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SHAPING DIGITAL CULTURE FOR SUSTAINABLE COMPETITIVE ADVANTAGE: EVIDENCE FROM BOSNIA AND HERZEGOVINA AND BULGARIA

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Abstract: Digital culture is recognised as one of the key company competencies associated with a sustainable competitive advantage. Leaders play a vital role in creating a digital culture that enhances the company's digital competencies by investing in individual and company knowledge to increase its innovation capacity. The study indicates that combining transformational and transactional leadership is essential for shaping digital culture successfully. The positive correlation between the level of development of digital culture and competitive advantage highlights the strategic importance of digital culture in raising a company's digital maturity and ability to compete. The findings that companies in Bosnia and Herzegovina and Bulgaria invest more in company knowledge than individual knowledge open new perspectives in strategic planning. Companies should balance knowledge investment at individual and company levels to foster innovation. As leadership, digital culture, and balanced knowledge investment collectively contribute to innovation and sustainable competitive advantage, there is a need for a holistic approach to address this issue.

Keywords: digital culture, leadership, digital knowledge investment, innovation, competitive advantage

JEL Classification: L21, M15, M54, O32

INTRODUCTION

The notion of sustainable competitiveness pertains to the attributes and proficiencies of the company that enable it to surpass competitors in meeting consumer

demands, i.e., producing value that is hard to replicate. This necessitates ongoing investments in company and individual knowledge to boost innovative potential. Digital innovations and the effective execution of digital transformation are critical components of sustainable competitiveness (Chege, Wang, & Sunttu, 2020). Digital transformation involves the integration of internal and external resources through information and communication technologies to adapt to the changing digital world, reshaping the corporate vision, strategy, organizational structure, processes, capabilities and culture (Vial, 2019). Evolving technology enables managers to organize employees' tasks better to increase productivity and effectiveness (Ilić, Ostojić, & Ilić, 2024). Businesses that embark on a digital transformation journey undergo significant organizational changes. This implies new business forms and the application of innovative solutions inherent in the modern digital age. Digital transformation is not only about digital technologies (Kuczevska, Praničević, Borowicz, & Talaja, 2023).

Leaders need to help employees embrace change and provide support in creating a new belief system woven into the organisational culture that supports digital transformation. A leader should be emotionally intelligent, lead the process democratically, share responsibilities, be decisive and cooperative, motivate employees, and give them regular feedback (Oberer & Erkollar, 2018). Digital transformation is complex and is often an obstacle to digital transformation (Velyako & Musa, 2023). Organisational culture often reflects the surface level of the relationship between employees and the organisational environment (Ryan, Horvath, Ployhart, Schmitt, & Slade, 2000). Knowledge management can only be successful if the organisational culture supports knowledge flow (Davenport, DeLong, & Breers, 1998). Technology is often at odds with organisational culture, so changing organisational culture is one of the most challenging tasks of leaders (Zhou & Fink, 2003; Gallivan & Srite, 2005). Social measures, such as proactive leadership and a culture of openness, create a positive organisational climate and the technical infrastructure facilitates knowledge flow (Jaganjac, Pulić, Radovanović, Virijejić Jovanović, & Handžić, 2018). To successfully shape a digital culture, leaders need to have the knowledge, skills, and abilities that create the climate for a sustainable competitive advantage. This implies industry knowledge, strategic agility, negotiation, managerial, and digital skills, and the ability to build business networks (Jaganjac, & Lukić-Nikolić, 2023).

Leaders often consider conflicting ideas about future business directions in a business taking place under numerous economic, political, social, and technological influences. At the same time, they should demonstrate the ability to ensure the day-to-day functioning of the organisation. Leadership focuses on transforming organisational culture by reinforcing fundamental values that highlight the intended outcome and developing new values that support the more effective performance of the individual, group, and company, taking into account the internal and external business environment. Bolman and Deal (2013) emphasise the importance of aligning organisational behaviour and leadership with the changes that working in a digital environment entails.

