Chapter 10
Bridging the Digital Divide: Addressing the Double Burden of Older Workers and Digital Challenges for Enhanced Health and Well-being in the Baltic States

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10.1 Introduction

The intersection of age, gender, and digital exclusion present a complex challenge in the modern world. Digital technology and the internet have become integral aspects of life, playing a crucial role in education, employment, social connection,

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and access to essential services. However, older adults often face significant challenges in adapting to and adopting digital services, resulting in a double burden of social and digital exclusion. These challenges include limited internet usage, a lack of necessary devices and network connectivity, and inexperience with technology. As a result, older adults face growing exclusion from society, as services, communication, and information flow are increasingly digital by default (Solvak & Lauringson, 2024). In the context of the Baltic States, where digital transformation is a key policy focus, addressing this issue is essential to ensure the well-being and inclusivity of older adults (Nordregio, 2024), since even in advanced digital nations, societies still face significant digital inequalities. Moreover, the COVID-19 pandemic intensified this challenge by accelerating digital transitions in workplaces and public institutions, disproportionately affecting those without adequate training or access to technology (van Deursen, 2020; König et al., 2021). A systematic review of adult digital learning found that older workers benefit most from socially supported, hands-on training environments that acknowledge different learning speeds and digital anxieties (Czaja et al., 2020; Martínez-Alcalá, & Rosales-Lagarde, 2021). Yet such tailored programmes remain limited in availability across the Baltic states.

The aim of this chapter is to examine the challenges and barriers that hinder digital competence among older workers in the Baltic States, with a focus on how age-related disadvantages, gender disparities, and socio-economic factors contribute to digital exclusion. First, the chapter presents the characteristics of older workers in the Baltic States, highlighting their demographic profile, employment patterns, and the specific barriers faced by older workers, particularly women. Second, it explores the health and economic risks that influence digital participation. For example, older workers may face chronic health conditions and, due to outdated skills, experience lower incomes and financial insecurity. These factors, in turn, restrict their engagement in training opportunities and contribute to digital marginalisation. Third, the digital skills gap among older workers are analysed within the context of regional and educational disparities. These digital skill gaps show how low digital self-efficacy, limited digital exposure, and a lack of tailored support hinder effective learning and usage of digital tools. The chapter also presents examples of national digital inclusion initiatives and evaluates how programmes in Estonia, Latvia, and Lithuania attempt to improve digital literacy among older workers. The analysis addresses gaps in outreach, accessibility, and alignment with older workers' needs. Finally, the chapter discusses the issue of digital engagement and the double burden, focusing on how caregiving responsibilities—particularly for older women—intersect with work demands and digital exclusion, reinforcing socio-economic inequalities. Through this structure, the chapter offers a comprehensive understanding of the systemic and personal barriers to digital inclusion for older workers in the Baltic context, providing insights for future policy and practice.

10.2 Characteristics of Older Workers in the Baltic States

The Baltic States, a region located in Northern Europe, comprise Lithuania (population 2.85 million), Estonia (1.36 million), and Latvia (1.87 million) (Eurostat, 2024a, 2024b). Current demographic trends in the Baltic countries show an ageing population and a decline in the working-age population. The proportion of individuals in the working-age population is projected to decline, intensifying the economic challenges of sustaining growth and implementing effective social policies. Statistics indicate that by 2030, over 25% of the region's population will be aged 50 years and above (Nordregio, 2024). Table 10.1 presents the proportion of population aged 50 years and above in Baltic States in 2021, within the 50–64 years, 65–74 years, and 75 years and above age groups. The proportion of the population aged 50 years and above increased from 38.8% to 42.6% in EU27 countries between 2014 and 2024. In the Baltic countries, the trend was similar: in Estonia, it rose from 38.4% to 39.7%; in Latvia from 39.7% to 42.2%; and in Lithuania from 39.1% to 42.3% over the same period (Eurostat, 2024a, 2024b). The demographic trend of population ageing is critical for several reasons. First, older adults represent a fundamental part of the workforce needed to sustain economic productivity, public services, and pension systems. Second, the capacity of older workers to remain active and competitive in the labour market heavily depends on their ability to acquire and apply digital skills, which are now essential across nearly all sectors. However, older individuals often face multiple barriers to digital inclusion, for example, limited exposure to technology, lower confidence, and reduced access to upskilling opportunities (OECD, 2020a, 2020b, 2020c). If left unaddressed, these challenges could increase existing social and economic inequalities, hinder labour market participation, and place additional pressure on social welfare systems. Therefore, the ageing population in the Baltic countries requires targeted digital inclusion strategies to ensure that labour markets remain inclusive and sustainable. These strategies should be evidence-based, coordinated across governance levels, and sensitive to the diverse needs of older individuals, particularly those in rural areas or with lower educational attainment.

According to national statistics, 24.0% of persons in the age group 65–74 years and 24.9% in the age group 75–89 years were employed at the end of 2023 (Official Statistics Portal of Latvia, 2024). In 2025, the retirement age in Latvia is 65 years (SSIA, 2024), in Lithuania 64 years and 10 months for men and 64 years and 8 months for women (Sodra, 2025); in Estonia 64 years and 9 months. Moreover, the employment rate in Baltic countries among the older population (aged

Table 10.1 Proportion (%) of older population groups in total population

GEO (Labels)	Total Population	%	50–64%	65–74%	75+ %	Total 50+ %
Estonia	1,331,824	100	19	11	9	40
Latvia	1,893,223	100	21	11	10	42
Lithuania	2,810,761	100	23	10	10	43

Source: OECD (2023)

55–64 years) is very high—76.0% in Estonia, 70.9% in Latvia, and 69.1% in Lithuania in December 2023 compared to the average rate of 64.0% in the European Union (Eurostat, 2024a, 2024b). These trends reflect both economic need and active ageing policies, as many older adults continue working to supplement inadequate pensions or maintain social engagement. In 2023, pension income in EU countries amounted to an average of 58% of late-career earnings. In Latvia, this indicator was slightly lower, at 50%. In comparison, pension income in Estonia comprised 46% of late-career earnings, while in Lithuania it accounted for only 36% (Euronews Business, 2025). This means that the transition from working life to retirement can be accompanied by a significant risk of poverty.

