

# A Proposed Model of Causal Factors Affecting Digital Transformation and Business Performance of Parcel Delivery Services in Thailand

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**Abstract**— This article aims for presents the literature review of the Digital Transformation study to explain the meanings, variables, and relationships related to Digital Transformation. The conclusion from the review shows that variables used in various studies are Digital Transformation, Technology Infrastructure, Organizational Culture, Leadership, and Business Performance in Thailand's Parcel Delivery Service.

**Index Terms**— Literature Review, Parcel Delivery Service, Digital Transformation, Technology Infrastructure, Organizational Culture, Leadership, and Business Performance.

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## I. INTRODUCTION

The parcel delivery industry has undergone significant changes in recent years with the advent of e-commerce and changing customer expectations. To stay competitive, parcel delivery companies have focused on digital transformation to improve operational efficiency, enhance customer experiences, and optimize delivery routes. However, digital transformation cannot be achieved in isolation, and it requires an enabling environment that includes technology infrastructure, organizational culture, and leadership. These factors directly impact digital transformation and business performance in the parcel delivery industry.

Over the last decade, the growth of e-commerce has been exponential, with online sales expected to reach \$4.9 trillion by 2021. As a result, the parcel delivery industry has grown steadily at 3.6% per year, and the market size is expected to reach \$665.6 billion by 2025. However, the growth of e-commerce has led to an increase in parcel volumes, which has created significant operational challenges for parcel delivery companies. To meet these challenges, parcel delivery companies have turned to digital transformation and the enabling factors that drive it. [1,2]

Thai e-Commerce Association forecast that, in 2021 e-Commerce market in Thailand might have a total value of 693 billion baht, an increase of 75 percent from 396 billion baht in 2020. Also, it was expected that in 2022 the overall e-Commerce market would grow at least 30 percent from 2021, accounting for at least 900 billion baht, as a result of the COVID-19 pandemic fostering the rapid growth of online purchasing. Regarding purchasing behaviors in Thailand, it was found that most consumers tend to buy good goods/services through easy-to-access platforms that offer low-priced goods, worthiness, and, a variety of products. According to Frost & Sullivan, Krungsri Securities, the compound annual growth rate )CAGR( of shipping volume

of express parcels in 2021 - 2025 is expected to be 22.3 percent per year, accounting for 1,159 - 2,201 million pieces per year. If considering the volume of shipped parcels per population, it is found that Thai people ship 11.5 pieces per year, which was relatively small in comparison with those in developed countries which ship approximately 47 pieces per year. [5]

Technology infrastructure plays a critical role in digital transformation, as it provides the backbone for the development and deployment of new digital solutions. According to a report by the World Economic Forum, the digitalization of logistics infrastructure could result in a 30% reduction in delivery costs and a 75% reduction in emissions. [3]

Organizational culture is also an essential factor in digital transformation, as it affects the adoption and diffusion of new digital technologies. A positive organizational culture that encourages innovation and risk-taking can accelerate digital transformation in the parcel delivery industry. [3]

Moreover, leadership is a critical driver of digital transformation, as it sets the tone for the organization's strategic direction and commitment to innovation. According to a study by Deloitte, effective leadership is a key factor in driving digital transformation, and companies with strong leaders are more likely to succeed in digital transformation initiatives. [4]

In conclusion, digital transformation, technology infrastructure, organizational culture, leadership, and business performance are interrelated, and they play a significant role in the success of parcel delivery companies. By leveraging new technologies, optimizing operations, and enhancing the customer experience, parcel delivery companies can remain competitive and meet the needs of their customers.

This article aims to present the literature review of the Digital Transformation study to explain the meanings,

variables, and relationships related to digital transformation, technology infrastructure, organizational culture, leadership, and business performance that results have emerged in past studies and can be used as conceptual frameworks in this article which can be displayed as shown in Figure 1.

