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Enhancing Financial Performance through Absorptive Capacity: Evidence from Croatian Export Companies in Domestic and International Markets

Ivana Martinčević
University North, Department for Logistics and Sustainable Mobility, Croatia

Abstract

Background: Export activities represent one of the prerequisites for the growth and development of economies. In combination with new digital technologies, they create a sustainable advantage and competitiveness in the market. **Objectives:** The focus of this research was to determine whether there is a significant difference and connection between the absorptive capacity of accepting new technologies and its influence on financial performance in the domestic and foreign markets. **Methods /Approach:** The relationship between the absorptive capacity of the application of new technologies and its influence on financial performance was investigated in a sample of Croatian companies. Structural equation modelling was used to investigate the relationship between absorptive capacity and financial performance. **Results:** The results of the research confirm a statistically significant relationship between the absorptive capacity of accepting new technologies and its influence on the financial performance of export companies. **Conclusion:** The analysis revealed that absorptive capacity significantly impacts the financial performance of Croatian export companies, with a stronger influence observed in foreign markets compared to domestic ones. These findings suggest that investing in the ability to absorb and apply new technologies is crucial for enhancing financial outcomes, particularly in the global marketplace.

Keywords: absorptive capacity; new digital technologies; export; export companies of the Republic of Croatia; sustainable development

Introduction

The business that takes place today in the global international market requires timely and quick reactions to make high-quality and accurate business decisions, as well as constant innovation and quick exchange of knowledge and capital. New business models, innovations, and new digital technologies dictate business and create business conditions. Today, it is impossible to imagine a business without new digital technologies, which ensure faster and easier business, increased visibility and flexibility, and greater efficiency and productivity. In the process of digitalisation and digital transformation itself, today, an indispensable and important part is digital servitisation and digital service information, which today is an integral part of it (Marić et al., 2024). Today, digital technologies are rapidly changing and thus affect the ability of companies and the entire economy to adapt to the processes of globalisation and technological transformation (Abdulkadyrov et al., 2023). How important digital technologies are, and with them the process of digital transformation, is confirmed by the research of Zhao et al. (2024) and Liu et al. (2023) that the digital transformation of companies has a positive impact and improves the innovation performance of companies. Achieving a competitive advantage today is closely related to both digital technologies and a sustainable way of doing business, so the importance of technological development in the field of the internet and new digital technologies on the internet and their impact on sustainable development is significant (Roblek et al., 2020).

Previous research on the relationship between absorptive capacity and financial performance has consistently underscored the pivotal role of absorptive capacity in enhancing organisational innovation, competitiveness, and performance outcomes. The importance of absorptive capacity and its connection and impact on innovations and financial results is proven by Kostopoulos et al. (2011). Papazoglou and Spanos (2021) explore absorptive capacity and prove that absorptive capacity has a weak effect on financial performance. However, it gets stronger over the years if companies incorporate novel knowledge in patented inventions. The role of absorptive capacity within different technology search dimensions of high-tech manufacturing firms and innovation quality shows that absorptive capacity positively moderates the relationship between technological search and innovation quality (Duan et al., 2021). Absorptive capacity is a strong indicator related to innovation and knowledge transfer, and the effects of absorptive capacity on financial performance are directly related to the results of innovation and knowledge (Tengjian et al., 2018). It has been proven that companies that export and import largely depend on absorptive capacity, which increases productivity in the short term (Okafor, 2021). Studies have highlighted that companies with higher absorptive capacity are better positioned to leverage external knowledge, adapt to technological advancements, and achieve superior financial results. These investigations, however, have often focused on broad industry contexts and have not deeply explored the differential impact of absorptive capacity on domestic versus international financial performance.

The main aim of this research is to determine whether there is a significant difference and connection between the absorptive capacity of the application of new digital technology and the financial performance of export companies, considering such companies operate both in the domestic and foreign markets.

The survey was conducted in the territory of the Republic of Croatia, including Croatian export companies (micro, small, medium, and large), and it was conducted on a randomly selected sample of 194 export companies.

The results should influence companies' management in a better understanding and, finally, the application of new knowledge and technologies in increasing export

activities. Knowing the state of export activities and exports of export companies of the Republic of Croatia, it is possible to create the export policy of the Republic of Croatia and make quality decisions in the direction of encouraging and improving the exports of the Republic of Croatia. Moreover, export companies and their international trade of goods and services are the key factors of economic progress and the development of society as a whole. New digital technologies and their application are one of the prerequisites for creating sustainability and long-term competitiveness in the market. "In technology-based companies, analysing characteristics of entrepreneurial behaviour is relevant to increasing business performance and competitiveness throughout its life cycle" (de Freitas Michelin et al., 2023., p.55).

Many authors explore absorptive capacity and define it as the ability to recognise and use new knowledge, the ability to learn, the ability and speed of responding to changes in the environment, but also as a key component for innovation capabilities (Cohen & Levinthal,1990; Zahra & George, 2002; Malhotra et al., 2005; Kranz et al., 2016; Sancho-Zamora et al., 2022). Absorptive capacity is closely connected to firm innovation and financial performance. The absorptive capacity of a company is linked to innovation and has significant and direct relationship (Yaseen, 2020; Sancho-Zamora et al., 2021a; Sancho-Zamora et al., 2021b), but also is linked to financial performance affecting the overall firm performance (Calantone et al., 2002; Rajapathirana & Hui, 2018; Lilly & Juma, 2014; Tzokas et al.,2015; Laviniki et al., 2021). Only a few researchers confirm the relationship between absorptive capacity and export activities in a way that absorptive capacity has a significant role in linking foreign business knowledge to innovativeness and increases export performance (Ferreras-Méndez et al., 2019; Li et al., 2022; Boateng et al., 2023). The connection between digital technologies and export activities has also been proven to affect export performances (Boccia et al., 2022; Zhang & Wang, 2022; Oh & Kim, 2023; Lu et al., 2022).

This work contributes to the literature by providing empirical evidence from the specific context of Croatian export companies, illustrating that absorptive capacity not only positively influences overall financial performance but also has a more pronounced effect in international markets. By quantitatively demonstrating the varying magnitudes of absorptive capacity impact on domestic and foreign financial outcomes, this research sheds light on the strategic importance of absorptive capacity for firms operating in the global arena. It underscores the need for targeted strategies to enhance absorptive capacity as a means of boosting financial success, particularly in foreign markets, thereby offering nuanced insights into the operationalisation of absorptive capacity for international competitiveness and growth.

Literature Review

Export activities

Business models are an indispensable part of technological transformations. Therefore, their application, as well as the innovation of business models, helps and creates an advantage for companies in production and technological innovations (Phamthi and Ngominh, 2022). Both digital technologies and digital transformation are necessary prerequisites for long-term sustainability and competitiveness, and due to that, "digital technologies have a great impact on organisational strategic goals achievement" (Tomičić-Pupek et al., 2023, p.2). "It could be argued that using innovative digital tools

and digital transformation is unavoidable for most enterprises" (Hunady et al., 2022, p.40).

