

## **Digital Transformation In Express Enterprises: A Case Study In Thai Nguyen Province, Vietnam**

Duong Thi Thuy Huong, Ha Thi Thanh Hoa  
*Thai Nguyen University of Economics and Business Administration*

---

**Abstract:** In the context of the 4.0 industrial revolution taking place globally, the digital transformation process is considered a revolution that changes operating and business models. In Vietnam, logistics is one of the areas that should be prioritized in the Prime Minister's National Transformation. This study analyzes the current status of digital transformation and barriers to digital transformation at express businesses in Thai Nguyen province today. A quantitative research approach was applied, with an online survey consisting of 500 questionnaires distributed to express enterprises in the area. The results show that the most significant barrier to digital transformation is not technology but managers' awareness and the cost of implementing digital transformation. The study also offers practical solutions to promote digital transformation efforts in Thai Nguyen province's logistics industry, thereby aligning with the government's overall digital transformation goals.

**Keywords:** *digital transformation, express enterprise, technology.*

---

### **I. INTRODUCTION**

Digital transformation is highly essential in the era of the digital age as it brings numerous benefits to humanity. It impacts various societal sectors, particularly the development of businesses. According to Berman, S.J. (2012), digital transformation gives rise to new business models. It refers to “changes related to the application of digital technology in all aspects of human society” (Baker, Mark, 2014). Digital transformation is a comprehensive process that involves digitization and digital application, but at a higher level than mere digitization. It describes immense transformations at the enterprise level or even within markets and societies (Khan, Shahyan, 2017). According to Matzler and colleagues (2016), digital transformation entails leveraging a combination of technologies such as cloud computing, sensors, big data, etc., to create new products, services, and business models. Brennen and Kreiss (2016) define digital transformation as the process of using digital technology to restructure the economy, institutions, and society. The foundation of digital transformation lies in information technology, data digitization, and digital conversion. Information technology involves using primarily computers to digitize data. Data digitization is the conversion of information from physical or analog forms to digital formats, serving as a step towards process digitization. Process digitization entails utilizing digitized data to enhance operational processes. The digitized data or information serves as input for process digitization. For digital transformation to occur, process digitization is essential. From data digitization to process digitization, and from process digitization to digital transformation, are considered as stages in completing digitalization fully. Without data digitization, there is no process digitization, and without process digitization, digital transformation is not possible. Process digitization is a crucial component of digital transformation. According to Matzler and colleagues (2016), organizations may need to undergo significant data and process digitization to achieve successful digital transformation. Digital transformation occurs at both micro and macro levels. At the micro level, digital transformation takes place within individual organizations, even within organizational units. Digital transformation enables businesses to acquire customers, employees, and investors. It also generates new opportunities and value for businesses. At the macro level, digital transformation occurs across industries, multiple sectors, and even entire countries. Macro-level digital transformation involves building smart cities, digital governments, etc. Vietnam is entering the fourth industrial revolution with rapid developments in e-commerce, digital governments, etc. Over the past two decades, information technology and communication infrastructure, the Internet have developed rapidly. The Vietnamese government has recognized the importance of building a digital government, a digital economy. Therefore, the Vietnamese government has developed a digital transformation program by 2020, with a vision towards 2030.

## II. LITERATURE REVIEW

### Theoretical framework

This study's theoretical framework is rooted in the New Information Technologies (NIT) theory, which posits that by integrating new technologies that are compatible with an organization's culture and environment, businesses can enhance their technological, production, and operational processes. NIT encompasses various resources, factors, and obstacles influencing the digital transformation journey, as well as the advantages and disadvantages associated with implementing digital transformation initiatives within enterprises. Adebajo et al. proposed an approach emphasizing the significance of environmental factors and corporate culture in understanding change and innovation within an organization, highlighting the interplay between transformational changes and persistent organizational elements. Additionally, Greenwood et al. conducted an analysis of digital transformation endeavors across different organizational levels, spanning social, professional, organizational, and employee-related dimensions, covering aspects such as strategic planning, structural digitization, and operational computerization. Ferreira et al. focused on elucidating the factors impacting the adoption of novel digital processes in enterprises, emphasizing the role of sustainability, market share growth, organizational environment, technology investment capital, and industry sector in driving the adoption of new digital processes.

