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EVALUATING RETURN ON INVESTMENT FOR DIGITAL TECHNOLOGY INVESTMENTS IN MULTINATIONAL CORPORATIONS

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Zhang K. Evaluating Return on Investment for Digital Technology Investments in Multinational Corporations

The study examines the return on investment (ROI) of digital technology for multinational enterprises (MNEs), focusing on key metrics and challenges associated with ROI measurement. Using a mixed methods approach, it highlights that accurately measuring ROI requires establishing clear Key Performance Indicators (KPIs), conducting benchmarks, and utilizing a balanced scorecard to align digital initiatives with strategic goals. To measure ROI effectively, businesses must define KPIs that are specific, measurable, achievable, relevant, and time-bound (SMART). These KPIs should capture both financial impacts, such as cost savings and revenue growth, and non-financial benefits, such as improved operational efficiency and customer satisfaction. Benchmarking against industry standards or historical performance provides additional context for evaluating the success of digital investments. The study identifies several challenges in ROI measurement. Defining appropriate metrics can be complex, especially when objectives are not clearly articulated. Data quality issues also arise, as data required for ROI analysis is often fragmented, leading to incomplete or skewed results. Furthermore, valuing intangible assets like enhanced customer experience or improved employee productivity is difficult, complicating the ROI calculation. Addressing these challenges is crucial for obtaining a precise assessment of the impact of digital transformation.

Keywords: return on investment (ROI), multinational enterprises (MNEs), digital technologies.

Fig.: 3. **Bibl.:** 10.

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Чжан К. Оцінка рентабельності інвестицій у цифрові технології в транснаціональних корпораціях

Дослідження розглядає рентабельність інвестицій (ROI) цифрових технологій для мультинаціональних компаній (МНК), зосереджуючись на ключових показниках і проблемах, пов'язаних з вимірюванням ROI. Використовуючи підхід змішаних методів, у статті підкреслюється, що точне вимірювання рентабельності інвестицій вимагає встановлення чітких ключових показників ефективності (KPI), проведення контрольних тестів

і використання збалансованої системи показників для узгодження цифрових ініціатив зі стратегічними цілями. Щоб ефективно вимірювати рентабельність інвестицій, компанії повинні визначити KPI, які є конкретними, вимірювальними, досяжними, актуальними та обмеженими за часом (SMART). Ці KPI повинні охоплювати як фінансові наслідки, такі як економія коштів і зростання доходів, так і нефінансові переваги, такі як підвищення операційної ефективності та задоволеності клієнтів. Порівняльний аналіз галузевих стандартів або історичних показників надає додатковий контекст для оцінки успіху цифрових інвестицій. Дослідження визначає кілька проблем у вимірюванні ROI. Визначення відповідних показників може бути складним, особливо якщо цілі не чітко сформульовані. Також виникають проблеми з якістю даних, оскільки дані, необхідні для аналізу ROI, часто фрагментовані, що призводить до неповних або спотворених результатів. Крім того, складно оцінити нематеріальні активи, як-от покращений досвід роботи з клієнтами чи підвищення продуктивності працівників, що ускладнює розрахунок рентабельності інвестицій. Розв'язання цих проблем має вирішальне значення для отримання точної оцінки впливу цифрової трансформації.

Ключові слова: рентабельність інвестицій (ROI), мультинаціональні компанії (МНК), цифрові технології.

Рис.: 3. **Бібл.:** 10.

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The rapid global expansion of digitalization has amplified the visibility of the potential for digital technology to support – if not also create – new forms of competitive advantage (Rico, 2006). The last two decades have seen various contributions delving into how large "digitally native" companies prominently employ information and communication technologies (IT/ICT) to enable digital processes (Fajinmi, 2016). However, over the last two decades, companies' investments in digital technology have only minutely improved the competitive edge of companies that invest, although this seems to be even less the case in empirical analyses of companies in low-innovation sectors (Ramachandran, 2023). The development of information and communication, the lowering of assets' costs, easier and quicker cross-border networking, more efficient economic activities, and so on bring opportunities for MNEs (Pfister & Lehmann, 2024).

Key Metrics for Measuring ROI from Digital Transformation. Return on investment (ROI) is often an essential focus for large enterprises when implementing technological innovations – including those with digital or digitally enabled elements – due to their coupling with large volumes of investment capital (Fajinmi, 2016). According to Nikhil (2021), ROI is calculated as financial outcomes divided by investments and can be used to compare the relative value of return across different types of investment.