Export-oriented companies are more stable in their operations and ensure easier transfer of new knowledge, technologies, and capital. Exports improve the country's competitive advantages by adopting new knowledge and technologies. Studies that connect Information and Communications Technology (ICT) and new digital technologies with export activities confirm and prove the benefits and advantages of new technologies in export activities. Research conducted by Kere and Zongo (2023) suggests that ICT use, particularly internet use, has positive and significant effects on exports and negative effects on imports of primary products and total goods.

Abendin et al. (2022) find a significant positive effect of digitalisation on bilateral trade for the Economic Community of West African States (ECOWAS). The development of the digital economy has had a significant positive impact on the export competitiveness of China's manufacturing industry which was proven by Wang et al. (2023). Adeleye and Eboagu (2019) reveal that ICT development has a statistically significant positive relationship with economic growth. Oh and Kim (2023) study the process of adopting advanced digital technologies (ADTs) and found that the effect of adopting ADTs on firm performance depends on the productivity level, performance types, and technology combination. They also reveal that multiple technology adopters obtain higher rates of sales and significant export growth compared to single technology adopters (Oh & Kim, 2023).

The importance of digital technologies adaptation was examined by Zahoor and Lew (2023), who confirm that the adoption of digital technologies significantly moderates the relationship between the strategic flexibility of international strategic alliances positively and the international marketing capability of small and medium-sized enterprises. Boccia et al. (2022) explore new digital technologies (cloud computing and the use of social media), and the results show a significant relationship between the ICT capacities related to cloud adoption and export indicators. However, the use of social media appears weakly able to impact the export performance indicator. Zhang and Wang (2022) show that the improvement of digital technology level enhances the scale of digital service trade import and export significantly. The empirical evidence in research conducted by Lu et al. (2022). discovered that the enhancement in digital service level could increase the export volume of seventeen provinces that have opened China-Europe Railway Express from 2011 to 2020. Abeliansky and Hilbert (2017) confirm that ICT has a significant effect on export performance.

The focus of this research is Croatian export companies. In the Republic of Croatia, a mere 15% of all businesses, spanning micro to large enterprises, engage in export activities. Despite this small percentage, these exporting companies play a pivotal role in the national economy, being responsible for employing over half of the workforce in the private sector, making significant contributions to investment and revenue generation, and dominating development funding and profit realisation. The European Union stands as Croatia's largest trading bloc, underpinning most of its export and import transactions. Among its primary trade partners—Italy, Germany, Slovenia, and Hungary—Croatia reported significant growth in exports, highlighting the dynamic nature of its foreign trade relationships. Given its status as a "small country" with inherent economic and market constraints, it is imperative for Croatia to foster a culture of innovation and technological advancement. Embracing digitalisation and the digital transformation of its economy is seen as a strategic move to enhance its export capabilities and overall competitiveness on the global stage. By focusing on these areas, Croatia aims to overcome its technological gaps and secure

sustainable, long-term growth and development within the European Union's competitive landscape.

Absorptive capacity and financial performance

Cohen and Levinthal (1990, p.128) define "absorptive capacity as the ability of a company to identify, assimilate, and transform knowledge or adopt new knowledge from the environment into the company". To recognise new external knowledge, an organisation must have the ability to have absorptive capacity. "An organisation's absorptive capacity will depend on the absorptive capacities of its members" (Cohen & Levinthal, 1990, p.5). Dimensions of absorptive capacity, according to Cohen and Levinthal (1990), are (1) the ability to value knowledge through experience and investment, (2) the ability to assimilate, and (3) the ability to apply. According to Zahra and George (2002, p.2), absorptive capacity is "a dynamic capability about knowledge creation and utilisation that enhances a firm's ability to gain and sustain a competitive advantage. The ability to recognise, evaluate, and use external knowledge is a critical component of innovative capabilities. It leads to the absorptive capacity of a company that is necessary today for further long-term sustainable growth and development. According to Zahra and George (2002), absorptive capacity is part of two subsets: potential capacity and realised capacity. "Potential capacity comprises knowledge acquisition and assimilation capabilities, and realised capacity centres on knowledge transformation and exploitation" (Zahra & George, 2002, p.2). According to previous research and more recent data, companies with a greater absorption capacity can more easily collect information from the environment and use it in the direction of improving their performance (Sancho-Zamora et al., 2021a)

Zahra and George (2002) define four organisational capabilities that are key for creating absorptive capacity: (1) knowledge acquisition, (2) assimilation, (3) transformation, and (4) exploitation. Empirical research by Sancho-Zamora et al. (2022) proves that an essential element of absorptive capacity is the ability to learn, which enables organisations to manage knowledge better to improve the level of innovation. The combination of internal and external knowledge is a prerequisite for innovation capabilities, so Kranz et al. (2016) confirm that in developing innovative strategies, companies must recognise and apply information from the environment and use it within the organisation through their learning mechanisms to create and expand the knowledge needed to create a competitive advantage. The ability and speed of responding to changes in the environment are also largely conditioned by the absorption capacity of the company (Malhotra et al., 2005). It was also proven through the research of Zhang et al. (2015) that the existence of absorptive capacity in companies facilitates the acquisition and assimilation of new knowledge and its final application. Sancho-Zamora et al. (2021a) explore the role of proactivity in the relationship between absorptive capacity and performance and prove that companies that are proactive and use external knowledge and information can expect better performance.

This paper also deals with financial performance, which can be connected with firm performance. Financial performance is just one of the factors that affect the overall performance of a firm. Firm performance is a result that several factors can determine. Different authors define and approach firm performance differently. Calantone et al. (2002) believe that the innovativeness of the company and its orientation towards learning contribute greatly to its performance. They have also proven that earning orientation improves firm performance, i.e. business performance (return on investment (ROI), return on assets (ROA), return on sales (ROS), and overall

profitability) (Calantone et al., 2002). Rajapathirana and Hui (2018) measured firm performance as a set of three measures: (1) innovation performance, (2) market performance, and (3) financial performance. Venkatraman and Ramanujam (1986) state that organisational performance has two main elements: financial performance and operational performance, which consist of market share and quality. However, when we talk about financial performance, it will be conditioned by several non-financial elements of the corporate management of the organisation, the satisfaction of stakeholders (e.g. customers), which later leads to financial performance (Gunday et al. 2011). Interesting research was conducted by Flatten et al. (2011, p.137) indicating that "strategic alliances of small and medium-sized companies mediate both the relationship between absorptive capacity and firm performance and the relationship between each dimension of absorptive capacity and firm performance". The connection of digital (smart) technologies with operational performance was proven in the study by Lee et al. (2023), where the achievement of operational excellence is correlated with digital (smart) technologies.

