

Doctoral Thesis

**Digital Transformation and Its Influence on
Performance of Creative Industry Companies: The
case of Vietnam**

**Digitální transformace a její vliv na výkonnost společností
kreativních průmyslů ve Vietnamu**

Author: **Van Hai Trieu Tran**
Degree program: P6208 Economics and Management
Study course: 6208V038 Management and Economics
Supervisor: Prof. Dr. Ing. Drahomíra Pavelková

Zlín, August 2022

© Van Hai Trieu Tran

Published by Tomas Bata University in Zlín in the Edition Doctoral Thesis Summary.

The publication was issued in the year 2022.

Keywords in English: *Digital transformation, TOE framework, Creative Industries, Creative Company, Industry 4.0.*

Key words in Czech: *Digitální transformace, rámec TOE, kreativní průmysly, kreativní společnost, průmysl 4.0.*

Full text of the doctoral thesis is available in the Library of TBU in Zlín.

ACKNOWLEDGEMENT

I sincerely thank to **Prof. Dr. Ing. Drahomíra Pavelková** (Head of Finance and Accounting Department, Faculty of Management and Economics, Tomas Bata University in Zlín). She guided me during my doctoral study at Tomas Bata University with valuable comments on the doctoral thesis to have the best completion.

Furthermore, my heartfelt thanks go to lecturers and colleagues at the Faculty of Management and Economics, who supported and helped me study there. I am also very thankful to the managers and operators of creative companies in the Vietnamese creative industries who spent their time participating in the survey for this doctoral thesis.

Lastly, I would like to express my everlasting gratitude to members of my family who always supported, mobilized, and encouraged me during my Ph.D. study at Tomas Bata University in Zlín.

ABSTRACT

Digital transformation has recently become a popular concept globally, along with the development of high technologies following the trend of Industry 4.0. It has brought much creativity and innovation for growth in different industries. Especially technology innovation based on digital platforms is vital for creative companies to compete in the market. Creative industries are the term used for fields where goods and services depend on periods of creation, production, and distribution originating from the input of creative and intellectual capital (UNCTAD, 2008). Creative industries are now pioneering and helping to promote brands and exploit markets for other industries. They focus on critical fields with high competitiveness and dynamics and advance the direction of diversifying and linking multidisciplinary; as a result, there are many opportunities to expand creative industries based on inbound and outbound cooperation. Furthermore, creative industries contribute significantly to GDP growth and influence other macroeconomic indicators, including employment, interest rates, and associated social programs (Martinaitytė & Kregždaitė, 2015).

According to UNCTAD, creative industries may be broken down into several subgroups, such as design, creative services, new media, audio-visuals, performing arts, traditional cultural expressions, cultural sites, visual arts, publishing, and printed media (UNCTAD, 2008). The current trend of digital technologies, namely artificial intelligence, big data capture and analytics, blockchain, augmented reality, virtual reality, digital marketing, and online advertising, are also applied in creative industries (UNCTAD, 2018). Furthermore, digital transformation derived from the information communication technology infrastructure improves competitiveness and company performance by improving business models, modern technologies, processes, products, and services (Goerzig & Bauernhansl, 2018). Digital transformation has also improved company performance by applying new technologies, such as improving the limitation of broadcast coverage and business models in the field of digital television (Kaltum et al., 2016), upgrading company image by using social networks and websites to build a good relationship with the customer (Jones et al., 2015), and enhancing the interaction between visitors and virtual museums (Margetis et al., 2021).

As such, the primary goal of this thesis is to offer a theoretical and methodological understanding of the research framework for adopting digital transformation and evaluating its impact on company performance. The theoretical framework is based on theories of Industry 4.0, digital transformation, company performance, and technology-organization-environment (TOE) framework. This study addresses the research aim of identifying two issues associated with the research gap. First, identify the factors that affect the adoption of digital transformation in

Vietnam's creative industries. Second, considering factors of company performance that are impacted by the adoption of digital transformation in Vietnam's creative industries.

The proposed research framework model fills the research gap using the TOE; especially, it emphasizes how company performance is affected by the adoption of digital transformation. An investigation carries out in creative companies in Vietnam; participants in the survey are mainly from Hanoi and Ho Chi Minh City. These respondents include middle and senior managers and owners of creative businesses in Vietnam. Data are collected and tested using the structural equation modeling (SEM) approach.

The analysis shows a significant correlation between technological, organizational, and environmental factors and the adoption of digital transformation. The investigation also shows that adopting digital transformation significantly influences the company's performance. These results contribute much more to our understanding of the challenges raised by the digital revolution in the creative industries. The research findings can help researchers and practitioners in creative companies to identify factors based on contexts, including technology, organization, and environment, that impact adoption of digital transformation; moreover, they bring new insight into company performance influenced by digital transformation. Furthermore, based on these findings, a list of recommendations is proposed, each of which has the potential to have significant implications for the application of the adoption of digital transformation in creative companies in Vietnam.

ABSTRAKT

Digitální transformace se v poslední době stala celosvětově populárním pojmem spolu s rozvojem špičkových technologií podle trendu Průmyslu 4.0. Přinesla kreativitu a inovace pro růst v různých průmyslových odvětvích. Zejména technologické inovace založené na digitálních platformách jsou zásadní pro to, aby kreativní společnosti mohly konkurovat na trhu. Je evidentní, že kreativní průmysl je termín používaný pro oblasti, kde je tvorba, produkce a distribuce výrobků a služby závislá na vstupech kreativního a intelektuálního kapitálu (UNCTAD, 2008). Kreativní průmysly jsou průkopníky a pomáhají propagovat značky a využívat trhy pro jiná odvětví. Zaměřují se na kritické oblasti s vysokou konkurenceschopností a dynamikou a posouvají směr diverzifikace a propojování multidisciplinárně; v důsledku toho existuje mnoho příležitostí k rozšíření kreativních odvětví na základě vzájemné spolupráce. Kromě toho kreativní průmysly významně přispívají k růstu HDP a ovlivňují další makroekonomické ukazatele, včetně zaměstnanosti, úrokových sazeb a souvisejících sociálních programů (Martinaitytė & Kregždaitė, 2015).

Podle UNCTAD lze kreativní průmysly rozdělit do několika podskupin, jako je design, kreativní služby, nová média, audiovizí, scénická umění, tradiční kulturní projevy, kulturní místa, vizuální umění, vydavatelství a tištěná média (UNCTAD, 2008). Současný trend digitálních technologií, konkrétně umělá inteligence, sběr a analytika velkých dat, blockchain, rozšířená realita, virtuální realita, digitální marketing a online reklama se uplatňují i v kreativních odvětvích (UNCTAD, 2018). Kromě toho digitální transformace odvozená z infrastruktury informačních a komunikačních technologií zlepšuje konkurenceschopnost a výkonnost společnosti zlepšováním business modelů, moderních technologií, procesů, produktů a služeb (Goerzig & Bauernhansl, 2018). Digitální transformace také zlepšila výkonnost společností aplikací nových technologií, jako je zlepšení pokrytí vysílání v oblasti digitální televize (Kaltum et al., 2016), vylepšení image společnosti pomocí sociálních sítí a webových stránek k vybudování dobrých vztahů se zákazníkem (Jones et al., 2015) a posílení interakce mezi návštěvníky a virtuálními muzei (Margetis et al., 2021).

Primárním cílem této práce je proto nabídnout teoretický a metodologický výzkumný rámec pro digitální transformaci a vyhodnocení jejího dopadu na výkonnost společnosti. Teoretický rámec je založen na teoriích Průmyslové 4.0, digitální transformaci, výkonnosti společnosti a rámci technologie-organizace-prostředí (TOE). Tato studie se zaměřuje na dva problémy spojené s mezerou ve výzkumu. Nejprve identifikujte faktory, které ovlivňují přijetí digitální transformace ve vietnamském kreativním průmyslu. Za druhé, identifikuje faktory výkonnosti společnosti, které jsou ovlivněny digitální transformací ve vietnamském kreativním průmyslu.

Navrhovaný model výzkumného rámce zaplňuje mezeru ve výzkumu pomocí využití rámce technologie-organizace-prostředí; zejména zdůrazňuje, jak je výkonnost společnosti ovlivněna přijetím digitální transformace. Šetření bylo provedeno v kreativních společnostech ve Vietnamu; účastníci průzkumu byli především z Hanoje a Ho Či Minova města. Mezi tyto respondenty patřili střední a vyšší manažeři a majitelé kreativních podniků ve Vietnamu. Data byla testována pomocí modelování strukturních rovnic (SEM).

Analýza ukázala významnou korelaci mezi faktory technologickými, organizačními a faktory prostředí a přijetím digitální transformace. Šetření rovněž prokázalo, že přijetí digitální transformace významně ovlivňuje výkonnost společnosti. Tyto výsledky přispívají k pochopení výzev, které přináší digitální revoluce v kreativních odvětvích. Výsledky výzkumu mohou pomoci výzkumníkům a praktikům v kreativních společnostech identifikovat faktory v kontextu technologií, organizace a prostředí, které ovlivňují přijetí digitální transformace; navíc přinášejí nový pohled na výkonnost společnosti ovlivněnou digitální transformací. Dále je na základě těchto poznatků navržen seznam doporučení, z nichž každé má potenciál mít významné důsledky pro aplikaci digitální transformace v kreativních společnostech ve Vietnamu.

CONTENTS

ACKNOWLEDGEMENT	3
ABSTRACT	4
ABSTRAKT	6
LIST OF FIGURES	11
LIST OF TABLES	12
LIST OF ABBREVIATIONS AND ACRONYMS	13
INTRODUCTION	17
1. CURRENT STATE OF SUBJECT AREA	19
1.1 Theoretical background in the research area	19
1.2 An overview of creative industries' development.....	21
1.3 Vietnam's economy and the development of creative industries	22
1.3.1 Vietnam's economy overview.....	22
1.3.2 Vietnam's cultural policy	24
1.3.3 Creative and Cultural Industries in Vietnam.....	25
1.3.4 Opportunities and challenges for Vietnam's creative industries ...	30
2. RESEARCH AIM, RESEARCH QUESTIONS, AND RESEARCH OBJECTIVES	31
3. HYPOTHESIS DEVELOPMENT AND CONCEPTUAL FRAMEWORK	33
3.1 Technology context.....	33
3.1.1 Big data capture and analytics.....	33
3.1.2 Augmented reality	34
3.1.3 Artificial Intelligence	34
3.1.4 Virtual Reality	35
3.1.5 Blockchain.....	35
3.1.6 Digital marketing and advertising online.....	36
3.2 Organization context	37
3.2.1 Social influence	37
3.2.2 Organization mission.....	37
3.2.3 Financial strength	38
3.3 Environment context	38
3.3.1 Customer	39
3.3.2 Competitor.....	39
3.3.3 Competitive pressure.....	40
3.3.4 Social community.....	40