According to Peters and Waterman (2006), the stronger and more market-oriented the organisational culture is, the less there is a need for strict structures, procedures, and rules, and organisations are more driven by creating value for all interested parties. Inadequate organisational culture detrimentally impacts business operations as

it tends to be inflexible, inefficient, and resistant to change. Moreover, a strong organisational culture can hinder an organisation's ability to adapt to new technology and environmental situations as quickly as needed. This can cause organisations to lose their competitive advantage over their rivals. An organisational culture suitable for digital transformation does not have a fixed set of characteristics. However, certain key features can be identified, such as a focus on the external environment, a high level of decentralisation, investment in knowledge and employee skills, technology, a willingness to take calculated risks and tolerate errors, teamwork, innovation, and response to changes in the environment (Tuukkanen, Wolgast & Rusu, 2022).

Digital culture requires leaders to take on roles beyond traditional management functions. Leaders should be catalysts for change, shaping an organisational culture that promotes digital innovation and learning (Petrie, 2011). Companies with a strong digital culture use digital tools, have a developed digital infrastructure, are focused on the customer, invest in the knowledge and skills of employees, and innovate to ensure a sustainable competitive advantage.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Digital culture, leadership, sustainable competitiveness

Digital culture aims to increase a company's maturity for successful digital transformation. Digital culture is based on cooperation, creativity, and innovation, leading to business improvement by exchanging digital strategies between leaders and employees. Leaders help digital transformation by managing the process and ensuring its sustainability (Estensoro, Larrea, Muller, & Sisti, 2022). This means that digital leaders should be able to develop new business models (Durmus, 2022) while ensuring the balance of old and new ways of working during the transformation process. Leaders with a digital transformation mindset build networked organisations for collaboration and find digital competencies (Frankowska & Rzezeczycki, 2020; Bresciani, Huang, Malhotra, & Ferraris, 2021).

Understanding digital leadership implies analysing the effectiveness of transactional and transformational styles when creating a digital culture. Transactional leadership ensures efficient performance of routine tasks, while transformational style ensures initiatives that add value. Transactional leaders tend to rely on established processes and resist change, hindering the implementation of digital tools and strategies (Tams & Burke, 2018). Numerous studies have shown transformational leadership is the best for initiating organisational culture changes and innovation processes (Matzler, Schwarz, Deutinger, & Harms, 2008; Garcia-Morales, Jimenez-Barrionuevo, & Gutierrez-Gutierrez, 2012; Klatic, Burtscher, & Joans, 2020). These leaders encourage followers to transcend their interests in favour of organisational goals, thereby developing a strong digital culture (Schwarzmueller, Brosi, Duman, & Welp, 2018). Transformational leaders change an organisation's culture by inspiring a sense of mission and purpose about the importance of the group's work and stimulating new ways of thinking and problem-solving (Gavric & Jaganjac, 2020).

Transformational leadership has been proven to enhance employee and organisational performance, particularly in fast-paced, dynamic digital environments (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014) (Purvanova & Bono, 2019). According to Hess, Matt, Benlian, & Wiesböck (2016), transformational leaders can motivate and

strategize, utilising digital tools to effectively develop and implement changes that enhance digital culture and competitiveness. While transformational leadership is acknowledged as authentic digital leadership (Ghafoor, Qureshi, Khan, & Hijazi, 2011) transactional leadership also plays a part in digital transformation, necessitating staff members to maintain their attention on particular tasks and objectives associated with digital initiatives (Brynjolfsson & McAfee, 2014). In the digital age, where leaders must strike a balance between allowing creativity and experimentation and establishing clear expectations, a blend of both leadership philosophies known as situational leadership has proven very effective (Bass & Riggio, 2006; Avolio & Gardner, 2005). By employing this approach, managers can efficiently supervise daily tasks, motivate creativity in problem-solving, and investigate new digital possibilities. Combining transformational and transactional leadership helps companies establish structure and order while encouraging innovation and adaptability for long-term success in the digital era (Nguyen, Groth, & Johnson, 2016).

