



FACTORS FOR SUCCESSFUL IMPLEMENTATION OF DIGITAL EDUCATIONAL PLATFORMS IN CONTINUING VOCATIONAL EDUCATION

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Abstract. *This report examines the critical factors influencing the successful implementation of digital learning platforms in training in Bulgarian enterprises. The study assesses the readiness of Bulgarian companies to adopt digital learning platforms, using data from the National Statistical Institute and Eurostat. This assessment includes analysis of Internet usage, digital skills, cloud solutions, and collaboration with educational institutions.*

Keywords: *digitalisation of cultural heritage, cultural tourism*

Introduction

Industry 4.0 has a substantial impact on work processes, organization, content, and relationships, placing new demands on human resource qualifications, knowledge, and abilities (Spottl and Windelband, 2021). Vocational education and training are expected to play an important role in responding to changing conditions and demand in economies and industries, particularly in the industrialized world. Using work-related learning to adapt to structural changes induced by technological and demographic factors promotes employee security, occupational flexibility, and workplace engagement (Becker, 2019). Lifelong learning as a priority topic of European policy in the field of education and training is highlighted as a priority area in the Strategic Framework for the Development of Education, Training, and Learning in the Republic of Bulgaria in 2021–2030. (MOH, 2021).

This paper presents part of the results of a study conducted among Bulgarian enterprises within the framework of the ABECVET project, the main objective of which is to enrich Bulgarian and European fundamental scientific research on lifelong learning by investigating the attitudes of Bulgarian entrepreneurs towards continuing vocational education and human resource training and on this basis to derive specific policies and measures to promote company investment in human capital in the organization. One of the main research tasks that the project team is working on is the analysis and modeling of the factors, causes and obstacles to company investments in various forms of continuing professional education and training.

Contemporary trends in continuing professional education are shaped by the rise of new technologies, changes in the work environment, and the growing need for continuous upskilling of workers. Some of the key trends in this context include digitization and online education, adaptive learning and smart technologies, micro-learning, certification programs,

¹ Digital Presentation and Preservation of Cultural and Scientific Heritage. Conference Proceedings. Vol. 13, Sofia, Bulgaria: Institute of Mathematics and Informatics – BAS, 2023. ISSN: 1314-4006, eISSN: 2535-0366

on-the-job training, interactive learning methods, and virtual reality. Digital education platforms adapt to these trends by offering online learning and personalized courses.

They enable customizable programming and individualized educational possibilities by combining smart technology with microlearning. These platforms also encourage self-directed learning and engagement in on-the-job training, which meets the needs of today's labor market. The current study's research focus is on identifying the characteristics that contribute to the successful adoption of digital training platforms in Bulgarian organizations.

Digital Educational Platform for Continuous Vocational Training

A digital educational platform for continuous vocational training is a comprehensive online system designed to facilitate ongoing learning and skill development for professionals within a specific industry or field. The platform's individual features change depending on the purpose its users are attempting to attain (Jacobides et al., 2018). Here are key features and components that it may incorporate: 1. *User-Friendly Interface*: Intuitive design and navigation for ease of use by learners of varying technical abilities. 2. *Multimedia Learning Resources*: Varied content formats, including video lectures, interactive simulations, e-books, and quizzes, to cater to diverse learning preferences. 3. *Adaptive Learning Paths*: Personalized learning journeys based on individual learner needs, allowing for a customized progression through the training materials. 4. *Assessment and Feedback*: Regular assessments and quizzes to evaluate learners' comprehension and retention, with instant feedback to reinforce learning. 5. *Certification and Badging*: Provision of certificates or badges upon successful completion of courses, enhancing the credibility of acquired skills. 6. *Collaborative Learning Tools*: Discussion forums, group projects, and collaborative activities to encourage interaction and knowledge-sharing among learners. 7. *Real-world Simulations*: Virtual scenarios and simulations that replicate workplace situations, providing practical experience and application of acquired knowledge. 8. *Progress Tracking and Analytics*: Tools for learners and administrators to track progress, identify strengths and weaknesses, and generate analytics for continuous improvement. 9. *Mobile Compatibility*: Responsive design or dedicated mobile applications to enable learning on various devices, promoting accessibility and flexibility. 10. *Integration with Learning Management Systems (LMS) and Human Resources (HR) Systems*: Seamless integration with existing LMS and HR systems to streamline administration and reporting. 11. *Industry-Relevant Content*: Up-to-date and industry-specific content that aligns with the latest trends, technologies, and regulatory requirements. 12. *Gamification Elements*: Gamified features, such as leaderboards, challenges, and rewards, to enhance engagement and motivation among learners. 13. *Continuous Updates and Maintenance*: Regular updates to the content and platform features, addressing emerging trends and maintaining relevance over time. 14. *Security and Privacy Measures*: Robust security protocols to safeguard user data and ensure compliance with privacy regulations.