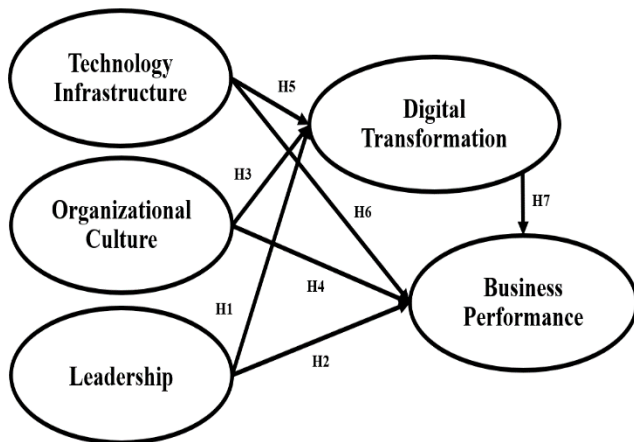


Figure 1. shows the conceptual framework for studying variable relationships

## II. REVIEW OF VARIABLES IN THE FIELD DEFINITION AND COMPOSITION OF VARIABLES

### A. Digital Transformation Variables

Digital transformation is the process of integrating digital technologies into various aspects of a business, resulting in fundamental changes in the way it operates and delivers value to customers. Digital transformation involves the adoption and integration of digital technologies to transform business processes, customer experiences, and business models. It is characterized by the use of technology to enable new business models and create new value for customers. Digital transformation is a comprehensive change that organizations undertake to adopt new digital technologies and embrace new ways of doing business. It is an ongoing process of innovation and evolution, requiring continuous adaptation and improvement to remain competitive in a rapidly changing digital landscape. [6-10]

According to the review of the researchers [11-15], There are 4 components of digital transformation which are

1. Customer Experience: Digital transformation can help organizations enhance the customer experience by providing personalized and convenient interactions across digital channels. Improved customer experience can lead to increased customer loyalty, retention, and revenue.
2. Operational efficiency: Digital transformation can streamline business processes and improve operational efficiency, reducing costs and increasing productivity. For example, automation and digitization of manual processes can improve accuracy and speed while reducing errors and costs.
3. Innovation: Digital transformation can enable

organizations to develop new products and services, enter new markets, and create new business models. Digital innovation can help organizations stay competitive and drive revenue growth.

4. Data-driven decision-making: Digital transformation can enable organizations to collect and analyze large amounts of data to improve decision-making. By leveraging advanced analytics techniques, organizations can gain insights into customer behavior, market trends, and operational performance, enabling them to make data-driven decisions.

### B. Leadership Variables

Leadership is the process of influencing and inspiring others towards a common goal, through the ability to adapt to changing circumstances, innovate, build and maintain relationships, facilitate communication, make strategic decisions, and create a vision that aligns with the values and goals of the organization [16-25]

According to the review of the researchers [25-31], There are 6 components of leadership which are

1. Vision: Effective leadership provides a clear and compelling vision for digital transformation that aligns with the organization's strategic objective. A clear vision can help employees understand the importance of digital transformation and their role in achieving it.
2. Change management: Digital transformation often involves significant changes in processes, technologies, and culture. Effective leadership is skilled in change management, including identifying and managing resistance to change, communicating the need for change, and building support for the change initiative.
3. Talent management: Digital transformation requires new skills and capabilities, and effective leadership is skilled in talent management, including identifying skills gaps, recruiting and retaining digital talent, and providing training and development opportunities.
4. Risk-taking: Digital transformation often involves taking risks and experimenting with new technologies and business models. Effective leadership is willing to take calculated risks and learn from failures.
5. Resource allocation: Digital transformation requires investment in new technologies, skills, and capabilities. Effective leadership is skilled in resource allocation, including identifying and prioritizing digital transformation initiatives and allocating resources accordingly.
6. Digital mindset: Effective leadership fosters a digital mindset among employees, encouraging them to experiment, learn, and innovate with digital technologies. A digital mindset can help employees embrace digital transformation and drive innovation

### C. Organizational Culture Variables

Organizational culture refers to the shared values, beliefs, behaviors, and artifacts that shape the attitudes and actions of

employees in an organization, influencing their perceptions of the work environment, their interactions with others, and their response to change [32-41]

According to the review of the researchers [41-48], There are 8 components of Organizational Culture which are