According to Bogdanić (2012), depending on the company's operations and demographics, mid-level managers in Bosnia and Herzegovina are dedicated to participatory leadership but also hold onto some aspects of non-participative leadership. Similar to the production sector (Pencheva, 2018), research on the characteristics of leadership styles in the service industry in Bulgaria (Petkova-Gourbalova, 2015) revealed that transactional and transformational leadership styles are equally applicable. Studies on leadership styles in the Balkans (Doğar, 2021) revealed that, while autocratic leadership components remain prevalent, a general shift towards transformational leadership is noticeable. Organisational culture is recognised as the main competence associated with sustainable competitiveness, given that it is specific for each company and difficult to imitate (Lismen, Margaret, & Ed, 2004).

Business development and competitiveness are achieved through a high-performance culture (Azeem, Ahmed, Haider, & Sajjad, 2021). Building key company capabilities based on organisational culture enables better market positioning and a sustainable competitive advantage (King & Zeithaml, 2000). Digital organisational culture significantly affects the sustainable performance of the company (Gonzales, Guijarro, & Guzman, 2023). According to Velyako and Musa (2023), digital culture improves a company's digital capabilities, contributing to innovations that ensure a sustainable competitive advantage. According to Strukan, Makić, Ibrahimpašić, Bećiraj, & Fazlić (2017), organisational culture and economic performance in Bosnian and Herzegovina's businesses are strongly correlated, which can result in long-term competitive advantages. Bearing in mind the role and significance of transformational and transactional leadership styles in shaping digital culture, as well as the relation between digital culture and sustainable competitive advantage, the following hypotheses are developed:

H1: When shaping the digital culture in companies in Bosnia and Herzegovina and Bulgaria, a combination of transformational and transactional leadership styles is mostly applied.

H2: There is a positive correlation between the level of digital culture development and the sustainable competitive advantage of companies in Bosnia and Herzegovina and Bulgaria.

Investment in individual and company knowledge, innovations

In a rapidly changing technological environment, it is necessary to meet the equally changing demands of customers. As a result, businesses depend on digital technology to boost employees' and process efficiency (Hervé, Schmitt, & Baldegger, 2020). The synergy theory between human resources and sustainable development is based on understanding the impact of digitalization processes on human capital development and responding to current challenges to achieve organizational success (Vasilev, Stefanova, & Popescu, 2023). In addition to giving staff members the time, resources, and technological access they need to engage in digital innovation, a supportive digital culture encourages candid communication and teamwork (Chillakuri & Vanka, 2022). Investments in the company and individual knowledge should be aligned so that (Klingenberg, Borges, & Antunes Jr, 2021) the company stays ahead of the competition and leverages knowledge towards innovation by utilising employee digital skills in conjunction with digital technology. By integrating and mobilising knowledge, a company's digital capabilities speed up innovation (Cohen, Amoros, & Lundy, 2017). Depending on the digital strategy, knowledge can be directed towards innovations related to products, services, processes, marketing, or business models.

Companies cannot keep pace with technological innovation due to a gap in employees' digital skills, leading to a loss of competitive advantages (Feijao, Flanagan, Van Stolk, & Gunashekar, 2021). A lack of digital skills affects innovation, customer experience, and satisfaction. For companies to be agile and respond to changes in the environment, leaders need to find a way to integrate learning into the daily work experience (Lundqvist, Wallo, Coetzer, & Kock, 2023). Comparing investments in company knowledge in Bosnia and Herzegovina with European countries (Turulja, Alagić, Džananović, & Kačapor, 2021), companies using Enterprise Resource Planning (ERP) rank low along with Bulgaria, Romania, and Hungary, while companies using Customer Relationship Management (CRM) to analyse customer data are at the penultimate place. Only 14% of companies use two or more social media, while Hungary, Bulgaria, and Romania have a slightly lower percentage.

