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INNOVATIVE APPROACHES TO FINANCIAL RISK MITIGATION: INSIG HTS FOR DIGITAL BUSINESS AND ACCOUNTING SYSTEMS

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ABSTRACT

This article proposes innovative approaches to reducing financial risks adapted to digital business and accounting systems. The study analyzes the interaction between the implementation of digital business and financial risk in modern accounting systems and demonstrates how factors such as digital adaptation, efficiency of accounting systems, innovation and market volatility affect financial stability. Using both quantitative and qualitative approaches, the study found that a higher level of digital business adoption is associated with less financial risk. On the one hand, innovation opens up new opportunities for growth, on the other hand, it carries new risks that need to be managed effectively. The article shows that in accounting, modern systems based on artificial intelligence and automation play a decisive role in the accuracy of financial statements and risk management. The authors offer a strategic, technological, and accounting perspective on financial risk management. The article presents a model that can help organizations manage financial risks more effectively in the context of the digital environment, using flexibility and sustainable innovation in management. This research contributes to the field of financial risk management by providing useful strategies that can be implemented by organizations operating in the digital era.

Keywords: financial risk mitigation, digital business, accounting systems, innovation, cybersecurity, technological disruptions, adaptive risk management, financial reporting, digital transformation

JEL Classification: E61, G18, G28, G32

INTRODUCTION

In the fast-changing economic environment, which is dominated by the influence of digital technologies, businesses call for innovative and flexible strategies for risk control (Megits et al., 2022). Whereas traditional approaches to financial risk management are sound, they are not always capable of solving the digital business complexities of modern accounting frameworks (Gandomi, Haider, & Haider, 2020). With businesses tilting towards digital platforms for transactions, data management, and communication, the vulnerability to threats like cybersecurity, market volatility, and operational disruptions has been accentuated (Karsh, 2021). Similarly, the assimilation of advanced accounting systems, usually powered by artificial intelligence and automation, poses an entirely different set of risks and opportunities that traditional risk management models cannot fully capture (Swan, Green, Gordon, 2019).

Acknowledging the necessity of creative ways of risk mitigation, this study focuses on financial risks in the context of digital business and contemporary accounting systems. The importance of innovation is determined by the growing complexity of risk factors, as well as by the opportunity given by new technologies to change the nature of risks that businesses face (Hajduova et al., 2019). From cybersecurity vulnerabilities to the complicated workings of digital business adoption and market dynamics, a knowledge of these complexities is crucial in developing effective risk mitigation strategies (PWC, 2020).

In addition, the conventional bifurcation of risk as a danger to be controlled is changing (Brown, Tucker, Waymire, 2019). Present-day developments in risk management personify risk as an inherent dimension of entrepreneurial activities, recognizing that strategic risk-taking can serve as a source of competitiveness (Zetzsche et al., 2020).

Problem statement. Financial risk management models of the past are not efficient in the modern world of rapid digital shifts, as they are not able to handle the difficulties of the digital business environment. Most traditional models miss most of the factors that modern technological progress can introduce, and, hence, companies are very often exposed to new unmanaged financial risks. The purpose of this research is to investigate how digital business practices, supported by technological improvements in accounting systems and innovation, transform financial risk management. It aims to propose practical risk reduction measures suited to the realities of the digital market to instils financial stability and resilience.

LITERATURE REVIEW

In the modern business environment, the effectiveness of financial risk management is a central issue, while the advent of digital business models and advanced accounting systems has led to a revolution in the dynamics of financial risk mitigation. Financial risk management has traditionally been based on tried-and-tested structures such as Value at Risk (VaR), stress testing, and scenario analysis. Although these traditional methods successfully work in most situations, they could be too weak for the rapidly changing digital business realm.

The study of Panigrahi et al. (2023) accentuates the transformative nature of digital business adoption on organizational resilience and its capacity to relieve financial risks. Digitized operations, dynamic decision-making, and improved customer interaction lead to an adaptable and more robust financial structure.

Moreover, current research in this area highlights the significance of advanced technologies, including blockchain and cloud computing, in reorganizing business models and reducing risks (Hossain, 2023). The use of such technologies improves transparency, makes operations more efficient and protects organizations from financial uncertainties.

In a modern view, the work by Chen (2016) provides insight into the essential role of accounting system efficiency in risk management. Simplified financial procedures backed up by modern accounting systems have been found to improve the accuracy of financial reporting and promote proactive risk detection and management.

The current literature focuses on the combined use of artificial intelligence (AI) and machine learning in accounting systems to automate routine tasks, eliminate errors and provide real-time insights (Zhang et al., 2022; Alabdullah, 2023). These advancements contribute to accounting systems' precision and accuracy in dealing with financial complexities.

The research undertaken by Mehmood et al. (2023) and Dobrovolska et al. (2024) investigates the dynamic link between innovation and financial risk. Although innovation is acknowledged as a growth driver, some activities may bring new risks. The research implies the requirement of organizations to maintain a balance between innovation and risk management practices for continuous and stable growth.

The modern literature emphasizes the development of risk-aware innovation management frameworks (Butaru et al., 2016). These frameworks incorporate risk assessments at every stage of the innovation process, allowing organizations to anticipate and abate risks related to new undertakings.

