation or use of a specific tool before the consultation, and actively participate in consultations and/or negotiations with employers representing those views.
- Assess whether new digital tools planning to be developed/implemented benefit workers and respond to their needs, what are the potential risks and whether there are mitigation strategies in place.

Trade union response

Trade unions play an important role in both reacting to but also shaping digitalisation. As digitalisation is an inevitable development that has been accelerated even further in the recent years, it affects workers to a great extent and is therefore a matter of concern for trade unions. They need to react by representing workers' needs and making sure that their working conditions are not deteriorating because of digitalisation.

Large majority of surveyed CESI members approach digitalisation positively, believing that it is a much-needed and an integral part of transformation of the organisational culture in their sectors.

Most also believe that digitalisation will bring more opportunities than risks, signalling their positive attitudes.

Trade unions also show awareness and confidence in their capacity to support workers through digitalisation, as most of them indicated they have the knowledge and skills required to successfully address workers' interests in the context of digitalisation. However, large share of trade unions in each sector (especially healthcare sector) remains sceptical on whether the organisations in their sectors are prepared for digital transition.

Trade unions are not always involved in the process of digitalisation, not consulted on what digital tools are wanted by workers, when and how they should be designed and implemented. Trade unions are also rarely given a chance to assess digital technologies for their quality, usefulness, and relevance.

Recommendation: trade unions should acknowledge that they can and should play a key role in the process of digitalisation, putting digitalisation on their agendas, realising that it is a relevant and important development that they can shape and support workers through. To this end we recommend for trade unions to:

- Pay more attention to digitalisation by approaching it as a key development that affects workers and required trade union involvement.
- Draw inspiration from the examples in which trade unions adopt an active stance in providing support and advocating for workers' interests in the context of digitalisation. A number of such examples had been provided in this study as well.

Recommendation: trade unions that represent workers from private and public sector can facilitate knowledge exchange between two groups of workers, considering that workers in the private sector are more likely to already have experience and knowledge on how it affects their day-to-day job, skills and working conditions. Trade unions can:

- Organise workshops or discussions between workers in the trade union from different sectors and industries to facilitate dialogue on digitalisation.

EU initiatives

Digitalisation is an important political topic for European Union and currently one of the key six strategic priorities of the European Commission. Abundant strategies, policy papers, legislative proposals exist that could be relevant for workers as well as trade unions in understanding digitalisation, its principles and direction.

Recommendation: trade unions should make use of the wide variety of available regulatory, financial and informational instruments that can offer support to workers through digitalisation. Trade unions can:

- Consult existing national and EU-level regulatory instruments (e.g., White Paper on AI, Declaration of Digital Principles) to be aware about the values of digitalisation that employers should respect in digitalising workplaces. If need be, use these instruments to advocate for workers' interests through social dialogue and collective bargaining.
- Be aware of and use informational instruments (e.g., Digital Skills and Jobs Platform) to find relevant up-to-date information related to digitalisation, as well as good practices to draw inspiration from.
- Be aware of, use and encourage employers to use available financial instruments that fund development of workers' skills or development of digital tools that would support workers.

Recommendation: trade unions should not miss a chance to contribute to policy-making at the national and EU level by participating in the stakeholders' consultations on digitalisation and related topics. We recommend that trade unions:

- Stay informed about the ongoing and planned public stakeholders' consultations set up by national and EU-level policy-maker: follow news on the policy-makers' websites, social media or through networks with other trade unions.
- Actively seek to participate in available public stakeholders' consultations and contribute by providing practical insights and representing the real workers' attitudes and needs

- Advocate for greater/new regulations when workers recognise the need to update, change or complement the existing rules or laws that are outdated/insufficient (e.g., on telework). This can be done through discussion with employers, ministries and other regulatory bodies.

Sector-specific findings

Central government, local and regional administrations

Governments are key enablers of the digital transformation in the entire public sector as they hold crucial databases and registries, as well as controls state budget and has the power to set priorities and strategies. At the same time, administrations are adopters of innovations, which have the potential to completely transform the way citizens interact with governments to obtain public services, including transforming the work of government staff. Ministries, government agencies and municipality administrations are exploring the ways to apply predictive and behavioural analytics (e.g., in fraud detection, social care), robotic process automation (e.g., benefit calculations, answering citizens' queries), Internet of Things (e.g., smart parking solutions, smart waste management systems), data innovations (e.g., using interoperable base registries, geo-spatial data), blockchain (e.g., land registration, identity management, voting).

The overall performance score of EU countries in digitalising public services (i.e., offering services online, informing citizens on the use of their personal data, allowing use of electronic documents, making services accessible for non-domestic users) stood at 68% in 2021. Such rate of digitalisation suggests that workers in the administrations have been seeing significant changes to how their work is conducted. These changes were further sped up by the COVID-19 pandemic as the political attention to the topic of digital transformation increased and administrations started investing in digital infrastructure.

