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Resilient Older Employees in the Disruptive Artificial Intelligence Era

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Abstract. This research aims to explore how companies can build resilient older employees who can overcome the challenges that bring the artificial intelligence (AI) era. Older employees many times lack the skills necessary to comprehend new technologies such as AI and are not participating in the training programs that could equip them with the necessary skills for the changing labor market and skills in the workplace. We have carried out a systematic literature review to gather and analyse existing knowledge systematically. The research highlights the importance of fostering a culture of lifelong learning in companies. Our research has significant implications for academics, managers, human resources professionals, and policymakers.

Keywords: older employees, artificial intelligence era, ICT competencies, resilience, skills, literature review.

1 Introduction

Technological advancement as (generative) artificial intelligence (AI) has disrupted the labour market and shifted the competences employees need to perform in the workplace (Cramarenco et al., 2023, pp. 732). Based on the usage of new technologies in the workplace almost 50% of the employees will need to upskill their competences by 2050 (Li et al., 2023, pp. 1697). The population that is most likely to have negative consequences of AI are older employees (50+) who have in majority lower information and communication technology (ICT) skills than their younger colleagues, needed for the usage of new advanced technologies (Chetty 2023, pp. 1). In today's society we are facing two problems, first one is the fast advancement of new technologies and on the other hand the aging labour force (Low, et al., 2025).
In our research we have carried out a systematic literature review which aims to address how companies can manage a resilient older employee who will be able to overcome the challenges that AI era brings to companies and shifts to labour market.

2 Theoretical background

Digital technologies including AI are mostly described as computer programmes that can perform tasks or carry out reasoning processes characteristic of human intelligence and present a key advance in technological development (Bruun and Duka 2018, pp. 1). Digital technologies can ease the routine work of employees and give them more time to focus on tasks that need human intervention and understanding. Based on that, digital competencies are crucial if a person wants to participate in the labour market (Komp-Leukkunen, et al., 2022, pp. 37–38). There are big gaps in ICT competencies between older and younger workers, also reflected in low participation rates in the training of older employees (Hecker, Spaulding and Kuehn 2021).
Our research focuses mainly on older employees. Here it is crucial to point out to who we refer as older employees. If we describe the elderly (older population) in a broader sense, we define this age period as over 65 years of age. Older persons participating in the labour market are most often defined as older employees or older workers (Krašovec 2015, pp. 30). If we define older employees, the age period is reduced in comparison to the broader definition of the entire older population. It should be emphasized that the literature does not define them in the same way. In most literature, older employees are defined as persons over 50 years of age (Novak 2023, pp. 23). The initial age ranges from 45 to 55 years of age,

while the upper limit is usually not specified (Krašovec 2015, 30). Based on that we have decided to refer to older employees in our study to employees older than 50 years older.
The labour market is unpredictable, and it is hard to anticipate what is going to happen in the future. Bruun and Buka (2018, pp. 3) have researched what effect automatization is going to have on the labour market and how the economy is going to comprehend that by 2038. They have suggested the following scenarios based on the cheese terminology:

- *Stalemate:* revolution of AI will be lower than anticipated and won't change the nature of work drastically. The economy doesn't need to change and employment in 2038 will be the same as today. In this scenario, there isn't a reason for worry or the intervention of government.
- *Check*: The economy can comprehend the wave of automatization of AI. This will reflect in the creation of new jobs and the obsolesce of others. At the beginning of the revolution there will be chaos in the labour market but afterwards there will be peace.
- *Checkmate*: This scenario predicts rapid major technological job loss and social instability. Governments and people in the labour market won't be able to follow this wave while it is going to be too quick.

Even if we cannot predict which scenario is going to happen the best interventions are upskilling and reskilling programs that equip employees with crucial competencies to perform in the labour market. It is assumed that future generations will need to retrain multiple times throughout their professional lives if they want to keep up with technological advances (Bruun and Duka 2018, pp. 10).
Digital technologies reforms the economy and companies, based on those new skills and knowledge on workplace is required and forces workforce to upskill and reskill with the aim to being competitive in the labour market (Chuang, 2024).
Lower digital competencies of older employees can give them a feeling of threat due to the involvement of automatization that can lead in early retirement and a mismatch in competencies (Aisa, et al., 2023, pp. 9). It is important to emphasize that the work environment influences older employees in the process of digitalization and implementation of ICT, ability to work remotely, training opportunities and relationship of superiors to employees (Komp-Leukkunen, et al., 2021, str. 49). Based on that it is important to establish an inclusive work environment for older employees that enables them to work on their skills, personal development, flexible training programs (Cramarenco et al., 2023, pp. 747) and intergenerational cooperation (Waligóra 2024, pp. 103).
Chuang (2024) emphasizes that there is too little research on the theme if employees are enough equipped with necessary skills to overcome the challenges that AI and automatization bring to the labour market.

3 Methodology

We have carried out a systematic literature review based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021) which enables a structured and comprehensive analysis of existing research on a selected topic. We have searched six databases: ProQuest, Emerald, Sage Journals, Springer, Research Gate and Google Sholar. Keywords used in the databases were: »older employees« OR »older workers« AND »upskilling« OR »reskilling« OR »skills« AND »artificial intelligence« OR »AI« OR »artificial intelligence era«. The literature review was carried out between October 2024 and April 2025. Prior to the review we have set inclusion criteria:

- the article was published between 2010 and 2025,
- the text was published in English,
- the full text was accessible and
- the text was compatible with our research aim.

Based on that we have analysed 19 articles in total.

4 Results

A systematic literature review of all together 19 articles has pointed out how can companies build resilient older employees who will be able to overcome the challenges of the era that AI brings. Technological change reshapes the skills and creates new ones in the workplace (Alcover, 2021). The main skill today are ICT skills. Soja and Soja (2020) emphasize that not all members of society take advantage of it due to a lack of skills. There is a big gap between older employees seen as digital nomads and younger ones seen as digital natives, which even widens the digital divide (Morandini et al., 2023). Older employees must compensate for their lack of skills with investments in training. Employees many times see digital competencies as a signal that reports workers ability, agility and potential that a person has for a company (Bokek-Cohen, 2018). At the same time Li et al. (2023) point out that companies and policy makers should invest more in training for overlooked groups such as older employees. The government should invest more in the mobility of human resources and support companies in digital transformation and innovation with tax incentives and subsidies (Wen, et al., 2025).
The main strategy that companies can integrate into their work life to support older employees to be more resilient in the AI era is to build a culture of lifelong learning in the knowledge society (Cramarenco et al., 2023), regarding age.
Here we must emphasize that we have looked at older employees as a homogenous group based on the age. However, older employees are different based on their level of education, socio-economic background,… This can also be a way of further research.

5 Conclusion

This study offers a comprehensive overview of how companies can build resilient older employees who will be able to overcome the challenges of the AI era. AI has shifted the labour market and the skills needed to perform in the labour market. One of the crucial skills in today's labour market are ICT skills that give a person the ability to work with the AI technologies. Older employees are many times overlooked because they lack this set of skills. Based on that it is crucial to equip older employees with the skills they need in the age of AI. The main strategy to build a resilient workforce is to foster the culture of lifelong learning in the organization. This can enable employees to be in continuous learning culture that will equip them with the skills needed to perform on the labour market and workplaces.

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