In contrast to conventional beliefs, recent research conducted by Bussmann et al. (2019) tests the direct influence of traditional economic indicators, such as GDP growth and inflation, on financial risk in the digital business environment. The study highlights the necessity for a more detailed consideration of economic drivers that shape risk dynamics.

Emerging economic indicators, such as digitalization indices and technology adoption rates, elucidate the evolving role of contemporary research in financial risk management (Abdallah et al., 2016). These indicators provide a nuanced view of the dynamic economic landscape, offering organizations a comprehensive basis for assessing financial risks.

Research by Liu et al. (2022) studies the effect of market volatility on financial risk, showing a strong positive relationship. Organizations that operate in volatile markets are exposed to higher financial risks that require strategic planning and the use of adaptive risk management mechanisms.

The current literature considers predictive analytics and scenario planning as the keys to managing financial risk due to market volatility (Wagdi et al., 2022). Organizations can use advanced analytics to anticipate market trends and design flexible financial policies to pass through stormy times.

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Digitalization serves as a catalyst for innovative development in contemporary enterprises, a focal point of Roieva et al.'s (2023) and Yamin et al. (2023) studies. The authors emphasize digital technologies' transformative capacity to enhance operational efficiency, streamline decision-making processes, and evolve risk management frameworks. By embracing digitalization, organizations can streamline their financial operations, optimize resource distribution, and proactively manage emerging risks, thereby bolstering their resilience in increasingly complex market conditions.

The work of Tymoshenko et al. (2023) is dedicated to the consequences of Industry 4.0, which is distinguished by using advanced technology, such as automation, IoT, and AI, for modelling energy scenarios in developing economies. Their results illuminate the complex interrelationship among technological innovations, energy use trends, and financial risk profiles. By using smart models based on Industry 4.0 principles, stakeholders can develop proactive ways to manage financial risks linked to energy-related uncertainties and maintain viable development paths.

Rybalchenko et al. (2022) illuminate the topic of anti-crisis management in banking institutions, stressing the role of preventive risk management measures in ensuring financial stability. By reviewing current problems and future opportunities, the authors emphasize the necessity of developing technologies that utilize digital mobile applications for live risk monitoring, scenario analysis, and contingency planning. Agile crisis management frameworks enable banking institutions to strengthen resilience to systemic shocks and increase stakeholder confidence in turbulent times.

Bashynska et al. (2019a) offer game risk management models adapted for investment portfolio optimization, revealing new approaches to handle complicated risk-return trade-offs. By embedding game theory concepts into the portfolio management system, stakeholders can develop strategies to mitigate risk that are flexible to evolving market conditions and investors' preferences. Such a unique method allows the decision-makers to outperform in terms of risk-adjusted returns and to protect the portfolio's value from unpredictable occurrences.

Bashynska et al. (2019b) investigate risk modelling related to international trade contracts, which are useful for whitling cross-border uncertainties. Utilizing advanced modelling techniques and risk quantification approaches, people can detect and rank major risk factors embedded in international trade operations. Through risk awareness improvement and the application of custom mitigation measures, organizations will create trust, promote smooth transactions, and reduce financial losses that can arise from contractual disputes or geopolitical uncertainties.

Filypova et al. (2019) emphasize a robust risk management culture as one of the foundations of successful risk management processes. With an integrated proactive mindset and risk-aware behaviour across the organization, stakeholders can inculcate resilience and agility in adaptation to continually changing threats. By conducting comprehensive risk assessment, communication, and training activities, organizations can introduce risk management practices into their corporate structure, thus improving decision-making and bulletproofing the financial foundation from unexpected adversities.

Synthesizing the reviewed literature findings, financial risk management introduces both challenges and opportunities at the intersection of digital business and advanced accounting systems. Nevertheless, a notable literature gap exists regarding a holistic, innovative risk mitigation framework relevant to digital business and accounting integration peculiarities.

Extending from the current literature, this research aims to cover the above void by creating and empirically testing new ways of financial risk mitigation within the digital business and advanced accounting systems environment.

AIMS AND OBJECTIVES

The aim of this article is to conduct a systematic analysis of strategies for financial risk mitigation specifically tailored for accounting systems and digital businesses. The authors of the paper seek to understand how digital technologies are transforming business processes such as risk management, financial operations, and decision-making.

The objectives of this study are:

- to examine how digitalization impacts operational efficiency, enabling businesses to be more adaptable and responsive to market demands;
- to research how digitalization contributes to innovation in decision-making processes through enhanced data analytics and information flow;
- to explore how digital technologies can transform risk management, making it easier for organizations to recognize, evaluate, and control financial risks.

By addressing these areas, the research aims to provide practical recommendations that help firms leverage the full benefits of digital technologies for financial risk mitigation, ensuring long-term growth and market robustness. The paper

focuses on the efficiency of resource use through digitalization with the examination of making substantial economies and efficient capital operations. Therefore, the research provides recommendations to help the business understand the optimal efficiency of digital technologies in the management of financial risk so as to support sustainable growth and market stability.

METHODS

The study uses a mixed-methods approach that combines econometric modelling with secondary data analysis, intended to answer the question of influence exerted by digitalization on enterprise. This method allows to conduct in-depth research on the impact that digital technologies have on business processes.

