

KLIMENTINA POPOSKA*
ISKRA STANCHEVA-GIGOV**

NAVIGATING THE DIGITAL DIVIDE: HR CHALLENGES FOR MACEDONIAN SMEs

Abstract

The rapid proliferation of digital technologies has revolutionized business operations worldwide, and Human Resource Management (HRM) is no exception. As organizations seek to remain competitive in the digital age, the integration of technology into HRM practices has become increasingly imperative. This study delves into the digital skills and challenges encountered by Macedonian small and medium-sized enterprises (SMEs) as they navigate the transition to digitized HRM processes. By examining the specific needs and obstacles faced by the SMEs, this research aims to contribute to a deeper understanding of the factors influencing the adoption of digital HRM solutions in the Macedonian business landscape.

Macedonian SMEs often encounter limited digital expertise, insufficient resources, and resistance to technological change. Through qualitative and quantitative analysis, this study examines the current digital capabilities of SMEs and identifies key challenges to successful HRM digitization. The findings underscore the need for targeted training and strategic investment in digital technologies to enable Macedonian SMEs to fully embrace HRM digitization, enhance operational efficiency, and remain competitive in an increasingly digitalized economy.

Key words: Digital skills, HRM, digitalization

JEL classification: M53, L25, J31

* Ph.D., Full-time professor, Institute of Economics, University of „Ss. Cyril and Methodius”, Skopje, Republic of North Macedonia, klimenti@ek-inst.ukim.edu.mk

** Ph.D., Full-time professor, Institute of Economics, University of „Ss. Cyril and Methodius”, Skopje, Republic of North Macedonia, iskra@ek-inst.ukim.edu.mk

INTRODUCTION

The digitization and digital transformation processes offer numerous opportunities and challenges for companies in various operational areas. In today's rapidly evolving digital landscape, the transformation brought by technology impacts Small and medium-sized enterprises (SMEs) in their daily operation and strategies. SMEs must adapt to the digital changes to remain competitive and thrive in an increasingly digital economy. One area that has seen significant transformation is Human Resource Management (HRM), where digital tools are revolutionizing traditional practices and enabling HR departments to shift their focus from administrative tasks to more strategic, people-oriented functions.

Digitization within HRM processes involves the use of advanced technologies to streamline and enhance functions such as talent acquisition (recruitment, selection, training, and retention), workforce planning, performance management, and employee development. By leveraging digital tools, HR teams can make data-driven decisions, improve efficiency, and contribute to the long-term sustainability of their organizations. This digital transformation of HRM is critical, as human capital is a key driver of economic success for any enterprise. For Macedonian SMEs, the digitization of HRM processes offers an opportunity not only to optimize internal operations, but also to improve employee engagement, retention, and overall organizational performance.

The urgency of digitization within HRM became particularly evident during the COVID-19 pandemic. The global crisis accelerated the adoption of digital technologies across all business functions, including HRM, as companies faced unprecedented challenges in managing remote workforces, maintaining employee productivity, and ensuring business continuity.¹ Enterprises that had already begun their digital transformation were better equipped to navigate these challenges, while others were forced to adapt to the new realities quickly. The pandemic highlighted the critical role of digitalization in ensuring operational resilience, especially in HRM, where technology-enabled virtual recruitment, remote onboarding, digital training, and performance monitoring. Despite these advances, many SMEs still struggle with the digitalization process, particularly in HRM, where several factors influencing the adoption of digital tools remain unclear.

¹ Zavyalova, E., Sokolov, D., Kucherov, D., & Lisovskaya, A. (2022). The digitalization of human resource management: Present and future. *Foresight and STI Governance*, 16 (2), 42-51. P:42.

For SMEs, the digitization of HRM presents a complex challenge. While the potential benefits of digitalization, such as improved efficiency, cost savings, and better decision-making, are clear, many SMEs face significant obstacles in implementing these changes. Limited financial resources, a lack of in-house digital expertise, and resistance to change often hinder SMEs from developing and executing a comprehensive digital strategy. As a result, they may lag behind larger organizations in adopting HRM technologies and fail to fully capitalize on the advantages of digitization. For HR departments in SMEs, this can mean underutilized potential, as they are unable to serve as strategic internal partners in driving business growth and innovation.