The total turnover of SMEs from sales via e-commerce was 5%, ahead of Bulgaria and Cyprus, with a turnover of 2%. As for innovation results, Bosnia and Herzegovina is at the bottom of the ranking, behind Bulgaria, Romania, and Hungary. In Bosnian companies operating on the international market, digital transformation is incorporated through ERP software solutions, Document Management Systems (DMS), CRM systems and Supply Chain Management (SCM) systems in the public or private cloud, and the situation is more favourable in these companies. Most companies in Bosnia and Herzegovina invest less than 5% of their annual turnover in digitization and the improvement of the digital competencies of their employees. Most employees have below-average digital skills, except basic digital skills such as using e-mail, Internet browsers, and social networks. Bosnia and Herzegovina, Cyprus, and Bulgaria rank lowest amongst the countries whose employees have been given portable devices that enable a mobile connection to the Internet for business use.

In the USA, the situation with digital skills is also not better. According to research (Bergson-Shilcock, & Taylor, 2023), 92% of the jobs that were analysed required digital skills across all industries, and one-third of workers lacked basic digital skills, while another portion did not have the opportunity to acquire them. Considering

the fact that companies generally invest insufficiently in the digital skills of their employees, the hypothesis is developed:

H3: Companies in Bosnia and Herzegovina and Bulgaria invest to a lesser extent in the development of employees' digital skills compared to company knowledge.

RESEARCH METHOD AND DATABASE

To explore the relationship between leadership style and the shaping of organizational culture in the digital era, an online survey was used to collect responses from companies in Bosnia and Herzegovina and Bulgaria.

Sample. Service companies in Bosnia and Herzegovina and Bulgaria were taken as a sample. A stratified selection of participants was used to ensure representativeness across the entire service sector, including health, education, tourism and hospitality, finance, and insurance. The stratified sample was based on the following criteria: industry, company size, market presence (whether the company operates locally, regionally, or internationally), and company age (including startups to established companies over 25 years old).

To reach a representative number of companies according to this segmentation, we utilized business connections, employer associations, and social platforms. The invitation was sent with a clear message about the research's purpose and a guarantee of anonymity.

Process. The analysis of the conducted research is divided into two parts. First, respondents were asked to answer a series of demographic questions to determine their suitability for inclusion in the study. The demographic section of the questionnaire included questions such as the service sector to which they belong, the size of the market, the age of the company, and the number of employees. The second part of the questionnaire addressed questions that tested the hypotheses. Thus, the second part of the questionnaire included digital culture and leadership, where leadership style was investigated and how it affects digital culture in the organization, the sustainability of competitive relations, i.e. the observed impact of digital culture on the company's long-term competitiveness and investment in company knowledge - where the level of investment in company knowledge, as well as individual digital skills, was evaluated.

Table 1. Demographic and main features of the database (% of respondents)

Feature	Bosnia and Herzegovina	Bulgaria	Total
Service Industries			
- Healthcare	48.2%	32.2%	40.2%
- Education	21.2%	25.4%	23.3%
- Tourism and Hospitality	11.8%	12.7%	12.25%
- Finance and Insurance	18.8%	26.3%	22.55%
Number of Employees			
- Over 250 employees	7.1%	9.3%	8.2%
- 50-249 employees	29.4%	22.9%	26.15%

- 10-49 employees	40%	36.4%	38.2%
- Under 10 employees	23.5%	31.4%	27.45%
Market Orientation			
- Domestic	55.3%	64.4%	59.85%
- Regional	34.1%	26.3%	30.2%
- International	10.6%	9.3%	9.95%
Company Longevity			Total
- Over 25 years	47.1%	50.8%	
- 10-25 years	42.4%	25.4%	40.2%
- 2-9 years	9.4%	19.5%	23.3%
- Less than 2 years	1.1%	4.3%	12.25%

