INTERNATIONALIZATION AS A STRATEGIC FACTOR OF THE DIGITAL TRANSFORMATION

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Abstract

Digital transformation is rapidly and fundamentally reshaping organizations, yet strategic approaches to managing this transformation remain underexplored. This study investigates the role of internationalization as a strategic factor influencing the adoption of digital technologies within organizations. Utilizing data from Bulgaria collected through Eurostat's „*ICT Usage in Enterprises"* survey, the analysis reveals that organizations with higher levels of internationalization exhibit greater levels of digital transformation. These findings provide insights into how an organization's strategic decision to expand into international markets affects its digital transformation. The study's contributions are towards: (1) enhancing the understanding of organizations' digital transformation strategies, (2) supporting organizations in aligning their digital transformation initiatives with their internationalization strategies, and (3) offering a foundation for future comparative studies of business organizations across Europe.

Keywords: digital transformation, organization, strategy, internationalization
JEL classification: M10; M15, L10

Introduction

There is a general understanding of the potential of digital technologies to help organizations gain competitive advantage, yet the phenomenon of digital transformation remains poorly understood. Both research and practice often struggle to provide concrete guidance for organizations to improve their operational and strategic performance (Fischer et al., 2020). To a large extent, this can be reflected in the statement that strategy, not technology, is the driving force behind digital transformation (Kane et al., 2015). That suggests organizations must develop a digital transformation strategy to achieve their business goals with the help of technology. But why is it so difficult for them to strategically direct and manage it?

Various factors interwind and influence the decisions of the organization about its digital transformation, creating a lot of complexity that is challenging to understand -

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by the organizations' management and by the researchers in the field (Hanelt et al., 2021). Therefore, further research is essential not only to advance the theoretical understanding of digital transformation and organizational strategic decision-making but also to assist organizations in leveraging technology for competitive advantage. Given the multifaceted nature of digital transformation and the variety of influencing factors, this study specifically investigates one of the less explored aspects – internationalization - to examine the strategic relationship between an organization's decision to expand its operations internationally and its digital transformation efforts.

Through existing research, it is evident that internationalization can act as a catalyst for innovation, as exposure to diverse markets and competitive environments stimulates the adoption of new technologies and business practices (Autio et al., 2000). This is further supported by the argument that internationalization drives organizational learning, leading to the development of dynamic capabilities that are essential for digital transformation (Knight & Cavusgil, 2004). As firms expand into new markets, they encounter different regulatory environments, customer preferences, and competitive dynamics, which stimulate the adaptation and refinement of their digital strategies.

These observations invoke an important question – *does more internationalization mean more digital transformation in the organization*? To explore that relation, the current study focuses on the analysis of organizations where digital transformation is measured through the adoption of digital technologies and the level of internationalization is measured by their foreign trade. Conclusions that will be derived by studying this relationship are beneficial to the strategic understanding of the phenomenon of digital transformation and internationalization, impacts it.

The study is not exhaustive, as it does not incorporate additional strategic factors that may influence digital transformation, nor does it employ a longitudinal approach to observe the relationship between internationalization and digital transformation over time. Its primary aim is to examine the potentially significant relationship between internationalization as a strategic factor, and the organization's digital transformation, thereby providing a deeper contextual understanding of strategy in this domain. It attempts to address these theoretical and practical gaps, contributing to the emerging field of digital transformation strategy by offering insights that highlight the role of strategic management in shaping digital outcomes.

Theoretical background and research hypothesis

Multiple factors are related to the strategic management of the organization at different levels, influencing and at the same time being influenced by its strategic choice. In the scientific research, there are some essential and measurable factors, influential to the strategic management. Considering the features of the strategy – its long-term orientation, scope and scale, allocation of resources and sustainability (Chandler, 1962), internationalization could be considered as an important factor related to all of these strategic aspects. Hence, it is a factor that is also related to the digital

transformation strategy, viewed as a management choice to integrate digital technologies and transform business operations, improve the value creation and gain competitive advantage for the organization in a rapidly evolving digital environment (Grover & Kohli, 2023).

Internationalization refers to the process in which organizations expand their operations beyond the domestic market. This strategic factor is tied to the corporate strategy because it significantly affects the organization's long-term orientation, growth opportunities, and overall competitive positioning. Internationalization provides organizations with access to new markets, becoming a critical factor for growth - by expanding into foreign markets, organizations have access to new customers, opportunities to increase sales and overall market share. Presence on international markets allows organizations to diversify their sources of revenue, reducing dependence on the domestic market, while ensuring more stable revenue streams and greater resilience against economic downturns in each local market. The global footprint can also provide benefits such as economies of scale, access to new technologies, and the ability for an organization to utilize a diverse supply chain. In addition, internationalization allows organizations to spread their business risks across multiple markets. Internationalization is a fundamental decision at the corporate level that affects the overall strategic direction of the organization (Porter, 1987).