When using digital investments with domestic or internal consumers, ROI is calculated based on direct revenue or profitability. This approach helps companies determine the effectiveness of their digital transformation efforts by comparing the financial gains from these investments to the initial costs incurred. By focusing on ROI, enterprises can better allocate resources to digital projects that promise higher returns, thereby optimizing their investment strategies and ensuring sustainable growth.

As Wang & Mathur (2011) argues, key metrics for measuring ROI from digital transformation and

digital globalization include direct and indirect KPIs that contribute to evaluation throughout the life cycle of the project. On the one hand, direct KPIs include measures for assessing the value of flows between multinational enterprises (MNEs) and consumers and business partners. In contrast, indirect KPIs measure the ability of the business to access these flows and gain visibility online. Through these direct and indirect KPIs, firms measure operational success and efficiency associated with product distribution (Nikhil, 2021). However, from an outcome measure, the main objective that links these KPIs to ROI concerns operational success as a reflector for sales and profit and their respective margins. Based on the relationship between direct and indirect KPIs and operational measures, it becomes apparent that several intertwining metrics contribute to an overall expectation of ROI (Nikhil, 2021).

Challenges of Measuring ROI. Measuring the ROI of digital technology presents various challenges, particularly when comparing firm-level strategies to sector-level approaches (Wang & Mathur, 2011). Organizations often struggle to obtain clear and unambiguous results regarding digital technology's ROI, as the outcomes are rarely straightforward in the decision-making process (Rico, 2006). This complexity aligns with standard business practices, which include gathering extensive business intelligence, setting up marketing experiments, and monitoring competitors (Ramachandran, 2023). The challenge is exacerbated when a firm's production base is globally distributed, making sector-level ROI estimation even more difficult.

Moreover, the large heterogeneity across sectors means that investments in digital technology can yield varying returns depending on the sector (Pfister & Lehmann, 2024). Additional difficulties arise from the opacity of digital business operations, leading to insufficient or inappropriate data for accurate ROI measurement (Fajinmi, 2016). Furthermore, the lack of clear benchmarks or counterfactuals due to tech-

no-opaqueness complicates comparisons of ROI from digital technologies (Nikhil, 2021). The study examines the return on investment of digital technology for multinational enterprises (MNEs). The study examines the key metrics for measuring ROI from implementing digital technologies. The study also sought to explore the challenges faced by international businesses when measuring ROI.

The study took a mixed methods research approach, where both qualitative and quantitative data were collected. Data was collected from primary sources. The data collection instrument for quantitative data was a questionnaire, while the research instrument for qualitative data was semi-structured interviews. Qualitative and quantitative data complemented each other to ensure the researcher answered the overarching research question comprehensively. The study participants were managers and other stakeholders in international business, and these participants were recruited online. The sample size for quantitative research (survey) was 101 participants, while ten senior stakeholders were interviewed. Data analysis for qualitative data was done using thematic analysis, while descriptive statistics through graphical presentation was used to analyze quantitative data.

Quantitative analysis. The study revealed that, in terms of measuring the return on investment for digital technologies, most international companies used efficiency improvements, customer satisfaction, market share growth, and cost savings, as shown in Fig. 1.

Most companies indicated that they assessed their ROI quarterly, as shown in Fig. 2.

As shown in Fig. 3, most companies were very confident in accurately measuring ROI for digital technologies.

Qualitative analysis international businesses struggle to measure the full impact of their digital initiative due to the lack of clarity on the key metrics for success. These metrics serve as points of reference; thus, not having a clear understanding of them makes it impossible to track and assess success. Alternatively, a lack of clear metrics creates the risk of making investments that do not have tangible results. According to the research participants, ROI indicates whether an investment is profitable or not. For instance, interviewee #2 notes “...ROI refers to the returns on the investment that the company made to digitalize operations. Each aspect of the organization's operations is characterized by specific KIPs, and thus, the analysts' focus defines their metrics that will be given attention...” This point has been supported by other participants who explained that ROI depicts the value/worth of an investment. However, the accuracy of the ROI figures depends on the effective selection of the KIPs/metrics. Evaluating ROI is pivotal in determining an endeavor's effectiveness (Ramachandran, 2023).