Source: Own editing

Table 1. Demographic characteristics of respondents provide insight into participants' business characteristics in two service-focused countries. For both countries, Bosnia and Herzegovina and Bulgaria, the table contains sample data on industry type, company size, market orientation, and company age. The table shows that in Bosnia and Herzegovina, most of the companies in the sample are in the health services sector, whereas the education sector is better represented in Bulgaria. Most companies in both countries are small, with 10 to 49 employees. The companies primarily serve the domestic market, but a significant percentage is present at the regional level. Additionally, a significant percentage of companies have been operating for over 25 years in both countries, indicating the maturity of the service sector. This data can provide insight into factors that influence digital culture and sustainable competitiveness in the service sectors of both countries.

Data analysis. Data analysis was conducted based on responses to an online questionnaire designed to measure digital culture, leadership style, sustainable competitiveness, and investment in digital knowledge and skills within the organization. The questionnaire used a 5-point Likert scale (1 = completely disagree to 5 = completely agree) and covers three key dimensions. 1) Leadership style – here, questions measured transformational and transactional leadership approaches. The questions aim to measure the impact of the leadership approach on digital transformation and the overall work environment. For example: “Our leader regularly shares the vision of the company’s digital transformation with the entire team,” or “In our company, innovative ideas about digital projects are always welcome and encouraged.” 2) Sustainable competitiveness – questions in this segment explore how digital culture contributes to sustainable competitive advantage.

Example questions include: “Compared to competitors, we manage costs more efficiently” and “Our products and services have a higher quality than those of our competitors.” 3) Investment in individual and company knowledge – this section explores the extent to which organizations invest in the digital skills and knowledge of their employees and in knowledge at the level of the entire company. This includes questions like: “To what extent does your company invest in developing employees’ digital skills, such as collaboration platforms, online customer communication, and

data analysis?” or “To what extent does your company invest in company knowledge to improve business processes, such as improved web presence, CRM, and digital marketing tools?”

The answers were analyzed in SPSS. Descriptive statistics were used to summarize demographic variables. Internal consistency was assessed using Cronbach’s alpha, with all constructs achieving values greater than 0.70. To test the first hypothesis, multiple linear regression analysis was applied to examine the impact of transformational and transactional leadership styles on the development of digital culture in companies from Bosnia and Herzegovina and Bulgaria. To test the second hypothesis, Pearson’s correlation coefficient was used to determine the relationship between digital culture and sustainable competitive advantage. Finally, a paired t-test was used to compare the level of investment in digital skills against the overall investment in company knowledge. This analytical approach enabled the verification of the data’s validity and reliability.

RESULTS

Before testing the hypotheses, the data’s reliability and validity were assessed, as shown in Table 2. Table 2 presents the results of the reliability measurements, as indicated by Cronbach’s alpha. All analyzed variables demonstrated high internal consistency, with leadership (0.872), company knowledge (0.913), individual knowledge (0.827), competitiveness (0.864), and digital culture (0.827) all exceeding the recommended threshold of 0.7.

Table 2. Reliability and factor analysis results

Construct	Cronbach’s Alpha	Number of Items	Communalities Initial	Communalities Extraction	Component Matrix
Leadership	0.872	8	1.000	0.656	0.810
Company Knowledge	0.913	6	1.000	0.753	0.868
Individual Knowledge	0.827	3	1.000	0.843	0.918
Competitiveness	0.864	7	1.000	0.694	0.833
Digital Culture	0.827	2	1.000	0.551	0.742

Source: Own editing

To test the first hypothesis, a multiple linear regression analysis was conducted to examine the impact of transformational and transactional leadership styles on the development of digital culture in companies in Bosnia and Herzegovina and Bulgaria. In each national sample, digital culture was treated as a dependent variable, and transformational and transactional leadership as independent predictors. The regression models were evaluated using the coefficient of determination (R^2), ANOVA tests for overall model significance, and Durbin–Watson statistics to assess autocorrelation in the residuals. This approach allowed for a detailed assessment of the extent to which leadership styles explain variations in digital culture across the two contexts. The use of regression analysis provided insights not only into the strength and direction of the relationships but also into the relative contribution of each leadership style in predicting digital culture development.