3.4	Company performance	41
3.4.1	Customer engagement	42
3.4.2	Profitability	42
3.4.3	Cost reduction	43
3.4.4	Sales growth	43
3.4.5	Productivity	44
3.4.6	Innovation.....	44
3.5	Control variables	45
3.6	Conceptual Framework	46
4.	METHODOLOGY.....	47
4.1	Research instrument	47
4.2	Population, sample, and data collection.....	48
4.3	Data analysis procedure	49
4.3.1	Cronbach’s alpha reliability	49
4.3.2	Exploratory factor analysis	49
4.3.3	Confirmatory factor analysis.....	50
4.3.4	Structural equation modeling	50
4.3.5	Multigroup invariance analysis	50
5.	MAIN RESULTS.....	52
5.1	Demographic characteristics of respondents	52
5.2	Reliability results	53
5.3	Exploratory factor analysis	53
5.4	Confirmatory factor analysis.....	54
5.5	Structural equation modeling analysis	59
5.6	Multigroup invariance analysis	61
6.	DISCUSSION	65
7.	RECOMMENDATIONS	71
8.	CONTRIBUTION TO SCIENCE AND PRACTICE	74
8.1	Theoretical contribution.....	74
8.2	Practical implication.....	75
8.3	Research limitation.....	75
9.	CONCLUSION.....	77
	BIBLIOGRAPHY	79
	APPENDIX	96

Appendix A.....	96
Appendix B.....	107
Appendix C.....	108
Appendix D.....	111
Appendix E.....	114
LIST OF PUBLICATIONS.....	118
AUTHOR'S CURRICULUM VITAE.....	119

LIST OF FIGURES

Figure 3.1 Conceptual framework	46
Figure 5.1 Sixteen correlated first-order factors of Confirmatory Factor Analysis.	54
Figure 5.2 The results of Structural Equation Modeling Analysis	59

LIST OF TABLES

Table 1.1 Socioeconomic indicators in Vietnam during the 2016-2020 period and 2020	23
Table 1.2 Value added of cultural industry in Vietnam	27
Table 1.3 Induced final demand of each product sector's contribution to economic growth	28
Table 1.4 Different impressive things between creative industries development in Vietnam and other developing countries	29
Table 4.1 Measurement instruments	47
Table 5.1 Demographic characteristics	52
Table 5.2 Goodness of fit results for CFA analysis	55
Table 5.3 Convergent validity, discriminant validity, and construct reliability results for CFA analysis	55
Table 5.4 A correlation matrix of sixteen first-order factors for CFA analysis	57
Table 5.5 Results of Structural Equation Modeling Analysis	60
Table 5.6 Multigroup invariance analysis based on creative industries	61
Table 5.7 Multigroup invariance analysis based on the size of companies	62

LIST OF ABBREVIATIONS AND ACRONYMS

ABEI	Ministry of Information and Communications, Authority of Broadcasting and Electronic Information
AI	Artificial Intelligence
AMOS	Analysis of Moment Structures
APEC	Asia-Pacific Economic Cooperation
AR	Augmented Reality
AR/VR	Augmented Reality/Virtual Reality
ASEAN	Association of Southeast Asian Nations
AVE	Average Variance Extracted
BD	Big Data Capture and Analytics
CEO	Chief Executive Officer
CDO	Chief Digital Officer
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CFO	Chief Financial Officer
CIO	Chief Information Officer
CMIN/DF	Minimum Discrepancy per Degree of Freedom
COM	Competitor
COMP	Company Performance
COS	Cost Reduction
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CP	Competitive Pressure

CPS	cyber-physical systems
CRM	Customer Relationship Management
CS	Customer Engagement
CTO	Chief Technology Officer
CUS	Customer
DBI	Digital Business Indicators
DMA	Digital Marketing and Advertising Online
DMP	Data Management Platform
DT	Digital Transformation Adoption
DVD	Digital Video Disc
EDI	Electronic Data Interchange
EFA	Exploratory Factor Analysis
ENV	Environment Context
ERP	Enterprise Resource Planning
EVFTA	European-Vietnam Free Trade Agreement
FPT	FPT Group
FS	Financial Strength
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GSO	General Statistics Office
HTVC	Hochiminh City Cable Television
ICT	Information and Communication Technologies
INN	Innovation
IoT	Internet of Things
IT	Information Technology

IS/IT	Information System/Information Technology
KMO	Kaiser-Meyer-Olkin
MSV	Maximum Shared Variance
OM	Organization Mission
ORG	Organizational Context
OTT	Over-the-top
PD	Productivity
PRO	Profitability
RCEP	Regional Comprehensive Economic Partnership
RFID	Radio Frequency Identification
RMSEA	Root Mean Square Error of Approximation
R&D	Research and Development
SAL	Sales Growth
SC	Social Community
SCTV	Saigontourist Cable Television
SI	Social Influence
SEM	Structural Equation Modeling
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for The Social Sciences
SRW	Standardized Regression Weights
TAM	Technology Acceptance Model
TECH	Technology Context
TLI	Tucker-Lewis Index
TOE	Technology-Organization-Environment
TV	Television

UKVFTA	United Kingdom – Vietnam Free Trade Agreement
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIETTEL	Viettel Telecom
VNPT	Vietnam Posts and Telecommunications Group
VOD	Video on Demand
VTVCAB	Vietnam Cable Television
WEF	World Economic Forum

INTRODUCTION

The highly integrated platform of the digital-physical-biological connection system with the breakthrough of big data, internet of things, artificial intelligence, data management platform, cloud, blockchain, and others is the source of the Industry 4.0 revolution. According to the study by Schumacher, Erol, and Sihn (2016), Industry 4.0 is the advance of technology, including the internet and supported technology for machines, equipment, and human factor to create intelligent machines, processes for the organization, and good value chain. In addition, Nwankpa and Roumani (2016) demonstrated the shift and transformation facilitated by technological platforms; therefore, digital transformation is detectable as an enterprise-wide transition to platforms that include several advanced technologies. One core tenet of Industry 4.0 is using cutting-edge technology for digitalization and digital transformation in any industry to boost corporate performance in various ways.

The creative industries are vital for the expansion of the economy, and their impact is observable in a variety of macroeconomic indicators, including the gross domestic product index, levels of employment and unemployment, interest rates, and the welfare programs that are associated with those variables (Martinaitytė & Kregždaitė, 2015). Heritage, arts, media, and functional creations are the four major categories of creative industries. These categories were established in 2008 by the United Nations Conference on Trade and Development (UNCTAD, 2008). These large groups are divided into nine subgroups, which include the traditional cultural expressions (like arts and crafts, festivals, and celebrations), cultural sites (such as archaeological sites, museums, libraries, and exhibitions), visual arts (such as painting, sculpture, photography, and antiques), performing arts (such as live music, theatre, dance, opera, circus, puppetry), publishing and printed media (including books, press and other publications), audio-visuals (namely film, television, radio, and other broadcasting), design (along with other interiors, graphic, fashion, jewellery, toys), creative services (together with architectural, advertising, cultural and recreational, creative research and development, digital and other related creative services), and new media (e.g., software, video games, and digitalized creative content). The study by Mangematin et al. (2014) provides more insight into the effects of digitalization on the creative industries, including music, films and videos, publishing, video games, and television, based on content distribution, storage, and viewer choice. Moreover, UNCTAD (2018) cites a boom of technological innovations in the creative industries. These technologies include artificial intelligence, big data capture and analytics, blockchain, augmented reality, virtual reality, digital marketing, and online advertising.

More remarkably, the technology-organization-environment (TOE) framework (Tornatzky & Fleischer, 1990) and the technology acceptance model (TAM) (Davis, 1989) have been used in practical studies to look at how technology adopts in different industries, such as that of the adoption of cloud computing in small and medium enterprises (Ahmed, 2020), the impact of organizational adoption of social networks in hospital industry (Pateli et al., 2020) and the adoption of augmented reality for e-Commerce (Chandra & Kumar, 2018). Furthermore, several studies have shown that digital transformation improves company performance. Digital transformation based on the ICT infrastructures promotes competitiveness and firm performance by enhancing business models, cutting-edge technologies, processes, goods, and services (Goerzig & Bauernhansl, 2018). Digital transformation also improves labor productivity, cost savings (Guo & Xu, 2021), and optimization of business activities in companies (Awa et al., 2015). In fact, many prior complex studies focused on creative industries have been out in developing country as Indonesia (Fahmi et al., 2016); South Africa's creative industries as economic drivers (Oyekunle & Sirayi, 2018); Creative industries affecting ASEAN's economic performance during pandemics (Che Arshad & Irijanto; 2022); The mapping of crucial creative areas in Vietnam for arts, music, movies, dance, design, and ICT (Ly, 2014; Ly, An & Quyen, 2018). However, there is still no complex study in the context of creative industries related to digital transformation in developing countries based on TOE frameworks.

Impressive highlights of Vietnam compared to other developing countries are that Vietnam's national strategy policy for creative industries contains a 2030 vision. The newly approved national digital transformation criteria will help innovative enterprises enhance investment and execute digital transformation initiatives. Vietnam has joined ASEAN and linked FTAs with several countries and regions, such as EVFTA, UKVFTA, RCEP, and CPTPP; hence, it has tremendous potential to establish a creative industrial economy in Southeast Asia, and creative industries will be one of Vietnam's principal assets and strengths in the future. However, the concept of creative industries (UNCTAD, 2008) is not used in Vietnam. There is only an official Vietnamese cultural industry definition and classification following the development strategy of the Vietnamese cultural industry by 2020 and with a vision to 2030 from Decision No. 1755/QD-TTg issued on 8 September 2016, such as advertising, architecture, software, and entertainment games, crafts, design, film, publishing, fashion, performing arts, arts, photography and exhibitions, television and radio, and cultural tourism. Therefore, the thesis is devoted to studying digital transformation and its influences on the performance of creative industry companies in the case of Vietnam based on the classification of creative industries of UNCTAD (2018) instead of using the local concept of cultural industry in Vietnam.

1. CURRENT STATE OF SUBJECT AREA

This chapter analyses the theoretical background of the research area and provides an overview of creative industries' development. Importantly it also considers the historical context of Vietnam's creative and cultural environment from many prior studies, including Vietnam's economy overview, Vietnam's cultural policy, Vietnam's creative and cultural industries, along with opportunities and challenges of Vietnam's creative industries.

1.1 Theoretical background in the research area

During the industrial revolution, there were four stages: steam-based machines in the 18th century; electrical energy-based mass production in the 19th century; computer and internet-based knowledge at the end of the 20th century; and an era of artificial intelligence, big data, the internet of things (IoT), cloud, and blockchain in the 21st century (Imran et al., 2018). Information and communication technology is a crucial basis for digital transformation, a necessary reform that enhances businesses' competitive advantages and performance through business models, current technologies, processes, goods, and services (Goerzig & Bauernhansl, 2018). Cyber-physical systems, big data analytics, the Internet of Things, cloud computing, artificial intelligence, robotics, blockchain, augmented reality, 3D printing, learning machines, and human-computer interaction are some of the sophisticated technical paradigms that form the basis of Industry 4.0 (Ercan & Samet, 2020; Aceto et al., 2019; Haseeb et al., 2019; Schumacher et al., 2016). Furthermore, Imran et al. (2018) also suggest the factors related to Industry 4.0, namely big data, smart factories, cyber-physical systems (CPS), the internet of things, and interoperability. Specifically, the digital trend of the digital-creative economy evolves via the use of big data and analytics, augmented reality (AR), artificial intelligence, virtual reality (VR), blockchain, digital marketing, and online advertising (UNCTAD, 2018).