It is also often seen as a challenge for organizations, considering that geographical, cultural, economic and regulatory differences between countries can lead to numerous restrictions on sales in foreign markets. In recent years, in the context of various crises, many organizations have increased their level of internationalization to cope with the consequences of their domestic markets. The use of digital technologies has become one of the most important elements to enable these organizations to find new opportunities for growth (Bertello et al., 2021). Internationalization also exerts pressure for greater competitiveness and adaptation to different standards in the foreign markets. Thus, organizations that increase their internationalization develop other capabilities to successfully overcome foreign trade restrictions (Feliciano-Cestero et al., 2023). This broader set of capabilities includes various skills related to change management, digital literacy, adaptability, collaboration and customer orientation. According to the literature the acquired knowledge is a major source of competitive advantage (Grant, 1996; Kogut, 1992; Nonaka, 1994). Since the implementation and maintenance of new technologies also requires certain financial investments and an infrastructure that will increase the competitive advantage of the organization, this drives the demand for additional resources, including qualified personnel, new practices and skills - internationalization is a new source of resources as it opens up opportunities to acquire new capabilities and knowledge. In other words, internationalization forces organizations to adapt and make a number of organizational changes to carry out their digital transformation, which makes it a strategic factor in that field.

Based on these notions, an impact of internationalization on the digital transformation of the organization is expected. Therefore, this study proposes the following hypothesis:
H1. *Internationalization has an impact on the digital transformation of organizations.*

Methodology

Primary analysis involves describing the data and exploring interrelationships using statistical techniques and tests of significance. An ordinary least squares (OLS) regression analysis is used to evaluate the possible functional dependencies between the variables and to test the hypothesis. Regression analysis is a useful method for examining the relationship between independent variables and a dependent variable, as well as for predicting changes in the dependent variable in response to changes in the independent variables (Cooper & Schindler, 2014). The research adopts a quantitative approach and utilizes empirical data (refer to the *Data* section) to construct the variables included in the proposed model.

Data

The study used data from the survey „*ICT Usage in Enterprises*“[1], conducted by National Statistical Institutes among organizations within the framework of business statistics surveys and on the basis of annual implementation of the regulations of the European Commission in accordance with Regulation (EU) 2019/2152 of the European Parliament and of the Council of Europe. The data covers all mandatory variables under the European Union legislation on information society statistics. The sample used data for 4739 private non-financial organizations in Bulgaria for the year 2022 (with 1446 entries that export goods on foreign markets), the information being collected through a harmonized Eurostat questionnaire that is updated every year to reflect the rapid development in the field of information and communication technologies. The study leverages this publicly available data that provides reliable and comparable information on the spread and use of ICT in enterprises in all EU member states to support not only the current research but also to ensure verifiability and reproducibility of the research outputs, as well as comparability and opportunities for further research on the digital transformation of business in Europe.

Dependent variable

The „*ICT Usage in Enterprises*“ survey's results were used in the construction of the dependent variable *digital transformation index* (DIGITAL) for each of the organizations included in the dataset. The survey inquired organizations to provide *yes* or *no* answer to questions about technologies used in their business – from fixed internet

[1] Eurostat, https://ec.europa.eu/eurostat/cache/metadata/en/isoc_e_esms.htm (accessed on 28 September 2024) and National Statistical Institute, Republic of Bulgaria, https://nsi.bg/en/content/2841/ict-usage-enterprises accessed on (30 September 2024)

connection, company website, social media, ERP system, CRM applications, Cloud to AI technologies. Altogether, 25 questions from the survey were used to construct the dependent variable DIGITAL, where answers to the questions were coded with 1 for *yes* and 0 for *no* (questions about technologies used in their business – from fixed internet connection, company website, social media, ERP system, CRM applications, Cloud to AI technologies. Altogether, 25 questions from the survey were used to construct the dependent variable DIGITAL, where answers to the questions were coded with 1 for *yes* and 0 for *no* (questions represented as q_i in the equation below). A simple aggregate method was used to create the index DIGITAL where equal weight is given to each of the 25 questions. The final variable is with maximum value of 100 (positive answer to all questions) and a minimum value of 0 (negative answer to all questions). Here is the equation of the index:

$$DIGITAL_i = (\Sigma_0^n q_i)/n*100)/n*100 \quad (1)$$

Independent variable

In addition, data from the annual business statistics was used for the independent variable *internationalization* (INTR). It includes all annual exports for each organization (in thousands, BGN), distributed in 15 groups with coding ranging from 0 – *no exports* to 15 - *over 50,000*. The data is also comparable between all EU member states and is collected according to a uniform Eurostat methodology[1].