Previous research indicated that innovation and financial performance are closely related, and this has also been confirmed through research (Lilly and Juma, 2014), which proves their positive relationship. Innovation is a dimension that provides companies with long-term sustainable growth and development. Recognition and assimilation through the absorption capacity that companies have can maintain and increase the knowledge needed for innovation in the long term, thus influencing financial performance. The relationship between absorptive capacity and innovation is linked in research that observes the potential and realised absorptive capacity of a company and proves that the potential and realised absorptive capacity have a significant and direct relationship with the innovative performance of the company (Yaseen, 2020). Research was conducted that proves the positive effect of absorptive capacity on the innovative ability of a company, which ultimately leads to positive business performance (Sancho-Zamora et al., 2021; Sancho-Zamora et al., 2021b).

It was also confirmed that absorptive capacity, in combination with the application of new technologies in high-tech companies, contributes to better performance in terms of new product development, market performance, and profitability (Tzokas et al.,2015). Previous research has proven that absorptive capacity affects high-tech companies. In contrast, the same has been proven in sectors with low technological intensity and confirmed that absorptive capacity affects and has a positive effect on the financial performance of companies in the mentioned sectors (Laviniki et al., 2021). Boateng et al. (2023) deal with absorptive capacity and prove that absorptive capacity has a significant role in linking foreign business knowledge to innovativeness. Entering foreign markets is not easy, especially for small and medium-sized enterprises, but research by Ferreras-Méndez et al. (2019) shows that a focus on cooperation with industrial partners contributes to increasing the company's absorptive capacity and export performance.

Research carried out in the territory of the Republic of Croatia proves that higher levels of absorptive capacity drive innovation, which is especially noticeable in companies that are exporters. Research carried out in China shows that absorptive capacity is an important factor in promoting innovation and has an important intermediary role in the positive impact of export activities (Li et al., 2022). However, to our best knowledge, the relationship between absorptive capacity and the financial performance of export companies has not been thoroughly investigated in the territory of the Republic of Croatia.

Methodology

Research Instrument

This research aims to examine the relationship between the absorptive capacity of the application of new technologies and its influence on the financial performance of Croatian export companies. Until now, this area has been mostly conceptualised through the literature, while there are very few related research instruments, and the above provides the motive and challenge for this research. The research constructs from Tables 1 and 2 are (1) absorptive capacity of the application of new technologies (AK), (2) financial performance (export activity) of Croatian export companies (FIN), measured by Likert scale (1—strongly disagree, 5—strongly agree).

Table 1
Construct of measuring the absorptive capacity of the application of new technologies (AC)

Code	Particle
AC1	We regularly organise learning groups to discuss the consequences of new knowledge.
AC2	We have special mechanisms to solve conflicts when employees have different understandings and interpretations of new knowledge.
AC3	We have special procedures for employees to share knowledge and practical experiences.
AC4	We have special training programs that help employees grasp new knowledge.
AC5	Our employees frequently make product and process improvement suggestions based on new knowledge.
AC6	We periodically review our long-term forecasting (e.g. market trends and technology development) based on new knowledge.
AC7	We have systematic procedures for implementing new knowledge to develop new products.
AC8	We constantly consider how to exploit knowledge better.

Source: author's work according to Zhang et al., 2015.

Table 2
Construct of measuring the financial performance at foreign and domestic markets of Croatian export companies (FIN_FOREIGN & FIN_DOMESTIC)

Code	Particle
Financial performance at foreign markets (FIN_FOREIGN)	
FIN1	Considering the overall economic picture, our export activity to foreign markets has increased.
FIN3	Considering the overall economic picture, our total revenue in the foreign market has increased.
FIN5	Considering the overall economic picture, our profit in the foreign market has increased.
FIN7	Considering the overall economic picture, our share in the foreign market has increased.
Financial performance at foreign markets (FIN_DOMESTIC)	
FIN2	Considering the overall economic picture, our activity in the domestic market has increased.
FIN4	Considering the overall economic picture, our total revenue in the domestic market has increased.
FIN6	Considering the overall economic picture, our profit in the domestic market has increased.
FIN8	Considering the overall economic picture, our share in the domestic market has increased.

Source: author's work

Research model and data analysis

Based on all the above in the previous sections, the importance of absorptive capacity and recognising and applying new digital technologies in business, especially in foreign markets, is obvious.

To test the set research hypotheses, the main research question was asked:

- o *RQ0: Is there a statistically significant relationship between the absorptive capacity of the application of new technology and the financial performance at domestic and foreign markets of export companies?*

Based on the research conducted in the Republic of Croatia and regarding the concept of absorptive capacity and financial performance of export companies, the following research propositions are being defined:

- o *RP1: Absorptive capacity of the application of new technology (AC) affects financial performance at domestic markets (FIN-DOMESTIC) in export companies of the Republic of Croatia.*
- o *RP2: Absorptive capacity of the application of new technology (AC) affects financial performance at foreign markets (FIN-FOREIGN) in export companies of the Republic of Croatia.*

Figure 1 presents the research model.

Figure 1
Research model
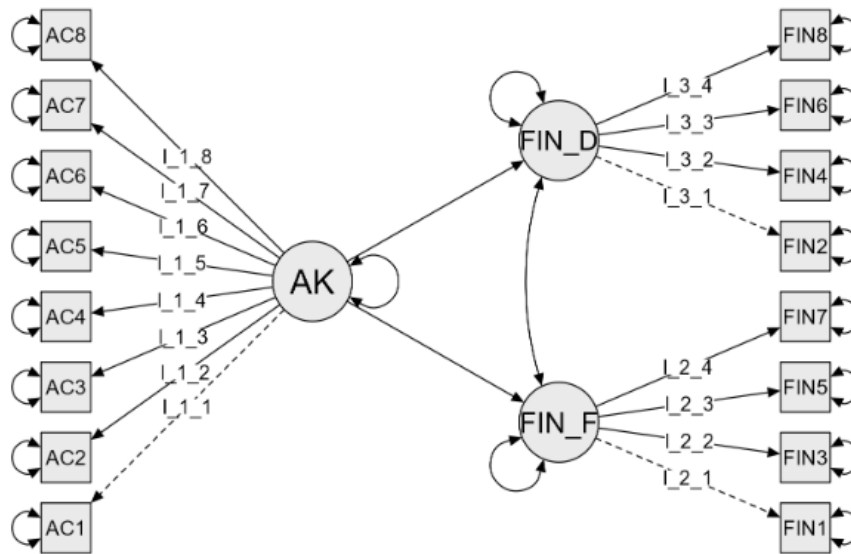
Source: Author's work

The study operationalises absorptive capacity (AC) as a latent variable, measured through indicators that capture the extent to which firms acquire, assimilate, transform, and exploit new technologies to enhance their performance. Financial performance in domestic (FIN-DOMESTIC) and foreign (FIN-FOREIGN) markets is also operationalised as latent variables, with indicators derived from financial statements and performance metrics specific to each market context. Data collection involved a survey administered to a representative sample of Croatian export companies, complemented by financial data extracted from verified databases.