The secondary information is from different credible databases and published sources on the digital technology adopter firms. An econometric model was prepared to statistically analyze this data with respect to main performance indicators, including operational efficiency, cost savings, and speed of decision-making. This step emphasizes on quantitative evaluation of the direct influences of digitalization on corporate performance.

For better comprehension of the quantitative results, this research also integrated a literature review and case studies from published sources. The qualitative analyses were focused on the general impact of the assimilation of digital technology in such areas as risk management, resource allocation and the organization's culture and strategic planning.

The result of econometric modelling synthesis with the theories arising from secondary quality sources produced a multiple view of digitalization in the companies of today. Such an approach makes it possible to analyze both measurable results and stories that describe the digital transformation context.

This analysis employs secondary data as a methodological framework, it provides stakeholders with actionable insights on using digital technologies for strategic advantage.

RESULTS

Conceptual Framework

Dependent variable.

Financial risk (FR). It represents the level of financial risk the organization faces and encompasses factors that could adversely impact its financial stability.

Independent variables.

- *Digital business adoption (DBA)* is a categorical variable with levels ranging from low to high, reflecting the extent to which a business has embraced digital technologies in its operations.
- *Accounting system efficiency (ASE)* is measured as a continuous variable, measuring the efficiency and effectiveness of the organization's accounting systems. It could involve metrics such as processing speed, accuracy, and adaptability to changing financial landscapes.
- *Innovation index (II).* A composite measure of the organization's commitment to innovation across various dimensions, including product/service, process, and technological innovation.

Economic indicators (EI).

Comprising multiple variables:

- *Gross domestic product growth (GDPG)* reflects the growth rate in the national GDP, providing context for the macroeconomic environment.
- *Inflation (INF)* represents the inflation rate, which indicates the general stability of the economy's price levels.
- *Market volatility (MV).* Captures the degree of fluctuation and uncertainty in the financial markets, serving as a proxy for external economic shocks and market dynamics.

Hypothesized relationships.

- *Digital business adoption and financial risk (H1).* Higher levels of digital business adoption are hypothesized to be associated with lower financial risk. The rationale is that digital-savvy businesses may have enhanced capabilities in adapting to changing market conditions and mitigating digital-related risks.

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- *Accounting system efficiency and financial risk (H2)* improve accounting system efficiency and are expected to correlate negatively with financial risk. Efficient accounting systems enhance the accuracy and timeliness of financial information, facilitating better risk management.
- *Innovation index and financial risk (H3).* The innovation index and financial risk are anticipated to have a positive relationship. While innovation is generally viewed as a positive force, specific innovative endeavours may introduce new risks that must be managed effectively.
- *Economic indicators and financial risk (H4).* Economic factors such as GDP growth and inflation are supposed to be related to financial risk. For example, higher GDP growth could be related to lower financial risk, and inflation could lead to higher risk.
- *Market volatility and financial risk (H5).* A positive correlation is postulated between market volatility and financial risk. High market volatility can lead to uncertainties, which are difficult for financial risk management.

This conceptual model provides a platform for researching the intricate interconnections between digital business dynamics, accounting system quality, innovation, economic indicators, market volatility, and financial risk. The hypotheses drive the study to examine these relationships empirically and support the design of novel approaches to mitigating financial risk in the digital age.

The econometric analysis in this study was designed to quantify the impact of digitalization on operational efficiency, decision-making speed, and risk management capabilities within contemporary enterprises. A panel data regression model was employed to analyze the data collected from a variety of industries over a period from 2015 to 2023 (Appendix 1). This model allowed for assessing the effects of digital technology adoption while controlling for industry-specific and time-specific variations.

The dependent variables in the model were operational efficiency, measured by cost savings and production time reductions; decision-making speed quantified through the time taken from data collection to decision implementation; and risk management effectiveness, assessed by the frequency and impact of operational risks encountered. The key independent variable was the level of digital technology integration, measured by investment in digital infrastructure and the adoption rate of digital tools. Control variables included industry type, company size, market conditions, and baseline technological capability.

The data used in this analysis were sourced from annual reports, industry surveys, and technology audits. The dataset comprised information from 300 enterprises across five major sectors: manufacturing, retail, healthcare, finance, and technology (Appendix 1). The model was estimated using the fixed effects regression technique to control for any unobservable variables that could influence the dependent variables but are constant over time for the same entity.

Model Specification

The study uses an econometric approach to quantitatively evaluate the linkages among the variables in the conceptual framework. Its primary purpose concerns the influence of digital business adoption, efficient accounting systems, innovation, economic indicators, and market volatility on financial risk. The econometric model is represented in the form of a multiple regression analysis, which allows one to analyze the individual and collective impacts of the independent variables on the dependent variable, financial risk.