1. Shared values and beliefs: that guide behavior and decision-making.
2. Leadership and Management practices: that shape culture and influence behavior.
3. Communication: Patterns and Information Flow that enable coordination and collaboration.
4. Reward Systems: that reinforce desired behaviors and outcomes
5. Collaboration: Digital transformation requires cross-functional collaboration between departments, teams, and stakeholders. A culture that values collaboration and teamwork can help organizations break down silos and work together to achieve digital transformation goals
6. Learning and development: Digital transformation often requires new skills and capabilities, and a culture that values continuous learning and development can help organizations build the necessary digital skills and knowledge. Organizations can offer training programs, provide opportunities for employees to experiment with new technologies, and foster a culture of learning.
7. Agility: Digital transformation requires organizations to be agile and responsive to changing market conditions and customer needs. A culture that values agility, flexibility, and adaptability can help organizations respond quickly to digital disruptions and opportunities.
8. Customer-centricity: Digital transformation is often driven by a focus on customer needs and experiences. A culture that values customer-centricity can help organizations develop and deliver digital products and services that meet customer needs and expectations.

#### **D. Technology Infrastructure Variables**

Technology Infrastructure refers to the hardware, software, networks, and data management systems that enable organizations to process, store, and communicate information and support digital transformation initiatives. [49-59]

According to the review of the researchers [60-64], There are 5 components of Technology Infrastructure which are

1. Cloud computing: Cloud computing is a critical component of digital transformation, providing organizations with the ability to store, process, and access data and applications over the internet. Cloud computing can help organizations reduce costs, improve scalability, and enhance collaboration.
2. Data analytics: Data analytics plays a critical role in digital transformation, allowing organizations to derive insights from data to improve decision-making, customer experiences, and operational efficiency. Advanced analytics techniques such as machine learning and artificial intelligence are becoming

increasingly important in digital transformation.

3. Security: As organizations increasingly rely on digital technologies, ensuring the security of their technology infrastructure is critical. Organizations must implement robust security measures to protect against cyber threats and data breaches.
4. Mobility: Mobile technologies such as smartphones and tablets are transforming the way people work and interact with organizations. Digital transformation requires organizations to develop mobile capabilities to support their employees and customers.
5. Internet of Things (IoT): IoT technologies, which involve connecting physical objects to the internet, are becoming increasingly important in digital transformation. IoT technologies can enable organizations to collect data, monitor performance, and optimize operations in real time.

#### **E. Business Performance Variables**

Business performance refers to an organization's ability to achieve its strategic objectives and deliver financial, customer, operational, and innovation outcomes, often measured through a combination of financial and non-financial performance indicators. [65-73]

According to the review of the researchers [74-78], There are 5 components of Technology Infrastructure which are

1. Revenue growth: Digital transformation can help organizations increase revenue by improving the customer experience, developing new products and services, and entering new markets. Organizations can measure the effectiveness of digital transformation by tracking changes in revenue growth.
2. Cost reduction: Digital transformation can streamline business processes and reduce costs, improving operational efficiency and profitability. Organizations can measure the effectiveness of digital transformation by tracking changes in cost reduction.
3. Customer satisfaction: Digital transformation can improve the customer experience, leading to increased customer satisfaction and loyalty. Organizations can measure the effectiveness of digital transformation by tracking changes in customer satisfaction metrics, such as Net Promoter Score (NPS) or Customer Satisfaction Score (CSAT).
4. Employee engagement: Digital transformation can improve employee engagement by providing new opportunities for learning and development and creating a more dynamic and innovative workplace. Organizations can measure the effectiveness of digital transformation by tracking changes in employee engagement metrics, such as employee satisfaction and retention.
5. Time-to-market: Digital transformation can enable organizations to develop and launch new products and services more quickly, reducing time-to-market and increasing competitive advantage. Organizations can



measure the effectiveness of digital transformation by tracking changes in time-to-market metrics.

**III. RELATIONSHIP BETWEEN VARIABLES**

**A. H1: Leadership has a direct influence on Digital Transformation.**

Effective leadership is a critical component of successful digital transformation, as leaders play a key role in creating a culture that embraces innovation and change, championing technology investments, fostering collaboration and communication, enabling agility and flexibility, and developing a clear digital vision and strategy that aligns with the organization's goals and objectives [79-87]

**B. H2: Leadership influences Business Performance.**

Effective Leadership has a positive impact on business performance by influencing employee motivation, job satisfaction, organizational commitment, strategic alignment, innovation, and financial outcomes [76, 88-93]

**C. H3: Organizational Culture has a direct influence on the Digital Transformation**

Organizational Culture, consisting of its shared values, beliefs, and assumptions, plays a critical role in shaping digital transformation outcomes by influencing employee attitudes and behaviors, promoting innovation and agility, fostering a customer-centric focus, and enabling effective collaboration and communication across different levels and functions of the organization [94-103]