Furthermore, the article discusses additional theories guiding the digital transformation process and influencing factors within enterprises, as outlined by Molinillo and Japutra. These theories include Information Systems theory (IS), Diffusion of Innovations theory (DOI), the Technology Organization Environment (TOE) framework, and Institutional theory. Nyandoro posits that the Theory of Reasoned Action (TRA) is particularly relevant for elucidating the factors shaping digital transformation efforts in small and medium enterprises.

### Concept of digital transformation in express enterprises

According to Stolterman & Fors (2004), digital transformation involves using technology to fundamentally improve the efficiency or scope of a business. McDonald & Rowsell (2012) argue that digital transformation is not just about digitizing resources but about the business values created based on digital assets. Similarly, Fitzgerald & colleagues (2013) define digital transformation in business as the adoption of new digital technical means such as social media platforms, new analytical techniques, or automated linking systems to implement significant changes in business operations such as enhancing customer experience, optimizing operations, and creating new business models. Hess & colleagues (2016) suggest that digital transformation involves changes that digital technology can bring to business models, leading to changes in products or organizational structures, or automating business processes.

## III. METHODOLOGY

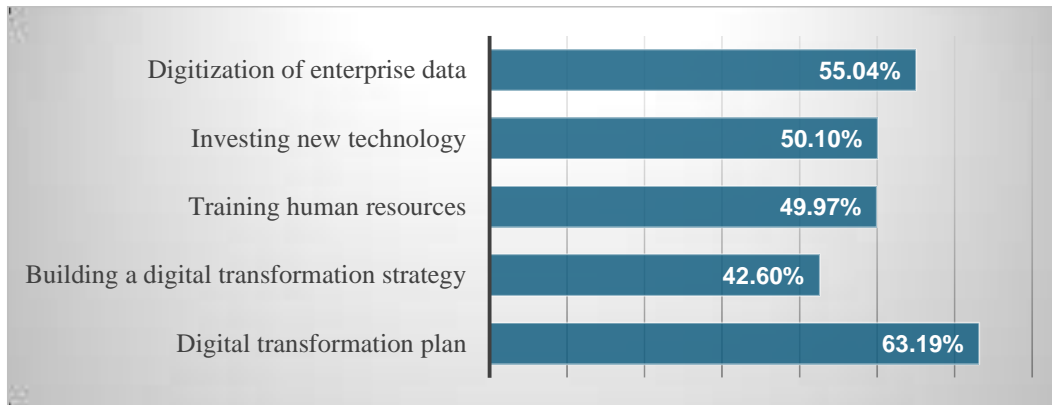
This study utilized quantitative analysis methods, supplemented by qualitative information deemed relevant to the research objectives. Initially, data collection involved administering questionnaires, followed by tabulating the data using descriptive and inferential statistical analysis techniques. The target population for this study comprised all express enterprises in Thai Nguyen province, with convenience sampling employed as the sampling method. The total sample size comprised 500 employees from express enterprises in Thai Nguyen province.

Data collection involved conducting direct interviews with employees from express enterprises in Thai Nguyen province, utilizing pre-prepared questionnaires. Responses to the questionnaires were structured using a Likert scale ranging from 1 to 5. The collected data will be processed as necessary for analysis to achieve the research objectives and test the proposed hypotheses.

## IV. FINDINGS

### 1. The status of digital transformation in express enterprises in Thai Nguyen province

The survey results from 8 express enterprises in Thai Nguyen province indicate that only 42.60% of businesses have developed a clear digital transformation strategy that aligns with their business strategy and current resources. Some enterprises still need to identify suitable directions for technological transformation. Certain businesses require establishing a clear strategy for the transformation process. Some enterprises prioritize other aspects over investing in technology and neglect the importance of training their workforce. Approximately 50.10% of surveyed enterprises have made changes in investing in new technology (Figure 1).