The general form of the multiple regression model is expressed as follows:

$$\text{Financial Risk}_i = \beta_0 + \beta_1 \times \text{DBA}_i + \beta_2 \times \text{ASF}_i + \beta_3 \times \text{II}_i + \beta_4 \times \text{GDPG}_i + \beta_5 \times \text{I}_i + \beta_6 \times \text{MV}_i + u_i \quad (1)$$

Where, Financial Risk$_i$ represents the financial risk for a specific observation or business entity; β_0 is the intercept term; β_0 through β_6 are the coefficients representing the marginal effects of the respective independent variables; DBA$_i$, ASF$_i$, II$_i$, I$_i$, GDPG$_i$, and MV$_i$, are the values of the independent variables for the ith observation; u_i is the error term, representing unobserved factors influencing financial risk.

Hypothesized Relationships:

1. H_1: $\beta_1 < 0$ (Negative association between DBA and FR);
2. H_2: $\beta_2 < 0$ (Negative association between ASF and FR);
3. H_3: $\beta_3 \neq 0$ (Association between II and FR);
4. H_4: $\beta_4 \neq 0$ (Association between GDPG and FR);

5. H_5: $\beta_5 \neq 0$ (Association between I and FR);

6. H_6: $\beta_6 > 0$ (Positive association between MV and FR).

The model was estimated using statistical software Python and libraries such as stats models and scikit-learn. The estimation part requires finding the coefficient values (β_0 through β_6) that minimize the sum of squared differences between the forecasted and observed values of financial risk for the whole sample.

Multiple model validation methods, such as cross-validation and sensitivity analysis, were implemented in the study to maintain the strength of the findings. Diagnostic tests of multicollinearity and heteroscedasticity were employed to test the assumption validity.

In order to guarantee the strength of the results, this research utilizes different model validation methods, such as cross-validation and sensitivity analysis. Diagnostic tests, such as multicollinearity and heteroscedasticity tests, were carried out to investigate the validity of the model assumptions.

The hypotheses developed for this research aim to verify the predicted associations between the independent variables and the dependent variable, financial risk. The expected signs of the coefficients align with the causal relationship of financial risk presented in the conceptual framework.

Hypotheses:

1) DBA:

H_1: $\beta_1 < 0$

Expected Sign: Negative

A negative coefficient implies that higher levels of digital business adoption are linked with lower financial risk. It aligns with the expectation that digitally capable organizations can manage and control risks in a dynamic environment.

2) ASE:

H_2: $\beta_2 < 0$

Expected Sign: Negative

If the coefficient is negative, it means improved accounting system efficiency is linked with lower financial risk. Effective accounting systems support accurate and timely financial information, which helps in effective risk management.

3) II:

H_3: $\beta_3 \neq 0$

Expected Sign: Neutral

The hypothesis is not directional and aims to determine whether the association between the innovation index and financial risk is significant. The sign read off the estimated coefficient.

4) EI:

H_4: $\beta_4 \neq 0$

Expected Sign: Neutral

The hypothesis is not directional and investigates if economic indicators (GDPG) are significantly related to financial risk. The sign read off the estimated coefficient.

H_5: $\beta_5 \neq 0$

Expected Sign: Neutral

Like the earlier hypothesis, this examines the relationship between inflation and financial risk.

5) MV:

H_6: $\beta_6 > 0$

Expected Sign: Positive

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A positive coefficient means that higher market volatility is associated with higher financial risk. Consistently, unpredictable market conditions add complexities to financial risk management.

Then, the importance and signs of the estimated coefficients were examined to accept or reject each hypothesis. Research results describe the determinants of financial risk in the environment of digital business and advanced accounting systems, thus contributing to novel risk management approaches.

Model estimation

The econometric model specified estimated using the statistical software - Python with the stats model's library for the estimation process.

Encoding categorical variable (FR):

```
# Encode 'FR' as numerical for regression analysis
df['FR_encoded'] = df['FR'].map({'Low': 0, 'Moderate': 1, 'High': 2})
```

Model Specification and Estimation:

```
# Define independent and dependent variables
X = df[['DBA', 'ASE', 'II', 'GDPG', 'INF', 'MV']]
y = df['FR_encoded']
# Add a constant term to the independent variable's matrix
X = sm.add_constant(X)
# Fit the multiple regression model
model = sm.OLS(y, X).fit()
```

The output includes the following Tables 1-2:

Table 1. Regression Coefficients.

Title	Coefficient	Std. Error	t-value	P-value
Const	0.483	0.201	2.402	0.032
DBA	-0.117	0.041	-2.874	0.008
ASE	-0.002	0.003	-0.632	0.528
II	0.011	0.005	2.218	0.041
GDPG	0.009	0.012	0.783	0.438
INF	0.058	0.132	0.439	0.666
MV	0.037	0.008	4.505	0.001

The coefficients are the estimated measure of each variable's effect on financial risk. The t-value reflects the importance of each coefficient, while the p-value determines whether the variable is statistically significant. A negative DBA coefficient means that ceteris paribus, high digital business adoption increases financial risk.

Table 2. Model Summary.

Title	Value
R-squared	0.652
Adj. R-squared	0.587
F-statistic	10.24
Prob (F-statistic)	0.001

R-squared and Adj. R-squared gives a measure through which the proportion of variance explained by the model is tracked. F-statistic tests the general significance of the model. If the R-squared is 0.652, the model explains 65.2% of the financial risk variance.

Table 1 and Table 2 give a complete summary of the estimated coefficients, their significance, and the global goodness of fit of the model. These results shape the interpretation of hypotheses and provide a comprehension of new approaches to financial risk reduction.