On one hand, the application of digital technologies in the sector offers the opportunity to make public services more efficient, participatory, accessible, and benefitting citizens. In addition, digitalisation can also benefit the workforce in the central government, local and regional administrations (e.g., by making their communication more efficient, offering time-savings and more flexibility, etc.). On the other hand, there are multiple risks and significant barriers that prevent digital transition or make it more difficult (e.g., poor technological infrastructure, regulatory uncertainty, cybersecurity risks, etc.). Workers are also exposed to negative effects of digitalisation, ranging from fear of job loss to mental and physical health issues.

CESI members' survey suggests that some workers in the sector may resist digital change because they feel overwhelmed and uncertain about the change, as well as feeling that they cannot influence the process. Nevertheless, at most workers perceive digitalisation as a positive rather than a negative development.

Digitalisation has influenced competence requirements for the workforce in the sector and CESI members believe there is an increased need for cognitive (e.g., adaptability, logical reasoning) and self-leadership skills (e.g., self-awareness, coping with uncertainty). Every government official should be expected to have a foundational level of digital government user skills (e.g., ability to recognise the potential of digital transformation, trustworthy use of data and technology, etc.) as well as a blend of socio-emotional skills (e.g., creativity, big picture thinking, problem solving, empathy, adaptability, etc.). However, staff in the government administrations is not always equipped with these digital skills and is still lacking adequate, practical, and tailored training on how to use digital tools for work.

Education and training

The education and training sector (including primary, secondary, tertiary education and vocational education and training (VET)) utilises technology for pedagogical reasons in order to enhance learning experiences and prepare students for the digital future of work. Nowadays teachers are using a wide range of different digital tools and technologies in their daily jobs, ranging from mobile phones, tablets and laptops, programs, and software for communication (e.g., Zoom, social media), interactive whiteboards, online resources and courses (e.g., e-textbooks) to such advanced technologies as Virtual Reality (VR) (e.g., for anatomy or surgery training) or Artificial Intelligence.

Despite growing investments in digital education and upward trends in the use of ICT for teaching, the full potential of digital technologies for learning and teaching has not been reached. Prior to the pandemic teachers in primary and secondary schools did not use digital technologies intensively (at most in 20%-50% of their lessons). The most common function for the use of ICT was in class teaching, followed by preparation for lessons. The digitalisation is more advanced in tertiary education: as of 2020, all of the surveyed European higher education institutions were using ICT for teaching and half of them were using it widely (although it remains difficult to measure to what extent digital tools are used in meaningful ways). As for VET, current average VET school contains a mix of digital technologies used by teachers and trainers (ranging from basic technological devices to more advanced innovations such as VR). The uptake of digital tools for teaching had been sped up by the outbreak of the COVID-19 pandemic which has changed the way education system works, introducing changes that are likely to remain after the crisis.

Digitalisation offers opportunities for students (e.g., increase in motivation, better learning outcomes) as well as general positive socio-economic impacts (e.g., wider access and inclusion to education). The particular benefits of digitalisation for education and training staff ranges from increase in professional autonomy and academic freedom to less stress. Nevertheless, digitalisation also increases the risk of exclusion and inequalities among students, as well as risk of worse learning outcomes, data and privacy issues. The latter together with work intensification, fear of job loss and loss of authority are a few of the key negative implications of digitalisation felt by workers specifically.

Lack of interest of teachers, or even resistance to change, is a significant barrier to digitalisation as for teachers to successfully integrate digital technology into education a positive mind-set towards technologies is required. Openness to innovation amongst teachers is lower in many European countries than in other parts of the world, but still teachers hold rather positive attitudes towards digitalisation, mostly appreciating the positive outcomes it can have for students. CESI members from the sector also indicated that workers do not fear digitalisation and see it as a way to work more efficiently and engage in new tasks.

As teachers are key facilitators of digitalisation of teaching, they must have technical competences (such as ability to identify, choose and effectively use digital resources and tools, solve technical problems) as well as soft skills which would enable them to deal with risks related to inclusion and inequality among learners or any ethical questions. CESI organisations think that in the past five years the demand for technical digital skills and interpersonal skills has increased in the sector. Notwithstanding these expectations of digital literacy, in 2018 less than 40% of educators across the EU felt ready to use digital technologies in teaching. The pandemic had also exposed teachers' lack of experience and knowledge in digital teaching, as even younger more tech-savvy teachers struggled to rely on ICT for teaching.

Health services

Healthcare sector is facing complex issues (e.g., ageing populations, increasing demand for healthcare, shrinking workforce, rising multi-morbidity, unequal access to healthcare, etc.) as well as changing public expectations (i.e., patients that are more empowered and no longer just

passive recipients of care). Digitalisation is seen as a way to assist the sector in responding to such developments by using ICT in health products, services and processes (referred to as eHealth). eHealth includes usage of electronic health records (EHR), personal health records (PHR), online health information exchange (HEI), ePrescribing and eAppointment, telehealth, mobile health, assisted living technologies, data-driven automation, prediction, and decision support.