Control variables

The study included two control variables that can affect the digital transformation - firm size (SIZE) and firm age (AGE).

The size of the organization, in number of employees, has been widely studied in the literature and indicated as an important factor affecting the digital transformation of the organization (Moker et al., 2020). It is suggested that organizations with access to more resources can use them to implement new digital technologies, as they are often predisposed to invest more in innovation compared to smaller organizations (van de Vrande et al., 2009). Therefore, SIZE was included to control the effect of firm size on its digital transformation. The SIZE is represented in three groups according to number of employees coded as 1 – *10 to 49* employees, 2- *50 to 249 employees*, 3 – *over 250 employees* and in line with the EU definitions for small, medium and large enterprises (see European Commission's *SME Definition - User Guide 2020*[2]).

[1] Statistics Explained, Eurostat, the statistical office of the European Union, https://ec.europa.eu/eurostat/statistics-explained/ (accessed on 28 September 2024)

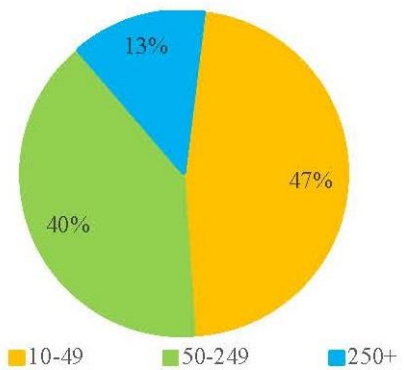
[2] User guide to the SME definition, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (European Commission)

In addition, older organizations are inclined to become inflexible and not suited to appropriately reacting to a changing environment (Barron et al., 1994) as it is the case with digital transformation. Therefore, AGE was included to control its effect on digital transformation, where it represents the number of years since company's initial listing.

Descriptive statistics

In this section descriptive statistics of the variables of interest are presented. To gain better understanding of the dataset, we first observe the control variables. In term of firm size (Figure

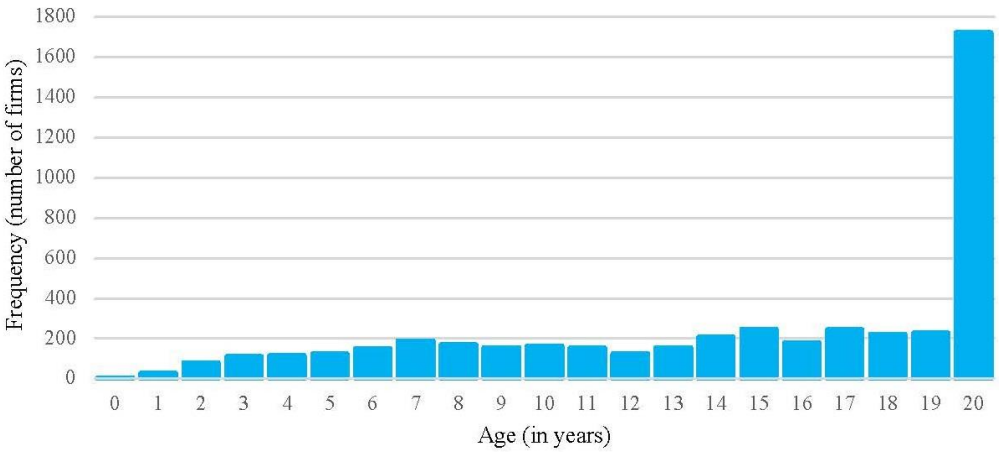
1) the largest proportion of firms consists of those with *10 to 49 employees*, representing 47% of the observations, followed by firms with *50 to 249 employees* at 40%. Firms with more than 250 employees constitute the smallest group.



Source: Authors' own calculations.