Given these challenges, it is essential to understand the specific digital skills required for the successful digitization of HRM processes in SMEs. This research focuses on identifying the digital competencies necessary for HR professionals to navigate the digital transformation, the training and preparation required to build these skills, and the challenges Macedonian SMEs face in implementing digital HRM solutions.

To provide a comprehensive understanding of these issues, the study is based on a survey conducted with 58 Macedonian SMEs. The survey collects data on the current state of HRM digitization within these companies, the digital skills of their HR teams, and the obstacles they face in the digitization process. A cross-sectional analysis of the survey results is conducted to identify key trends, challenges, and opportunities. This research aims to shed light on the barriers to digital transformation in HRM for Macedonian SMEs and offer recommendations for overcoming these challenges, ultimately enabling SMEs to harness the full potential of digital HRM processes.

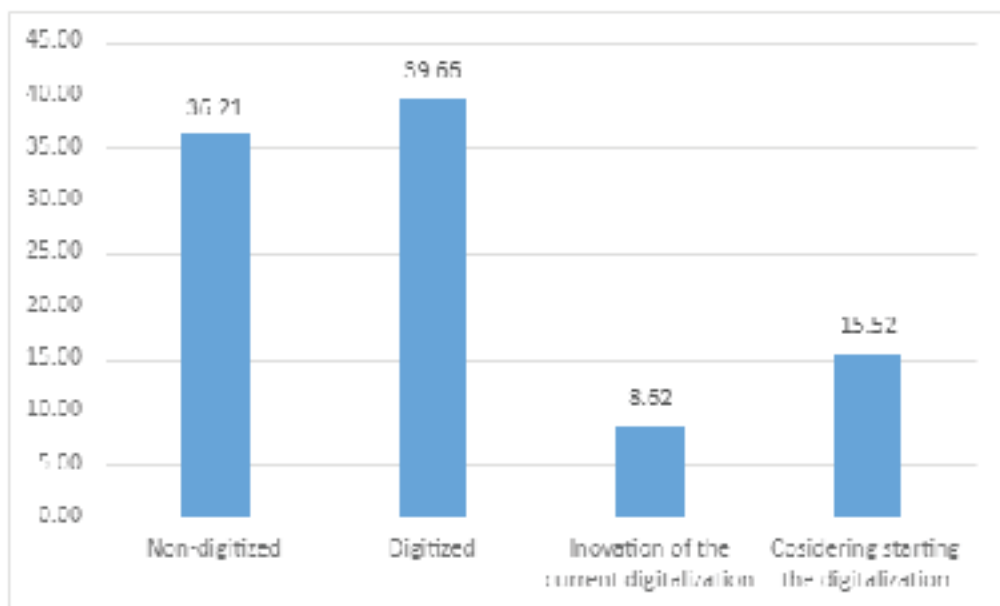
1. IDENTIFYING THE LEVEL OF DIGITALIZATION IN SMES

SMEs are aware of and can benefit significantly from digital systems, yet the time, skills, and finances required for the digital development of SMEs are scarce. Such limitations determine the level of SME digitalization. Moreover, the current solutions offered to SME's digitalization are stand-alone and not integrated, due to their specific needs.²

² Telukdarie, A., Dube, T., Matjuta, P., & Philbin, S. (2023). The opportunities and challenges of digitalization for SME's. *Procedia Computer Science*, 217, 689-698. <https://www.sciencedirect.com/science/article/pii/S1877050922023432>

To identify the level of digitalization of Macedonian SME businesses, the research is based on the data referring to the micro (up to 10 employees), small (11-25 employees), and medium enterprises (26-50 employees).