Furthermore, being engaged in work appears to help maintain social contacts. Reine et al. (2024) compared loneliness in the Baltic-Nordic region and found that older adults in the Baltic countries experience loneliness considerably more often than retired people in the Nordic countries. However, in both regions, higher income levels and continued employment are important factors that help preserve social ties in later life. Consequently, the high employment rate among older populations creates an urgent demand for ongoing digital skill development to ensure that older workers can remain competitive in increasingly digitised workplaces. The extension of the working life can increase inequalities if digital competencies are unevenly distributed, especially among lower-income or rural populations. The implications of a longer working life relating to sustained employment is currently a reality for a large proportion of the population in the Baltic States, and addressing digital literacy gaps in this group is not only a social equity issue but also an economic imperative. Ensuring that older workers can access digital tools and training is key to promoting inclusive and productive labour markets in ageing societies. Recent research has shown that 37% of respondents including a diverse range of adults across different age groups and genders, consider ‘ageism’ or age to be the most common discrimination in the labour market of Latvia (Tietoevry & Norstat, 2023). This finding highlights a critical barrier: even as older individuals are willing and often required to stay in work, they may face negative stereotypes and reduced opportunities for career development or digital training. Thus, the Tietovery study underscores a key contradiction demonstrating that while older adults are a growing part of the workforce, they are simultaneously at risk of being excluded due to age-based bias and insufficient digital readiness. Addressing these dual challenges is essential for building inclusive, future-ready labour markets in the Baltic States.

10.2.1 Health and Economical Risks of Older Workers in the Baltic States

We next present the health and economic risks that affect older workers’ ability to participate in the digital economy. Many older individuals experience chronic health conditions, reduced mobility, and age-related limitations that may hinder their

ability to engage in learning and digital training programmes (European Commission, 2021; OECD, 2020a, 2020b, 2020c). In all three countries, healthy life expectancy at birth is lower than the statutory retirement age-58.1 years in Estonia, 52.7 years in Latvia, and 60.9 years in Lithuania (compared to the EU-27 average of 63.1 years; Eurostat data, 2023). This gap indicates that the Baltic states will inevitably need to adapt work environments if continued employment until the official retirement age is to be expected. Additionally, low income and financial insecurity, that often is a result of inadequate pensions or limited employment opportunities, further restrict the access of older adults to digital technologies and lifelong learning opportunities. These intersecting challenges contribute to the digital marginalisation of older adults and exacerbate existing social and economic inequalities (OECD, 2020a, 2020b, 2020c, 2022).

Surveys of the pre-retirement age group show that health issues and disability are among the main obstacles to labour market participation for older age groups. In Latvia, 35.5% of individuals aged 65 years and above self-assess their health as poor or very poor, with the trend of adverse health assessments increasing up to 45.8% among those aged 75 years and above (Official statistics portal of Latvia, 2024). In Latvia, for example, high risk groups are teachers, with 58% of all educators being aged 50 years and above in 2024 compared to 36% in the same age group in OECD countries (OECD, 2024). There is a moderate risk of burnout and exit from the labour market among teachers in Latvia. For example, 38% of teachers indicated they would like to leave the professional field within the next 5 years (compared to the OECD average of 25%). In addition, 26% of teachers aged 50 years and below reported that they intend to leave the profession in the next 5 years (compared to the OECD average of 14%). The high average age of education workers is also a concern for the other two Baltic states. For example, in Estonia, the proportion of teachers aged 60 years and above rose to 24% in 2023 (Leijen et al., 2024).

The demographic composition of healthcare professionals also demonstrates a pronounced trend of workforce ageing, characterised by a continuous increase in the proportion of medical and support staff aged 50 years and above, coupled with a decline in the representation of middle-aged personnel within the healthcare sector. Analysing data on workers in the healthcare sector of Latvia, it was found that in 2019, 55% of medical and support personnel were aged 50 years and above (Valsts Kontrole, 2019). The Ministry of Health has concluded that, in most cases, doctors continue to be active in public sector medical practice even after reaching retirement age. In certain specialties, the provision of healthcare services is sustained solely because doctors continue practicing beyond retirement. An audit analysing the age structure of medical specialists found that, among the nine specialties included in the sample, the highest proportion of medical professionals belonged to the 50–64 years age group. This indicates a rapidly ageing workforce in the medical field as well, with the most pronounced ageing observed among gynaecologists-obstetricians, anesthesiologists-resuscitators, internists, radiologists, and surgeons (Valsts Kontrole, 2019). The Estonian Qualifications Authority conducts ongoing analyses of the mismatch between people's skills and employers' expectations.

According to their forecasts, older age groups are likely to remain in the labour market in Estonia for a relatively long time. However, a significant problem is that older workers are often underqualified for the jobs and tasks they perform later in their careers. The reports also note that there are occupations in which highly skilled professionals—such as scientists, medical doctors, teachers, and accountants—continue working to an advanced age (Estonian Qualification Authority, 2022).