Moreover, the creative industries also are classified by UNCTAD (2008), including traditional cultural processes and products (Goerzig & Bauernhansl, 2018). An analysis of this issue by the WEF in 2016 discussed the financial repercussions of digital transformation, such as shareholder returns linked to revenues, expenses and capital allocated, and societal effects. The study of Schallmo et al. (2017) proposes the definition of digital transformation that includes business and customer-related elements across all value chain segments and the application of new technologies so that it can be an extraction, exchange, data analysis and conversation information for use, evaluation and decision making for business operations. In addition, digital transformation is relevant to business models, processes, relationships, and products that help to increase the performance and company operation scope. With the digital transformation

strategy perspective, Matt et al. (2015) found the metrics for developing a digital transformation strategy, which included factors such as technology use, change in value creation, structural change, and financial aspects. As such, it is aforesaid that using technologies addresses the company's ambition for new technologies and the ability to exploit them. Also, the use of new technologies often involves a change in value creation, thereby creating structural change in administrative management; mainly, it is not only about digital transformation activities but also the products, processes, or skills affected by these changes.

Nevertheless, the critical point is which technology adoption theories should be applied in this research. The theories, which should be considered, include the technology acceptance model (TAM) (Davis, 1989), the technology-organization-environment framework (TOE) (Tornatzky & Fleischer, 1990), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003). Based on the TAM paradigm, the research of Abu-Dalbouh (2013) outlines how to assess behavior and discriminate between beliefs and attitudes. Especially, Lin et al. (2018) demonstrate that researchers use the TOE framework to examine the acceptability of diverse technologies, such as mobile marketing, enterprise 2.0, mobile reservation systems, ERP systems, e-commerce, and ICT. Pillai and Sivathanu (2020) find out adopting artificial intelligence technology has a positive relationship with factors such as the support of top management, relative advantage, human resources readiness, competitive pressure, support from artificial intelligence vendors, and cost-effectiveness. However, adopting artificial intelligence technology has an inverse relationship with factors such as security and privacy. According to Awa and Ojiabo (2016), ERP adoption in SMEs is driven more by technology considerations than by variables about the business or the surrounding environment.

Similarly, an in-depth examination of technical, organizational, and environmental aspects influences the adoption of massive data analytics in a large telecommunication organization in South Africa (Walker & Brown, 2019). The research of Chandra and Kumar (2018) shows that senior management support, relative advantage, technological competitiveness, and customer preparedness significantly impact the adoption of augmented reality by the organization for e-Commerce based on the TOE framework. Furthermore, Pateli et al. (2020) identify seven factors influencing organizational adoption of social networks in the healthcare business. These factors include relative advantage, presence, interconnectivity, support from top management, innovation, external pressure, and environmental unpredictability. Ahmed (2020) reports that technological, environmental, and organizational variables impact the adoption of cloud computing by small and medium-sized businesses in Bangladesh. Upadhyay et al. (2021) shed additional light on blockchain implementation in the automobile business in England to determine the opportunities and risks of excellent

functioning. In the Thailand mobile payment research, Thai retailers' attitudes about mobile payments in both the service and retail sectors are examined by Mahakittikun et al. (2021) utilizing the TOE conceptual framework. The findings identify elements that influence firm performance, such as the advantage of relativeness, the pressure of competitiveness, knowledge of the mobile payment, innovation, critical mass, and external support. However, only innovation substantially impacts firm performance more than other factors, and only critical mass negatively affects firm performance.

1.2 An overview of creative industries' development

Creative industries are ones of the most active parts of the global economy today, allowing developing nations to jump into new high-growth areas (Dronyuk et al., 2019). Innovative industries are pushing socioeconomic development, breaking new theoretical ground, and inspiring companies to adapt to the requirements of a fast-changing society driven by technological advancements (Fleischmann et al., 2017). Many developed countries have considered creative industries as the backbone of their economies, such as the United Kingdom, USA, Germany, Singapore, and Japan (Zhang et al., 2011). Young people ages 15-29 have worked in the creative industries more than in any other industry, and women make up almost half of the workforce in this area; creative industries are responsible for around 30 million employment and 3 percent of the global GDP (The Economist, 2021). According to the study by Dronyuk et al. (2019), nearly one million businesses and 1,784 creative clusters have operated as creative industries inside the European Union, and there are 180 creative cities per 72 nations around the globe. Creative clusters account for more than sixty percent of businesses operating in the film, video, music, video game, software, design, and architectural sectors. A creative cluster is a unique location characterized by the co-location of several businesses, studios, workshops, and offices dedicated to commercializing cultural activities. Human capital, particularly the younger and more educated generation, plays a crucial role in developing creative industry clusters in Indonesia (Fahmi et al., 2016).

According to the report by The Economist (2021), the value of innovative products doubled from 2002 to 2015, between 208 billion USD and 509 billion USD, driven mainly by design, fashion, and cinema, which had tremendous growth. In 2015, four developed countries (the United States of America, France, Italy, and the United Kingdom) exported the most innovative products among the top eight countries (the United States of America, France, Italy, the United Kingdom, Germany, Switzerland, Netherland, and Poland). China, Hong Kong, India, and Singapore dominated developing-country exports (China, Hong Kong, India, Singapore, Taiwan Province of China, Turkey, Thailand, Malaysia, Mexico, and the Philippines).

The exports of creative products from South Africa's developing economy totaled 3.4 billion USD compared to 476 million USD for the import of innovative products, with an export growth rate of 18.8 percent on average during 2003-2015 (Oyekunle & Sirayi, 2018). More remarkably, many countries (Vietnam, Singapore, Thailand, Malaysia, Indonesia, and Brunei) that belong to ASEAN had exports of creative industries generally stable between 2013 and 2021. During 2013-2021, these ASEAN nations had an estimated yearly export growth rate of 20.04 percent in the creative industries. It had progressively increased from 18.83 percent of overall commerce in 2013 to 23.83 percent in 2021. Vietnam was the country that had the biggest exports of creative products in comparison with others, while Brunei had export at least in this period (Che Arshad & Irijanto; 2022). However, convergence, digitalization, and globalization threaten developing and transition countries' creative industries. These nations spend little on innovation activities. Creative industries are R&D and innovation-driven. Thus, countries with lower levels of innovation and R&D may fall into the creative gap. Certain nations may expand and develop quicker by boosting their innovative products and services in those that cannot support their creative industries. Exports of innovative products may also help nations transition to higher per capita income, solving the middle-income trap when countries struggle to reach high-income levels (Gouvea & Vora, 2018).

1.3 Vietnam's economy and the development of creative industries

1.3.1 Vietnam's economy overview

According to GSO (2021a), Vietnam completed the five-year socioeconomic development mission in 2016-2020 with many difficulties and challenges. Vietnam is one of the countries that belong to the Asia-Pacific region, which is the most dynamic development in the world. Furthermore, the implementation of the existing free trade agreement and participation in the new free trade agreements, along with the establishment of the ASEAN community in 2015, are foundations for opening new opportunities and challenges for the country. However, it can be said that Vietnam has achieved economic growth during the last decade in the period 2016-2020 through socioeconomic indicators as shown in Table 1.1, which achieved a mark throughout 35 years of the country's innovation from the impact of doi moi (renovation) (Ngoc, 2008) since 1986. One of the countries is Vietnam, which has the highest economic growth rate in the world and has macroeconomic and political stability.

Table 1.1 Socioeconomic indicators in Vietnam during the 2016-2020 period and 2020

Economic Indicators	2020	2016-2020
Average growth of GDP		6.5% - 7%
GDP per capita	3,200 - 3,500 USD	
The ratio of industry and service in GDP	85%	
Average total investment in the whole of society		32% - 34% GDP
State budget deficit	< 4% GDP	
Social indicators	2020	
The ratio of agricultural labor to total social labor	40%	
The ratio of trained labor	65% - 70%	
The ratio of unemployment in an urban area	< 4%	
The ratio of health insurance coverage	> 80% population	

Source: Own processing from GSO (2021a).

Table 1.1 indicates the development of the socioeconomic indicators in Vietnam during the 2016-2020 period and 2020. The data shows that the average growth of GDP from 2016 to 2020 was approximately 7%, in which GDP per capita reached nearly 3,500 dollars in 2020. In particular, the percentage of GDP reserved for reinvestment was about 34% of GDP at this stage; furthermore, the unemployment in the urban area was less than 4%, and the health insurance coverage was greater than 80% of the population in 2020.

In particular, Vietnam's GDP growth reached 6.78% between 2016 and 2019; this percentage was higher than other countries in Southeast Asia, such as Singapore at 2.44%, Malaysia at 4.8%, Philippines at 6.6%, Indonesia at 5.07%, and Thailand 3.42%, but it was lower than Cambodia 7.09%; however, GDP only increased by 2.91% in 2020, which is the lowest growth in the period 2011-2020, but this is an excellent success for Vietnam in the context of the Covid-19 epidemic that affects all countries in the world (GSO, 2021a). Furthermore, Vietnam's downward trend in GDP continued in the following year, with GDP declining by 2.58% in 2021 compared to the previous year due to the Covid-19 epidemic that seriously influenced all aspects of socioeconomic life in Vietnam (GSO, 2021b). In summary, although the Covid-19 pandemic has influenced all socioeconomic aspects in Vietnam with many difficulties and challenges, the targets of the country's socioeconomic implementation completed with high economic growth,

controlled inflation, improved people's living standards, and gained new achievements in culture, education, and medicine (GSO, 2021a).

1.3.2 Vietnam's cultural policy

Son (2013) divided Vietnam's cultural policy into three periods: before 1954, 1954-1986, and from 1986 to now.

Before 1954, this period had focused on cultural activities that promoted propaganda for the resistance movement with the values of patriotism and the struggle for national independence, and the image of the person-soldier, became the primary inspiration for all artistic creations. Furthermore, the performance art movements of the masses were the primary feature of resistance culture that promoted an exciting atmosphere in communities and became a joyful source for revolutionary movements, for instance, competing for patriotism, improving productions to support the frontier, and contributing to the victory of the nation.

Vietnam had been building the ideas of a culture with socialist and nationalistic ideals that had their positions, roles, and functions during 1954-1986. Remarkably, the Government established the Ministry of Culture in 1955 and other professional associations around this time, such as the Association of Architects, the Association of Writers, the Association of Fine Artists, the Association of Theatre Artists, and the Association of Musicians. The establishment of cultural institutions also took place similar to the system of institutes on culture and art studies, art and culture schools, and networks of institutions on cultural dissemination from the central to grass-root levels such as cultural houses, clubs, museums, libraries, and cinemas.

From 1986 to the present, the Party has changed some views on a culture built up based on the characteristics of nationalism, modernity, and humanity led by reform in 1986. Furthermore, Ly (2014) referred to the importance of reform in 1986, which has helped economic reform, poverty eradication, and globalization significantly change Vietnam's society. Notably, the 10th National Congress of the Communist Party of Vietnam identified *“the need to continue to develop a deeper and wider, improved quality of Vietnamese culture with an advanced and rich national identity. This move was an initiative to closely link culture with socioeconomic development; to integrate culture into all aspects of social life; to develop and assimilate the values and dignity of Vietnamese identity; to safeguard and promote national identity in the context of industrialization, modernization, and international integration; to foster cultural values such as healthy ideals, lifestyles, spiritual capacity, virtues and Vietnamese cultural identity amongst youngsters, students, and pupils; to invest in the preservation and restoration of revolutionary heritage sites, tangible and intangible heritage elements; harmoniously combine safeguarding, promotion, inheritance, development, and preservation of heritage sites with the development of tourism industry,*

volunteerism, and self-management amongst people in building cultural life; and diversify the activities of the movement such that all people are united to build cultural life” Son (2013, p.8). Loan (2019) indicates that there is 26 cultural heritage listed by UNESCO, 3,447 national heritage; 95 unique national heritage; 142 national treasures; 228 intangible cultural heritage inscribed on the national intangible cultural heritage list 159 museums in Vietnam. Moreover, many historical and cultural heritage and attractions have been restored by the state budget or from the funding mobilized from other social sources. According to the General Statistics Office (GSO, 2021a), Vietnam has more than 40,000 historical-cultural relics and scenic sites, of which there are nearly 9,000 provincial and city relics and 105 notable national monuments, eight world cultural and natural heritage. There are 62,581 intangible cultural heritages, of which UNESCO identifies 301 national intangible and 13 intangible cultural heritages.