Graph 1. Level of SME Digitalization

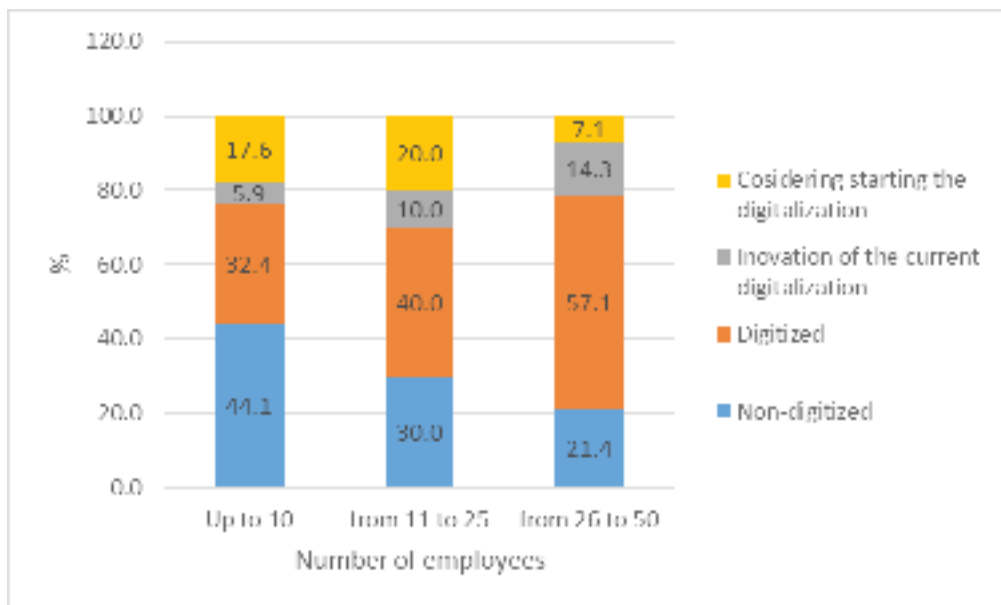


Source: Authors' calculations

Digitization in SMEs, according to the obtained results, shows that 40% of SMEs are digitized, 36% are not digitized, 16% are considering starting digitization, and 9% are innovating their existing digitization. Hence, it can be concluded that there is room for digitization, both in businesses that do not yet have digitization and in SMEs that aim to innovate their existing digitization in the future, thereby improving the operation of SMEs.

From the aspect of activities, the research demonstrated that digitization is mainly present in the service businesses, where existing digitization is being innovated, and there is consideration for starting the digitization process. In contrast, trading businesses are mainly without digitization, and they are considering starting the process of digitalization.

Graph 2. Digitalization level according to the size of SMEs



Source: Authors' calculations

Analysis from the aspect of the SME size demonstrates that micro-businesses with up to 10 employees have a higher percentage of non-digitization (44.1%), although the percentage of digitized micro-businesses and those innovating existing digitization is also significant, at 38.3%. Small businesses account for 40% of digitization, 10% are innovating current digitalization, and 20% of them are considering starting digitalization. In micro and small businesses there is a huge space for digitalization, since the level of non-digitalization is 44,1% and 30%, respectively. For medium businesses with 26 to 50 employees, there is a higher percentage of digitized and those innovating existing digitization (71,4%) compared to non-digitized businesses, which make up 21,4% of the analyzed medium businesses.

2. DIGITAL SKILLS AND EMPLOYEE TRAINING IN THE PROCESS OF DIGITIZATION

Digital skills have become a cornerstone of success for SMEs enabling them to compete effectively in the global marketplace. These skills enable businesses to operate more efficiently, reach a wider audience, and stay competitive.

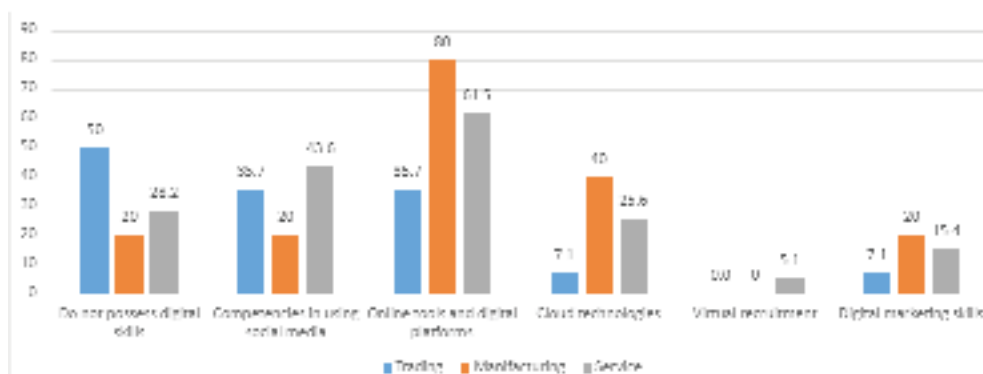
SMEs can develop digital skills through the following means:

- **Training and Upskilling:** Provide employees with training programs and workshops to develop necessary digital skills.
- **Online Resources:** Encourage employees to explore online courses, tutorials, and webinars.
- **Partnerships:** Collaborate with technology providers or consultants to access expertise and resources.
- **Digital Transformation Strategy:** Develop a clear plan for adopting digital technologies and integrating them into business processes.

According to the research for Macedonian SMEs, the main reason for not having digitization is the lack of digital skills among employees, as well as the ability to use online tools and digital platforms, which hinders the digitization process in the analyzed SMEs.

Unlike SMEs that are in the process of digitization and those innovating existing digitization, the primary prerequisite for their level of digitization is the use of online tools and digital platforms and competencies in using social media and cloud technologies. In addition, virtual recruitment as a concept is minimally present in businesses that are digitizing. For businesses considering starting the digitization process, the main skills they possess are competencies in using social media.

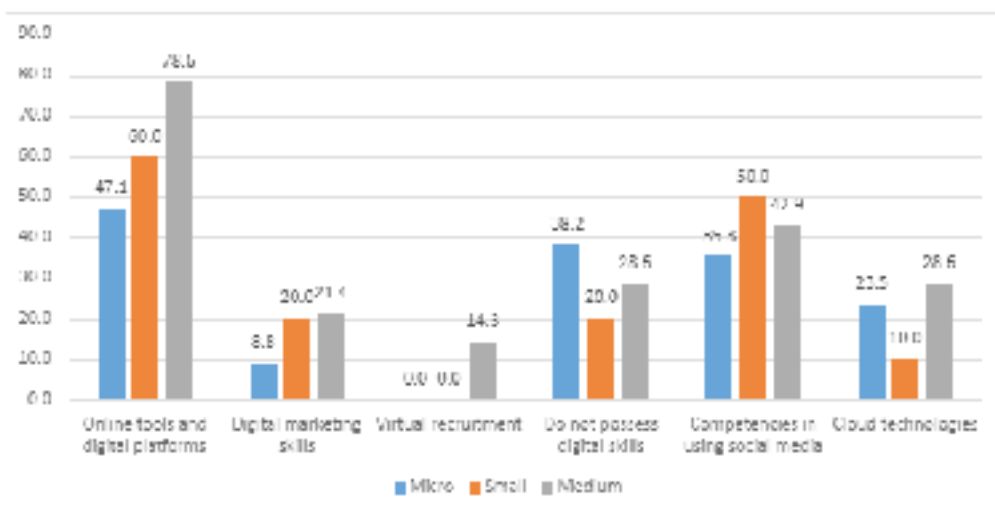
Chart 3. Digital skills from the aspect of the type of business activities



Source: Authors' calculations

From the aspect of the business's activity, 28% of companies in the service sector do not possess digital skills at all, while the remaining analyzed service businesses mainly can use online tools and digital platforms, competencies in using social media, and cloud technologies. Similarly, 50% of the analyzed trading enterprises lack digital skills, while the remaining trading businesses can use online tools and digital platforms, as well as competencies in using social media. Among manufacturing businesses, 20% stated that they lack digital skills, while the rest mainly can use online tools and digital platforms. Virtual recruitment as a skill is not present in the manufacturing and trading sectors, only in the service sector, and in 5% of the analyzed service businesses.