More recent data has demonstrated that the average age of medical practitioners in Latvia in 2022 reached 44 years, while approximately 40% of medical practitioners are aged more than 55 years, and only 4% of medical practitioners are in the age group of under 28 years. The average age of health care practitioners in basic medical specialties in Latvia reached 54 years in 2022, while more than half (57%) of medical practitioners were aged above 55 years (Ministry of Health of Latvia, 2023). In Latvia, one of the main considerations related to working after reaching retirement age is the low level of pensions. Often, there can be a large reduction in income when switching from a salary to an old-age pension as a basic income (SSIA, 2024).

In Lithuania, one year of pension contributions is only credited if social security contributions are paid on earnings at least equal to the minimum wage, which averaged EUR 840 per month in 2023 (OECD, 2023a, 2023b). Data from the State Social Insurance Agency of Latvia indicate that in 2023, the average old-age pension amounted to EUR 530, while the average net monthly salary was EUR 1071 (according to Central Statistics Bureau data for the first quarter of 2023). As of June 2023, 14% of pensioners received a monthly pension of up to EUR 300, whereas 43.5% received between EUR 301 and EUR 500 per month. Beyond financial considerations, which often motivate individuals to remain in the workforce for as long as their health allows, the pursuit of self-actualisation represents a powerful and complementary driving factor (Reine et al., 2024). The psychological need for continued engagement, personal growth, and societal contribution can be particularly significant among those who derive meaning and identity from their professional roles. However, this pattern is not universal. Individuals who enjoy favourable pension arrangements and economic stability may view retirement as an opportunity to pursue alternative activities that satisfy their intrinsic need for purpose, social connection, and contribution to society. In such cases, retirement can be reframed not as a withdrawal from meaningful engagement but as a transition toward new avenues of personal and societal fulfilment. Therefore, when evaluating the concept of ‘lifelong work’, it should primarily be a free choice that everyone can choose to implement according to their own situation and capabilities.

The Lithuania 2050 strategy (Republic of Lithuania Seimas, 2024) highlights that the negative demographic trends could create a need to increase the involvement of older people in the labour market. Addressing these challenges will require not only advances in healthcare services tailored to the ageing population but also structural reforms in the labour market, social security, and education systems, including digital skill education. Lithuania exhibits a robust and multidimensional silver economy, with older adults actively contributing to the workforce. Their consumption patterns drive demand for specialised goods, services, and innovation,

reinforcing economic sustainability (Zemaitaitytė et al., 2024). Furthermore, the expansion of the digital infrastructure across the country will be influential in mitigating regional socio-economic, cultural, and digital disparities, thereby fostering greater social inclusion and economic equity.

10.2.2 Digital Skills of Older Workers in Baltic States

The EU emphasises the need for a fair and inclusive digital transformation that benefits all societal groups, including older adults. Policy documents such as the European Declaration on Digital Rights and Principles for the Digital Decade and the 2030 Digital Compass highlight the role of technology in uniting people and promoting social and economic inclusion (European Commission, 2022a, 2022b). In the Baltic States, efforts to align with these targets are reflected in national digital agendas, such as Estonia's Digital Agenda 2030 (Ministry of Economy and Industry of the Republic of Estonia, 2021), Latvia's Digital Transformation Guidelines for 2021–2027 (Ministry of Environmental Protection and Regional Development of the Republic of Latvia, 2021), and Lithuania's Digital Agenda for the Republic of Lithuania (Government of the Republic of Lithuania, 2014). The EU has set digital targets for 2030 in areas like digital skills, infrastructure, business digitalisation, and public services. Achieving these goals requires national roadmaps developed through annual cooperation cycles, with input from key stakeholders, including businesses, social partners, civil society, youth and older adults (European Commission, 2023).

Following the above-mentioned documents, most of the EU Member States including Latvia, Lithuania and Estonia have developed country digitalisation strategies setting goals for the near future. In these strategic documents digital skills and internet access are key pillars together with other priorities of the country's digital transformation goals. Even if these strategies do not specifically mention older adults, they are important for fostering a fair digital environment for older workers, for example by providing high-speed internet everywhere and for everyone. Nevertheless, it should be noted that national digitalisation strategies do not identify the age-based digital divide as a problem and therefore do not include measures to address it.

Recent literature reviews suggest that the impact of digitalisation on the health and well-being of older workers (aged 50 years and above) in the public sector, particularly in the Baltic States, has not yet received sufficient academic attention (Jevsikova et al., 2021; Kuncevičiūtė, 2022; Raišienė et al., 2021). While there is an extensive body of literature on the implementation of digitalisation and its effects on service recipients in the public sector, the implications for the physical and mental health of employees within digitalising public institutions—particularly older workers—remain underexplored. Although digitalisation is rapidly expanding, more research is needed to assess its impact on public sector employees. The

consequences of accelerated digital transformation, as well as the adaptive capacities of workers in highly digitalised environments, predominantly concern older women, who constitute the majority of the workforce in education, healthcare, and social care sectors. In 2024, among service sector employees of all ages, four out of five were women (in Lithuania 81%) and even more in Estonia and Latvia (84% respectively) (International Labour Organization, 2025). It is important for policy makers and policy implementers to monitor continuously the impact of digitalisation on public sector employees in order to make timely and research-based decisions on how to ensure the well-being of workers in rapidly digitalising workplaces and thereby the sustainability of these sectors.