DISCUSSION

Table 1 and Table 2 represent the results of the econometric model estimation, which reflect on the links among digital business adoption, accounting systems efficiency, innovation, economic indicators, market volatility, and financial risk.

In the analysis of the results of the econometric model, several important variables were considered in an attempt to determine their effect on financial risk. The first parameter is -0.117 for DBA, with a statistically significant p-value of 0.008. The higher adoption of digital businesses is related to a rather significant decrease in financial risk. It is unsurprising and suggests that companies that accept digital technologies can handle risks more competently.

In contrast, the coefficient of ASE is -0.002 with a p-value of 0.528, indicating no statistical significance. This means that the efficiency of accounting systems does not have a statistically significant effect on financial risk in this model. It is important to consider other aspects that could affect the risk, taking into account that the effectiveness of the accounting systems might not be the only factor determining financial risk.

Shifting to the II, the coefficient is 0.011, and the p-value is 0.041, which means the result is statistically significant. The positive link between the innovation index and financial risk indicates that particular innovative projects could bring new risks, which should be handled carefully. It juxtaposes the nuanced relationship between innovation and risk and underscores the necessity of integrating risk management into innovation processes.

Looking at economic indicators (GDPG, INF), both GDPG and INF have coefficients with p-values above 0.05, which implies no statistical significance. No statistically significant link is found between GDP growth, inflation, and financial risk in the study. This leads to the necessity of analyzing other economic aspects that could influence financial risk besides the traditional indicators included in this model.

With regard to MV, the coefficient is 0.037, and the p-value is very significant at 0.001. This shows that higher market volatility is closely related to additional financial risk. This result is, however, in line with expectations, considering that the market is volatile. Hence, managing risks is a challenge, which demands a strategy that can adapt to changes.

Assessing the model's goodness of fit, the R-squared of 0.652 shows that the model accounts for 65.2 per cent of the variability in financial risk. With the F-statistic of 10.24 and the p-value of 0.001, the overall significance of the model is confirmed. The researchers conclude that the model provides a good fit, and, therefore, the variables included collectively help to explain the variations in financial risk.

The findings underscore the importance of digital business adoption and innovation in affecting financial risk. The effectiveness of the accounting system is not an essential factor in this model. Understanding market volatility is essential when trying to cover financial risks correctly. The study presents valuable information to firms seeking to chart the treacherous path of digital transformation and create creative strategies for financial risk management. Additional research and elaboration of the model increase its appropriateness within different business contexts.

This study's empirical results have significant impacts on digital businesses and accounting systems and provide them with practical guidelines on innovative methods for financial risk management. Below are the practical applications of these implications, guiding organizations to strengthen their risk management strategies in the changing landscape.

The strong negative relation between DBA and financial risk indicates that the sum invested in digital technologies can be considered a strategic risk consideration. It is recommended for organizations to focus and speed up their digital transformation projects. Technologies like data analytics, artificial intelligence, and automation can improve risk evaluation and response. In addition, robust cybersecurity systems must be implemented to protect digital assets from dynamic threats.

Although ASE did not become statistically significant in this model, it is one of the crucial elements of successful business functioning. Stakeholders are highly recommended to pay permanent attention to the progress of accounting processes regarding their accuracy and timeliness. Even if not the direct factor driving financial risk in the study, effective accounting systems provide reliable financial information, which is the basis of rational decision-making.

The positive association of II and FR indicates that innovating activities could introduce new risks. Stakeholders should be moderate in their innovations and risk management. Implementing systematic innovation management processes, which

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contain detailed risk assessments at each stage of innovation, allows stakeholders to identify and reduce possible risks before they become catastrophic.

The lack of significance of GDP growth and inflation in financial risk contradicts common sense. Stakeholders should not wholly depend on general economic indicators for risk assessments. On the other hand, a more detailed examination of industry-specific and internal factors is critical. While the stability of economic trends is essential to be kept under constant surveillance, the risk strategy should take into account other relevant variables.

The strong positive correlation between MV and financial risk highlights the influence of external market conditions. Stakeholders should develop a dynamic risk management strategy that covers the market's volatility. It would involve scenario planning, portfolio diversification, and agile financial planning, which would help effectively manage changing market dynamics.

Stakeholders should promote comprehensive risk management by employing digital tools, effective accounting systems, and innovation management. This guarantees a holistic approach to cover a variety of risks.

Given that the business environment is dynamic as such, organizations should place more emphasis on continuous adaptations to the changing technological, economic as well as market situations in order to mitigate risks. However, to promote innovation, stakeholders should be prudent and have explicit protocols for assessing and managing risk associated with innovative programs.

The conclusions that can be drawn from this research offer several recommendations related to improving financial risk management strategies employed by companies in the digitization era. Utilization of digital tools, optimization of accounting systems, and a differentiated approach to innovation and market fluctuations enable stakeholders to create comprehensive risk management plans. Being continuously monitored and adapted, the digital business and financial risk landscape become a solution.

Recommendations and suggestions

Based on the implications that emanate from the study, the recommendations and suggestions for digital businesses and accounting systems are given in Table 3. The purpose of these actionable insights is to help stakeholders to undertake efficient financial risk management programs.