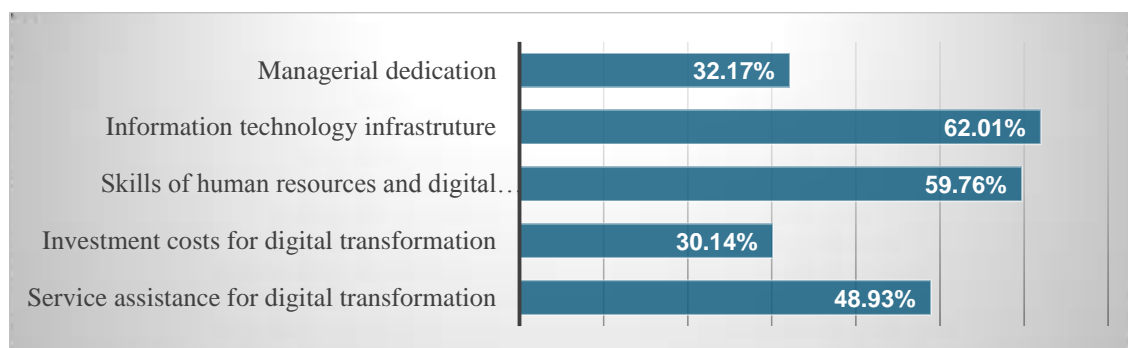


**Figure 1. The status of digital transformation in express enterprises in Thai Nguyen province**

*Source: Summary of the author's survey results, 2024*

### **2. The Level of Readiness for the Digital Transformation of the Enterprise**

Digital transformation represents a groundbreaking revolution that profoundly alters the landscape of entire businesses. Confronting such a monumental shift necessitates abandoning outdated practices and venturing beyond the familiar confines of a company's operations to embrace novel methodologies. While technology undoubtedly plays a pivotal role, the cornerstone of the digital transformation process lies in the commitment of leadership and the prevailing corporate culture. However, statistical findings reveal that merely 32.17% of managers demonstrate a genuine dedication to digital transformation. Furthermore, the timeline for digital transformation often extends beyond initial estimates, accompanied by escalated costs. Typically, this transformative journey demands a minimum of 2-5 years to manifest discernible efficiencies within businesses. Thirty percent of IT applications serve fundamental functions, including forwarding management systems, warehousing, electronic data exchange, transportation management, and customs declaration. Thai Nguyen province has yet to implement international standard software. While many businesses have digitized and stored electronic data, they still require connectivity for data retrieval and order processing through online platforms. The readiness of human resources to embrace new technologies and adapt to digital transformation skills significantly influences 80% of the outcomes in digital transformation projects (VCCI, 2020). Successful digital transformation hinges on employees possessing the requisite skills and adaptability to align with evolving business operations. However, according to Figure 2, merely 59.76% of businesses have adequately prepared their human resources for digital transformation. Additionally, only 30.14% of businesses have made provisions for the investment costs associated with digital transformation (Figure 2).



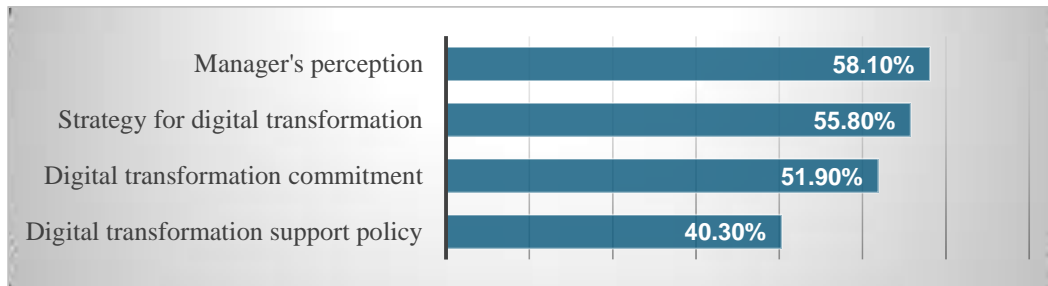
**Figure 2. Level of readiness for digital transformation**