1.3.3 Creative and Cultural Industries in Vietnam

Vietnam's doi moi (renovation) foreign policy of 1986 must be regarded as the apex of the country's creative industries' growth (Were, 2019; Dong & Truong, 2020; Path, 2020). During the 35 years of doi moi, this foreign policy has contributed to developing aspects of numerous socioeconomic and the living standards for people have steadily risen. The economy has become deeply integrated into the global economy, even though the country still faces multiple challenges and obstacles. However, only a few prior studies have used various research approaches to examine the creative economy and creative industries, and Vietnam's creative sectors lack statistical data. According to Dong and Truong's (2020) research, the proportion of Vietnam's exports of creative products to the country's gross domestic product was just 3.21% in 2002 and 5.01% in 2015. Hung (2016) examines the nature of the radio and television-related book publishing sector in Vietnam and the reading culture of printed and electronic books. In addition, Thu et al. (2019) found a positive relationship between Vietnam's handicraft exports and the following variables: Vietnam's GDP, the importer's GDP, the population of the trading partner, Vietnam's openness, the language of the trading partner, the economic separation between the importer and Vietnam, and the importer and Vietnam's membership in the APEC. The British Council (2018) research analyzed the Vietnamese cultural industry's development strategy by 2020 and a vision for 2030 from Decision No. 1755/QD-TTg issued on 8 September 2016. The strategy has balanced cultural products and services' socioeconomic values; therefore, the following creative and cultural sectors were identified: 1. Advertising; 2. Apps and software development; 3. Architecture; 4. Art and antiques market/ trade; 5. Cinema and video; 6. Crafts; 7. Fashion design and jewelry; 8. Galleries & Exhibitions; 9. Graphic design; 10. Gastronomy; 11. Hubs (creative, innovation, technology, and co-working spaces); 12. Interior design; 13. Music; 14. Traditional art; 15. Performing arts; 16.

Contemporary and modern art; 17. Publishing; 18. Radio; 19. Television; 20. Tourism.

However, the term of creative industries is more prevalent in the world, UNCTAD (2008, p.13) concluded its definition as “*Being the cycles of creation, production and distribution of goods and services that use creativity and intellectual capital as primary inputs; constituting a set of knowledge-based activities, focused on but not limited to arts, potentially generating revenues from trade and intellectual property rights; comprising tangible products and intangible intellectual or artistic services with creative content, economic value and market objectives; being at the cross-road among the artisan, services and industrial sectors; and constituting a new dynamic sector in world trade*”, and classified by four broad groups as heritage, arts, media and functional creations, these groups are divided into nine subgroups consisting of traditional culture expressions (arts and crafts, festivals and celebrations), cultural sites (archaeological sites, museums, libraries, exhibitions), visual arts (painting, sculpture, photography and antiques), performing arts (live music, theatre, dance, opera, circus, and puppetry), publishing and printed media (books, press and other publications), audio-visuals (film, television, radio and other broadcasting), design (interior, graphic, fashion, jewelry, toys), creative services (architectural, advertising, cultural and recreational, creative research and development, digital and other related creative services) and new media (software, video games and digitalised creative content).

More significantly, Hoa (2018, p.805) and Loi et al. (2019, p.788) provide a detailed analysis of cultural sectors based on the cultural industry standard of Decision No. 1755/QD-TTg, including “*editing (books, newspapers, magazines, sound recording, etc.), film, video, radio, and television activities, performing arts, press, museums, archives, libraries, wholesale and retail of cultural goods, architectural activities.*”. Furthermore, they also indicate that the value added by the cultural industry compared to GDP was analyzed using input-output tables with two stages between 2007 and 2016 (see Table 1.2).

Table 1.2 Value added to the cultural industry in Vietnam

Value-added of cultural industry in Vietnam (Billion VNĐ, %)						
Items	Years					
	2007		2012		2016	
	Value - added	Value - added / GDP	Value - added	Value - added / GDP	Value - added	Value - added / GDP
Service sector for printing and copying items	3,093	0.11	6,761	0.21	7,999	0.18
Published products	1,841	0.06	2,529	0.08	3,355	0.07
Film service, television program production, sound recording, and music publishing	207	0.01	1,616	0.05	2,363	0.05
Broadcasting services	1,452	0.05	3,298	0.1	6,381	0.14
Advertising and market research services	4,309	0.15	11,426	0.35	29,804	0.66
Services of travel agents, tour business, and support services related to the promotion	2,026	0.07	5,495	0.17	6,268	0.14
Creative, art, and entertainment services	2,255	0.08	1,109	0.03	1,301	0.03
Services of libraries, archives, museums, and other cultural activities			924	0.03	1,143	0.03
Sports and entertainment services	3,401	0.12	7,577	0.25	9,199	0.2
Total value added to the cultural industry	18,587	0.64	40,738	1.25	67,819	1.51

Source: Own processing based on Hoa (2018) and Loi et al. (2019).

Table 1.2 illustrates the value-added rate in the cultural industry from 2007 to 2016. It is negligible for economic growth; it only reached 0.64% in 2007 but increased more than twice between 2007 and 2012.

Furthermore, Table 1.3 also shows Vietnam’s economic growth from 2007 to 2016. The data illustrates that the highest contribution of agriculture from 2007 to 2012 was nearly 30% compared to others. The trend of its contribution would steadily decrease by 17.9% in the next five years. Furthermore, the data of industry and services’ contribution sharply increased by 48.4% and 31.1% between 2012 and 2016, in which the industry in this period contributed as twice as the previous phase; the culture's contribution dramatically declined eight times compared to the prior stage. As a result, the table figures prove that the Government's investment in agriculture and culture is forecasted to reduce. Still, the remaining sectors tend to increase and maybe become a critical development in Vietnam.

Table 1.3 Induced final demand of each product sector’s contribution to economic growth

Induced final demand for each product sector’s contribution to economic growth			
No.	Items	Contribution of induced final demand economic growth	
		2007 - 2012	2012 - 2016
1	Agriculture	29.5%	17.98%
2	Industry	22.3%	48.43%
3	Services	25.6%	31.17%
4	Culture	17.0%	2.03%

Source: Own processing from Hoa (2018) and Loi et al. (2019).

Furthermore, creative industries are pioneering and driving for development of other industrial sectors by providing creativity and innovation. Now many countries have become more aware of the development of creative industries and consider culture and knowledge as assets and value addition to the whole economy. However, there are still different impressive highlights in some developing countries’ creative industries compared to Vietnam, as shown in Table 1.4.

Table 1.4 Different impressive things between creative industries development in Vietnam and other developing countries

Different impressive things between creative industries development in Vietnam and other developing countries	
Other developing countries	Vietnam
<ul style="list-style-type: none"> - There is a reluctance among decision-makers in underdeveloped nations to acknowledge the creative industries as vital economic sectors (Oyekunle & Sirayi, 2018). - In Indonesia, the present national policy requiring all local governments to support creative industries in their jurisdictions similarly seems ineffectual. For the most part, the growth of traditional cultural industries differs from those of creative industries. Creative industries have different needs for human capital (i.e., employing individuals with college degrees) than traditional cultural businesses (Fahmi et al., 2016). In addition, the difficulty is that the government bureaucracy is inefficient, corrupt, challenging to work with, and lacking in infrastructure and individuals with suitable training (Maryunani & Mirzanti, 2015). - In South Africa, industrial and economic policies have not promoted creative industries to boost economic and social growth in rural regions or develop programs for economically 	<ul style="list-style-type: none"> - Development strategies for Vietnam's creative industries have been implemented throughout the decision of the Prime Minister, along with national and enterprise digital transformation indexes facilitating the development of innovative industries. + Vietnam's comprehensive national strategy for growing cultural industries through 2020, with a long-term goal for 2030 by Decision No. 1755/QD-TTg approved by the Prime Minister of Government. + Digital transformation indexes apply to ministries, ministerial-level agencies, governmental agencies, provinces, and central-affiliated cities by Decision No. 1726/QD-BTTTT, approved by the Minister of Information and Communications. + Digital transformation indexes apply to businesses by Decision No. 1970/QD-BTTTT, approved by the Minister of Information and Communications. - Vietnam has an extensive domestic and international market for creative industries. Creative innovation goes into depth with the creative industry sub-industries with close linkages. - Vietnam considers the creative industries critical in adding value to other industries.

<p>challenged communities (Oyekunle & Sirayi, 2018).</p> <ul style="list-style-type: none"> - Every country in ASEAN has its unique, high-quality creative output. Regarding information technology and performing arts, Singapore leads the pack while Thailand dominates jewelry and information technology. Animation, film, and broadcasting projects from Malaysia are of high quality. A wide range of high-quality items is available in Indonesia's Fashion industries (Che Arshad & Irijanto, 2022). 	<ul style="list-style-type: none"> - Vietnam has a strength of a wide range of high-quality offerings in the cultural tourism industry (Che Arshad & Irijanto, 2022). This argumentation is proven above by many historical-cultural relics, scenic sites, and natural and intangible cultural heritages in Vietnam. - Vietnam has integrated into ASEAN and signed various FTAs with many countries and regions, such as EVFTA, UKVFTA, RCEP, and CPTPP, so this is a great potential and good environment to develop a creative industry economy in Southeast Asia.
--	---

Source: Own processing.

1.3.4 Opportunities and challenges for Vietnam's creative industries

The opportunities are both creative economy and creative industries (WEF, 2019), as follows: (1) lower barriers to entry for businesses are the traditional creative contents that are being digitally produced, distributed, and stored, such as music, film, television, literature, and so on, (2) by distributing innovative products that are cross-border, companies can seek many works from outbound, and consumers are easy to access goods and services in the world (3) new technologies make benefits for clients with many choices, conveniences, and affordabilities. However, the creative industries must face many challenges (British Council, 2018): (1) human resource issues as a significant constraint on the sector, (2) the lack of public policies to allow to develop sectors, (3) the lack of judicial protection of intellectual property rights, (4) the lack of policy support through a meaningful regulatory framework hindering the development of innovative, creative, and design-led activities, (5) the lack of subsidies for the arts and cultural sectors, (6) how the creative economy should be taxed and financed.