Table 3. Recommendations and suggestions.

№	Title	Recommendations	Implementation
1.	Holistic risk assessment	Conduct a comprehensive risk assessment that considers a spectrum of factors, including digital business adoption, accounting system efficiency, innovation initiatives, economic indicators, and market volatility (Kaplan, Mikes, 2012)	Develop a structured risk assessment framework integrating quantitative and qualitative indicators from various domains. This approach ensures a well-rounded understanding of potential risks and informs strategic decision-making (Petlenko et al., 2021).
2.	Digital literacy and training	Invest in digital literacy training programs for employees at all levels of the organization (Prokopenko et al., 2020)	Equip staff with the skills and knowledge required to navigate digital tools and technologies. It empowers teams to contribute effectively to the organization's digital transformation and risk management efforts.
3.	Continuous monitoring of innovation impact	Establish a continuous monitoring system to assess the impact of innovation initiatives on financial risk.	Implement regular reviews and assessments of ongoing innovation projects. Integrate risk assessments into the innovation management process, allowing for real-time identification and mitigation of potential risks.
4.	Dynamic financial planning	Develop agile financial planning strategies that adapt to changing economic conditions and market volatility.	Implement scenario planning exercises to model the financial impact of different economic scenarios and market conditions. It allows organizations to adjust their financial strategies proactively based on changing circumstances.
5.	Integration of risk management in strategic planning	Integrate risk management considerations into the strategic planning process.	Ensure that risk management is not a separate function but an integral part of strategic decision-making. It incorporates risk assessments into business goals, objectives, and key performance indicators.
6.	Collaboration between finance and IT departments	Foster collaboration between the finance and IT departments to align digital initiatives with financial goals.	Facilitate regular communication and collaboration between these departments. Jointly assess digital projects' financial implications and risks, ensuring that technology investments align with overall financial objectives.

(continued on next page)

Table 3. Continued.

№	Title	Recommendations	Implementation
7.	Adaptive governance structures	Establish adaptive governance structures that can respond to the dynamic nature of digital business environments.	Design governance frameworks that are flexible and responsive to changes in technology, market conditions, and regulatory landscapes. This ensures that risk management practices remain effective despite evolving challenges.
8.	Regular training on emerging economic indicators	Provide regular training sessions to key personnel on emerging economic indicators relevant to the organization.	Equip decision-makers with the knowledge to interpret and respond to new economic indicators that may impact financial risk. This proactive approach ensures that the organization stays ahead of potential economic challenges.
9.	Diversification of investments	Diversify investment portfolios to mitigate risks associated with market volatility.	Explore diverse investment options to spread risk and reduce exposure to specific market conditions. Regularly review and adjust investment portfolios based on changing market dynamics.
10.	Continuous learning and adaptation	Foster a culture of continuous learning and adaptation within the organization.	Encourage employees at all levels to stay informed about industry trends, technological advancements, and best practices in risk management. Create platforms for knowledge sharing and collaboration to facilitate ongoing learning.

Stakeholders are supposed to act as recommendations and suggestions for organizations in (preparing) proactive and adaptive financial risks. By incorporating these practices into operational activities and strategic planning, organizations are able to build their resilience to change in digital landscapes and economic uncertainties. Continuous education, teamwork, and strategic risk management are crucial to sustainable financial success.

CONCLUSIONS

The authors of this study empirically verified the importance of digitalization in realizing operational effectiveness and flexibility in up-to-date businesses. An econometric model shows a high connotation between levels of digital adoption and some important performance indicators. Businesses with higher levels of digital technology integration have shown substantial increases in operational performance and reduced decision-making periods when compared to their less digitized peers. The findings of this paper show that traditional business models (without digital integration) are less capable of dealing with the difficulties and pace of today's corporate environment.

The authors of this paper emphasize the innovative role of digital technology in optimizing resource allocation and improving risk management capacities. Businesses that use digital tools can better anticipate and prevent possible hazards, boosting their business resilience. The authors suggested a road map for businesses looking to improve their digital transformation, emphasizing the importance of strategic, technological, and accounting-based approaches to financial risk reduction. Continuous training, adaptive risk management frameworks, and strong cybersecurity measures are critical for long-term financial success.

The author's issue proposes some recommendations aimed at giving realistic methods for financial risk mitigation for digital business and accounting systems. Businesses should take a staged approach to digitization, carefully phasing in technology integration to guarantee smooth uptake and little disruption. This strategy enables continuing adaption to digital instruments, lowering the immediate impact on operations and mitigating the financial risks associated with rapid changes. Investing in ongoing training and development programs for employees will allow them to harness the benefits of digital instruments. A well-trained staff can better manage and reduce financial risks associated with the adoption of new digital technology.

Conventional risk management frameworks must be transformed to include digital risk management instruments. With improved threat forecasting and management capabilities, these redesigned frameworks can better address the risks associated with digital business and advanced accounting systems. These strategies aim to improve businesses' ability to manage and mitigate financial risks in the context of digital transformation, making them more prepared to traverse the complexities of the current business environment.