*Source: Summary of the author's survey results, 2024*

### **3. Managerial dedication to digital transformation**

Figure 3 depicts that 58.10% of managers acknowledge the significance of digital transformation. This process must commence from altering managerial perspectives to constructing infrastructure, training personnel, and implementing technology. A key hurdle in digital transformation lies in leaders' mindset. It is imperative for

them to grasp that digital transformation transcends mere software procurement; rather, it constitutes a long-term, continuously innovative endeavor. Regrettably, only 40.30% of managers have formulated policies to support digital transformation. Many leaders remain preoccupied with operational tasks for survival, failing to perceive the imperative need to adapt their business approaches or embrace digital transformation. Furthermore, there is a palpable deficiency in information and knowledge regarding digital technology, hindering the provision of effective deployment solutions for businesses. Indeed, numerous leaders exhibit a cautious stance towards online platforms' safety and information security capabilities, which in turn impedes their responsiveness and adoption of digital transformation technologies.

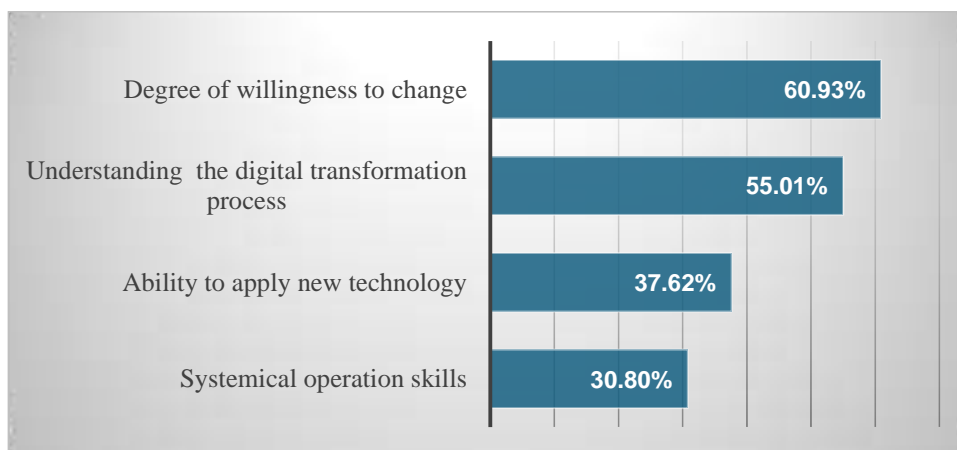


**Figure 3. Managers' commitment**

*Source: Summary of the author's survey results, 2024*

#### **4. Human Resources for Digital Transformation**

The successful execution of digital transformation necessitates skilled human resources proficient in new technologies. At the national scale, Thai Nguyen province requires over 30,000 trained professionals annually to advance its digital economy and society. However, the existing digital transformation training programs in the province fall short of meeting this demand. Data from local businesses indicates that while 60.39% of employees express a willingness to adapt to new work methodologies, only 30.80% possess the necessary competencies to operate new systems, software, and technologies (Figure 4).