The Confirmatory Factor Analysis (CFA) served to validate the measurement model, ensuring the constructs' reliability and validity. Following this, Structural Equation Modeling (SEM) was performed to test the proposed relationships between AC and financial performance in domestic and foreign markets. Model fit was assessed using

several fit indices, including the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), as recommended by contemporary SEM literature for their sensitivity to model misfit.

Data collection

In Croatia, only 15% of companies are exporters, yet these firms are crucial to the economy, employing 51% of the workforce, generating 66% of total sales revenue, and contributing 73% to development investments. According to 2022 data, Croatia's exports grew by 30.4% to €23.96 billion, while imports increased by 46.4% to €41.57 billion, leading to a €17.6 billion trade deficit. The EU remains Croatia's main trading partner, accounting for over two-thirds of both exports and imports. Key trade partners include Italy, Germany, Slovenia, and Hungary, with notable increases in exports to these countries. As a "small country" with economic and market limitations, Croatia is encouraged to invest in new technologies and digital transformation to boost competitiveness and export excellence, addressing the need for sustainable growth and avoiding technological lag behind EU counterparts.

The research was conducted in the Republic of Croatia on a random sample of 194 export companies (micro (38%), small (25%), medium (18%), and large (19%) divisions according to the Croatian Accounting Law). To test the set research propositions, a primary sample survey was conducted using the structured survey questionnaire method (online survey questionnaire). The questionnaire was sent online to 500 randomly selected addresses from the Croatian Chamber of Commerce's register of exporters (the register of Croatian exporters numbers 1,243 companies). This research combines the absorptive capacity of the application of new digital technologies and their relation to financial performance, i.e., the export of Croatian export companies.

Results

Descriptive statistics

Table 3 presents the descriptive statistics for the manifest variables related to absorptive capacity (AC) and financial performance in both foreign (FIN_FOREIGN) and domestic (FIN_DOMESTIC) markets. The analysis includes data from 194 respondents, encompassing a range of variables from AC1 to AC8 for absorptive capacity and FINANC1 to FINANC8 for financial performance, with each measured on a Likert scale from 1 to 5, where 1 indicates strong disagreement, and 5 indicates strong agreement with the statements provided.

For absorptive capacity (AC), the variables AC1 through AC8 exhibit mean values ranging from 2.964 (AC2) to 3.510 (AC7), indicating a moderate level of agreement among respondents regarding the company's ability to absorb and apply new technologies. Standard deviations for these variables range from 1.095 to 1.260, reflecting a moderate dispersion of responses. The minimum and maximum values across these items are 1.000 and 5.000, respectively, showcasing the full range of response options utilised by participants.

In terms of financial performance in foreign markets (FIN_FOREIGN), the variables FINANC1, FINANC3, FINANC5, and FINANC7 show mean values between 3.320 and 3.397, suggesting a moderately positive perception of financial performance in foreign markets. The standard deviation for these items ranges from 1.166 to 1.222, indicating a similar variability in responses as seen with the AC variables. The range for these variables also spans from 1.000 to 5.000.

For financial performance in domestic markets (FIN_DOMESTIC), the variables FINANC2, FINANC4, FINANC6, and FINANC8 display mean values from 3.026 (FINANC6) to 3.278 (FINANC2), slightly lower on average than those for foreign markets, which could suggest a nuanced difference in perceived performance across market types. The standard deviations for these variables, ranging from 1.101 to 1.191, are comparable to those of the AC and FIN_FOREIGN variables, reflecting a consistent level of response variability across all categories. The minimum and maximum values mirror those of the other groups, with all respondents utilising the full response scale.

This descriptive analysis provides an initial overview of the data, revealing moderate agreement with the variables associated with absorptive capacity and financial performance, with a notable range of responses indicated by the standard deviations. The data also hint at a slightly more favourable perception of financial performance in foreign markets compared to domestic ones among the participating Croatian export companies. These findings set the stage for further inferential analysis to test the proposed relationships between absorptive capacity and financial performance in these companies.

Table 3
Descriptive statistics of manifest variables

|	Valid	Mean	Std. Deviation	Minimum	Maximum
Absportptive capacity (AC)					
AC1	194	3.113	1.095	1.000	5.000
AC2	194	2.964	1.098	1.000	5.000
AC3	194	3.320	1.260	1.000	5.000
AC4	194	3.072	1.189	1.000	5.000
AC5	194	3.273	1.166	1.000	5.000
AC6	194	3.469	1.107	1.000	5.000
AC7	194	3.510	1.223	1.000	5.000
AC8	194	3.361	1.126	1.000	5.000
Financial performance at foreign markets (FIN_FOREIGN)					
FIN1	194	3.345	1.169	1.000	5.000
FIN3	194	3.387	1.183	1.000	5.000
FIN5	194	3.320	1.222	1.000	5.000
FIN7	194	3.397	1.166	1.000	5.000
Financial performance at foreign markets (FIN_DOMESTIC)					
FIN2	194	3.278	1.158	1.000	5.000
FIN4	194	3.144	1.191	1.000	5.000
FIN6	194	3.026	1.122	1.000	5.000
FIN8	194	3.077	1.101	1.000	5.000

Source: author's work

Figure 2 presents the heatmap of Pearson's correlations. Appendix 1 provides a detailed analysis of Pearson's correlation. Significant correlations were observed between variables measuring absorptive capacity and financial performance in Croatian export companies, both in domestic and international contexts. The study revealed a consistent positive relationship between indicators of absorptive capacity and financial performance in foreign markets, indicating that companies with higher absorptive capacity tend to achieve better financial outcomes abroad. This relationship is underscored by moderate Pearson's r values and highly significant p-values, suggesting a robust link between the ability to assimilate and apply new knowledge and international financial success.

Additionally, the analysis highlighted a strong positive correlation within the absorptive capacity variables themselves, exemplifying the coherence of the absorptive capacity construct. This internal consistency within the measures of absorptive capacity suggests a closely integrated relationship between its various dimensions. Similarly, financial performance metrics, especially those related to foreign markets, demonstrated high internal consistency, indicating that these variables effectively capture the financial achievements of firms in international arenas.

These findings lend empirical support to the theoretical proposition that absorptive capacity is a crucial determinant of financial performance, particularly in foreign markets. They also affirm the reliability of the constructs used to measure both absorptive capacity and financial performance, highlighting the importance of knowledge absorption capabilities in enhancing a firm's financial success across different market environments.