Table 3. Regression analysis results for the impact of leadership styles on digital culture

Dependent Variable: Digital Culture	Transformational Leadership (BiH)	Transactional Leadership (BiH)	Transformational Leadership (BUL)	Transactional Leadership (BUL)
Standardized Coefficient (β)	0.58	0.32	0.46	0.27
Significance (Sig.)	0.000	0.021	0.000	0.031
R ²	0.73		0.68	
ANOVA (F; Sig.)	F = 41.414; Sig. = 0.000		F = 32.214; Sig. = 0.000	
Durbin-Watson	1.88		1.83	

Source: Own editing

The analysis of regression models carried out for two countries — Bosnia and Herzegovina and Bulgaria — examined the influence of transformational and transactional leadership on the development of digital culture. In both models, the dependent variable was digital culture, while the independent variables represented two forms of leadership. The obtained results show that the models are statistically significant, satisfying the level of variability explanation. The coefficient of determination (R^2) for the model of Bosnia and Herzegovina is 0.73, while for the model of Bulgaria it is slightly lower at 0.68. These indicators suggest that the selected variables explain approximately 70% of the variability of digital culture, which points to the good representativeness of the model and the adequacy of the included predictors.

In terms of regression coefficients, the results show that transformational leadership has a more pronounced impact on digital culture than transactional leadership. In the model for Bosnia and Herzegovina, the standardized beta coefficient for transformational leadership is $\beta = 0.58$ ($p < 0.01$), while for transactional $\beta = 0.32$ ($p < 0.05$). In the model for Bulgaria, the values are somewhat lower, where transformational leadership has a coefficient of $\beta = 0.46$ ($p < 0.01$), and transactional $\beta = 0.27$ ($p < 0.05$). These data clearly indicate that in both contexts the transformational style has a stronger connection with the development of digital culture, while transactional leaders have a moderate, but still statistically significant influence.

The results of the Durbin-Watson test are 1.83 for the model of Bosnia and Herzegovina and 1.88 for the model of Bulgaria, which indicates a slight negative autocorrelation of the residuals, but within acceptable limits, as the values are in the interval between 1.5 and 2.5. This means that there is no significant problem of serial correlation of errors, and the models can be considered reliable.

Overall, the regression analyses confirm that both models are well specified and statistically valid. The higher value of beta coefficients and R^2 in the model for Bosnia and Herzegovina indicates that in this context, leadership — especially transformational — is a stronger driver of the development of digital culture than in Bulgaria. This finding can be connected with the fact that organizations in Bosnia and Herzegovina are more intensively facing the processes of digital adaptation, so the role of leaders in motivating and directing employees is of crucial importance.

In conclusion, the results empirically confirm that leadership style has a statistically significant influence on the formation of digital culture, with the transformational approach showing greater predictive power than the transactional approach.

Both models achieve high reliability and explained variability greater than 70%, with minimal indications of autocorrelation. This confirms the stability of the regression models and the clearly defined connection between leadership and digital culture in both analysed national contexts. To test Hypothesis 2, Pearson's correlation coefficient was used. Hypothesis 2 posits a positive correlation between the level of development of digital culture and sustainable competitive advantage in companies in Bosnia and Herzegovina and Bulgaria (Table 4).