2. RESEARCH AIM, RESEARCH QUESTIONS, AND RESEARCH OBJECTIVES

The overview analysis shows the essential benefits of creative industries to socioeconomic development in developed and developing countries, including Vietnam. Especially each developing country has its vital areas for growth; however, some policy makers of developing countries have finite awareness of developing the creative industries (as shown in Table 1.4). Due to these reasons, some growing nations have limitations in promulgating policies to support the development of the creative industries, operating management innovation, budget investment for modern science and technology, and training of human resources with high quality for the creative industries. However, the highlight difference in the creative industries among developing countries is that of Vietnam, where Vietnam's comprehensive national strategy has driven the development of the creative industries with a vision to 2030. The recently approved national digital transformation criterion for businesses, ministries, and provinces will be a crucial foundation for innovative companies to boost investment and implement digital transformation strategies. Therefore, the chosen research topic context with the case of a developing country like Vietnam compared to other countries is appropriate for conducting a study on adopting digital transformation and company performance of creative firms in a country with excellent potential for development and diversity of national cultural identity.

Furthermore, as analyzed relevant theories in the research area, the researchers largely agreed with Tornatzky and Fleisher (1990) that the three TOE contexts impact adoption; however, they hypothesized that there is a unique set of characteristics or metrics for every technology or context evaluated (Baker, 2011). Some previous studies on adopting digital transformation can evidence these arguments. Awa et al. (2015) indicate that implementing digital transformation is a crucial choice that enhances business operations in firms and enterprises. The technical backdrop comprises high-tech platforms resulting from the implementation of information technology. In their research on customer engagement in the big data era, Kunz et al. (2017) found out that the sustainability of customer engagement based on the data-driven has been dependent on the engagement behaviors of clients and the value that the firm offers to consumers. Integrating artificial intelligence into goods and services also increases the latter's level of intelligence (Shankar, 2018). In addition, the applications of augmented reality and visual reality may assist visitors in enhancing their experience of the museum even when they are a considerable distance away (Clini et al., 2014; Jung & tom Dieck, 2017). According to the study by Dutra et al. (2018) conducted with enterprises interested in blockchain-enabled business models, the study result showed that more complex applications and business models are replacing the

management of companies. Nuseir (2018) also suggests that the advantages of digital marketing activities for organizations and customers include online and unrestricted geographic distance.

However, no research on adopting digital transformation to increase creative companies' performance derived from the TOE framework in developing countries has been conducted. Based on the identified research gap, therefore, the main research aim is defined as follows:

Research aim: To identify factors influencing creative companies' digital transformation adoption and analyze the effect of digital transformation on company performance of creative industry companies.

As referred to the research aim, this part proposes two research questions, along with partial research objectives, as follows:

Research question 1: What factors influence companies' adoption of digital transformation in creative industries?

- **Research objective 1a:** To identify factors in the technology context.
- **Research objective 1b:** To identify factors in the organization context.
- **Research objective 1c:** To identify factors in the environment context.

Research question 2: What is the impact of digital transformation on companies' performance in creative industries?

- **Research objective 2:** To identify the factors of company performance impacted by digital transformation.

3. HYPOTHESIS DEVELOPMENT AND CONCEPTUAL FRAMEWORK

The generated theoretical background relies on prior studies to identify appropriately crucial factors associated with creative industry companies in the context of technology, organization, environment, and company performance. Moreover, technology adoption theory also analyses the part of relevant views in the research area. The result indicates many benefits of applying the TOE framework theory at the organization level compared to the TAM model. Therefore, the TOE framework theory is used in the proposed research model to consider the relationship between technology, organization, environment contexts, and digital transformation adoption factors. As mentioned above, digital transformation can be seen as a critical decision that can change all business activities in any company or organization. This research continues to study how company performance is affected by digital transformation.

3.1 Technology context

According to Awe and his colleagues, the technology platform built on IT applications depends on several factors, including technical abilities, application developers, user experiences, and the internal technology infrastructure of organizations (Awa, Ojiabo & Emecheta, 2015). The study by Hwang et al. (2016) and Tripopsakul (2018) point out five perceived attributes of an innovation that affect technology adoption: relative advantage, compatibility, complexity, trialability, and observability. According to the findings of the study by UNCTAD (2018) carried out in 2018, the use of contemporary technology in creative industries for digital transformation has been assessed by factors (big data capture and analytics, augmented reality, artificial intelligence, virtual reality, blockchain, digital marketing, and online advertising).

3.1.1 Big data capture and analytics

According to the research conducted by Pappas et al. (2018), "big data" refers to a significant amount of data that includes data that is created online and exists within an ecosystem of digital media. For instance, big data analytics tools are used to analyze events, and artificial intelligence assists in computerizing company processes and developing new types of businesses. Jobs et al. (2016) discovered the scientific and marketing discipline based on big data gathering, analyzing, and extracting informational value from massive amounts of online business and customer interactions. Trabucchi, Buganza, and Pellizzoni (2017) also presented a case study analysis connected to big data and analytics using the leverage of a two-sided structure in advertising. This approach enables businesses to acquire data from valued consumers while providing a long-term business

paradigm for customers. Based on prior studies, the hypothesis related to big data capture and analytics has been formulated:

H1a: Big data capture and analytics positively influence the adoption of digital transformation.

3.1.2 Augmented reality

Augmented reality clearly expresses “*a real-time direct and indirect view of a physical real-world environment that has been enhanced or augmented by adding virtual computer-generated information*” (Carmigniani et al., 2011, p.342). Li (2013) characterizes augmented reality as a technology that enhances the actual world with virtual things, a rich experience, and news for clients. Meanwhile, Li et al. (2017) refer to augmented reality, which is the technology that produces intuitive computer-generated content in users’ physical surroundings, and Kiryakova et al. (2018) focus on the application of augmented reality in the transformation of education into smart through innovation, effectiveness, and technology. Through a smartphone application, Clini and her colleagues facilitate an augmented reality experience, which improves the overall quality of the museum visit and contributes to the digital mediation of cultural material (Clini et al., 2014). Peng (2013) demonstrates innovative products that use augmented reality technology. For instance, users' necessary data is gathered from their experience and interaction, and then a recommendation system is formed by the summarized and analyzed data from the user. Based on prior studies, the hypothesis related to augmented reality has been formulated:

H1b: Augmented reality positively influences the adoption of digital transformation.

3.1.3 Artificial Intelligence

Artificial intelligence can be understood as machine learning algorithms; these methods include convolutional neural networks, generative adversarial networks, recurrent neural networks, and deep reinforcement learning (Anantrasirichai & Bull, 2022). Programs, algorithms, and other components that contribute to developing more intelligent goods or services can be called artificial intelligence (Shankar, 2018). Crawford and Stark (2019) focused on artists as their primary subject in their research on social conflicts around privacy and surveillance. For example, the identities of media forms include architecture, cinema, literature, popular music, digital games, and power mediated by data, artificial intelligence, and machine learning in the creative output of these forms. Specifically, content generation (script and movie, journalism and text, music, image, animation, AR, VR, mixed reality, deep fakes, content, and captions), information interpretation (text categorization, advertising, and film analysis, content retrieval, recommendation services, intelligent assistants), content improvement and post-

production processes (contrast enhancement, colorization, upscaling imagery, restoration, inpainting, and visual special effects), information extraction and enhancement (segmentation, recognition, salient object detection, tracking, image fusion, 3D reconstruction, and rendering), and data compression are the five main areas where artificial intelligence technologies are being used in the creative applications field (Anantrasirichai & Bull, 2022). Furthermore, digital technology supplies intelligent automated diagnostic or management tools, such as mobile technology, and tends to substitute specialists in providing digital healthcare in remote areas (Bhavaraju, 2018). Based on prior studies, the hypothesis related to artificial intelligence has been formulated:

H1c: Artificial intelligence positively influences the adoption of digital transformation.

3.1.4 Virtual Reality

There is a difference between virtual reality and augmented reality; that is, virtual reality completely immerses users in a synthetic world without seeing the real world, the augmented reality augments the sense of reality by superimposing virtual objects and cues upon the natural world in real-time (Carmigniani et al., 2011). Jung and Tom Dieck (2017) mentioned that virtual reality is a digital technology for creating a digital world with many different experiences, such as virtual museums that allow people to access art and culture remotely. Because of its pervasive use in the fashion industry, virtual reality may be seen as a technical advancement since it allows customers to engage with the actual world via a computer-simulated environment (Park, Im & Kim, 2018). Importantly, Cruz-Neira et al. (2018) indicated the technology in the mid-1950s that an individual could see stereoscopic films enhanced with seat motion, vibration, stereo sound, wind, and aromas triggered during the movie, intending to immerse the individual in the film entirely. Thus, virtual reality is popular in various fields, for instance, training and learning, entertainment, flight and driving simulation, cultural heritage, and scientific and medical visualizations. Additionally, the gaming industry is one of the most critical industries for virtual reality, along with other related fields such as the previsualization of designs or creative creations in building, architecture, and film-making (Anantrasirichai & Bull, 2022). Based on prior studies, the hypothesis related to virtual reality has been formulated:

H1d: Virtual reality positively influences the adoption of digital transformation.

3.1.5 Blockchain

Chen and his team of researchers investigated the use of blockchain technology as the fundamental basis for creating cryptocurrencies as part of their educational field application study. Similarly, it finds widespread use in various domains, including the judicial, commercial, and educational systems. Its numerous

benefits are dependability, trust, safety, and effectiveness (Chen et al., 2018). In their research published in 2018, Dutra, Tumasjan, and Welpé conducted a study of twenty firms that used blockchain technology to support their business models. These startups generate and distribute various content categories, including music, television, social networks, and digital art. They are aware that several applications and business models have the potential to alter the management of digital assets and income in firms (Dutra et al., 2018). Furthermore, blockchain technology may increase the music industry's supply chain openness. It is easy for musicians and managers to check their owed money. With this technology, it may finally be able to determine who is legally responsible for a work's copyright, and the difficulty of following derivative works as they move up the value chain may be reduced (Arcos, 2018); Also, it makes up a brand-new form of digital assets that can be traded as well (O'Dwyer, 2020). Based on prior studies, the hypothesis related to blockchain has been formulated:

H1e: Blockchain positively influences the adoption of digital transformation.

3.1.6 Digital marketing and advertising online

Digital marketing and online advertising are helpful tools for companies that make internet marketing strategies following digital trends, personalization, and a good advertisement for the right user. According to Peterson et al. (2016), there are several benefits associated with digital marketing, including speed, flexibility, interaction, and accountability. Additionally, the marketing strategy is focused on making a profit and draws support from individual customers through four factors: their behaviors, their requirements, their communication styles, and the types of use in which they engage. Consequently, target consumers can be located via the appropriate channel, at the appropriate time, and with the appropriate message, thanks to intelligent tools that facilitate decision-making. Erokhina et al. (2018) also point out the vital advantages of digital marketing; for example, products and services are quickly updated for customers, increasing the likelihood of purchasing and diffusing the spread of information. In their carefully designed study, Miklošik et al. (2022) investigate the perspectives of Slovak digital natives students on online video advertising. The findings indicate that skippable advertisements are in favor, but one longer non-skippable advertising video is still preferred to watch compared to three shorter skippable ones. Moreover, most of them use ad-blocking software and are unwilling to pay for ad-free video. Primarily, Mazzucchelli et al. (2021) provide the most in-depth analysis of the impact of Facebook usage on online advertising. The study result reveals that developing brand communities and direct dialogues positively affect the export performance of the fashion industry, whereas Facebook ads deliver other different outcomes. Based on prior studies, the hypothesis related to digital marketing and online advertising have been formulated:

H1f: Digital marketing and online advertising positively influence the adoption of digital transformation.