Companies are at a digital crossroads, understanding that digital transformation is essential but struggling to ascertain its actual value once implemented. This difficulty arises because digital transformation affects the entire enterprise, requiring metrics that reflect performance in all key domains. These domains include workforce, organizational purpose, financial well-being, customer/client satisfaction, and

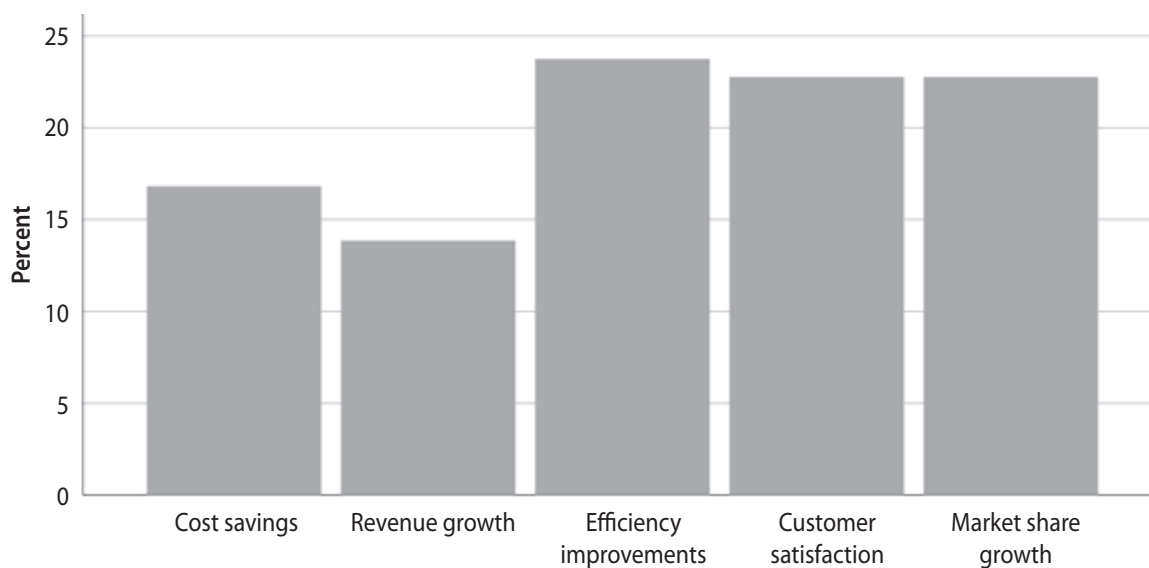


Fig. 1. What Metrics does your organization use to measure the ROI from implementing digital technologies for international business operations?

Source: developed by the author.

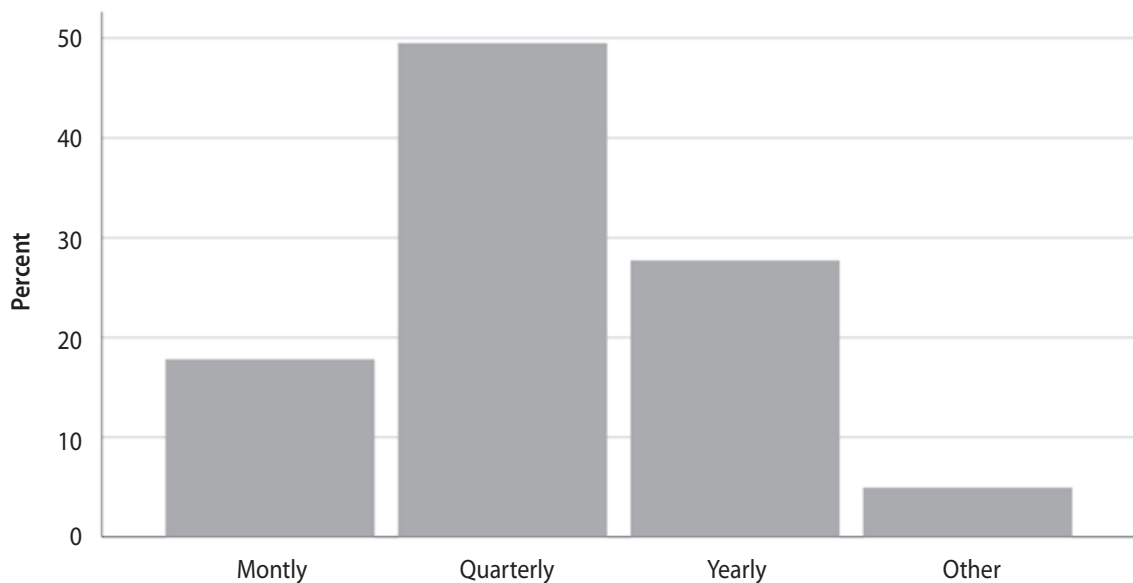


Fig. 2. How frequently do you assess the ROI of your digital technology investments?