Figure 2
Pearson's r heatmap
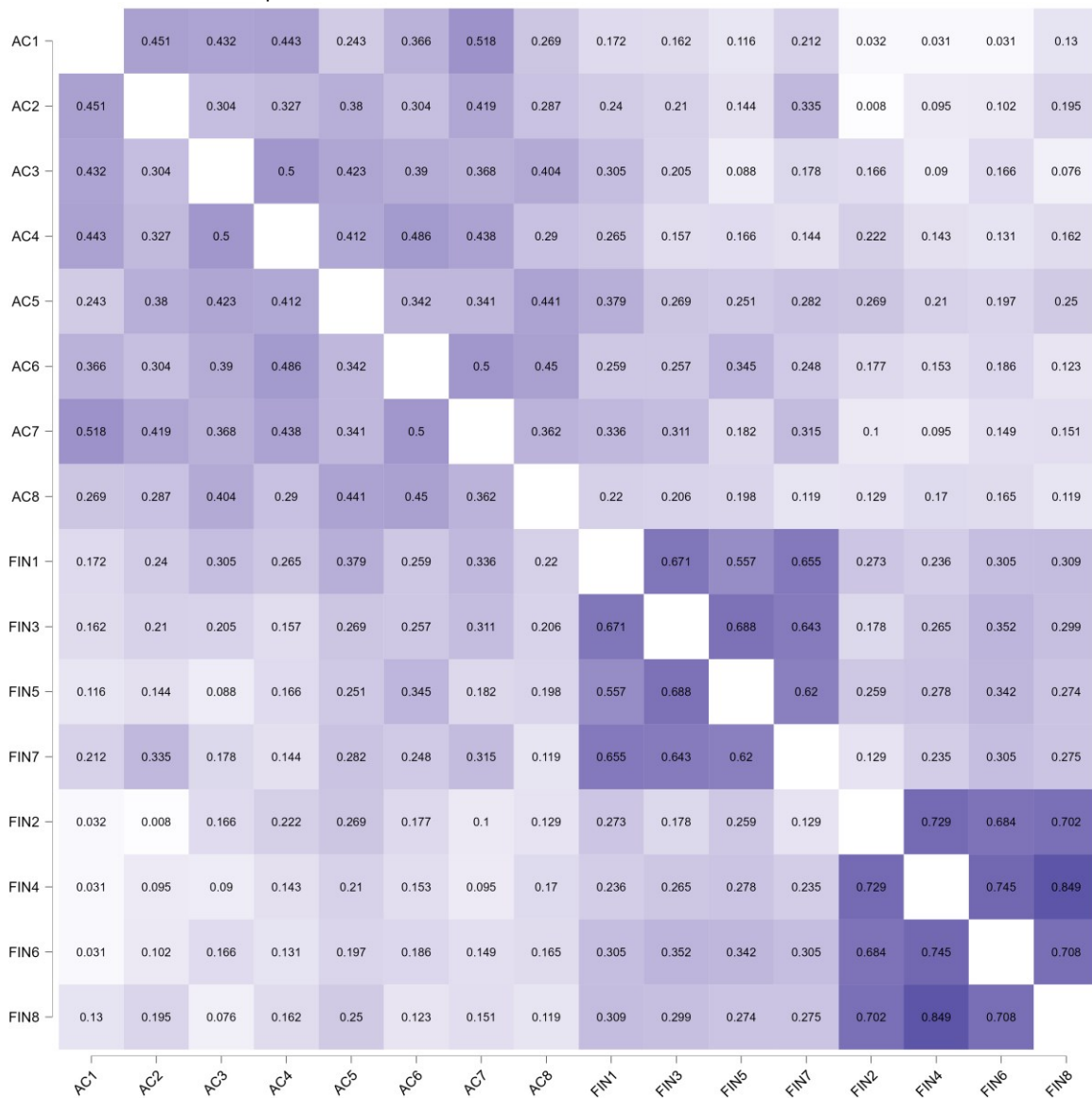
Source: author's work

Confirmatory factor analysis

Table 5 presents the results of the Chi-square (χ^2) test as part of the confirmatory factor analysis conducted to examine the research propositions of the model. In the provided analysis, two models are compared: the Baseline model and the Factor model.

The Baseline model, often representing the null model where all variables are uncorrelated, exhibits a χ^2 value of 1680.382 with 120 degrees of freedom. The substantial χ^2 value suggests a significant discrepancy between the expected and observed data, implying a poor fit of the Baseline model to the data.

Conversely, the Factor model, which represents the proposed structure of latent variables underlying the observed variables, shows a markedly improved fit with a χ^2 value of 230.176 and 101 degrees of freedom, achieving statistical significance with a p-value less than .001.

The results, particularly the significant p-value associated with the Factor model, support the proposed structure of relationships among the variables under investigation. The Maximum Likelihood (ML) estimator used in this analysis further reinforces the robustness of these findings.

Table 5
Chi-square test

Model	X^2	df	p
Baseline model	1.680.382	120	
Factor model	230.176	101	< .001

Note. The estimator is ML; Source: Authors' work

Table 6 displays various fit indices for evaluating a structural model's alignment with observed data. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values are 0.917 and 0.902, respectively, indicating a good model fit as both exceed the commonly accepted threshold of 0.9.

The Root Mean Square Error of Approximation (RMSEA) stands at 0.081, with its 90% confidence interval ranging from 0.067 to 0.095, suggesting a moderate fit; values closer to 0.06 are preferred, but up to 0.08 are acceptable. The RMSEA's significance level further substantiates the model's adequacy.

The Standardized Root Mean Square Residual (SRMR) is 0.056, well below the 0.08 benchmark, denoting a satisfactory model fit. Lastly, the Goodness of Fit Index (GFI) at 0.965 exceeds the 0.95 standard, confirming an excellent fit. Overall, these indices collectively affirm a strong model fit to the data.

Table 6
Fit measures

Index	Value
Comparative Fit Index (CFI)	0.917
Tucker-Lewis Index (TLI)	0.902
Root mean square error of approximation (RMSEA)	0.081
RMSEA 90% CI lower bound	0.067
RMSEA 90% CI upper bound	0.095
RMSEA p-value	2.017×10^{-4}
Standardised root mean square residual (SRMR)	0.056
Goodness of fit index (GFI)	0.965

Source: author's work

Table 7 presents the factor loadings for the absorptive capacity (AC) and financial performance (FIN_FOREIGN and FIN_DOMESTIC) indicators, all showing strong and significant associations with their respective latent factors, as evidenced by high estimates and very low p-values (< .001).

The z-values, all above critical values, indicate robust statistical significance across all indicators.