Figure 1. Size of firms (in number of employees) – SIZE

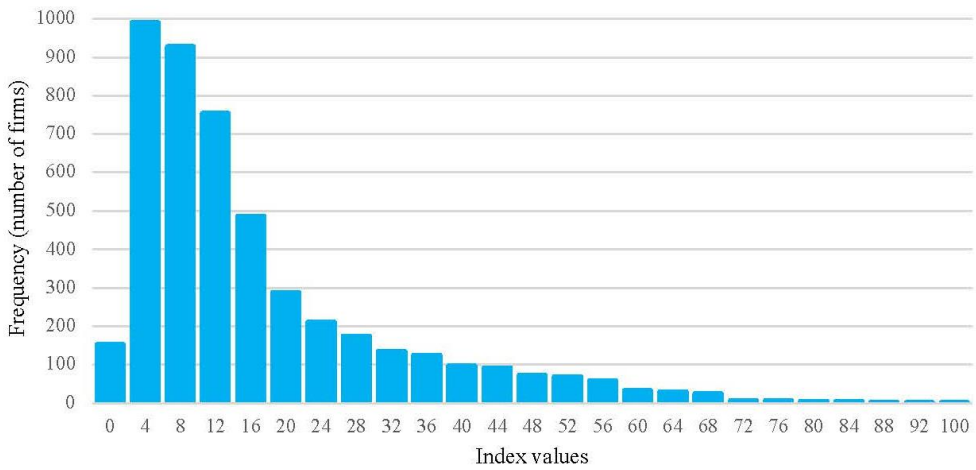
Regarding the age of the firms (Figure 2), over one-third of them are more than 20 years old with the average firm age in the sample being approximately 15 years.



Source: Authors' own calculations.

Figure 2. Age of firms (in years) – AGE

When considering the dependent variable DIGITAL (Figure 3), the distribution is right-skewed, indicating a concentration around the low values of the index. The mean value is 16.5 out of 100 and the median is even lower – 12. These statistics suggest that the digitalization of Bulgarian businesses is still in its early stages.



Source: Authors' own calculations.

Figure 3. Distribution of the firms based on digital transformation index – DIGITAL

Estimation model

To examine the proposed relationships, this study used linear regression. The testing model for the relationship between internationalization and digital transformation of the company was formulated as follows (H1):

$$DIGITAL_i = c + \beta_1 INTR_i + \beta_2 SIZE_i + \beta_3 AGE_i + \varepsilon_I \quad (2)$$

where DIGITAL represents the digital transformation of the organization; INTR is the level of internationalization measured by the volume of annual exports, SIZE is the number of employees and AGE is the number of years the organization has been active since its first registration util the year of the survey, c is the constant and ε is the random error term.

Given the right-skewed distribution of the dependent variable, we suspected the presence of heteroskedasticity, which was confirmed through the White test. To address this issue, we applied Huber-White-Hinkley heteroskedasticity-consistent standard errors.

Empirical results

The results of the linear regression model (Table 1) confirm that internationalization (INTR) has a positive and statistically significant effect on digitalization. Specifically, a one-unit increase in the independent variable is associated with a 0.2-unit increase in the level of digitalization. To further validate the positive relationship between the two variables, a Pearson correlation analysis was conducted, yielding a correlation coefficient of 0.18**, which is consistent with the findings from the linear regression model.

Table 1. Linear regression results

Dependent Variable: DIGITAL		
Variable	Coefficient	Std. Error
C	5.73***	(0.70)
INTR	0.20***	(0.06)
SIZE	7.1***	(0.36)
AGE	-0.1*	(0.04)
Adjusted R-squared : 0.12		
Huber-White-Hinkley heteroskedasticity consistent standard errors in parentheses Method: Least Squares		
Observations: 4739		

*p < 0.05; **p < 0.01; ***p < 0.001

Source: Authors' own calculations.

Discussion

Empirical data shows internationalization has a strategic impact on the digital transformation of organizations (H1) – suggesting that as the organization expands its operations on a foreign market, it is compelled to adopt more digital technologies to compete effectively, which, in turn, impacts its digital transformation journey.

The results of this study align with other works in the field that point to the fact that that digital transformation is not merely a technological upgrade but a fundamental shift that requires rethinking how value is created and delivered across global markets (Wamba et al., 2017). Internationalization could act as a catalyst for this shift by exposing organizations to diverse market conditions, consumer preferences, and regulatory challenges, thereby fostering innovation and enhancing digital capabilities (Autio et al., 2000). The process of global expansion drives the adoption of new digital tools and platforms, as suggested by the role of digital platforms that enable firms to scale internationally with greater ease and efficiency (Cennamo & Santalo, 2013). In the context of the European Union this insight suggests that the European single market, that seeks to guarantee the free movement of goods, capital, services, and people, may enable the digital transformation of organizations by facilitating their internationalization.