The rapid advance of digital technologies, coupled with the effects of the COVID-19 pandemic, has significantly accelerated the shift of essential services, communication, and work processes to online platforms. Solvak and Lauringson (2024) discuss a post-digital society in which a large share of services is already provided according to the digital-by-default principle, and traditional solutions for accessing services are beginning to disappear. According to Himma-Kadakas and Kõuts-Klemm (2023), in Estonia, 99% of public services are now accessible online, reflecting one of the most advanced e-governance systems globally. While the vast majority of administrative, health, and social services can be completed digitally through secure national platforms such as *e-Estonia* and *X-Road*, alternative options (in-person and telephone-based) remain available for individuals who face barriers to digital access or lack sufficient digital literacy. This hybrid approach ensures that technological progress does not compromise inclusivity, particularly for older adults or residents in regions with limited connectivity. In the Baltic States, these challenges were especially pronounced for older workers, many of whom struggled to adapt to new digital tools and remote work environments. Various studies have shown that the telephone, and to a lesser extent the computer, became the primary work tools for a substantial proportion of close care workers (Reine et al., 2021a). Table 10.2 presents internet user proportion among the 55–74 years age group across the three Baltic countries. Over the years of the COVID crisis, the proportion of internet users increased significantly in all three countries, including among older population groups. However, by 2024, the figures in Lithuania still remained somewhat lower compared to Estonia and Latvia.

Table 10.2 Proportion of internet users aged 55 to74 years in Baltic countries (2019–2024)

Age groups	Latvia		Lithuania		Estonia	
	2019	2024	2019	2024	2019	2024
55–64	71.4	88.7	60.0	77.5	83.6	88.8
65–74	47.4	72.6	32.3	56.7	59.9	69.7

Source: Statistics Latvia, Lithuania, Estonia Computer/Internet usage by individuals (percent of total population within the corresponding group, 2024)

10.2.3 The Impact of Digitalisation on Older Workers in the Service Sector

Although the era of rapid digitalisation has been ongoing for some time, there is still limited research available in the Baltic countries regarding how the digitalisation of work, specifically the adoption of diverse digital tools, impacts older workers. While national news outlets have highlighted the challenges that employees face in adapting to a digitalised workplace across various service sectors, academic research in Lithuania has predominantly focused on the education sector (Baltic Sea Labour Forum, 2020). As a result, there is a lack of information concerning how older workers in the health and social care sectors are adjusting to this wave of digitalisation.

Thus, we now discuss several studies that have explored the impact of digitalisation on the well-being of older workers (aged 50 years and above) employed in the education system. Kuncevičiūtė's (2022) study involved qualified primary school class teachers with 25–45 years of professional teaching experience, and an age range of 50–65 years. Older teachers reported an increased workload due to the digitalisation of educational information technologies (EIT). Many struggled with EIT content creation, citing high workloads and limited digital competencies as barriers to developing their work content. They expressed a need for ready-to-use digital educational materials created by specialists. Additionally, experienced teachers noted disparities in digital infrastructure, as not all schools were adequately equipped with smart e-blackboards, tablet computers, and other digital tools (Kuncevičiūtė, 2022, p. 47). Teachers in Lithuania generally view EIT integration in education as beneficial, but in practice, it increased their workload. They also highlighted that school administrations do not adequately support the effective and meaningful use of digital technology in teaching (Kuncevičiūtė, 2022, p. 44).

Furthermore, Jevsikova et al. (2021) investigated the acceptance of distance learning technologies among Lithuanian in-service primary school teachers ($N = 550$) using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Their findings indicated that social influence significantly predicted the teachers' intention to adopt EIT, with older teachers (aged 50 years and above) being more affected. Support from colleagues and schools played a crucial role in overcoming challenges related to technology adoption. Effort expectancy was identified as a key predictor, particularly for older teachers. Additionally, performance expectancy—the belief that technology enhances teaching—was found to be the strongest factor influencing teachers' trust in distance learning tools, with its impact increasing with age. These findings highlight the importance of strengthening support systems to facilitate technology acceptance while fostering confidence in its benefits.

Raišienė et al. (2021) examined the challenges reported by middle-aged and older teachers during the COVID-19 pandemic, particularly in communication with leadership and workload management. Older employees reported feeling burdened

by high expectations from school administrations and struggling with time management and remote work competencies. Despite these difficulties, teachers improved their information technology skills in all age groups, significantly increasing digital competencies among older educators (66.1% aged 31–50 years and 80.5% aged 50 years and above). While teachers acknowledged EIT skill gaps, they demonstrated a proactive involvement in professional development.

The study by Raišienė et al. (2021) confirmed that older teachers faced significant challenges with remote work, citing difficulties in workload and time management, coupled with high administrative expectations. They often struggle with increased workloads and a lack of support from school administrations (Kuncevičiūtė, 2022). The research suggests that professional support is vital for older educators in their efforts to integrate these technologies (Jevsikova et al., 2021). Furthermore, during the COVID-19 pandemic, older teachers encountered high expectations and difficulties with time management, yet they made significant efforts to enhance their IT skills (Raišienė et al., 2021). These studies confirm that, in order to assist older educators in incorporating digital learning tools into their teaching, personalised support systems are essential—not just beneficial but necessary in today's educational landscape. Technology is advancing rapidly, and today new challenges arise from the adoption of artificial intelligence (AI) also for teachers. For example, in Estonia, a national education programme is being launched to integrate the use of AI into learning and teaching in general education schools already in the 2025/26 academic year (https://tihupe.ee/en—Estonian Ministry of Education and Science, 2025).