Several widely used global platforms are accessible in Bulgaria and can be used for professional training, such as LinkedIn Learning, which offers a diverse range of professional development courses; Coursera and edX, which feature online courses, certifications, and degree programs from top universities and institutions; Google Workspace for Education, which provides tools like Google Classroom for collaborative learning; Zoom, Microsoft Teams, and WebEx, which enable live training sessions, workshops, and seminars.



Factors influencing the use of digital educational platforms in enterprise training in Bulgaria.

The successful implementation of digital educational platforms in continuing vocational education in Bulgarian enterprises requires careful consideration of various factors. *Digital infrastructure* and access are foundational factors for the successful integration of digital educational platforms in continuing vocational education in Bulgarian enterprises. Insufficient or unreliable *internet access* can hinder the effectiveness of digital education platforms. *Appropriate hardware* ensures that the devices meet the technical requirements of the digital platforms used. *Cloud solutions* offer scalability, flexibility, and accessibility from different locations. *Digital literacy training* includes navigating digital platforms, troubleshooting common problems, and understanding the basics of online collaboration. *Technological integration* and *compatibility* of the chosen platform and the existing technologies and systems used in the enterprise ensure a smooth implementation and reduce potential technical problems. The educational content available through the platform should be tailored to *the specific needs* of vocational training programs. Customization options can improve *engagement and meet industry-specific requirements*. Engagement is critical to the success of any educational platform. Interactive content, gamification, and collaborative activities are successful engagement strategies. *Feedback mechanisms* help in evaluating the effectiveness of digital platforms and enable necessary improvements. Course content delivered through digital platforms should be aligned with preparing learners for *real-world work scenarios*. *Collaboration with industrial partners and educational institutions* can help in following current trends and shaping the content and structure of vocational education programs.

Assessing Readiness Factors in Bulgarian Companies

One of the subtasks of the research task mentioned above is to investigate the elements that influence the successful implementation of digital learning platforms in Bulgarian companies. This research covers two aspects of the problem: the readiness of enterprises to implement training through digital platforms and the evaluation of the effectiveness factors of digital platforms in corporate training. For the first one, data from the National Statistical Institute and Eurostat are used to explore the possibility of implementing learning in the enterprise through digital platforms, including digital infrastructure, internet access, cloud solutions, digital skills, cooperation with industrial partners, and educational institutions. This report presents the results obtained from this study. A survey will be conducted among Bulgarian enterprises that use digital training platforms to assess the factors influencing how effective they are in corporate training, such as course content tailored to the enterprise's specific business needs, engagement strategies, and feedback mechanisms.

In Bulgaria, there is a significant disparity in internet usage for business purposes compared to the European Union average. The manufacturing sector in Bulgaria has a value of 61.3%, while services have a value of 66.1%, indicating a broader acceptance of digital technologies in services compared to manufacturing. Regional differences are also noted, with the Northwest region having the lowest value in the country (23.5%), while the Southwest region has the highest value (50.4%). In the services sector, the Southwest region achieves high scores of 57.4%, and the Northeast region scores 43.9%. The overall trend in the European Union shows a consistent increase in the percentage of employees using the internet in their enterprises for business purposes, rising from 40.6% in 2021 to 54.2% in 2023 (Table 1). Despite this growth, Bulgaria remains below the European Union average.

Table 1. Digital Engagement Trends: Computer and Internet Usage, Social Media Adoption, and Digital Skills in the European Union and Bulgaria (Percentage of total employment) (source Eurostat)

	2021	2023	2021	2023	2021	2023
	Use of computers and the internet by employees by NACE Rev.2 activity		Social media use		Individuals who have basic or above basic overall digital skills	
European Union - 27 countries	52.1	54.2	58.7	60.9	53.92	55.51
Bulgaria	23.3	26.6	38.9	38.0	31.18	35.52

From 2019 to 2023, the percentage of firms using social media in Bulgaria has been steadily increasing. However, Bulgaria continues to fall short of the European norm (Table 1). Larger companies with 250 or more employees have higher percentages of social media use, reaching 37.2% in 2023, similar to European countries. Increased use of social networks in enterprises can serve as a platform for disseminating information, encouraging employee communication, and even enabling the adoption of digital educational platforms for real-time learning and information sharing.