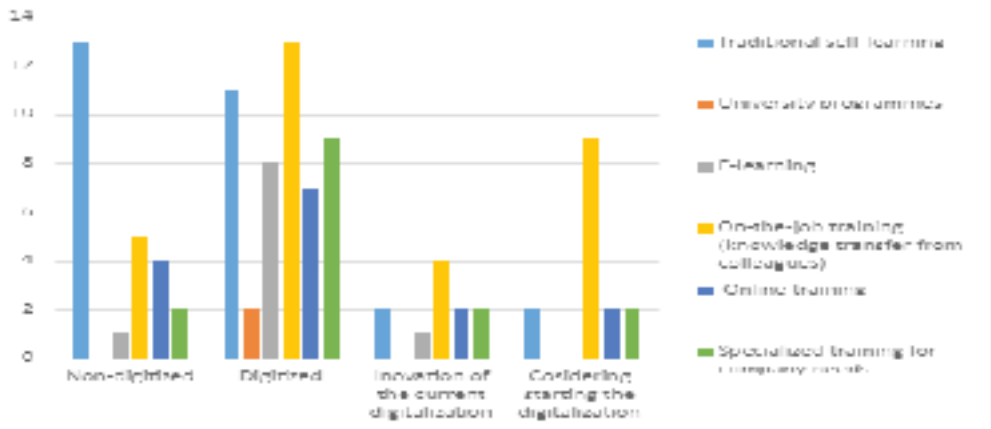
Chart 4. Digital skills from the aspect of the size of SMEs



Source: Authors' calculations

Analysis from the aspect of the size of small businesses shows that micro-businesses with up to 10 employees have a higher percentage of lacking digital skills, have competencies in using social skills, and do not use virtual recruitment, which is expected, given that HRM practices are not established. Medium businesses with 26 to 50 employees, where HRM practices can be established, not only have the ability to use online tools, digital platforms, and social media but also use virtual recruitment in the HRM process.

Chart 5. Types of training in the process of digitalization



Source: Authors’ calculations

The training and utilizing the multiple methods in training represent one of the crucial tools in the process of digitalization in SMEs. The result of the research indicated that in the SMEs without digitization, traditional self-learning dominates in terms of preparing employees for digitization. Additionally, on-the-job training (knowledge transfer from colleagues) and online training are also less used. In contrast, businesses with digitization and those innovating existing digitization use multiple methods to train employees for digitization. While on-the-job training (knowledge transfer from colleagues) and traditional self-learning dominate, specialized training for company needs, e-learning, and online training are also significantly represented.

From the aspect of activity, the previously mentioned conclusions regarding the training and preparation of employees for digitization are confirmed in each sector separately.

3. CHALLENGES IN DIGITIZING HRM PROCESSES

SMEs account for about 90% of businesses and they contribute significantly to job creation (50%) and global economic development.³ Unlike their vast economic contribution, SMEs are constrained by many challenges categorized into several areas:⁴

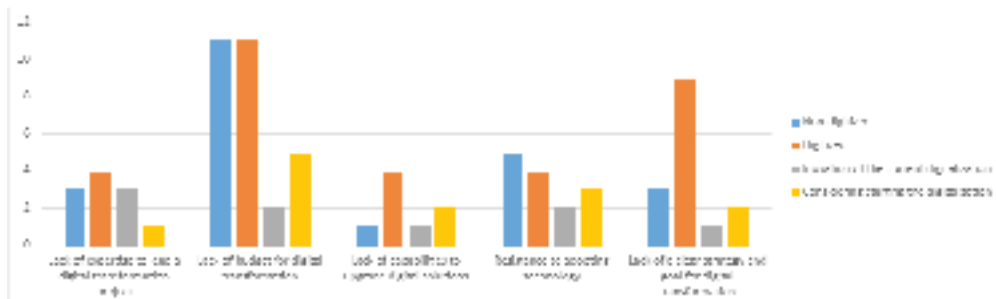
3 [] Zall JK, Rist RC. A Handbook for Development Practitioners: Ten Steps Ten Steps to a Results-Based Monitoring and Evaluation System to a Results-Based Monitoring and Evaluation System. The World Bank; 2006.