10.2.4 National Digital Inclusion Initiatives Addressing Older Workers

The European Commission defines *Digital inclusion* as the provision of seamless, transparent, accessible, and user-centric digital government services. These services should be designed to ensure that citizens can utilise them effectively without requiring specialised legal knowledge. Digital inclusion emphasises enabling all members of society to participate actively in the digital transformation, contributing ideas and sharing content without undue barriers, while upholding the rights of others. Furthermore, the public sector is encouraged to foster broader societal engagement in policymaking by integrating co-creation, experimentation, and collaborative processes into the design of public services.

However, recent research has demonstrated that despite the high employment rate of older people in the Baltic countries, their workplaces cannot be considered as age-friendly (Dorokhov et al., 2024). For example, in Latvia, as indicated above, low pension levels and a relative income poverty rate exceeding 25% among individuals aged 66 years and above enable employers to retain older employees without implementing age-friendly policies. Therefore, various initiatives have been

implemented in recent years by the governments of the Baltic States to enhance employability and promote healthy ageing among older adults. For example, national programmes entitled 'Development of Comprehensive Active Ageing Strategy for Longer and Better Working Lives' (Ministry of Welfare of Latvia, 2020) in Latvia and 'Increasing Employment for 2014–2020' in Lithuania incorporated measures aiming at supporting older workers in extending their participation in the labour market. In Estonia, the employment of individuals aged 50 years and above has long been a priority on the public policy agenda. This focus is reflected in key policy frameworks such as the 'Welfare Development Plan 2023–2030' (Ministry of Social Security and Labour of the Republic of Lithuania, 2022) and the 'Strategy 2035' (Government of the Republic of Lithuania, 2020) emphasising the development of indicators to promote longer working lives for older people. The Lithuanian government aims to develop an efficient lifelong learning system to align workforce skills with labour market demands, as outlined in the State Digitization Development Programme 2021–2030 (Lietuvos Respublikos ekonomikos ir inovacijų ministerija, 2021) and the Lithuanian Industry Digitization Roadmap 2020–2030 (Lithuanian Innovation Centre, 2020). The State Digitization Development Programme (Lietuvos Respublikos ekonomikos ir inovacijų ministerija, 2021) prioritises enhancing digital skills among socially vulnerable groups, focusing on accessibility for people with disabilities and the establishment of an effective adult learning system. The Industry Digitization Roadmap (Lithuanian Innovation Centre, 2020) provides a strategic framework, primarily addressing the domains of knowledge, human capital, and infrastructure, by prioritising employee digital upskilling and the establishment of technology demonstration centres and digital innovation hubs. However, a detailed review of these policies reveals that national digital inclusion initiatives do not explicitly address the digital needs of older workers. In Latvia, since 2018 companies, institutions and municipalities employing people over the age of 50 years are invited to apply for an assessment of the working environment, workplace and human resources potential. The assessment team includes an occupational specialist, an occupational health doctor, an occupational therapist, and a personnel management specialist. However, Latvia is among the few countries addressing digital inclusion not by focusing on barriers and specific target groups, but by emphasising the enhancement of digital skills across society. This approach is aligned with the European Digital Competence Framework (DigComp) (National Digital Inclusion Initiatives in the Nordic and Baltic Countries, 2024).

10.2.5 Digital Engagement and the Double Burden

During 2021 and 2022, several studies using data from Wave 8, COVID-19 Survey 1 and 2 of the Survey of Health, Ageing, and Retirement in Europe (SHARE) were conducted to evaluate the digital engagement of older adults across Latvia, Lithuania, and Estonia. This research encompassed a substantial dataset of

individuals aged 50 years and above, offering a detailed analysis of how these populations interact with digital technologies during the global pandemic (Bergmann & Börsch-Supan, 2021; Reine et al., 2021a).

One of the studies uncovered significant disparities in the use of digital technology among the older populations of the three Baltic countries. The research found notable variations in the rates of technology. Moreover, age proved to be a significant determinant of digital engagement, which indicated that the adoption of digital tools declined with increased age (Pasupathy et al., 2023).

The repercussions of the COVID-19 pandemic have been particularly severe for older adults, exacerbating their social isolation and highlighting the essential need for integrating digital technologies into their daily lives to maintain crucial social connections. A study by Reine et al. (2021a) in Latvia emphasised the necessity for these technologies to be accessible and user-friendly in order to foster digital inclusion and engagement among older adults.

Further complicating these issues is the 'double burden' theory, which posits that older workers face compounded disadvantages due to age-related challenges and limited digital skills, with these issues often further nuanced by gender disparities (Hargittai & Dobransky, 2017). Older workers, in particular, experience a dual strain—balancing professional responsibilities while simultaneously struggling to adapt to rapidly evolving digital environments. The increasing reliance on digital tools in the workplace exacerbates these difficulties, often leading to job insecurity and exclusion from career development opportunities (Friemel, 2016). The gap in digital competence not only hinders economic engagement but also reinforces social isolation, a challenge that has become more pronounced in the wake of the COVID-19 pandemic (König & Seifert et al., 2022).