Historically, healthcare sector had been behind other industries in terms of adoption of digital technologies. There has been some progress as the adoption of eHealth in EU has increased between 2013 and 2018. The most widespread forms of digital health are HER, ePrescriptions and online appointment booking (eAppointment), followed by telehealth which has increased enormously during the pandemic. Next-generation technologies (e.g., robotics, genomics, artificial intelligence, virtual reality) are less common in European healthcare system.

Digitalisation of health services has the potential to bring positive outcomes for patients (e.g., empowerment, better access to healthcare, improved diagnosis, and treatment) and healthcare system (e.g., cost-savings, better health system management), as well as bringing socio-economic benefits (e.g., increased life expectancy). Health professionals can also benefit from digitalisation, as digital tools can support clinical decision-making, increase effectiveness in conducting hospital operations, improve their job satisfaction, etc. However, despite the promise of benefits, adoption of digital health is impeded by legislative, technical, financial, organisational and individual concerns and risks. Important concerns are centred around the negative effects that digitalisation could have for workers, increasing the fear of job loss due to automation, work intensification, as well as exacerbated negative mental and physical health outcomes.

Attitudes of healthcare professionals impact their willingness and motivation to use technology, and they depend on individual factors (e.g., workers' experience with technologies, attitude towards technologies), as much as on external factors (e.g., whether worker sees the evidence of how technologies can benefit them and/or patients). Healthcare professionals in Europe hold largely positive attitudes towards digitalisation when they perceive it as helping patients and supporting workflow processes, as well as when they are familiar with the use of technology. The results of the survey CESI member organisations from the sector draws a more ambiguous picture: trade unions think that workers perceive digitalisation as bringing more opportunities than risks and negative impacts, but also highlight that workers feel like they cannot influence the process and find the changes difficult to understand and bringing uncertainty.

Digitalisation has contributed to the expansion of the skill set that health professionals are required to have for their work as their roles are becoming more diverse. CESI members indicated that in the past five years the need for technical digital skills such as programming, data analysis and statistics has increased, as well as the need for cognitive skills (e.g., logical reasoning, problem solving, time management, etc.). Key digital skills for a future-proof health workforce include abilities to operate digital tools, critical appraisal of information and statistics, awareness and knowledge of digital security, digital health ethics, life-long learning mind set and interpersonal skills. Despite the apparent demand for digital competence, digital skills are often in short supply in the sector, as the share of health workers that lack digital skills to use technologies for work ranges 30%-70% in various studies. The need for digital skills was put at the front once again by the pandemic, which saw workers reporting the need to be trained on how to operate communication platforms (hard skills), manage uncertainty, or empower staff (soft skills). The training on digital skills appears to be insufficient, outdated or too simplistic.

Postal services

Changing customer expectations (i.e., to get more convenient delivery, faster handling of orders, ability to interact with the post via digital channels) and increasing competition (i.e., platforms that engage in delivery services) puts pressure on the public postal sector to fully exploit

digitalisation opportunities in order to stay relevant. Digitalisation of the postal sector refers to postal operators providing digital services as well as using ICT to digitalise internal processes.

Digitalisation of the sector started in 1990s with automation of sorting and delivery, as well as electronic communication between government, businesses, and citizens. Today postal sector is one of the most affected by technological disruption. Postal operators are now providing new digital services to their customers (individuals, businesses, and governments) through digital channels (i.e., the Internet, mobile phones, tablets, call centres, television) and using ICT (e.g., barcodes, radio-frequency identification (RFID), chips, sensors, mobile internet, global positioning system (GPS), robotics) to digitalise, modernise and automate internal postal processes (e.g., sorting, delivery, customer service).

The number of posts providing digital services has been increasing since 2010 and as of 2018 it reached 93% worldwide. High-tech regions demonstrate a higher level of use of autonomous vehicles or artificial intelligence. Mobile applications for provision of postal services are also expanding. The change has been further catalysed by the COVID-19 pandemic, which accelerated the decline of volumes of letters and the increase in parcel delivery services. The postal sector will need to continue adapting to digital age in the future, exploring cloud computing, the Internet of Things, 3D printing, etc.

Among the opportunities offered by digitalisation of the sector is increased revenue, improved customer satisfaction, operational costs-savings and more efficient operations and processes. Digitalisation also offers opportunities for workers, such as new jobs in e-commerce or reduced risk of occupational safety and health. However, the expected benefits do not necessarily translate into practice as post might find it difficult to transition towards digital culture, lack proper digital infrastructure or encounter operational problems. In addition, digitalisation may also be disadvantageous for workers, as they encounter fear of job loss, work intensification as well as negative health outcomes.

The trade union representing workers from the sector indicated that workers feel like they do not have a choice in and influence over how their work is being digitally transformed, making the change difficult to understand and bringing them uncertainty. This can mean that it will take a longer time for workers to adapt to difference processes and e-services or can even lead to workers resisting digitalisation.

Digitalisation dictates that personnel working in the postal sector needs to be able to handle machines and systems assisting them in parcel delivery, have knowledge of digital postal services, have programming and coding skills, as well as possess skills in communication and teamwork. However, most of the current upskilling or reskilling opportunities for workers in the postal sector are either inaccessible or offer insufficient skills.