4 Telukdarie, A., Dube, T., Matjuta, P., & Philbin, S. (2023). The opportunities and challenges of digitalization for SMEs. *Procedia Computer Science*, 217, 689-698. <https://www.sciencedirect.com/science/article/pii/S1877050922023432>

- **Technical Barriers:** ICT and lack of skilled employees and managers
- **Organizational Barriers:** such as lack of financial resources, lack of management support, resistance to change, and lack of R&D infrastructure, etc.
- **Technological Barriers:** Due to a lack of knowledge, SMEs are hesitant to implement advanced service technologies, which promote innovation in manufacturing, logistic operations, and other activities. (e.g., Enterprise Resource Planning (ERP) or Computer-Aided Design (CAD), Artificial Intelligence, or Industry 4.0 Applications like BDA).

These challenges can be mitigated with the appropriate digital tools. Hence, this research identifies the challenges in digitizing HRM processes in Macedonian SMEs.

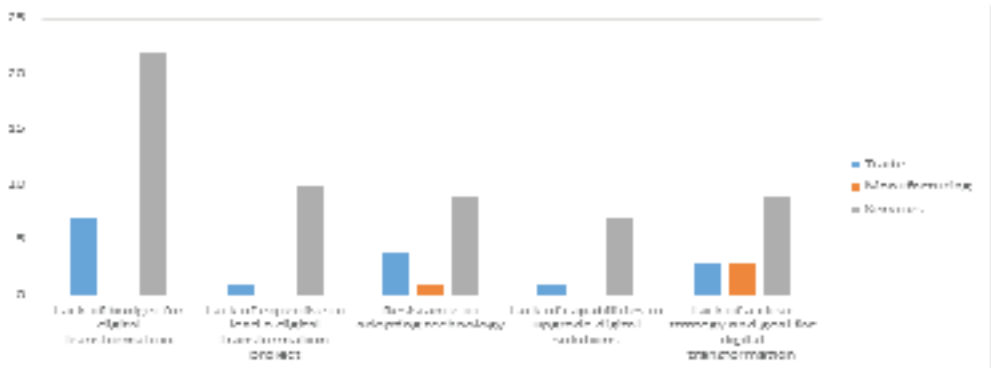
Chart 6. The main challenges in digitalizing HRM processes



Source: Authors' calculations

The research indicated that the main challenge faced by enterprises in digitizing HRM processes is the lack of budget for digital transformation, accounting for 50% of the total analyzed challenges, which is the case for all businesses regardless of their level of digitization. For SMEs without digitization, the main challenges for digitizing HRM processes besides the budget are as follows: resistance to adopting technology, lack of a clear strategy and goal for digital transformation, and lack of expertise to lead a digital transformation project. SMEs that are digitized face the same challenges as those without digitization, in the same order of importance. For businesses innovating existing digitization, the main challenge is the lack of expertise to lead a digital transformation project. Given that these businesses are at a higher level of digitization, it is entirely justified that they need more expertise, and higher expertise represents a greater challenge than the budget challenge.

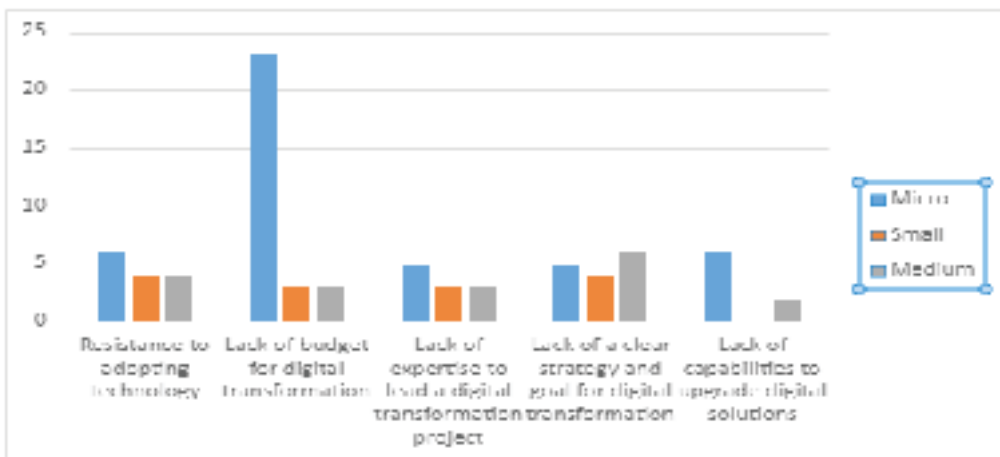
Chart 7. The main challenges in digitalizing from the aspect of the main activity of SMEs



Source: Authors’ calculations

From the aspect of the main activity of the SMEs, service enterprises mainly face the challenge of lack of budget for digital transformation, followed by the challenge of expertise to lead a digital transformation project, lack of a clear strategy and goal for digital transformation, and resistance to adopting technology. In trading businesses, besides the dominant challenge of lack of budget, resistance to adopting technology follows, then lack of a clear strategy and goal for digital transformation. This last challenge is the most important for manufacturing businesses.