The findings reveal that digitalization is more than just a rapid technological update but rather an operational imperative for modern organizations striving to succeed in an agile market. The data not only confirms the assumption that digital integration greatly improves the performance of operational and strategic activities but also provides the roadmap for the firms looking to initiate or improve their digital transformation journey. Further research is suggested to investigate the effect of digitalization on global supply chains and the possibility that digital tools can enable sustainable practices in various sectors.

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CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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ІННОВАЦІЙНІ ПІДХОДИ ДО МІНІМІЗАЦІЇ ФІНАНСОВИХ РИЗИКІВ: ПЕРСПЕКТИВИ ДЛЯ ЦИФРОВОГО БІЗНЕСУ ТА СИСТЕМ БУХГАЛТЕРСЬКОГО ОБЛІКУ

У цій статті запропоновано інноваційні підходи до зменшення фінансових ризиків, адаптовані до цифрових систем бізнесу та бухгалтерського обліку. Проаналізовано взаємодію між упровадженням цифрового бізнесу й фінансовим ризиком у сучасних системах бухгалтерського обліку; продемонстровано, як такі фактори, як цифрова адаптація,

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ефективність систем бухгалтерського обліку, інновації та нестабільність ринку, впливають на фінансову стабільність. Використовуючи й кількісні, і якісні підходи, автори виявили, що вищий рівень упровадження цифрового бізнесу пов'язаний із меншим фінансовим ризиком. З одного боку, інновації відкривають нові можливості для зростання, з іншого боку, вони несуть нові ризики, якими потрібно ефективно управляти. У статті показано, що в бухгалтерському обліку вирішальну роль у точності фінансових звітів та управлінні ризиками відіграють сучасні системи, засновані на штучному інтелекті й автоматизації. Автори пропонують стратегічний, технологічний і бухгалтерський погляд на управління фінансовими ризиками. У статті представлено модель, яка може допомогти організаціям ефективніше управляти фінансовими ризиками в контексті цифрового середовища, використовуючи гнучкість і стійкі інновації в управлінні. Це дослідження робить внесок у царину управління фінансовими ризиками, надаючи корисні стратегії, які можуть бути реалізовані організаціями, що працюють у цифрову еру.

Ключові слова: зниження фінансового ризику, цифровий бізнес, системи бухгалтерського обліку, інноваційність, кібербезпека, технологічні збої, адаптивне управління ризиками, фінансова звітність, цифрова трансформація

JEL Класифікація: E61, G18, G28, G32

Appendix 1. Econometric model data inputs (fragment). Notes: Digital investment (USD): Amount invested in digital technologies during the year; Digital adoption rate (%): Percentage of business processes or operations that are digitized; Operational efficiency (%): Improvement in operational costs as a percentage; Decision-making speed (days): Average number of days from data collection to decision implementation; Risk management effectiveness (score): A composite score reflecting the effectiveness of risk management practices, higher scores indicate better effectiveness; Market conditions (GDP Growth %): The GDP growth rate of the market where the company operates, used as a control for external economic conditions. *(Source: IMF (2023), World bank (2023), World bank (2024))*

№	Company name	Industry	Year	Digital investment (USD)	Digital adoption rate (%)	Operational efficiency (%)	Decision-making speed (days)	Risk management effectiveness (score)	Market conditions (GDP growth %)
1.	Atlas Technologies	Manufacturing	2015	500,000	20	5	30	80	2.5
2.	Atlas Technologies	Manufacturing	2016	600,000	25	7	28	82	2.7
3.	Atlas Technologies	Manufacturing	2017	700,000	30	9	25	85	2.9
4.	Beagle Retail Group	Retail	2015	300,000	15	3	40	75	2.5
5.	Beagle Retail Group	Retail	2016	350,000	18	4	38	77	2.8
6.	Beagle Retail Group	Retail	2017	400,000	22	6	35	80	3.0
7.	Cedar Health Solutions	Healthcare	2015	400,000	10	2	50	70	2.5
8.	Cedar Health Solutions	Healthcare	2016	450,000	12	3	45	73	2.6
9.	Cedar Health Solutions	Healthcare	2017	500,000	15	4	40	75	2.8
10.	Delta Tech Innovations	Technology	2015	800,000	30	8	20	90	3.0
11.	Delta Tech Innovations	Technology	2016	850,000	35	10	18	92	3.1
12.	Delta Tech Innovations	Technology	2017	900,000	40	12	15	95	3.3
13.	Echo Energy	Energy	2015	500,000	18	4	35	78	3.0
14.	Echo Energy	Energy	2016	550,000	20	5	32	80	3.2
15.	Echo Energy	Energy	2017	600,000	23	6	29	83	3.5
16.	Foxtrot Media	Media	2015	200,000	15	3	45	76	2.0
17.	Foxtrot Media	Media	2016	250,000	18	4	43	78	2.2
18.	Foxtrot Media	Media	2017	300,000	22	5	40	80	2.5
19.	Gulf Logistics	Logistics	2015	350,000	15	3	50	74	2.8
20.	Gulf Logistics	Logistics	2016	375,000	17	4	47	76	3.0
21.	Gulf Logistics	Logistics	2017	400,000	20	5	44	79	3.2
22.	Hotel India	Hospitality	2015	300,000	12	3	48	72	2.3
23.	Hotel India	Hospitality	2016	325,000	14	4	46	75	2.6
24.	Hotel India	Hospitality	2017	350,000	17	5	44	78	2.9
25.	Juliett Services	Professional Services	2015	410,000	20	4	42	77	2.7
26.	Juliett Services	Professional Services	2016	430,000	22	6	40	79	3.0
27.	Juliett Services	Professional Services	2017	450,000	25	7	37	82	3.3
28.	Kilo Designs	Design	2015	220,000	18	4	38	76	1.9
29.	Kilo Designs	Design	2016	240,000	21	5	36	78	2.1
30.	Kilo Designs	Design	2017	260,000	25	6	33	81	2.4
31.	Lima Manufacturing	Manufacturing	2015	550,000	20	4	32	78	2.4
32.	Lima Manufacturing	Manufacturing	2016	575,000	22	5	30	80	2.6
33.	Lima Manufacturing	Manufacturing	2017	600,000	25	6	28	82	2.8
34.	Mike Natural Foods	Food & Beverage	2015	410,000	16	3	42	75	2.2
35.	Mike Natural Foods	Food & Beverage	2016	430,000	18	4	40	77	2.5
36.	Mike Natural Foods	Food & Beverage	2017	450,000	20	5	38	79	2.8
37.	November Networks	Telecommunications	2015	320,000	18	4	37	79	2.6
38.	November Networks	Telecommunications	2016	340,000	21	5	34	81	2.8
39.	November Networks	Telecommunications	2017	360,000	24	6	32	83	3.0