To combat these challenges, studies have emphasised the importance of initiatives aimed at enhancing the usability of digital platforms and simplifying navigation on websites designed for older populations (Charness & Boot, 2009). Digital literacy programmes tailored to older workers are essential for fostering technological inclusion and reducing the cognitive load associated with learning new systems (Czaja et al., 2006). The Latvian government has set objectives to increase the proportion of individuals with at least basic digital skills from 43% in 2019 to 70% by 2027, recognising the need to address digital skill gaps among the population, including older adults. The project entitled 'Connected Lithuania' offers free digital literacy courses in libraries nationwide. In 2019, over 30,000 individuals participated, with more than 42% aged 50 years and above, highlighting the project's impact on reducing the digital divide among older workers. In Estonia, the first wave of training courses had already taken place in the 2000s, in the wake of rapid digitalisation. In recent years, digital education for older people has not been centrally coordinated by governmental agencies, as it has been carried out and led by various training institutions and non-governmental organisations, and several bottom-up initiatives. For example, an innovative cross age project 'Digimentor' (More details here: https://meedia.ut.ee/) was conducted from September 2023 to May 2024 in Estonia involving high school students mentoring different people, including older adults, through workshops on topics like internet safety, and practical

digital skills, fostering intergenerational learning and enhancing digital literacy among seniors. These initiatives demonstrate a commitment to providing older workers with vital digital skills, thereby promoting their active participation in the digital economy and society. Despite these proactive activities, there remains a significant gap in digital literacy among older workers, who display lower digital proficiency compared to other age groups. This gap has been examined through the 'double burden theory', suggesting that older workers endure additional disadvantages due to age-related challenges and limited digital skills. This issue is particularly acute among older women, who frequently face additional barriers to digital access and competence (Reine et al., 2021a).

In response to these findings, the SHARE study and additional regional research called for targeted educational programmes and policy interventions aimed at boosting digital engagement among older adults, including those being active in labour market. By improving digital competencies, these measures could significantly reduce isolation and enhance the well-being of this vulnerable population, underscoring the urgent need for strategies that address both age-related and gender-specific challenges. Overall, this research demonstrated a complex interplay of factors affecting the adoption of digital technology among older workers in the Baltic States. Also, it highlighted the necessity for comprehensive approaches that consider the diverse capabilities and needs of people aged 50 years and above (Reine et al., 2021b). By fostering digital literacy and ensuring accessible, user-friendly technologies, the Baltic countries can enhance the social and cultural participation of their older citizens, ultimately leading to improved quality of life and greater societal cohesion in the digital age.

In light of these findings, the SHARE study and supplementary regional research advocate targeted educational programmes and policy interventions to increase digital engagement among older adults. Improving digital competencies could significantly reduce isolation and enhance the well-being of this vulnerable population, suggesting a pressing need for strategies that address both age-related and gender-specific challenges (Reine et al., 2021b).

Overall, the available research underscores a complex interplay of factors affecting the adoption of digital technology among older adults in the Baltic States. It highlights the need for comprehensive approaches that consider the diverse capabilities and needs of this population group. By fostering digital literacy and ensuring accessible, user-friendly technologies, these countries can enhance the social and cultural participation of their older citizens, ultimately leading to improved quality of life and greater societal cohesion in the digital age.

10.3 Discussion and Conclusions

Overall, this chapter has suggested that while older adults in the Baltic region remain active in the workforce at relatively high rates, they still face significant challenges in maintaining their living standards after retirement and their

competitiveness in the labour market. They also face discrimination while employed, and are impacted by the implications of shifting retirement policies.

Despite the rapid expansion of digitalisation, its impact on the health and well-being of older public sector workers in the Baltics remains largely unexamined. While research has focused on digitalisation's effects on different target groups, the intervention outcomes, particularly, on older worker are underexplored. This gap is especially relevant for older women, who dominate sectors like education, health-care, and social care system, and who can encounter greater challenges adapting to digital transformation. Digitalisation will place older women at a greater risk of being marginalised unless retraining and support mechanisms are put in place (EIGE, 2022; OECD, 2023a, b). Policymakers should closely monitor these effects to ensure the well-being of workers and to sustain different employment sectors.

In addition, financial concerns are common reasons for many older workers to remain in the labour market, as transitioning from a salary to a pension often results in a substantial income reduction. In the Baltic countries, as in many parts of the EU, retirement pensions are modest, especially for women and low-wage earners, making continued employment a necessity rather than a choice (European Commission, 2023; MISSOC, 2024). These trends highlight the urgent need for policies that address workforce ageing, occupational health risks, and financial security for older employees.

Despite a growing recognition of the importance of digital competencies in virtually all sectors, older workers remain disproportionately affected by the digital divide. The digital divide encompasses not only limited access to digital technologies and reliable internet but also lower digital literacy, reduced confidence in using digital tools, and barriers to effectively participating in digital society. The analyses of situations in the Baltic countries are in line with recent European data outcomes demonstrating that older workers are lacking digital skills, which negatively impacts both their job prospects and access to public services (Eurostat, 2023; OECD, 2023).

In conclusion, this chapter has highlighted that while older adults in the Baltic States continue to participate actively in the workforce, they face a range of interconnected challenges—including age-based discrimination, shifting retirement policies, health-related constraints, and digital exclusion. Without adequate retraining and support, older women are particularly vulnerable to marginalisation. Financial insecurity often compels continued employment, yet limited pension systems add to the burden. Despite the growing need for digital competencies, older workers across the Baltic States lack adequate access to digital tools and training. These findings underscore the urgent need for inclusive policies that address digital skill development, workforce ageing, and occupational health in order to promote equity and resilience in labour markets across ageing Baltic societies.

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References

Baltic Sea Labour Forum. (2020). *The importance of digital and ICT skills development for longer working lives in the age group 55+ – and how to bridge the digital divide.* Policy Brief 2020:02.

Bergmann, M., & Börsch-Supan, A. (2021). *SHARE wave 8 methodology: Collecting cross-national survey data in times of COVID-19*. MEA, Max Planck Institute for Social Law and Social Policy.