Table 7
Factor loadings

Factor	Indicator	Estimate	Std. Error	z-value	p
AC	AC1	0.679	0.077	8.845	< .001
	AC2	0.611	0.078	7.784	< .001
	AC3	0.803	0.087	9.186	< .001
	AC4	0.794	0.081	9.758	< .001
	AC5	0.684	0.083	8.255	< .001
	AC6	0.735	0.076	9.694	< .001
	AC7	0.841	0.083	10.131	< .001
	AC8	0.630	0.081	7.819	< .001
FIN_FOREIGN	FIN1	0.923	0.073	12.574	< .001
	FIN3	0.999	0.072	13.898	< .001
	FIN5	0.941	0.077	12.150	< .001
	FIN7	0.919	0.073	12.536	< .001
FIN_DOMESTIC	FIN2	0.913	0.070	12.949	< .001
	FIN4	1.106	0.066	16.839	< .001
	FIN6	0.902	0.068	13.347	< .001
	FIN8	0.991	0.062	15.986	< .001

Source: author's work

Structural equation modeling

Table 8 provides the results of the structural equation model analysis, showcasing the impact of absorptive capacity (AC) on financial performance in domestic (FIN_DOMESTIC) and foreign (FIN_FOREIGN) markets for Croatian export companies.

The regression coefficients indicate a positive and significant relationship between AC and financial performance in both contexts. Specifically, a unit increase in AC leads to a 0.324 increase in financial performance domestically and a more substantial 0.614 increase internationally. These outcomes are statistically significant, as evidenced by p-values of 0.004 and less than .001, respectively, and confirm both hypotheses H1 and H2.

The R-squared values of 0.058 for domestic performance and 0.204 for foreign performance suggest that while AC explains a moderate portion of the variance in financial outcomes, its impact is notably stronger in foreign markets. This difference highlights the potentially greater importance of absorptive capacity for achieving success abroad compared to domestic markets.

The findings confirm that the ability to apply new technology, measured by absorptive capacity, improves company earnings, especially in overseas markets, indicating that being innovative is particularly valuable for international success. Figure 3 presents the estimated model.
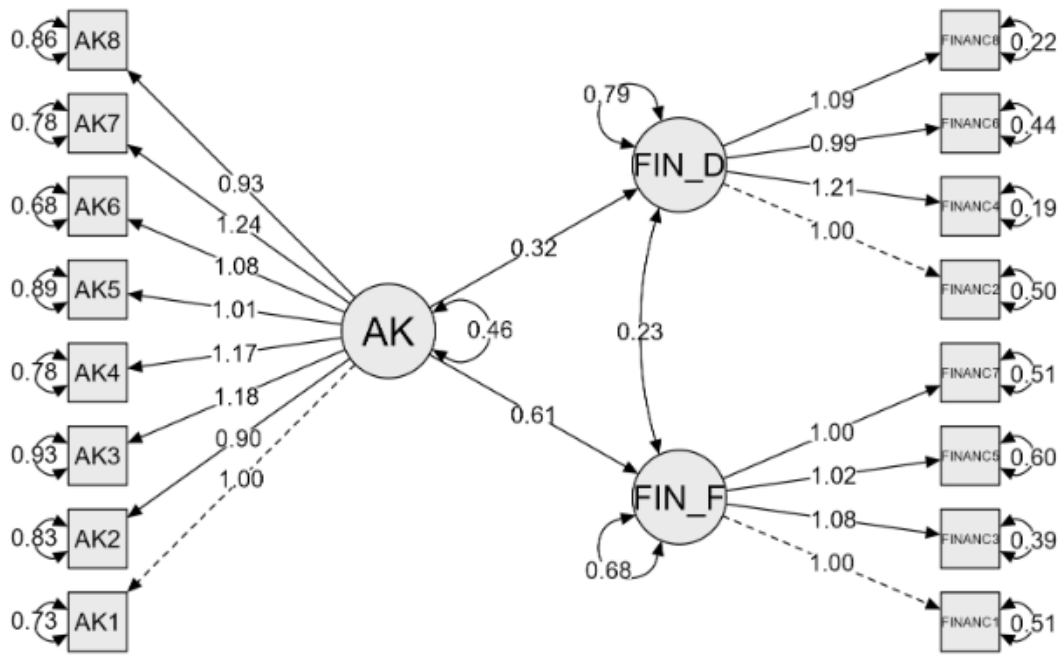
Table 8
Regression coefficients and r-squared of structural equation model

Predictor	Outcome	Estimate	Std. Error	z-value	p	R-squared	Research propositions
AC	FIN_DOMESTIC	0.324	0.112	2.883	0.004***	0.058	RP1-confirmed
	FIN_FOREIGN	0.614	0.125	4.916	< .001***	0.204	RP2-confirmed

*Note: *** statistically significant at 1% level; Source: Author's work*

Figure 3
Estimated model

Source: Author's work

Discussion

In this paper, the concept of absorptive capacity and its role in the acquisition, assimilation, transformation, and exploitation of new technology, as well as the financial performance of export companies of the Republic of Croatia and its connection, was tested based on the set research model to confirm the research hypotheses. Two hypotheses were set: H1: Absorptive capacity of the application of new technology affects financial performance at domestic markets in export companies of the Republic of Croatia; H2: Absorptive capacity of the application of new technology affects financial performance at foreign markets in export companies of the Republic of Croatia. The study operationalises the absorptive capacity and financial performance in domestic and foreign markets as latent variables. The study revealed a consistent positive relationship between indicators of absorptive capacity and financial performance in foreign markets, indicating that companies with higher absorptive capacity tend to achieve better financial outcomes abroad. The analysis highlighted a strong positive correlation within the absorptive capacity variables themselves (high internal consistency) but also

demonstrated high internal consistency regarding financial performance metrics, especially those related to foreign markets. Through Structural equation modelling, the regression coefficients indicate a positive and significant relationship between absorptive capacity and financial performance in both contexts and confirm both hypotheses H1 and H2. These findings confirm that the ability to apply new technology, measured by absorptive capacity, improves company earnings, especially in overseas markets, indicating that being innovative is particularly valuable for international success.

Through this paper, the importance and benefits of absorptive capacity and its relation to financial performance are highlighted and proven. Absorptive capacity is an important factor for a company to be able to absorb and use both internal and external information and resources in the function of long-term sustainable growth and development. According to data by conducted research, it can be partly connected to research by Zhai et al. (2018) that explore and claim that companies that have a high absorption capacity can exchange information from the environment and within the organisation faster and with better quality, and with existing knowledge promote the transformation of new knowledge thus improve company innovation performance. Ma et al. (2021) also prove that absorptive capacity has a positive effect on firm performance. Cuevas-Vargas et al. (2022), through their research, prove that ICT adoption has a significant impact on absorptive capacity and thus has an influence on greater business performance. All of the previous research mentioned in this paper also explores, connects, and proves the relationship between absorptive capacity and financial (firm) performance, but very few of them connect absorptive capacity with financial outcomes abroad. Due to that, this research reveals that absorptive capacity is a crucial determinant of financial performance, particularly in foreign markets.