Moreover, the relationship between internationalization and digital transformation is emphasized by the development of dynamic capabilities. These capabilities, including organizational agility, flexibility, and resilience, are critical for firms to adapt to the rapidly changing digital landscape and to navigate the complexities of operating on international markets. The ability to learn from diverse environments and apply that knowledge across different contexts is crucial for sustaining competitive advantage in today's economy (Teece, 2018). In the realm of the European business, this observation also means that because of the single market dynamics, organizations in Europe may also be more competitive on a global scale, building new capabilities, driven by the digital transformation fostered regionally.

The term "digital transformation" is often applied too broadly and lacks practical clarity, necessitating a tailored understanding for each organization to avoid overgeneralization. A detailed description of the interrelationships between strategic factors and digital transformation can enhance strategic management, helping organizations navigate their transformation efforts more effectively. This study contributes by contextualizing digital transformation strategies and demonstrating that internationalization is a critical factor that organizations must consider when developing their digital strategies. The findings indicate that increased internationalization correlates with higher levels of digital transformation, emphasizing that organizations expanding into foreign markets need technology that supports competitiveness. Managers should therefore implement strategic actions that align digital transformation efforts with internationalization goals to secure a competitive advantage and effectively navigate the digital changes required for global competition.

Conclusion

The objective of the study was to explore the relationship between internationalization, as a strategic factor, and digital transformation of the organization. The study contributes to the practical understanding of the phenomenon of digital transformation through an empirical observation on the relations between strategic factors, such as internationalization, and the adoption of digital technologies. Thus, by describing the interrelationships between the variables included in the study, it makes the management's task in this field better understood, and the formulation of strategy justified and tailored to the specific strategic choices of the organization in line with their strive for competitive advantage on international markets.

Another contribution of the study is the attempt to utilize data, collected for the needs of macro-level representation (e.g. digital transformation in the enterprises in EU state members) and translating it to micro-level in a conceptual model concerning individual organizations. This not only enables the applicability of the insights at the level of the organization, but also offers opportunities for comparability between organizations, industries and countries in EU on the relations between strategic factors and the digital transformation. Moreover, observations also serve for prescriptions on what organizations can do to improve their strategy in the field of digital transformation.

However, as it is the case with any focused studies, this one does not go without limitations too. Future research could be enhanced by including additional measurement methods, such as interviews or survey questionnaires, adding qualitative insights that can be coupled with the quantitative observations to provide a better understanding of the results through the strategic attitudes of organizations toward the digital transformation and impact of different factors such as internationalization.

Another limitation that could be addressed in future research is the static position of the described interdependencies, which originates from the data used for a certain period (one-year period, 2022). This could easily be overcome if the variables are tracked over several periods for the same organizations.

Moreover, the verification of the explanatory power of the proposed estimation model on data for organizations in only one country (Bulgaria) can be supplemented, since the uniform methodology for collecting the data included in the study implies that the same model can be applied to all member states of the EU, where same survey's data is available. In addition, it is expected that future research's comparability will contribute to the even greater explanatory power to the model and its validation as a reliable tool for explaining, comparing and prescribing strategic actions regarding the digital transformation of organizations in Europe. There are practical considerations for such comparability too. The current research's data suggests for the majority of organizations in Bulgaria the level of digital transformation is low (variable DIGITAL; mean=16, max=100) which is also supported by the latest European Commission's Digital Decade report showing that enterprises' adoption of advanced digital technologies (either cloud, data analytics, or AI) in Bulgaria stands at 29.3%, significantly below

the EU average of 54.6% and ranking last among EU member states[1]. Questions arise as to whether in other member states internationalization of the enterprises is higher and thus boosting their digital transformation. Future in-depth comparative analysis may provide insights on that and suggest directions for public policies to improve the environment for enterprises that will enable adoption of more digital technologies.

Last but not least, the study could be extended by including additional strategic factors as variables relevant to the digital transformation of the organization, e.g. turnover, research and development (R&D) expenses etc., thus contributing to a multi-faceted approach to the complexities of digital transformation and the strategic choices related to it.

In conclusion, researching the digital transformation of organizations through observations about the impact of strategic factors on the adoption of digital technologies is a potent way to study and understand the phenomenon in strategic context. The applications of the current study are both theoretical and practical. The study builds on the scientific literature on the subject, while the results can be used to guide the management's approach to digital transformation when formulating the organization's strategy in this area to improve the sustainability and competitiveness of the business.

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