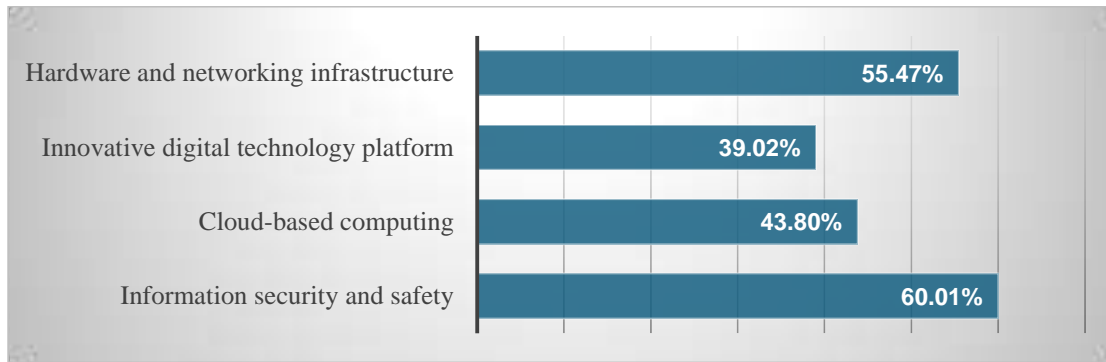


**Figure 4. Human resource for digital transformation**

*Source: Summary of the author's survey results, 2024*

#### **5. IT Sources for Digital Transformation**

Figure 5 shows that technology application plays a critical role in all stages of the express service chain. Technology will help businesses control losses and risks to optimize costs, contributing to changing the face of the industry. In total, 39.02% of enterprises said technological compatibility exists between enterprises and partners in the express service chain. About 55.47% of businesses are ready to invest in completing hardware and software IT infrastructure. Measures to implement information security and security have yet to be paid much attention by businesses (equivalent to 60.01%). In internal management, cloud computing is a technical tool many businesses use; this number is 39.02% (Figure 5).



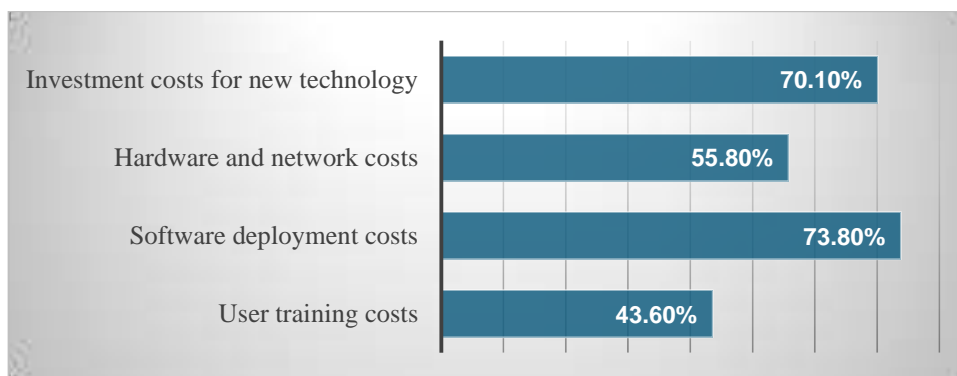
**Figure 5. Infrastructure of Information Technology**

*Source: Summary of the author's survey results, 2024*

### **6. Investment Costs of Digital Transformation**

Figure 6 illustrates that investing in digital transformation involves allocating resources towards transitioning from awareness, strategy, human resources, and infrastructure to essential technological solutions. This shift towards digitalization demands substantial and sustained investment, yet uncertainties regarding its effectiveness and the potential for encountering various risks pose significant barriers for businesses, particularly those operating with limited financial resources.

This impedes the decision-making process and underscores the necessity for greater commitment from managers. Survey findings reveal that merely 73.80% of enterprises have earmarked funds for software deployment expenses, while 70.10% have allocated capital for new technology investments. Surprisingly, only 43.6% of enterprises have outlined budgetary provisions for user training. Some businesses prioritize investing in short-term growth avenues, like cloud computing technology applications, over allocating resources and manpower towards digital transformation. This technology facilitates rapid expansion for businesses without requiring substantial investment in IT resources (Figure 6).