3.2 Organization context

Hwang et al. (2016) determined the factors of organizational context: organizational resources and assets, internal organizational stakeholders, and organizational procedures to foster innovative business practices. Chandra and Kumar (2018) emphasized the essential factors of decision-makers' competence, financial strength, and the backing of senior management for the adoption of augmented reality of e-Commerce. Other elements that impact the adoption of e-Commerce include company mission, social influences, and corporate size (Awa et al., 2015). Based on previous studies, financial strength, organizational mission, and social influence can identify the organizational context.

3.2.1 Social influence

According to the study by Young (2009, p. 1900), the author mentions that social influence is considered as “*People adopt when enough other people in the group have adopted; that is, innovations spread by a conformity motive.*”. Similar to Young (2009), Smailovic et al. (2018, p.18) conclude that social influence is “*A measure of how people, directly or indirectly, affected the thoughts, feelings, and actions of others.*”. On the other hand, Soares and Pinho (2014) discovered the impact of perceived pleasure on the response of social network users to advertising; there was a strong correlation between social influence and group norms. Shokouyar, Siadat, and Razavi (2018) demonstrated that social influence encompasses three distinct processes: compliance, identification, and internalization. Members of social networks, for example, impact one another’s trust and ideas about other individuals. Furthermore, the findings of the recent investigation are based on the unified theory of acceptance and technology use (Daniali et al., 2022), showing that social influence positively affects college students planning to use 4.5G mobile phones. Based on prior studies, the hypothesis related to social influence has been formulated:

H2a: Social influence positively affects the adoption of digital transformation.

3.2.2 Organization mission

It is the role of executive leadership to guarantee that the mission of the organization serves as a foundation for all activities of the organization, and this responsibility based on a mission-based paradigm includes four metrics: stability, progress, self-awareness, and social orientation (Malbašić, Rey & Posarić, 2018). The study by Karatepe and Aga (2016) proved a positive impact of the organization's mission on job performance. In particular, Yunis et al. (2017) note that organizational goals, orientations, missions, and objectives must be in harmony with ICT investment strategies. In his systematic review of the literature

in the public sector, Mergel (2013) found that social media techniques have been Facebook, YouTube, Twitter, blogs, or other digital media sharing platforms to promote the organization's mission and handle issues and relationships with the public. Based on prior studies, the hypothesis related to the organization's mission has been formulated:

H2b: Organisation's mission positively influences the adoption of digital transformation.

3.2.3 Financial strength

Chandra and Kumar (2018) analyzed the company's financial stability for adopting the augmented reality of e-Commerce. It is essential for developing any technical breakthrough; for instance, financial, engineering, and managerial components are the foundation upon which businesses build their first products. Furthermore, because creative ideas are subject to more significant challenges, features, and unreliability levels due to financial constraints, creative firm operations end up suffering as a result (Mateut, 2018). In particular, the research by Teng et al. (2022) on the digital transformation and performance of SMEs also focuses on the requirements of digital transformation that need to have resources, such as the support of finance, people, materials, and other resources. Based on prior studies, the hypothesis related to financial strength has been formulated:

H2c: Financial strength positively influences the adoption of digital transformation.

3.3 Environment context

In their work on digital mindsets, Solberg et al. (2020) state that the impetus for digital transformation results from technological advances for innovation and creating competitive advantage. The business environment context includes government, industry, rivals, partners, and consumers. Hwang et al. (2016) focused their attention on green supply chain adoption research on four distinct environmental factors: government regulation, consumers, competitors, and social communities. It is the same as the study by Chandra and Kumar (2018), who cite consumer readiness and competitive pressure in the study of the adoption of augmented reality. Verhoef et al. (2021) also argued that digital transformation facilitates cross-border connections with providers, consumers, and competitors through digital technologies. Consequently, the environmental context can be evaluated by elements such as customer, competitor, social community, and competitive pressure.

3.3.1 Customer

In a competitive context, customer-related concerns focus on customer satisfaction and demand; therefore, businesses must satisfy customer expectations. The research conducted by Javed (2017) references the notion of the customer in various contexts, including the customer's satisfaction, the perceived value of a customer, the management of customer relationships, and customer loyalty. Successful businesses focus on two activities that complement each other: reformulating their value to clients and transforming their activities with the help of digital technologies to facilitate increased client interaction and cooperation (Berman, 2012). Jones et al. (2015) demonstrated the efficacy of social networks and websites in expanding attention and inquiry, acquiring new customers, maintaining positive consumer connections, and enhancing the image of businesses. Furthermore, because every business aims to generate profits by catering to customers' requirements, it is essential to be aware of digitalization's impact on consumers (Von Leipzig et al., 2017). In particular, Matarazzo et al. (2021) explore that digital tools help SMEs innovate their business models by generating new sales channels and methods to develop and provide value to different types of client groups. Based on prior studies, the hypothesis related to customers has been formulated:

H3a: Customer positively influences the adoption of digital transformation.

3.3.2 Competitor

In a recent study, Mazurchenko and Zelenka (2022) highlight that it is becoming more critical for businesses to use digital transformation to maintain a competitive edge over competitors. Hwang et al. (2016) found that organizations can learn from the success of their rivals' business operations and that companies in the same industry should communicate with each other to assess and compete against others. Bergen and Peteraf (2002) discuss competitor identification, which is essential for managers interested in scanning their competitive terrain, shortening their defenses against likely competitive incursions, and planning competitive attack and response strategies. Furthermore, using customer analytics informed by big data is widely considered an essential instrument to enhance the competitiveness of SMEs (Matarazzo et al., 2021). More significantly, it is necessary to focus on the competitor's strengths and weaknesses, such as sales information, market share, cash flows, cost, and profit levels, return on investment, organizational culture, product portfolio, capacity utilization, the target of customers, product quality, brand loyalty, distribution channels, marketing and sales capabilities, financial resources and management's attitude towards risk, and human resources (Valentina et al., 2015). Based on prior studies, the hypothesis related to competitors has been formulated:

H3b: Competitor positively influences the adoption of digital transformation.

3.3.3 Competitive pressure

According to the findings of Meutia and Ismail (2015), the threat of industrial competition can motivate innovative business owners to develop products with a higher market value than their rivals. These pressures include newcomers, substitute products, supplementary products, supplier bargaining power, customer bargaining power, and the threat of industrial competition. More significantly, the pressure of competition has become one of the primary forces for implementing new technologies (Mazurchenko & Zelenka, 2022). As a result, rapidly evolving digital technologies push companies that must be under pressure to innovate. New goods and business models allow massive platforms to facilitate differentiation by responding to client preferences (Capobianco & Nyeso, 2018). According to the study by Alaskar et al. (2021), a critical environmental factor influencing the adoption of big data analytics is the pressure of competition in the market in the study of supply chain management. Furthermore, Ngah et al. (2017) said that the customer is always right in a marketing strategy that ensures that customers are interested in the company's service, which is why competitive pressure forces companies to meet customer requirements. Based on prior studies, the hypothesis related to competitive pressure has been formulated:

H3c: Competitive pressure positively influences the adoption of digital transformation.

3.3.4 Social community

The term "social community" describes the subset of social media networks organized by social relationships and shared hobbies of its users (Kim & Chandler, 2018). A company's social community consists of corporate context, community groupings, and other distinct groups (Hwang, Huang & Wu, 2016), while Chazdon and Lott (2010) found the factors related to social capacity, which organizes into three parts as characteristics of the community, characteristics of the community building process, and characteristics of the community building organizers. Kim and Chandler (2018) investigated how businesses could use the news shared and published on the social network to increase the effectiveness of product launches based on social media with community, publishing, entertainment, and commerce. In addition, Matt et al. (2015) argued the relationship between content and community and provided evidence that community-based digital business models can produce sustainable income streams. Based on prior studies, the hypothesis related to the social community has been formulated:

H3d: Social community positively influences the adoption of digital transformation.

3.4 Company performance

According to Fujianti (2018), the factors that significantly influence corporate performance are those related to the business's internal and external situations. Internal variables comprise governance, innovation, corporate culture, and capital structure. On the other hand, external conditions include economic conditions, political situations, and economic growth. Implementing digital transformation may enhance several aspects of a company's operations, such as the quality of products and services, organizational structures, advanced technology, and company workflows (Goerzig & Bauernhansl, 2018). According to Şerban (2017), digitalization requires a business with in-depth knowledge and understanding of high-tech for investment to effectively benefit from technological architecture and infrastructure. Customer engagement, mainly when it is data-driven and driven by big data, may be sustainable for businesses, provided they can satisfy customers with their value (Kunz et al., 2017). The value of information technology can provide corporate profitability, consumer surplus, and productivity; big data also includes cost reduction and enhances goods and services (Huang et al., 2020), in which digital innovation with information is entirely digitized (Nylén & Holmström, 2015).

Similarly, Jones et al. (2015) and Nuseir (2018) acknowledge the advantages of websites and social networks as contemporary marketing channels to enhance sales and reduce costs. Sarmah et al. (2018) discovered the usefulness of social networks for service innovation. Teng et al. (2022) have proven in recent research that digital transformation (i.e., digital technology, digital skills, and digital transformation strategy) has a positive effect on the performance of SMEs. Indeed, company performance is an essential element of management that reflects competitiveness, and performance measurement is crucial for the organization's leadership and survival (Beuren et al., 2016). According to Fujianti (2018), corporation performance depends on internal factors like governance, innovation, organizational culture, and capital structure, as well as external factors like economic circumstances, political situation, and economic development. Similarly, Irimia and Stancu (2013, p.126) also showed that company performance is affected by an external factor as “*market, competition*” and internal factors such as “*products and services, pricing, management, leadership style, human resource policy, size and human resources training, salary and bonus policy, systems and processes, investment policy, development policy, the resources allocated for advertising, research, etc.*”. Consequently, the business performance is evaluated by factors such as customer engagement, profitability, cost reduction, sales growth, productivity, and innovation.

3.4.1 Customer engagement

Customer engagement may be defined as “*Customer’s behavioral manifestations that have a brand or company focus, beyond purchase, resulting from motivational drivers*” (Bitter & Grabner-Kräuter, 2016), while the definition of customer engagement was founded by Vivek et al. (2014, p.402) as “*Psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g., a brand) in focal service relationships.*”. Nurgraha and Mulyadi (2018) analyzed three forms of customer engagement in product innovation in their studies such as a source of information (CIS), customer engagement as co-developers (CIC), and customer engagement as innovators (CIN). Companies can get the loyalty and satisfaction of customers when demands are fully satisfied through close engagement derived from data-driven big data (Kunz et al., 2017). Arribas and Alfaro's (2018) case study showed that there are many ways to use 3D digital technology in the fashion industry based on consumer concepts; this research demonstrates how a fashion designer may construct a value chain between the notion of design and customer. Moreover, it has also been recommended that museums adopt virtual and augmented reality technology to let visitors explore, experience, and engage with more realistic digital replicas (Margetis et al., 2021). According to Colombo (2018), digital platforms such as movies, televisions, and radio programs have been applied for innovative products due to their lasting availability on the website. In addition, social media has helped the audience interact actively, primarily through comments and sharing and creating content related to innovative industrial products. In short, customer engagement will be affected if digital transformation is adopted. The study proposes:

H4a: The adoption of digital transformation positively influences customer engagement.