Source: developed by the author.

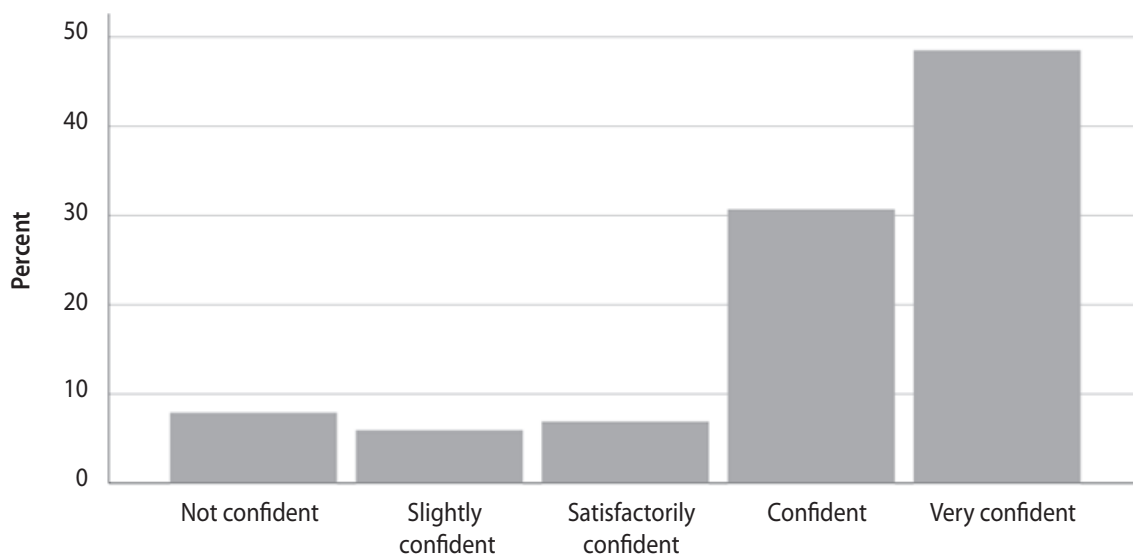


Fig 3. How confident are you in your ability to accurately measure the ROI of digital technologies?

Source: developed by the author.

process efficiency. Workforce metrics assess employee productivity and digital tool adoption. Organizational purpose metrics evaluate alignment with the company's mission. Financial metrics focus on profitability and return on investment. Customer metrics measure satisfaction and experience enhancement. Process metrics examine efficiency and accuracy. By using comprehensive and domain-specific metrics, companies can better understand the true value of their digital transformation efforts and make informed decisions to optimize their strategies.

The study found that key indicators in the workforce are divided into two categories: team management and workforce performance. Under team management, organizations should focus on indicators such as employee retention, development, and engagement/satisfaction. The workforce performance category includes indicators such as employee productivity, utilization and innovation, internal talent mobility, tolerance for intelligence failure and experimentation, and the number of agile teams...Employees' contribution to the digital transformation of an organization is very important because their actual skills are a key

determinant of whether digitalization is successful. At the same time, digitalization paves the way for streamlining processes, improving the overall efficiency and empowerment of the workforce, thereby redefining workplace dynamics. Based on this, the key indicators that can help organizations measure the return on investment in digitalization are employee output and time allocated to daily tasks. The numbers generated by measuring these indicators reflect the ability of digital transformation to enhance collaboration and automate repetitive tasks, thereby promoting an efficient work environment (Zhang & Jin, 2023). It is worth noting that in the workforce field, some key indicators are qualitative. "...Some aspects are critical but cannot be quantified and ignoring them will lead to an inaccurate understanding of the impact of ROI on the company. One of these aspects is organizational reputation, which can be an asset or a liability..."