Despite a recent improved trend, Bulgaria is one of the countries with lower percentages of individuals with strong digital skills than the average European indicator (Table 1). The overall percentage of people with basic and above-basic digital abilities has risen from 31.2% in 2021 to 35.5% in 2023, reflecting initiatives to improve digital literacy, with women growing at a faster rate than males. The increase in digital skill ownership among those with basic or lower education levels indicates a favourable trend toward bridging the digital divide, providing chances for additional training via digital learning platforms. The rise in digital skill ownership among youth highlights the possibility for active engagement in digital learning platforms, implying a positive climate for their adoption in Bulgaria's educational landscape. The percentage of enterprises in Bulgaria providing ICT training in 2022 is 9.1%, which is lower than the European average of 22.4%.

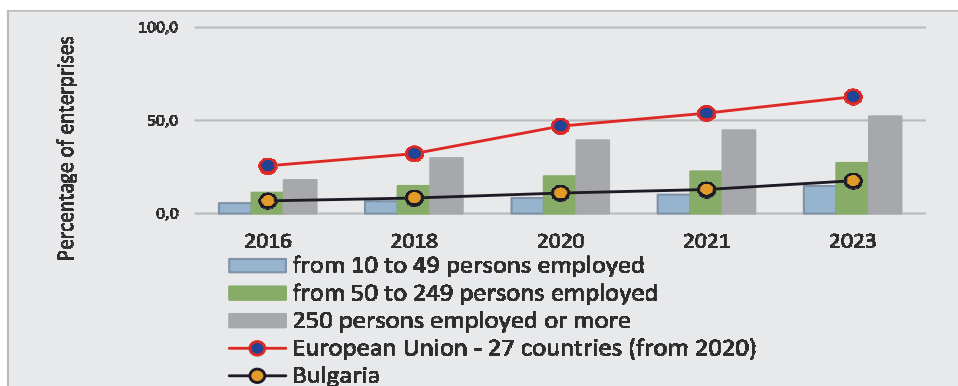


Fig. 1. Businesses using paid cloud computing services (source Eurostat)



The presence of paid cloud services ensures accessibility and security of educational resources, enhances flexibility in the working environment, and relieves businesses from the need for significant investments in hardware and IT infrastructure maintenance. The economic efficiency and the potential for updates make cloud services a key element in the successful implementation of educational platforms, providing an innovative and secure approach to corporate training. The results of using paid cloud services in the business sector in Bulgaria show positive dynamics from 2016 to 2023, with a significant increase observed in enterprises with over 250 employees, rising from 17.9% in 2016 to 52.2% in 2023 (fig. 1). In comparison with the European average for 27 countries, Bulgaria also demonstrates a positive trend, albeit with a lower overall percentage during the studied period, increasing from 18.9% in 2016 to 45.2% in 2023.

Collaboration with university organizations and educational institutions can enrich corporate training by providing access to up-to-date scientific knowledge and expertise. Such partnerships offer opportunities for personalized training tailored to the specific needs and goals of the enterprise. Additionally, universities serve as hubs for innovation and pioneering, stimulating the development of new methods and technologies for corporate learning in the professional environment. A survey conducted in 2019 among 150 Bulgarian enterprises from the South-East and South-West regions using the survey method to assess the innovative activity of companies showed that about half of the respondents did not answer the questions about cooperation with university organizations and research institutes. It can be assumed that the reason for this is the lack of such cooperation of the company in which they work with this type of organization.

Conclusions

Digital educational platforms used for lifelong learning are an excellent method to achieve quality results in a short time frame within continuous professional training. The research on assessing readiness factors in Bulgarian companies for the implementation of digital learning platforms highlights significant disparities in internet usage for business purposes compared to the European Union average, with Bulgaria lagging. The study reveals a positive trend in the adoption of paid cloud services in the business sector in Bulgaria, particularly among larger enterprises, indicating their role in enhancing accessibility and security of educational resources. In terms of digital skills, there is a lower percentage of individuals with strong digital skills in Bulgaria compared to the European average, raising questions about strategies to address this gap and its impact on the effectiveness of digital learning platforms. Initiatives to improve digital literacy and the need for more active engagement with university organizations for innovative training programs also emerge as key considerations.

Acknowledgements

This research was supported by the project „Attitude of Bulgarian Entrepreneurs and Managers towards Continuing Vocational Education and Training of Organization’s Human Resources“, (ABECVET), contract KII-06-H65/12, funded by the Bulgarian National Science Fund (BNSF).

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