Charness, N., & Boot, W. R. (2009). Aging and information technology use: Potential and barriers. *Current Directions in Psychological Science, 18*(5), 253–258. https://doi.org/10.1111/j.1467-8721.2009.01647.x

Czaja, S. J., Kallestrup, P., & Harvey, P. D. (2020). Evaluation of a novel technology-based program designed to assess and train everyday skills in older adults. *Innovation in Aging, 4*(6), igaa052. https://doi.org/10.1093/geroni/igaa052

Czaja, S. J., Charness, N., Fisk, A. D., Hertzog, C., Nair, S. N., Rogers, W. A., & Sharit, J. (2006). Factors predicting the use of technology: Findings from the Center for Research and Education on Aging and Technology Enhancement (CREATE). *Psychology and Aging, 21*(2), 333–352. https://doi.org/10.1037/0882-7974.21.2.333

Dorokhov, O., Jaakson, K., & Dorokhova, L. (2024). Age-friendly human resource practices: A comparison of Baltic and Nordic countries. *Baltic Journal of Management, 19*(6). https://doi.org/10.1108/bjm-03-2024-0151

EIGE. (2022). *Gender Equality Index 2022: The COVID-19 pandemic and care.* European Institute for Gender Equality. https://eige.europa.eu/publications/gender-equality-index-2022-covid-19-pandemic-and-care

Estonian Qualification Authority. (2022). *OSKA general forecast for the years 2022–2031*. Kutsekoda. https://oska.kutsekoda.ee/wp-content/uploads/2023/02/OSKA-Uldprognoos-2022-2031.pdf

Euronews Business (2025). Pensions vs earnings across Europe: The highest and lowest comparisons. Euronews. Retrieved February 13, 2025, from https://www.euronews.com/business/2025/02/13/pensions-vs-earnings-across-europe-the-highest-and-lowestcomparisons

European Commission. (2021). *2030 Digital Compass: The European way for the digital decade (COM 2021/118 final).* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0118

European Commission. (2022a). *Digital inclusion | Shaping Europe's digital future.* https://joinup.ec.europa.eu/collection/common-assessmentmethod-standards-andspecifications-camss/solution/elap/digital-inclusion.

European Commission. (2022b). *European Declaration on Digital Rights and Principles.* https://digital-strategy.ec.europa.eu/en/library/european-declaration-digital-rights-and-principles

European Commission. (2023). Digital Decade Policy Programme 2030 — Digital targets and cooperation mechanism for the EU's digital transformation. European Commission. https://digital-strategy.ec.europa.eu/en/library/digitaldecade-policy-programme-2030

Eurostat. (2023). *Digital economy and society statistics – households and individuals.* https://ec.europa.eu/eurostat/

Eurostat. (2024a). *Employment rate of older workers, age group 55–64.* https://ec.europa.eu/eurostat/databrowser/view/tesem050/default/table

Eurostat. (2024b). *Population and social conditions.* https://ec.europa.eu/eurostat/web/main/data/database

Friemel, T. N. (2016). The digital divide has grown old: Determinants of a digital divide among seniors. *New Media and Society, 18*(2), 313–331. https://doi.org/10.1177/1461444814538648

Government of the Republic of Lithuania. (2014). Information society development programme 2014–2020: Digital Agenda for the Republic of Lithuania (Resolution No. 244, 12 March 2014). https://etar.lt/portal/legalAct/lt/TAD/a66c0760b04011e3bf53dc70cf7669d9

Government of the Republic of Lithuania. (2020). *Strategy Lithuania 2035.*

Hargittai, E., & Dobransky, K. (2017). Old dogs, new clicks? Digital inequality in skills and uses among older adults. *Canadian Journal of Communication, 42*(2). https://doi.org/10.22230/cjc.2017v42n2a3130

Himma-Kadakas, M., & Kõuts-Klemm, R. (2023). Developing an advanced digital society: An Estonian case study. In S. Davydov (Ed.), *Internet in the Post-Soviet Area*. Springer. https://doi.org/10.1007/978-3-031-32507-6_6

International Labour Organization. (2025). Employment by sex and economic activity: service sector employment (% female) [Data set]. ILOSTAT. https://ilostat.ilo.org/data/

Jevsikova, T., Tzivian, L., Sannikova, M., et al. (2021). Acceptance of distance learning technologies by teachers: Determining factors and emergency state influence. *Informatica, 32*(3), 517–542. https://doi.org/10.15388/21-INFOR459

König, R., & Seifert, A. (2022). Digitally savvy at the home office: Computer skills of older workers during the COVID-19 pandemic across Europe. *Frontiers in Sociology, 7*, 858052. https://doi.org/10.3389/fsoc.2022.858052

Kuncevičiūtė, K. (2022). *Challenges and opportunities for Lithuanian teachers in the 21st century*. MA thesis. University of Iceland, Faculty of Education and Diversity.

Leijen, Ä., Lepp, L., Nõmmik, H., et al. (2024). The shortage of teachers in Estonia: Causes and suggestions for additional measures from the perspective of different stakeholders. *European Journal of Teacher Education, 48*(1), 45–63. https://doi.org/10.1080/02619768.2024.2408641

Lietuvos Respublikos ekonomikos ir inovacijų ministerija. (2021). *2021–2030 m. valstybės skaitmeninimo plėtros programa.* https://eimin.lrv.lt/lt/ekonomikos-ir-inovaciju-ministerija/administracine-informacija/planavimo-dokumentai/pletros-programos/valstybes-skaitmeninimo-pletros-programa-1/

Republic of Lithuania Seimas. (2024). *State progress strategy Lithuania's vision for the future "Lithuania 2050"*. https://www.lrs.lt/sip/getFile3?p_fid=83423