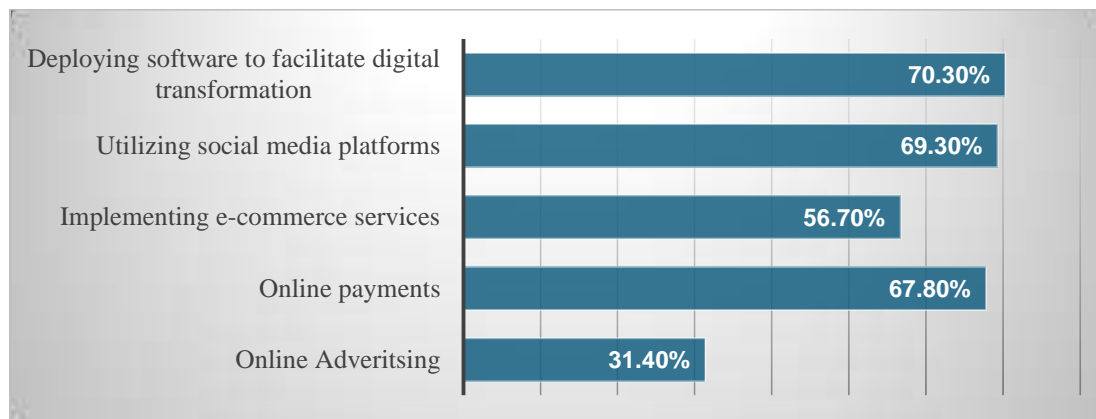


**Figure 6. Investment costs of digital transformation**

*Source: Summary of the author's survey results, 2024*

### **7. Support Services for Digital Transformation**

The survey findings presented in the table above reveal that 70.30% of enterprises have implemented one or multiple software solutions to bolster their express chain. Approximately 67.80% of businesses have embraced electronic payment services, while adoption rates are higher for e-commerce services (56.70%) and social media platforms (69.30%) (See Figure 7). Conversely, online advertising exhibits the lowest adoption rate at 31.40%. This trend suggests that businesses prioritize enhancing their payment processes and expanding their online sales channels rather than investing in online advertising to broaden their customer reach. The utilization of digital technology, IT equipment, automated assembly lines, and self-driving trucks remains relatively limited, signaling a need for further research and investment in this domain.



**Figure 7. Services supporting digital transformation**

*Source: Summary of the author's survey results, 2024*

Besides mandatory applications like web-app platform management software, mobile apps for shippers, or mobile app software for sellers, currently, some enterprises are utilizing information technology solutions to manage transportation, vehicles, warehouses, customer support, partner management accounts, and supplier management, accounting for just nearly 30%. Only large enterprises such as Viettel post, VNPT post, J&T express, Shopee Express and CPN Newpost have enough resources to develop ERP software to achieve data synchronization between delivery, inventory management, and financial accounting departments. Most express enterprises have only stopped at the level of digitization, transferring operational data to electronic storage. However, they need the connection and ability to look up data and process orders on online platforms. In essence, the primary obstacle hindering the digitization of express enterprises is the lack of information, insufficient implementation capital, and managerial commitment. Some companies have embarked on digital transformation endeavors without a well-defined roadmap, attempting multiple changes simultaneously while facing shortages in human resources and digital transformation expertise. Moreover, there is a necessity to bolster the security of their IT infrastructure and implement secure access protocols for technology solutions to safeguard data and information. Furthermore, there may be a requirement to refine or establish clear guidelines for the roadmap and digital transformation plan. The analysis findings highlight certain awareness and trends towards digitalization in express businesses, emphasizing the need to address existing barriers promptly.