The process of recognising and strengthening absorptive capacity lies in, as already mentioned, knowledge acquisition, assimilation, transformation, and exploitation. The absorptive capacity is expected to experience even greater recognition and use by managers because it is the key element that contributes to the recognition of new knowledge and, thus, better positioning on the market. Having in mind the primary goal and purpose of the absorptive capacity, which is to provide the effectiveness of knowledge (both internal and external), opens up vast opportunities for its wider use in numerous domains and areas to understand the importance of knowledge and its contribution to the firm performance in this case financial performance in foreign markets. The absorptive capacity was observed in this paper in the context of new digital technologies and the willingness and ability of the company to recognise new technologies on the market, their integration into business, and, ultimately, their use. Absorptive capacity is a necessary organisational ability so that companies can accept new digital technologies but influence innovation performance (Kastelli et al., 2022). Their results show that digital capacity has a positive effect on innovation with the presence of absorptive capacity as a mediator (Kastelli et al., 2022). Also, authors Rauniar et al. (2023) emphasise the importance of using absorptive capacity during the initial phase of the adoption of new digital technology. Regarding all the factors mentioned above and due to research conducted, organisations nowadays cannot be competitive, sustainable, recognisable, productive, and successful without their absorptive capacity.

Doing business in a foreign market ensures the long-term growth and development of the company, and its long-term sustainability affects the overall growth and development of an economy. Nowadays, it is impossible to do business without the application of new digital technologies. By researching the key predictors for export

activities, it was proven that absorptive capacity, i.e. the dimension of potential absorptive capacity (external acquisition of knowledge) and the dimension of realised absorptive capacity (external application of knowledge) were confirmed in the conducted research as key factors of export performance, i.e. activities (Ahimbisibwe et al., 2016). It has also been proven that absorptive capacity, in combination with global intangible resources, has a significant impact on export results (França and Rua, 2018). New technologies bring greater visibility, recognition, and flexibility in foreign business markets and ultimately prove their impact on financial performance.

Through the empirical research conducted and the results obtained, the limitations and recommendations for future research can be stated. This is the basis for further research, so according to future interests and the intention of future research, the proposed variables through this paper can be refined but also increased or decreased. Appropriate statistical methods and tests were applied to test the set research propositions. The sample of this research included export companies in the Republic of Croatia. This research was conducted in the territory of the Republic of Croatia, so for future research in this direction, it would be good to examine export companies of neighbouring EU countries (but also beyond) and for further research even globally, which would provide a basis and a database for comparison with selected criteria and areas. Likewise, this research includes only export companies of the Republic of Croatia. In further research, it would be desirable to investigate and examine the same relationship of dependent and independent variables on domestic companies of the Republic of Croatia, but also broader. Also, for further research, it would be desirable to focus on each group of companies, separately micro, separately small, separately medium, and separately large, to examine whether there is a difference in terms of the size of the company. It would be desirable to examine the same from the perspective of the company's age and classification of activities.

Through the conducted research, certain scientific and applied goals have been achieved. A critical review of the existing research area was conducted. The paper explains the concept of absorptive capacity in general, absorptive capacity, and its role in the context of the application of new technology and connection to financial performance (export activity), all based on the sample of Croatian export companies. The analysis revealed that absorptive capacity significantly impacts the financial performance of Croatian export companies, with a stronger influence observed in foreign markets compared to domestic ones. It defines the key determinants of the absorptive capacity concept as one of the key predictors of creating and improving financial performance in the context of the application of new digital technology in export companies.

Conclusion

This study revealed a connection between the absorptive capacity of the application of new technology and the financial performance (export activity) of Croatian export companies. The survey included 194 export companies from the Republic of Croatia, making it the first research of its kind in the country to explore the connection between the absorptive capacity of the application of new digital technology and the financial performance (export activity) of Croatian export companies. Absorptive capacity is not a new concept, but it is constantly developing and is the focus of many researchers. Moreover, it can change the way companies operate, how they think, and how they seek and adopt new knowledge and new technologies. Although absorptive capacity is not a new concept, it is not recognised enough by managers and companies themselves, so it should be further explored and connected with new

knowledge, innovation, and new technologies in the desire to create a more sustainable business and sustainable organisation. Precisely in the context of sustainable development and long-term competitiveness, recent research links absorptive capacity and sustainability, whereby absorptive capacity is a strong predictor of sustainable capabilities and green innovation adoption (Aboelmaged and Hashem, 2019). The importance of knowledge and the green economy is also confirmed by Zhao et al. (2024), who use absorptive capacity as a moderator between knowledge spillover and the green economy with a positive moderation effect. Likewise, digital transformation in renewable energy companies leads to better financial results (Ren and Li, 2022).

This paper aimed to determine whether there is a statistically significant relationship between the absorptive capacity of the application of new technology and the financial performance at domestic and foreign markets of export companies. In line with theoretical assumptions and empirical results, the results of this paper confirm a positive and significant relationship between absorptive capacity and financial performance in both contexts (the financial performance at domestic and foreign markets) and confirm both hypotheses H1 and H2. At the same time, the impact is notably stronger in foreign markets. This significant scientific contribution breaks new ground for further research in this area. The results of these studies provide a better understanding of the importance of the concept of absorptive capacity in the adoption and use of new digital technologies in terms of their influence on export activity, i.e., financial performance in foreign markets.

The impact of this research is visible in the awareness of both researchers and managers of export companies of the importance of absorptive capacity in the context of new digital technology influencing financial performance (export activity). Due to the research results, it can be stated that its impact represents a new research model that combines absorptive capacity in the context of new technology adoption and the financial performance of export companies. The importance of digitalisation that is connected to digital technologies and absorptive capacity is investigated by the authors Abou-foul et al. (2021), where they prove that digitisation and servitisation have a direct and positive effect on the financial performance of companies (Marić et al., 2024). The impact of digital transformation, along with indispensable digital technologies, on the financial performance of companies has also been proven in research by Li et al. (2023). It is the understanding of the concept of absorptive capacity and its importance that can have an impact on financial performance, thus affecting the sustainable development of the organisation, especially in the field of export, i.e., the export activities of a company. This research is the first to show the results of this type in the Republic of Croatia and beyond, where it can argue about the great importance and impact of the presented results that can indicate the importance of absorptive capacity and its role in the context of the application of new technology and connection to financial performance in the field of export, i.e. companies export activities.

This research shows the great impact of the absorptive capacity of accepting new digital technologies on the financial performance of export companies, which should be given more attention in the near future among managers of export companies (but also domestic ones) and among researchers in this field and all stakeholders. Knowledge sharing as one of the components of absorptive capacity has been proven to be essential for stakeholders' understanding of business in general and the details of business processes (Riana et al.,2019). An important role of absorptive capacity is also the influence on innovative behaviour, which is closely related to and affects financial performance (Kang and Lee, 2017). The obtained research results

can be used to expand the current knowledge about the absorptive capacity concept and its connection to the financial performance (export activities) of a company in the function of creating sustainable development and growth in the field of export.