Table 4. Pearson Correlation Coefficients between competitiveness sustainability and digital culture

Correlations			
		Competitiveness_sustainable	Digital_culture
Competitiveness_sustainable	Pearson Correlation	1	,652**
	Sig. (2-tailed)		,000
	N	203	203
Digital_culture	Pearson Correlation	,652**	1
	Sig. (2-tailed)	,000	
	N	203	203

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Own editing

The sample size is 203, and the Pearson correlation coefficient shows a strong positive relationship between the development of digital culture and sustainable competitive advantage ($r = .652$, $p < .001$). The correlation is statistically significant at the 0.01 level, which means that the results are not random. The value of the coefficient $r = .652$ indicates a strong connection: as digital culture improves, so does competitive advantage. The results confirm Hypothesis 2, which posits that companies in Bosnia and Herzegovina and Bulgaria with a developed digital culture are highly likely to achieve a longer-term competitive advantage. To test Hypothesis 3, which asserts that companies in Bosnia and Herzegovina and Bulgaria invest to a lesser extent in the development of employees' digital skills than in company knowledge, the independent-samples t-test was used. This statistical test was selected to compare the mean scores for company knowledge and individual knowledge across the two countries (Table 5).

Table 5. Independent samples t-test results for company and individual knowledge

Independent Samples Test										
		t-test for Equality of Means								
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Company_ knowledge	Equal variances assumed	21,230	,000	-5,164	201	,000	-1,29310	,25041	-1,78687	-,79934
	Equal variances not assumed			-4,924	147,433	,000	-1,29310	,26260	-1,81205	-,77416
Individual_ knowledge	Equal variances assumed	11,644	,001	-5,124	201	,000	-2,37931	,46434	-3,29491	-1,46371
	Equal variances not assumed			-4,896	149,021	,000	-2,37931	,48599	-3,33964	-1,41898

Source: Own editing

Levene's test showed that the variances for company knowledge ($F = 21.230$, $p < .001$) and individual knowledge ($F = 11.644$, $p < .001$) are not equal, meaning that the assumption of equal variances is not met. However, the t-test shows a statistically significant difference between the mean values of company and individual knowledge ($p = .000$ for both variables). Negative mean differences indicate that the values are higher for company knowledge than for individual knowledge (for company knowledge: -1.29310 ($t = -4.924$, $df = 147.433$, $p = .000$), and for individual knowledge: -2.37931 ($t = -4.896$, $df = 149.021$, $p = .000$)). Companies in Bosnia and Herzegovina and Bulgaria invest more in the development of digital capacities at the company level than in helping individuals to improve their digital skills, which supports hypothesis 3.

DISCUSSION

This paper examines the influence of leadership and investment in knowledge and skills on the evolution of digital culture and the attainment of sustainable competitive advantages. The research results show that leaders play a key role in shaping the digital culture. Multiple regression analyses conducted separately for Bosnia and Herzegovina and Bulgaria demonstrate that **transformational leadership has a stronger and more significant impact on the development of digital culture than transactional leadership**. In the Bosnian model, transformational leadership ($\beta = 0.58$, $p < .01$) shows a stronger predictive power compared to transactional leadership ($\beta = 0.32$, $p < .05$), while in the Bulgarian model, the respective coefficients are slightly lower ($\beta = 0.46$, $p < .01$; $\beta = 0.27$, $p < .05$). Both models explain a high proportion of the variance in digital culture ($R^2 = 0.73$ for BiH and $R^2 = 0.68$ for Bulgaria), indicating their robustness and statistical validity. This is consistent with previous research that emphasizes the importance of transformational leadership in fostering innovation and adaptation to the digital environment (Smith & Tushman, 2005).

Hypothesis H2 states that there is a positive correlation between the level of digital culture development and sustainable competitive advantage in Bosnia and Herzegovina and Bulgaria. A significant positive correlation exists between the development of digital culture and competitive advantage ($r = .652$, $p < .001$), indicating that organizations with a more developed digital culture achieve a better market position. These results are consistent with resource theory, which predicts that organizational capabilities, such as digital culture, contribute to sustainable competitive advantage (Barney, 1991). Furthermore, these findings align with Teichert (2019), who highlights that an organization's *digital maturity*—defined as the extent to which digital technologies are integrated into all aspects of business—plays a crucial role in achieving and sustaining competitive advantage. This suggests that companies with higher levels of digital maturity are more likely to develop a culture that supports continuous innovation and adaptability.