3.4.2 Profitability

According to the study by Porter (2001), the benefit of a firm is the difference between price and cost, which are measured by constant profitability, and average profitability can be affected by internet technology in various industries. Profitability is the result connected to the resources needed to achieve it and the evaluation of profitability based on profitability indicators (Lesáková, Ondrušová & Vinczeová, 2019). In an experiment by Leovaridis and Bahn (2017), interviewees came from three European countries in the creative sectors of architecture, journalism, and advertising. The study result showed a positive impact on competitiveness attributed to the effect of communication on advertising, media, and the architecture's profit based on technological innovation of virtual reality. Furthermore, the study by Bayo-Moriones et al. (2013) shows that internal and external communication, as well as operational performance, are

major points where ICT has an indirect effect but significant contribution to overall success, such as profitability, market share, and margin. In particular, Liu et al. (2021) discovered digital technologies applied in the gambling industry; as a result, they improved the industry's profitability. In short, profitability will be affected if digital transformation is adopted. The study proposes:

H4b: The adoption of digital transformation positively influences profitability.

3.4.3 Cost reduction

Mpwanya and Heerden (2015) state that decreasing costs leads to developing creative approaches. They include the generation of new revenue, the improvement of products, and the provision of many different services compared to those offered by competitors. Additionally, they involve improving customer experiences, providing better products and services, and reducing costs. The 2018 paper by Arora and Arora (2018) is known for its in-depth analysis of blockchain applications for the digital information tracking framework. They said that the benefits of blockchain reduce operational costs due to blockchain, such as the distributed system with the decentralization ledger function that eliminates intermediates. Furthermore, in the study of digital transformation and sustainable business model innovation, Gil-Gomez et al. (2020) point out that customer relationship management (CRM) that improves customer experience and satisfaction leads to the company's profitability. Digital transformation improves company operating performance, such as cost savings, improving labor productivity, using assets effectively, and optimizing the supply chain (Guo & Xu, 2021). In particular, Jones et al. (2015) and Nuseir (2018) recognize the benefits of using websites and social networks as modern marketing tools to increase sales and help reduce costs. In short, cost reduction will be affected if digital transformation is adopted. The study proposes:

H4c: The adoption of digital transformation positively influences cost reduction.

3.4.4 Sales growth

Brush, Bromiley, and Hendrickx (2000) examined the increase in sales and company performance. They were aware of sales growth that includes variables such as internal motivations, promotion, and retention of exceptional individuals. However, it also must depend on the investment prospects for new types of equipment and technology to enhance the manufacturing process. Bayo-Moriones et al. (2013) found that ICT has an indirect influence but a considerable contribution to overall success, such as profitability, market share, and margin. In particular, Rodriguez, Ajjan, and Peterson (2016) identified the resource-based approach as the basis for social networks in significant organizations with extensive sales force use. Furthermore, the research findings indicated a beneficial connection between top management's support, company personnel's

ability, and the habit usage of online tools. Because of this, it is simple to accommodate digital client trends and customer experiences, save time spent on data analysis and sales expenses, and shorten the sales life cycle. In short, sales growth will be affected if digital transformation is adopted. The study proposes:

H4d: The adoption of digital transformation positively influences sales growth.

3.4.5 Productivity

In addition, Li et al. (2017) say that augmented reality enhances the efficiency and productivity of the engineering analysis and simulation processes. In a study of television consumers, domestic television companies, and national television organizations, Kaltum et al. (2016) identified digital transformation as a platform for addressing broadcast coverage limits and enhancing business models in the digital television sector. Sadlowska et al. (2019) argue that the implementation of digitalization enhances current operations and the renewal of business patterns in their research on independent cinema in Scotland. The authors of the research, Huang et al. (2018), investigated how the implementation of big data affects productivity. The study findings demonstrated that productivity might reach higher if big data is applied. A recent analysis by Haseeb et al. (2019) highlights that Industry 4.0 is to achieve a high degree of operational performance and efficiency and a higher level of automatization. The paper by Pierre et al. (2022) is known for its in-depth analysis of the adoption of digital transformation; as a result, there is a positive effect on net sales and productivity in creative firms due to applied digital technologies. Remarkably, Mangematin et al. (2014) detect that digitalization has affected music, movies and videos, publishing, video games, and television in the creative industries. Digital technology influences the dissemination, circulation, and storage of content and changes how viewers choose content to watch. Musicians and artists can determine the number of views on social video platforms such as Youtube or other video channels that users are allowed to participate heavily in content development before publishing. In short, productivity will be affected if digital transformation is adopted. The study proposes:

H4e: The adoption of digital transformation positively influences productivity.

3.4.6 Innovation

The findings reported by Jaw et al. (2012) highlighted the cultural production innovations developed by creative puppetry companies through a unique interaction between three sets of interrelated management development practices: new organizational development, client interface, and optional technology application. Bertola and Teunissen (2018) also demonstrated that the fashion sector's working components, methods, and business units apply digital transformation based on the industry 4.0 paradigm. In the research on innovation

and clusters in 2009, Gwee (2009) raises the opinion that nations at the innovation-driven stage do not compete on cheaper factor costs but on productivity derived from high skill levels and high technology. Davis et al. (2009, p.202) also refer to the five challenges of approaching creative industries in terms of an innovation cluster as “1) *accurately understanding the nature of innovation processes in cultural industries and assessing the actual competitive significance of pervasive product innovation in these industries*; 2) *facilitating localized aesthetic spillovers into other cultural industries and the linkages, externalities and spillovers that are believed to be of strategic significance, especially linkages between IT suppliers and media firms, between media firms and R&D institutions, and between media firms and the investment community*; 3) *factoring in the cluster’s numerous trans-local external linkages*; 4) *devising innovation policy measures for labor, entrepreneurs, and small firms in media industries*; 5) *identifying cluster-specific implications of actual or potential policy measures for innovation in an industry in which policy influences are widespread*”. Moreover, to prove the dynamic relationship between the creative industries and the rest of the economy, Potts and Cunningham (2010) propose four models: welfare, competition, growth, and innovation. In particular, Zhu et al. (2021) present a comprehensive analysis of how investments in R&D and ICT positively influence product and process innovation. According to their findings, R&D is more significant for innovation and productivity, whereas ICT is more important for innovation but does not directly impact productivity. In short, innovation will be affected if digital transformation is adopted. The study proposes:

H4f: The adoption of digital transformation positively influences innovation.

3.5 Control variables

The study by Chandra and Kumar (2018) applied control variables such as company size, company age, and the company's location to identify the adopter that affects the adoption of augmented reality. However, the study by Nwankpa and Datta (2017) focused on company size and the type of industry in their research. In addition to the primary research factors indicated in Figure 3.1, this study uses control variables (company size, creative industry fields) to examine how the adopter affects the adoption of digital transformation and corporate performance.

3.6 Conceptual Framework

After thorough research and analyzing the relevant theories and studies, this thesis presents its research model to address the research gap, which is based on the TOE framework and is structured as follows (Figure 3.1):

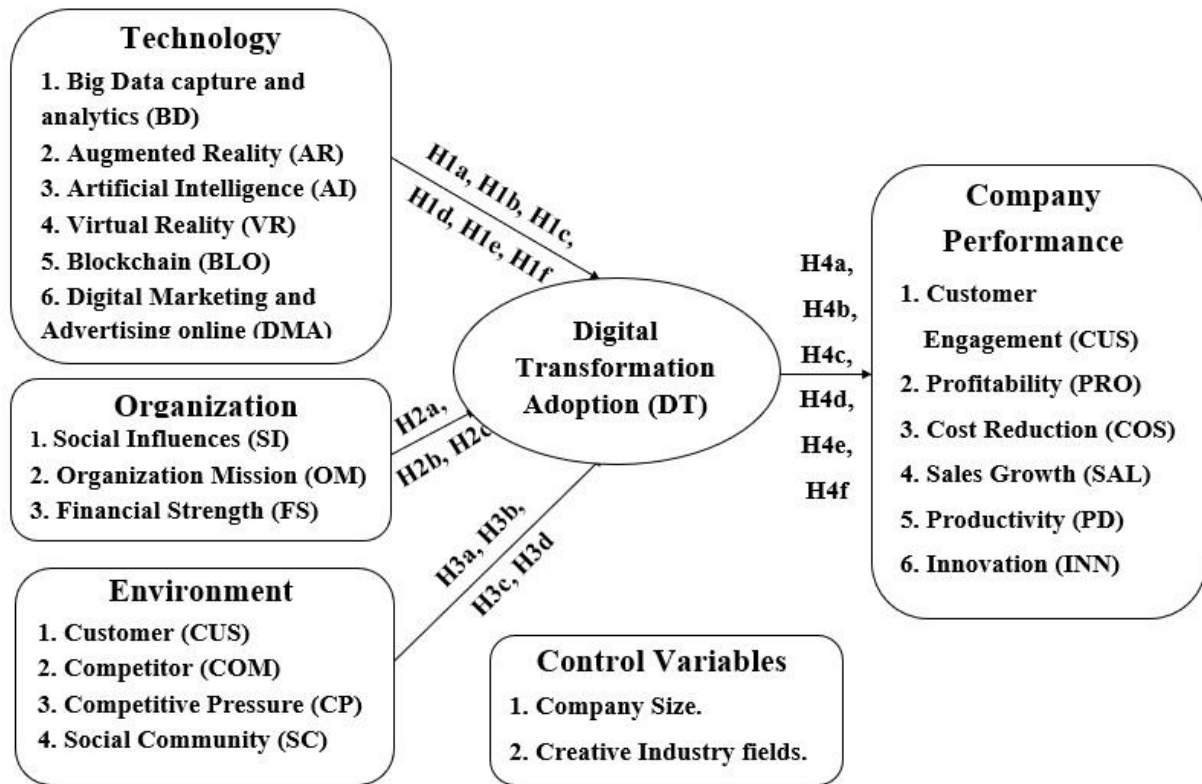


Figure 3.1 Conceptual framework. Source: Own processing.

4. METHODOLOGY

Based on the development of the theoretical framework and proposed research framework paradigm above, the thesis applies the positivism paradigm using the quantitative approach following the view of Torbert (2000, p.260) view as “*This paradigm privileges randomized sample, hypothesis testing studies, along with computer modeling of intelligence. These approaches are valued because of the crisply clear quantitative, binary certainty about distinctions between confirmation and disconfirmation of hypotheses*”. In addition, Sobh and Perry (2006, p.1206) refer to the positivism paradigm as follows: “*Positivism paradigm underlying most quantitative theory testing will investigate different and more shallow phenomena than the deep structures and mechanisms investigated in realism research.*”. Data are collected using an online questionnaire; all surveyed questions are developed in English and translated into Vietnamese for people in Vietnam to avoid any misunderstanding caused by potential language barriers. The research surveys experts who are the Owner, Chief Executive Officer (CEO), Chief Financial Officer (CFO), Chief Technology Officer (CTO), Chief Digital Officer (CDO), Chief Information Officer (CIO), and middle-level managers representatives of companies in Vietnam’s creative industries classified by UNCTAD (2008).

4.1 Research instrument

The research developed a survey questionnaire (Appendix A). Participants were requested to complete responses using a 7-point Likert-type scale on which they rated each item from 1 to 7 for disagreement or agreement. Table 4.1 displays the chosen and self-proposed measurement tools for adopting digital transformation, technological context, organizational context, environmental context, and company performance.