## V. CONCLUSION

Digital transformation represents a prevailing trend in global economies, including Vietnam. It has opened up numerous opportunities for delivery enterprises across Vietnam, particularly in Thai Nguyen province, facilitating broader customer reach on a global scale. The primary objective of digital transformation is to integrate businesses into the broader supply chain, thereby enhancing overall economic efficiency. This research delves into the current digital transformation landscape within delivery enterprises in Thai Nguyen province. Findings reveal that the principal obstacle to digital transformation isn't technological constraints but rather the awareness among managers and the associated implementation costs. Consequently, delivery enterprises should prioritize selecting appropriate digital transformation support services, fortifying their information technology infrastructure, providing digital transformation training for staff, and enhancing managerial awareness to expedite digital transformation efforts. Furthermore, besides internal initiatives, collaborative efforts with industry associations and adherence to governmental regulations are imperative for ensuring the most effective digital transformation outcomes.

## REFERENCES

- [1]. Bharadwaj, A.S. (2000). "A resource-based perspective on information technology capability and firm performance: an empirical investigation". *Management Information Systems Quarterly*, 24(1), 169-193.
- [2]. Chatterjee, D., Grewal, R. & Sambamurthy, V. (2002). "Shaping up for e-commerce: institutional enablers of the organizational assimilation of web technologies". *Management Information Systems Quarterly*, 26(2), 65-89.
- [3]. Chử Bá Quyết (2021). *Nghiên cứu khám phá các nhân tố ảnh hưởng đến chuyển đổi số thành công của doanh nghiệp ở Việt Nam*. Tạp chí Khoa học & Đào tạo Ngân hàng, 233, 57-70.

- [4]. Daniel, E.M. & Wilson, H.N. (2003), 'The role of dynamic capabilities in e-business transformation', *European Journal of Information Systems*, 12, 282-296.
- [5]. Dremel, C., Herterich, M. M., Wulf, J. (2017), 'How AUDI AG established big data analytics in its digital transformation', *Management Information Systems Quarterly Executive*, 16(2), 81-100.
- [6]. Eller, R., Alford, P., Kallmunzer, A., & Peters, M. (2020), 'Antecedents, consequences, and challenges of small and medium-sized enterprise digitalization', *Journal of Business Research*, 112, 119-127.
- [7]. Ferreira, J. J. M., Fernandes, C. I., & Ferreira, F. A. F. (2019), 'To be or not to be digital, that is the question: Firm innovation and performance', *Journal of Business Research*, 101, 583-590.
- [8]. Fitzgerald, M., Kruschwitz, N., Bonnet, D. & Welch, M. (2013), 'Embracing digital technology: A new strategic imperative', *MIT Sloan Management Review*, 55(2), 1-12.
- [9]. Gamache, S., Abdul-Nour, G., & Baril, C. (2019), 'Development of a Digital Performance Assessment Model for Quebec Manufacturing SMEs', *Procedia Manufacturing*, 38, 1085-1094.
- [10]. Hess, T., Benlian, A., Matt, C. & Wiesbock, F. (2016), 'Options for formulating a digital transformation strategy', *Management Information Systems Quarterly Executive*, 15, 123-139.
- [11]. Kane, G. (2019), 'The technology fallacy: People are the real key to digital transformation', *Research Technology Management*, 62(6), 44-49.
- [12]. Kohli, R. & Johnson, S. (2011), 'Digital transformation in latecomer industries: CIO and CEO, Leadership Lessons from Encana Oil and Gas (USA)', *Management Information Systems Quarterly Executive*, 10(4), 141-156.
- [13]. Lanzolla, G. & Anderson, J. (2008), 'Digital transformation', *Business Strategic Review*, 19(2), 72-76.
- [14]. Li, L., Su, F., Zhang, W. & Mao, J. (2018), 'Digital transformation by SME entrepreneurs: A capability perspective', *Information Systems Journal*, 28(6), 1129- 1157.
- [15]. Loebbecke, C. & Picot, A. (2015), 'Reflections on societal and business model transformation arising from digitization and big data analytics: a research agenda', *Journal of Strategic Information Systems*, 24(3), 149-157.
- [16]. Matt, C., Hess, T. & Benlian, A. (2015), 'Digital transformation strategies', *Business & Information Systems Engineering*, 57, 339-343.