Chat 8. The main challenges in digitalizing from the aspect of the SME size



Source: Authors’ calculations

Analysis from the aspect of the SME size demonstrates that the main challenge for micro-businesses with up to 10 employees is the lack of budget for digital transformation. In contrast for the medium size SMEs with 26 to 50 employees, the main challenge is the lack of a clear strategy and goal for digital transformation.

According to the results of the research on digital skills required for the digitization of HRM processes in small businesses, it can be concluded that they are still at a low level. This is clearly shown by the lack of skills for digitization or being limited to basic skills, and the absence of virtual recruitment as an advanced skill in the digitization process. The absence of virtual recruitment skills and a reliance on basic digitization competencies demonstrate a gap in digital proficiency. In terms of the type of activity, service sectors significantly lead in digital skills possession by employees and HRM, compared to trading and manufacturing businesses. Hence, it can be concluded that there is room for building and improving digital skills in SMEs and increasing awareness among employees and HRM about their needs and capacity building in this direction. In addition, since lack of finance was a major constraint for SMEs, they have limited access to external consultants, a lack of more specialized IT professionals, and further steps of digitalization such as machine learning and big data.⁵

The challenges for SMEs in the digitization process, according to the research results, mainly come down to the budget as the main challenge and a small part to the lack of expertise to lead a digital transformation project. This result clearly shows the lack or low level of digitization of the SMEs, as the required expertise to lead a digital transformation project appears only in the businesses innovating existing digitization.

5 Telukdarie, A., Dube, T., Matjuta, P., & Philbin, S. (2023). The opportunities and challenges of digitalization for SME's. *Procedia Computer Science*, 217, 689-698. <https://www.sciencedirect.com/science/article/pii/S1877050922023432>

CONCLUSION

The process of digitalization plays a crucial part in shaping the working processes in every company to keep pace in the increased competitive environment, although in some industries the digitalization influence is rather higher than in others. For more efficient digitization of work processes related to human resources, HR professionals must create alternative digital processes for workforce recruitment, using video conferencing for better candidate recruitment or virtual career fairs, workspaces, and other engaging virtual platforms to enable candidates or employees to communicate more effectively. Increasing awareness of employee and HR training methods for digitization, allocating appropriate budgets, and identifying the advantages of these are necessary steps toward leveraging the benefits of the digitization process. Research indicates that there is a technological knowledge gap within the SMEs. Many SMEs have minor skills and expertise to use digital transformation technologies' potential. Therefore, most SMEs don't use the available digital solutions and their potential benefits.

Above mention digital skills gap presents a significant challenge for Macedonian SMEs in the process of digitizing the HRM processes. Furthermore, many SMEs struggle with limited funding, lack of expertise for leading the digital project, lack of strategy and goal for digital transformation, lack of capability to upgrade digital solutions, and resistance to change. Solving these challenges requires investment in digital skill development, training programs, university programs, online training, and supportive policies to ensure that SMEs can successfully integrate digitalization into the HRM processes.

In conclusion, while Macedonian SMEs recognize the potential benefits of digitalization, significant barriers such as limited resources, skills, and finances hinder their progress. The current landscape of standalone, non-integrated digital solutions further complicates the process. To address these challenges, SMEs must prioritize targeted training and strategic investment in digital technologies. Strategic investment in targeted digital training is paramount for Macedonian SMEs to fully leverage HR digitization, boosting operational efficiency and maintaining competitiveness in the digital age. By this process, Macedonian SMEs can improve their operation, decrease costs, increase efficiency, enhance their competitiveness, and adapt to the digital economy.

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