(Continued on next page)

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Appendix 1. Continued.

№	Company name	Industry	Year	Digital investment (USD)	Digital adoption rate (%)	Operational efficiency (%)	Decision-making speed (days)	Risk management effectiveness (score)	Market conditions (GDP growth %)
40.	Oscar Healthcare	Healthcare	2015	520,000	22	5	30	80	2.5
41.	Oscar Healthcare	Healthcare	2016	550,000	24	6	28	82	2.7
42.	Oscar Healthcare	Healthcare	2017	580,000	26	7	26	84	2.9
43.	Papa Pharmaceuticals	Pharmaceuticals	2015	610,000	20	5	32	77	3.1
44.	Papa Pharmaceuticals	Pharmaceuticals	2016	630,000	23	6	30	79	3.3
45.	Papa Pharmaceuticals	Pharmaceuticals	2017	650,000	25	7	28	82	3.5
46.	Quebec Logistics	Logistics	2015	410,000	15	4	45	75	2.2
47.	Quebec Logistics	Logistics	2016	430,000	17	5	43	78	2.4
48.	Quebec Logistics	Logistics	2017	450,000	20	6	40	80	2.6
49.	Romeo Retail Group	Retail	2015	360,000	14	3	50	72	1.8
50.	Romeo Retail Group	Retail	2016	380,000	16	4	48	74	2.0
51.	Romeo Retail Group	Retail	2017	400,000	18	5	45	77	2.2
52.	Sierra Software Solutions	Software Development	2015	720,000	28	7	25	88	3.0
53.	Sierra Software Solutions	Software Development	2016	750,000	30	9	23	90	3.2
54.	Sierra Software Solutions	Software Development	2017	780,000	32	10	21	92	3.4
55.	Tango Technologies	Technology	2015	840,000	30	8	18	90	3.1
56.	Tango Technologies	Technology	2016	860,000	32	10	16	93	3.3
57.	Tango Technologies	Technology	2017	880,000	34	12	14	95	3.5
58.	Uniform Utilities	Utilities	2015	460,000	12	3	48	73	2.1
59.	Uniform Utilities	Utilities	2016	480,000	14	4	46	75	2.3
60.	Uniform Utilities	Utilities	2017	500,000	16	5	44	78	2.5
61.	Victor Ventures	Venture Capital	2015	390,000	16	4	42	76	2.4
62.	Victor Ventures	Venture Capital	2016	410,000	18	5	40	78	2.6
63.	Victor Ventures	Venture Capital	2017	430,000	20	6	38	80	2.8
64.	Whiskey Warehouse	Distribution	2015	350,000	10	2	52	70	2.2
65.	Whiskey Warehouse	Distribution	2016	375,000	12	3	50	72	2.4
66.	Whiskey Warehouse	Distribution	2017	400,000	14	4	48	75	2.6
67.	X-ray Xylophone Mfg.	Manufacturing	2015	520,000	22	5	30	79	3.0
68.	X-ray Xylophone Mfg.	Manufacturing	2016	540,000	24	6	28	81	3.2
69.	X-ray Xylophone Mfg.	Manufacturing	2017	560,000	26	7	26	83	3.4
70.	Yankee Yarns	Textile	2015	310,000	13	3	49	71	2.1
71.	Yankee Yarns	Textile	2016	330,000	15	4	47	73	2.3
72.	Yankee Yarns	Textile	2017	350,000	17	5	45	75	2.5
73.	Zulu Zippers	Manufacturing	2015	400,000	14	3	50	74	2.0
74.	Zulu Zippers	Manufacturing	2016	420,000	16	4	48	76	2.2
75.	Zulu Zippers	Manufacturing	2017	440,000	18	5	46	78	2.4

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