Contribution to existing knowledge is obvious when presenting and testing a set of research propositions. The presented research and used constructs have not been included and connected in any research so far, which improves the current state of the research area. The existing knowledge about the absorptive capacity concept in this research has been expanded, including knowledge about its importance and impact on financial performance. Through the applicative contribution of this paper, the idea was to make the managers of the Republic of Croatia aware of the importance of identifying, assimilating, and transforming knowledge or adopting new knowledge from the environment into the company to affect financial performance. The manager's role is to build good relationships with other stakeholders to improve and influence their open innovations (Naqshbandi, 2016), which consequently affects the absorptive capacity. Again, with the importance of sustainable development, it has been proven that managers play an important role in recognising and acquiring external knowledge, thereby developing ecological competencies, while on the other hand, organisations that can assimilate, transform, and exploit knowledge develop ecological competences (Dzhengiz & Niesten, 2020). This research should be considered a review of the current status due to the research conducted and an overview of the concept of absorptive capacity, digital technologies, export activities, and financial performance. The obtained results can provide valuable inputs for future research but also expand the current research with new constructs that can capture the conceptual differences between the current research and its construct as well as a potential new one.

In conclusion, there are many opportunities for future investigation and methodological approaches to the absorptive capacity concept in many areas related to this research. By analysing the relevant scientific literature and the results of the conducted research, it is possible to conclude that many researchers deal with the absorptive capacity they observe and investigate in the context of new knowledge and innovations (Lilly & Juma, 2014; Zhang et al., 2015; Kranz et al., 2016; Yaseen, 2020; Sancho-Zamora et al., 2021,b). Likewise, researchers have recognised and are investigating the importance of ICT and its impact on increasing export activities (Adeleye & Eboagu, 2019; Boccia et al., 2022; Kere & Zongo, 2023; Zahoor & Lew, 2023) while this research connects these two essential elements, absorptive capacity and financial performance, i.e. export activities.

Doing business in international markets and being involved in the global market are significant prerequisites and factors that contribute to the success and competitiveness of a country. The internationalisation and globalisation of the market open up space for export-oriented companies, which creates opportunities for domestic companies in terms of their greater recognition, visibility, sustainable development, and competitiveness. For companies to achieve their market growth, both locally and globally, they need to develop strategies and find ways to strengthen their export activities, thereby influencing the increase in their operational efficiency and profitability, as well as the competitiveness of the entire economy. Due to all the above, it is necessary to mention that "CEE countries' exports have been supported by improved technological competitiveness, especially innovative outputs (patents)" (Bierut & Kuziemska-Pawlak, 2017, p.522). Finally, this research depicts directions that should be investigated in future work. Although the concept itself is not relatively new,

it still requests further systematic investigation and research in this area, further recognition, and application.

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About the author

Ivana Martinčević (Ph.D. in economics) works as an Assistant Professor at the University North, Department of Logistics and Sustainable Mobility. She gained her PhD at the University of Applied Sciences Burgenland. She is the author and co-author of numerous domestic and international professional and scientific articles and has participated in several international conferences. The author can be contacted at **ivana.martincevic@unin.hr**

Appendix 1

Pearson's Correlations

Variable		AC1	AC2	AC3	AC4	AC5	AC6	AC7	AC8	FIN1	FIN3	FIN5	FIN7	FIN2	FIN4	FIN6	FIN8
1. AC1	Pearson's r	—															
	p-value	—															
2. AC2	Pearson's r	0.451	—														
	p-value	< .001	—														
3. AC3	Pearson's r	0.432	0.304	—													
	p-value	< .001	< .001	—													
4. AC4	Pearson's r	0.443	0.327	0.500	—												
	p-value	< .001	< .001	< .001	—												
5. AC5	Pearson's r	0.243	0.380	0.423	0.412	—											
	p-value	< .001	< .001	< .001	< .001	—											
6. AC6	Pearson's r	0.366	0.304	0.390	0.486	0.342	—										
	p-value	< .001	< .001	< .001	< .001	< .001	—										
7. AC7	Pearson's r	0.518	0.419	0.368	0.438	0.341	0.500	—									
	p-value	< .001	< .001	< .001	< .001	< .001	< .001	—									
8. AC8	Pearson's r	0.269	0.287	0.404	0.290	0.441	0.450	0.362	—								
	p-value	< .001	< .001	< .001	< .001	< .001	< .001	< .001	—								
9. FIN1	Pearson's r	0.172	0.240	0.305	0.265	0.379	0.259	0.336	0.220	—							
	p-value	0.017	< .001	< .001	< .001	< .001	< .001	< .001	0.002	—							
10. FIN3	Pearson's r	0.162	0.210	0.205	0.157	0.269	0.257	0.311	0.206	0.671	—						
	p-value	0.024	0.003	0.004	0.029	< .001	< .001	< .001	0.004	< .001	—						
11. FIN5	Pearson's r	0.116	0.144	0.088	0.166	0.251	0.345	0.182	0.198	0.557	0.688	—					
	p-value	0.107	0.045	0.222	0.021	< .001	< .001	0.011	0.006	< .001	< .001	—					
12. FIN7	Pearson's r	0.212	0.335	0.178	0.144	0.282	0.248	0.315	0.119	0.655	0.643	0.620	—				
	p-value	0.003	< .001	0.013	0.046	< .001	< .001	< .001	0.098	< .001	< .001	< .001	—				
13. FIN2	Pearson's r	0.032	0.008	0.166	0.222	0.269	0.177	0.100	0.129	0.273	0.178	0.259	0.129	—			
	p-value	0.656	0.913	0.021	0.002	< .001	0.014	0.164	0.073	< .001	0.013	< .001	0.074	—			
14. FIN4	Pearson's r	0.031	0.095	0.090	0.143	0.210	0.153	0.095	0.170	0.236	0.265	0.278	0.235	0.729	—		
	p-value	0.667	0.187	0.212	0.047	0.003	0.033	0.188	0.018	< .001	< .001	< .001	< .001	< .001	—		
15. FIN6	Pearson's r	0.031	0.102	0.166	0.131	0.197	0.186	0.149	0.165	0.305	0.352	0.342	0.305	0.684	0.745	—	
	p-value	0.664	0.158	0.020	0.069	0.006	0.009	0.038	0.022	< .001	< .001	< .001	< .001	< .001	< .001	—	
16. FIN8	Pearson's r	0.130	0.195	0.076	0.162	0.250	0.123	0.151	0.119	0.309	0.299	0.274	0.275	0.702	0.849	0.708	—
	p-value	0.070	0.006	0.295	0.024	< .001	0.087	0.035	0.097	< .001	< .001	< .001	< .001	< .001	< .001	< .001	—

Source: author's work