The third hypothesis concerns investments in corporate and individual knowledge. The results showed that companies invest more in corporate knowledge than in the development of individual employee skills ($t(201) = -5.124$, $p < .001$ for individual knowledge). These results are in contrast to trends that indicate a growing need to strengthen individual digital skills as a key component in digital transformation (Huang & Rust, 2018). This pattern is in line with the arguments of Schwartz, Dodge, Smith, & Etzioni (2019), who emphasize that organizational knowledge serves as a strategic asset that enhances long-term competitiveness and efficiency. To develop a digital culture, companies must reassess their strategies to achieve a better balance between individual and organizational knowledge development. Additionally, an initiative is needed to change the attitudes and behaviors of those responsible within the organization, creating strategies that simplify processes and reduce obstacles in pursuit of solutions to existing challenges (Cardoso, Pereira, Sá, Powell, Faria, & Magalhães, 2023). A holistic learning approach that integrates knowledge across all organizational levels, as proposed by (Chronéer & Backlund, 2015), can enhance this balance and strengthen the organization's overall adaptability in the context of digital transformation.

CONCLUSIONS

This research contributes to a comprehensive understanding of the influence of leadership style on shaping digital culture in Bosnian and Bulgarian organizations. Transformational leadership, which focuses on vision, inspiration, intellectual stimulation, and individual support, emerges as a key enabler of digital transformation (Uhl-Bien & Arena, 2018; Erhan, Uzunbacak, & Aydin, 2022). At the same time, transactional leadership provides structure, clear goals, and efficiency, thus enabling the continuity required for successful innovation implementation (Miller, 2019; Johnson, 2022). These findings are consistent with those of (Mgqibi, 2019), highlighting the vital impact of transformational leadership on addressing the challenges of the digital era. His research demonstrates that leaders who can inspire a shared vision and transcend existing boundaries are crucial to guiding organizations through digital transformation. As Bass and Riggio (2006) noted, such a leadership approach not only promotes the development of a digital culture but also enables organizations to effectively use digital technologies to gain competitive advantages.

This shift highlights the importance of a holistic approach in which organizational and individual learning complement each other, enabling companies to cope with the complex challenges of digital transformation (Wang, Kung, & Byrd, 2018). Digital culture, as a set of values, practices, and beliefs that drive innovation and transformation, should therefore be at the center of strategic planning. It enables faster adaptation to market changes, more effective implementation of new technologies, and the creation of environments open to experimentation, continuous learning, and improvement (Tumbas, Berente, & Vom Brocke, 2018). By positioning digital culture as a strategic imperative, organizations can better utilize their resources, optimize processes, and create value that is difficult to replicate, thereby ensuring long-term competitiveness and sustainability.

At the same time, there are some limitations. The research was conducted in Bosnia and Herzegovina and Bulgaria, which may limit the generalizability of the findings. Although stratified sampling was applied, the sample size and structure do not reflect the full diversity of companies in the region. Moreover, the quantitative nature of the study provided important statistical insights, but did not capture deeper qualitative aspects of leadership and culture. Future research should therefore adopt a more comprehensive approach, combining quantitative and qualitative methods, including case studies and interviews, to gain a deeper understanding of how leadership and digital culture interact in practice. Comparative and longitudinal studies across countries, industries, and company sizes would also provide richer insights. Research on specific technologies, such as artificial intelligence and blockchain, could offer targeted guidance for implementation. Despite these limitations, the study makes a significant contribution to understanding the dynamics of digital transformation in Southeastern Europe, a region that remains underrepresented in the academic literature. By highlighting the interconnected roles of leadership, organizational culture, and knowledge investment, this research highlights the need for a holistic approach to digital transformation. Organizations that manage to build strong digital cultures, supported by leaders who can balance inspiration and structure, will be best positioned to adapt to technological change, drive innovation, and achieve a sustainable competitive advantage.

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