**D. H4: Organizational Culture has a direct influence on Business Performance**

Organizational Culture is positively associated with business performance, as it affects employee engagement, innovation, customer satisfaction, and overall organizational effectiveness [104-113]

**E. H5: Technology Infrastructure has a direct influence on the Digital Transformation**

The successful implementation of digital transformation initiatives relies heavily on the development and deployment of a robust and adaptable technology infrastructure that enables organizations to leverage emerging technologies, such as artificial intelligence and the Internet of Things, to create new business models and value propositions. [116-119]

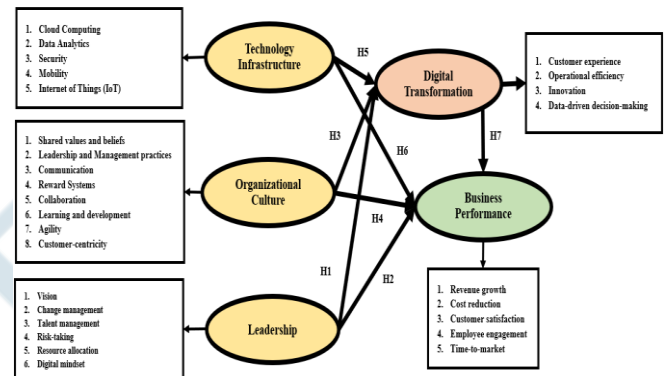
**F. H6: Technology Infrastructure directly influences Business Performance**

Effective investment in technology infrastructure can enhance organizational agility, innovation, and operational efficiency, which in turn can improve business performance, such as financial performance and customer satisfaction. [114-119]

**G. H7: Digital Transformation directly influences Business Performance**

Digital transformation can lead to improved business performance, including increased productivity, profitability, agility, innovation, and customer satisfaction, by leveraging digital technologies to enhance organizational capabilities and create new business models. [117-119]

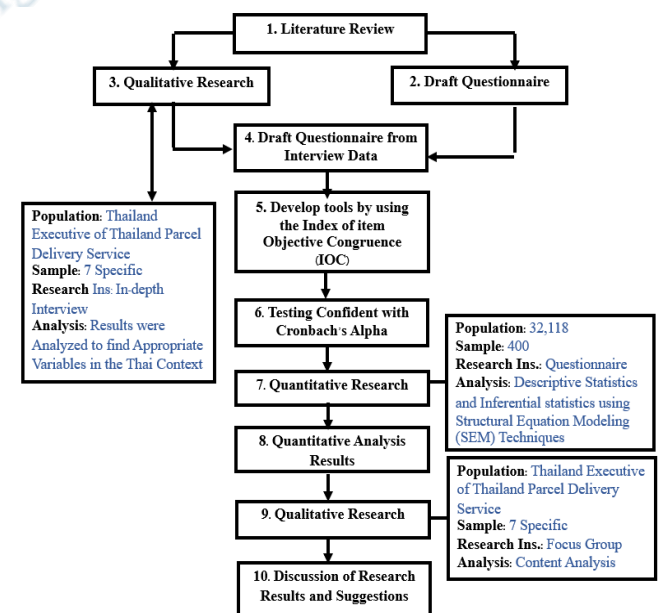
Based on all of the above relationships between variables reviews mentioned, the researchers were then able to create a conceptual framework with 5 Latent Variables and 28 Observational Variables to be used for further research, as shown in Figure 2.



**Figure 2.** shows the conceptual framework with 5 Latent Variables and 28 Observational Variables

**IV. FUTURE RESEARCH PROCEDURES**

As researchers have already presented modeling methods in the research, the next steps in the research can be shown in figure 3, whereby the researchers will be able to present the results in the context of the population and the sample to further benefit academically and professionally.



**Figure 3.** Future Research Stages

## V. CONCLUSION

According to the above review, it can be found that Digital Transformation is important to Thailand's Parcel Delivery Service, and all the important factors found are those that have been studied in foreign contexts. It consists of five main factors: Technology Infrastructure, Organizational Culture, Leadership, Digital Transformation, and Business performance, as well as relationships reflected in empirical studies that indicate better operations from implementation.

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