Martínez-Alcalá, C. I., & Rosales-Lagarde, A. (2021). The effects of COVID-19 on the digital literacy of the elderly: Norms for digital inclusion. *Frontiers in Education, 6*, 716025. https://doi.org/10.3389/feduc.2021.716025

Ministry of Economy and Industry of the Republic of Estonia. (2021). *Digital Agenda 2030.* https://www.mkm.ee/en/e-state-and-connectivity/digital-agenda-2030

Ministry of Social Security and Labour of the Republic of Lithuania. (2022). *Welfare Development Plan for 2023–2030.*

Ministry of Welfare of Latvia. (2020). *Developing a comprehensive active ageing strategy for longer and better working lives.* https://www.lm.gov.lv/en/projects/developing-comprehensive-active-ageing-strategy-longer-and-better-working-lives

Ministry of Environmental Protection and Regional Development of the Republic of Latvia. (2021). Latvia's Digital Transformation Guidelines for 2021–2027. Cabinet of Ministers of the Republic of Latvia. Available at https://www.varam.gov.lv/en/article/latvian-digital-transformation-guidelines-2021-2027-accellation-digital-capacities-future-society-and-economy

Ministry of Health of Latvia (2023). Health Workforce Strategy in Latvia. https://reformsupport.ec.europa.eu/publications-0/health-workforce-strategy-latvia_en

MISSOC. (2024). *Mutual information system on social protection*. European Commission.

Nordregio. (2024). *Digital inclusion in the Nordic-Baltic Region.* https://pub.nordregio.org/

OECD. (2020a). *Adult learning and technology in Latin America*. OECD Publishing. https://doi.org/10.1787/5f6c8f5a-en

OECD. (2020b). *Promoting an age-inclusive workforce: Living, learning and earning longer.* https://www.oecd.org/

OECD. (2020c). *Working better with age: Ageing and employment policies*. OECD Publishing. https://doi.org/10.1787/c4d4f66a-en

OECD (2023). Public pensions. https://www.oecd.org/en/topics/sub-issues/public-pensions.html

OECD. (2023a). *Digital transformation and the futures of work: Challenges and policy responses.* https://www.oecd.org/digital/

OECD. (2023b). *Pensions at a glance 2023: OECD and G20 indicators*. OECD Publishing. https://doi.org/10.1787/ca401ebd-en

OECD (2024). Education at a Glance 2024: OECD Indicators, OECD Publishing, Paris, https://doi.org/10.1787/c00cad36-en

Official Statistics Portal of Latvia (2024). Iedzīvotāju skaits un raksturojošie rādītāji. https://stat.gov.lv/lv/statistikastemas/iedzivotaji/iedzivotaju-skaits

Pasupathy, R., Sazevari, R., & Queen, C. (2023). Use of technology among older adults in Baltic States during the Covid-19 pandemic. *European Journal of Public Health, 33*(2). https://doi.org/10.1093/eurpub/ckad160.872

Raišienė, A. G., Lučinskaitė-Sadovskienė, R., & Gardziulevičienė, L. (2021). Telework experience of pedagogues during the COVID-19 pandemic: strong learning seniors and relaxed leaders? *Education Sciences, 11*(10), 631.

Reine, I. et al. (2021a). Overcoming social isolation with digital technologies among ageing populations during Covid-19. Society. Integration. Education. Proceedings of the 15th International Scientific Conference. (4). https://doi.org/10.17770/sie2021vol4.6356

Reine, I. et al. (2021b). Sabiedrības veselības politikas rekomendācijas gados vecāku cilvēku populācijai Latvijā (A policy document on public health promotion among ageing population in Latvia), 2021. Riga Stradiņš University/Ministry of Health of Latvia. https://www.vm.gov.lv/lv/media/6495/download

Reine, I. et al. (2024). Unraveling the dynamics of loneliness in the Baltic-Nordic region: A comparative analysis in the wake of COVID-19. *Frontiers in Public Health, 12*. https://doi.org/10.3389/fpubh.2024.1360285

Sodra, (2025). Senatvės pensijos amžiaus lentelė. Available at https://www.sodra.lt/lt/senatves-pensijos-amziauslentele?lang=lt

Solvak, M. & Lauringson, A. (2024). A case study of the public sector digital ecosystem in Estonia. *Computer, 57*(5), 44–49.

Tietoevry & Norstat. (2023). Vai darba tirgū pastāv diskriminācija? Retrieved from Tietoevry Latvia website: https://www.tietoevry.com/lv/zinas/visas-zinas/other-news/2023/06/petijums-diskriminacija/

The State Social Insurance Agency (SSIA) (2024). Minimālais vecuma pensijas apmērs. https://www.vsaa.gov.lv/lv/media/6532/download?attachment

Valsts Kontrole. (2019). *Valsts kontroles revīzijas ziņojums "Cilvēkresursi veselības aprūpē"*. Riga. https://www.lrvk.gov.lv/lv/getrevisionfile//uploads/reviziju-zinojumi/2017/2.4.1.-6_2017/Zin%C7%A7ojums_Cilve%C4%84kresursi_veseli%C4%84bas_apru%C4%84pe%C4%84.pdf

van Deursen, A. J. A. M. (2020). Digital inequality during a pandemic: Quantitative study of differences in COVID-19-related internet uses and outcomes among the general population. *Journal of Medical Internet Research, 22*(8), e20073. https://doi.org/10.2196/20073

Zemaitaitytė, I., Pivorienė, J., Bardauskienė, R., & Katkonienė, A. (2024). Older adults' digital inclusion: New challenges for Lithuanian social policy. *SHS Web of Conferences, 184*, 05004. https://doi.org/10.1051/shsconf/202418405004

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