Based on this study's findings, there are multiple metrics for each business segment, and each sheds light on a particular aspect of the business. Existing literature emphasizes that investing in digital transformation results in efficiency across all dimensions. Other studies have estimated that digitalized companies should expect a 5 to 10 percent improvement in cost efficiencies in the next 3 to 5 years (Sezer et al., 2021). Calculating the ratio of the gain from digitalization to its initial cost is standard: ROI. However, most organizations have difficulty calculating the ROI from digital transformation due to reasons ranging from a lack of clearly defined objectives to challenges in identifying key performance metrics. The interviews revealed the task is complicated, even though evaluating ROI from digital transformation is critical. The complexity could be attributed to the fact that analysts have to consider multiple metrics before examining their point of convergence. The situation is made worse by the fact that there is no one-size-fits-all approach. For this reason, researchers like Ramachandran (2023) emphasize the need for adaptability by learning from successes and failures. Some of the interviewees expressed similar sentiments and noted that measuring ROI from digitalization is a continuous process, and the previous exercise offers insights that could be used for future improvements.

Measuring the organization's digital transformation ROI is vital, yet only a handful of organizations can carry out the exercise accurately. Like any other problem, understanding the cause serves as the basis for finding a solution. When it comes to measuring ROI,

organizations have pointed out several challenges. One of the most common challenges in measuring ROI is difficulty tracking costs. Cost-related challenges include attribution complexity, the issue of data integration, tracking accuracy, and determining the value of intangible benefits such as brand awareness and employee engagement. The issue of ascertaining the actual costs often extends to assigning key metrics. In some instances, there is a scarcity of metrics, that is, an inability to pinpoint a specific, measurable component that would help determine performance. For example, interviewee #5 stated that "...There are multiple challenges associated with quantifying digital investments but the most subtle yet serious one is the temptation to focus on the financial aspects of performance while neglecting other key indicators of performance like organizational reputation. This tendency could be attributed to the difficulties of quantifying metrics that are qualitative in nature such as overall employees' engagement rate..." The second challenge in measuring ROI from digitalization is the lack of awareness of the actual value of intangible assets. Intangible assets such as organizational reputation and brand awareness significantly impact the company's competitive advantage, yet they are often ignored when measuring the organization's ROI. In most cases, the intangible asset might appear to have no value on its own, but it can influence other factors that would, in turn, affect performance. For example, improved brand awareness can influence premium sales, thus increasing customer loyalty.

CONCLUSIONS

Measuring and establishing the ROI made from investments in digital technologies was also considered crucial. Therefore, the study emphasizes establishing clear KPIs, conducting benchmarks and using a balanced scorecard to ensure objectives are aligned with the company's goals. The challenges of measuring ROI include defining the right metrics, lacking a clear objective to digitalize, and difficulties accessing quality data. Data required to measure ROI is often fragmented, and thus, organizations often end up with skewed ROIs that do not portray the actual impact of digital transformation on an organization. Additionally, valuing intangible assets coupled with their complex relationship to the company's ultimate goal makes it difficult to assign them a value that could be used to calculate ROI. At the same time, ignoring them means ending up with an inaccurate ROI value.

In the practical sense, the findings of this study extend the current knowledge regarding the financial

outcomes of digital technology. This is primarily because the actual returns realized by multinationals' investments in digital technology are quite limited. This is useful information for managers who continuously evaluate the added value of the technology they are pursuing. Managers can make more informed decisions about allocating resources to digital initiatives that are likely to yield higher returns. The study emphasizes the importance of carefully assessing the financial impact of digital technology investments and not just the potential benefits. Theoretically, this study contributes to understanding performance returns to MNEs in the global digital economy. Digital technologies often offer opportunities for networked benefits, product personalization, and business process efficiency. These technologies enable firms to connect with customers and partners more effectively, tailor products to individual needs, and streamline operations. This, in turn, can lead to improved performance and competitive advantage in the international market. The study's theoretical framework highlights the complex relationship between digital technology and business performance, providing a basis for further research.

Future studies should investigate specific digital technologies and how these affect various specific aspects of international business. For instance, research could focus on how blockchain technology influences supply chain transparency, how Big Data analytics enhance market segmentation, or how the Internet of Things (IoT) improves product tracking and customer service. By exploring these areas, future research can provide deeper insights into the mechanisms through which digital technologies impact multinational enterprises and offer practical guidance for managers seeking to leverage these technologies for business success. ■

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