Table 4.1 Measurement instruments

1. Aspects	2. Description of factors		3. Hypotheses defined
	Factors	Sources	
Technological context	Questions 7-24: BD, AR, AI, VR, BLO, and DMA	(Chandra & Kumar, 2018)	H1a-H1f
Organizational context	Questions 25-33: SI, OM, and FS	(Venkatesh et al., 2003; Karatepe & Aga, 2016; Chandra & Kumar, 2018)	H2a-H2c

Environmental context	Questions 34-45: CUS, COM, CP, and SC.	(Tripopsakul, 2018; Mckinnie, 2016; Hwang et al., 2016)	H3a-H3d
Company performance	Questions 46-64: CS, PRO, COS, SAL, PD, and INN.	(Kunz et al., 2017; Veselovsky et al., 2019; Schwertner, 2017; Gil-Gomez et al., 2020; Liere-Netheler et al., 2018; Rodriguez et al., 2016; Gwee, 2009; Haseeb et al., 2019; Huang et al., 2020; Müller, 2009; Markides, 2006)	H4a-H4f
Digital transformation adoption	Questions 65-68: DT.	(Tripopsakul, 2018)	

Source: Own processing. Notes: BD: Big Data Capture and Analytics, AR: Augmented Reality, AI: Artificial intelligence, VR: Virtual reality, BLO: Blockchain, DMA: Digital marketing and advertising online, SI: Social influence, OM: Organization mission, FS: Financial strength, CUS: Customer, COM: Competitor, CP: Competitive pressure, SC: Social community, CS: Customer Engagement, PRO: Profitability, COS: Cost reduction, SAL: Sales growth, PD: Productivity, INN: Innovation, DT: Digital transformation adoption.

4.2 Population, sample, and data collection

The poll focused chiefly on two Vietnamese urban, Hanoi and Ho Chi Minh City, and a small number of other regions. The latent variables are shown in Figure 3.1, and a quantitative approach was used to apply structural equation modeling (SEM) for testing. Watson et al. (2014) used the rule of thumb to determine a priority sample size as a participant-to-item ratio of 10:1 in their study. VanVoorhis and Morgan (2007, p. 49) showed that a good general rule of thumb for factor analysis was 300 and the following guide sample sizes: “50 as very poor; 100 as poor, 200 as fair, 300 as good, 500 as very good and 1000 as excellent”.

According to Hair et al. (2010) and Watson et al. (2014), an acceptable sample size for this study is a 10: 1 between the survey participants and the observed variables. As a result, the minimum sample size for this study is 620, based on the number of observed variables by the factors displayed in Table 4.1. In addition, the technique of sampling used is called snowball sampling (Cohen et al., 2007). Snowball sampling is a nonprobability sampling methodology. This way, small

individual groups of innovative enterprises were surveyed and asked to select others who would participate in the research.

Data was gathered between October 2020 and July 2021. This study applied cutting-edge technology to communicate with survey participants through email, Facebook, Viber, LinkedIn, Skype, Zalo, and many other over-the-top (OTT) apps. Table 5.1 displays the comprehensive demographic information from the 674 respondents.

4.3 Data analysis procedure

The collected data were tested and analyzed by SPSS (version 25) and AMOS (version 25) software because of many dependent variables in the research paradigm (*shown in Figure 3.1*); therefore, this model must use the structural equation modeling (SEM) model for testing. The process of testing followed many steps for analysis, such as demographic statistics, Cronbach's alpha reliability test, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), structural equation modeling (SEM), and multigroup invariance analysis (Her et al., 2019; Byrne, 2004 & 2010).

4.3.1 Cronbach's alpha reliability

Cronbach's alpha reliability coefficient is used before exploratory factor analysis to eliminate inappropriate variables because they can create false ones. In addition, it cannot precisely specify which observation variables to remove and retain; therefore, calculating the correlation coefficient helps eliminate observed variables that do not contribute to the measurement for research. According to Tavakol and Dennick's (2011) research, Lee Cronbach created the alpha reliability coefficient in 1951 to quantify a test's internal consistency or scale, including numbers between 0 and 1, with acceptable alpha values ranging from 0.70 to 0.95. However, Schober et al. (2018) announced the absolute magnitude of the observed correlation coefficient in the range of 0.00 to 0.90, especially if the correlation coefficient was greater than or equal to 0.40, which is suitable for testing.

4.3.2 Exploratory factor analysis

In exploratory factor analysis, two concepts, which are convergent validity and discriminant validity, should be interested, in which the convergent validity with factor loadings belongs to sample sizes (Hair et al., 2010, p.115). Discriminant validity checks more existing factor loadings appeared cross-loadings where the difference between the highest factor loadings and the lowest factor loadings is not less than 0.32 (Costello & Osborne, 2005, p.4). Thus, if the factor loadings in convergent validity are less than 0.35, it will eliminate the invalid observed variable, and it is the same as analyzing for cross-loadings in discriminant validity. Further, concerning the KMO test and the Bartlett sphericity test, the

KMO's value of the KMO must be equal to and greater than 0.50, and the p-value of the Bartlett test ≤ 0.05 (Sarstedt and Mooi, 2019). The rule of thumb mentions that when there are sufficient factors to explain a specific amount of variation, often 60 percent or more (Hair et al., 2010).

4.3.3 Confirmatory factor analysis

Convergent validity, discriminant validity, and reliability are essential tests for the analysis of confirmatory factors. If the factors do not guarantee the validity and reliability caused by the errors of the analyzed results and the figures cannot express the statistical significance; thus, the measurement indicators are used by standardized loading estimates and composite reliability (CR) for reliability, while the average variance extracted (AVE) for convergent validity and maximum shared variance (MSV) for discriminant validity. Hair et al. (2010, p.603) suggest measurement indicators such as "*Standardized loading estimates is .5 or higher, and ideally .7 or higher, AVE is .5 or greater to suggest adequate convergent validity*". Depending on the observed variables and the number of observations, however, the confirmatory factor analysis is based on the measured indicators, including the chi-square (χ^2), comparative fit index (CFI) or Tucker-lewis index (TLI), relative noncentrality index (RNI), standardized root mean residual (SRMR), and root mean square error of approximation fit index (RMSEA). Therefore, the result of confirmatory factor analysis is referenced in the study of Hair et al. (2010, p.584) and Fan et al. (2016), Hair et al. (2010, p.584) suggested the sample sizes ($N > 250$), and observed variables ($m \geq 30$) as shown in Appendix B.

4.3.4 Structural equation modeling

Concerning structural equation modeling, Hair et al. (2010, p.642) said that "*Given that the measurement model has already been examined and validated in a CFA analysis, the focus in a SEM analysis is testing structural relationships by examining two issues: (1) overall and relative model fit as a measure of acceptance of the proposed model and (2) structural parameter estimates*". Furthermore, the study by Scheriber et al. (2006) about SEM and CFA pointed out the idea of model fit with common fit indexes such as normed fit index (NFI), non-normed fit index (NNFI, also known as TLI), incremental fit index (IFI), CFI, and RMSEA, different sample sizes, and types of data. Moreover, they summarize the statistical table to help researchers with a basic understanding of fit indexes cutoff levels for determining model fit, as shown in Appendix C.

4.3.5 Multigroup invariance analysis

This part evaluates the dissimilarity among groups in the model, and it is necessary to consider the difference in the value of Chi-square ($\Delta\chi^2$) concerning the degree of freedom difference (Δdf) and the probability of $\Delta\chi^2$ between the

multigroup non-invariance and invariance test (Joreskog, 1971; Byrne, 2004 & 2010). In the scope of the proposed research framework (Figure 3.1), the multigroup invariance analysis focuses on two control variables: the size of companies and the fields of the creative industry.

5. MAIN RESULTS

The quantitative approach is conducted in this section with the defined hypotheses following the proposed research framework. The findings based on many testing steps include demographic statistics, the Cronbach's alpha reliability test, EFA, CFA, SEM, and multigroup invariance analysis.

5.1 Demographic characteristics of respondents

The study focused on areas of the creative companies, including design, creative services, new media, audiovisuals, publishing, and printed media. Table 5.1 offers an overview of the comprehensive information of the respondents in the middle management and higher positions.

Table 5.1 Demographic characteristics

1. Gender		2. Educational qualifications	
Male	507 (75.2%)	High school diploma	27 (4%)
Female	167 (24.8%)	Bachelor's degree	477 (70.8%)
3. Location of companies		Master's degree	151 (22.4%)
Hanoi city	154 (22.8%)	Doctoral Degree	19 (2.8%)
Ho Chi Minh City	433 (64.2%)	4. Job titles	
Others	87 (12.9%)	Owner	86 (12.8%)
5. Size of companies (people)		Chief executive officer	88 (13.1%)
1-50	171 (25.4%)	Chief financial officer	44 (6.5%)
51-100	159 (23.6%)	Chief technology officer	82 (12.2%)
101-500	134 (19.9%)	Chief digital officer	35 (5.2%)
501-1000	184 (27.3%)	Chief information officer	52 (7.7%)
1001 and 5000	19 (2.8%)	Middle managers	234 (34.7%)
5001 and more	7 (1%)	Others	53 (7.9%)
6. Creative Industries			
Design	73 (10.8%)		

Creative services	164 (24.3%)		
New media	141 (20.9%)		
Audiovisuals	211 (31.3%)		
Publishing and printed media	85 (12.6%)		

Source: Own research.

Despite this, the participation percentage of those polled was meager in the major firms, and Ho Chi Minh City was the place that had the highest response rate of 64.2% in comparison to other locations. In the survey, 12.8% of respondents were owners, 44.7% were chief officers, and 34.7% were middle managers. Most men were around 75.2%, but only 24.8% of the women participated. The percentage of participants with bachelor's degrees was 70.8%, more than three times the percentage who held master's degrees, while the percentage who held doctoral degrees was the lowest at 2.8%.

5.2 Reliability results

As can be seen in Appendix D with the results of the Cronbach alpha reliability test, the blockchain (BLO), financial strength (FS), social community (SC), and cost reduction (COS) were removed because their corresponding Cronbach alpha coefficients were lower than 0.7 (Hair et al., 2010; Tavakol & Dennick, 2011). Other elements had a value of more than 0.8, suggesting that they point to a good level of stability in examining the research framework model.

5.3 Exploratory factor analysis

The objective is to examine the Kaiser-Meyer-Olkin (KMO) sampling adequacy measure (MSA) and the Bartlett test of sphericity for exploratory factor analysis according to Rule of thumb 2 of Hair et al. (2010). Exploratory factor analysis revealed that the KMO measure of sampling adequacy ($KMO = 0.93$) was greater than 0.5. Bartlett's sphericity test ($\text{Chi-square} = 24301.84$, $df = 1326$, $p\text{-value} = 0.000$) was statistically significant at the level of $p < 5\%$ after using primary axis factoring in combination with the Promax rotation technique. Appendix E indicates that a total of 16 extracted factors (factor loadings > 0.5) account for 69.84% of the total variance explained in the data, and the eigenvalue was not less than or equal to 1 (Hair et al., 2010; Mohammed et al., 2016; Henson & Roberts, 2006).

5.4 Confirmatory factor analysis

After completing the previous analysis steps, such as Cronbach's alpha reliability and exploratory factor analysis, this part is confirmatory factor analysis based on the theoretical framework of this study, as shown in Figure 3.1. The measurement model includes sixteen first-order factors (DMA, AI, VR, AR, BD, SI, OM, CP, CUS, COM, CS, SAL, PRO, INN, PD, and DT) (Figure 5.1).

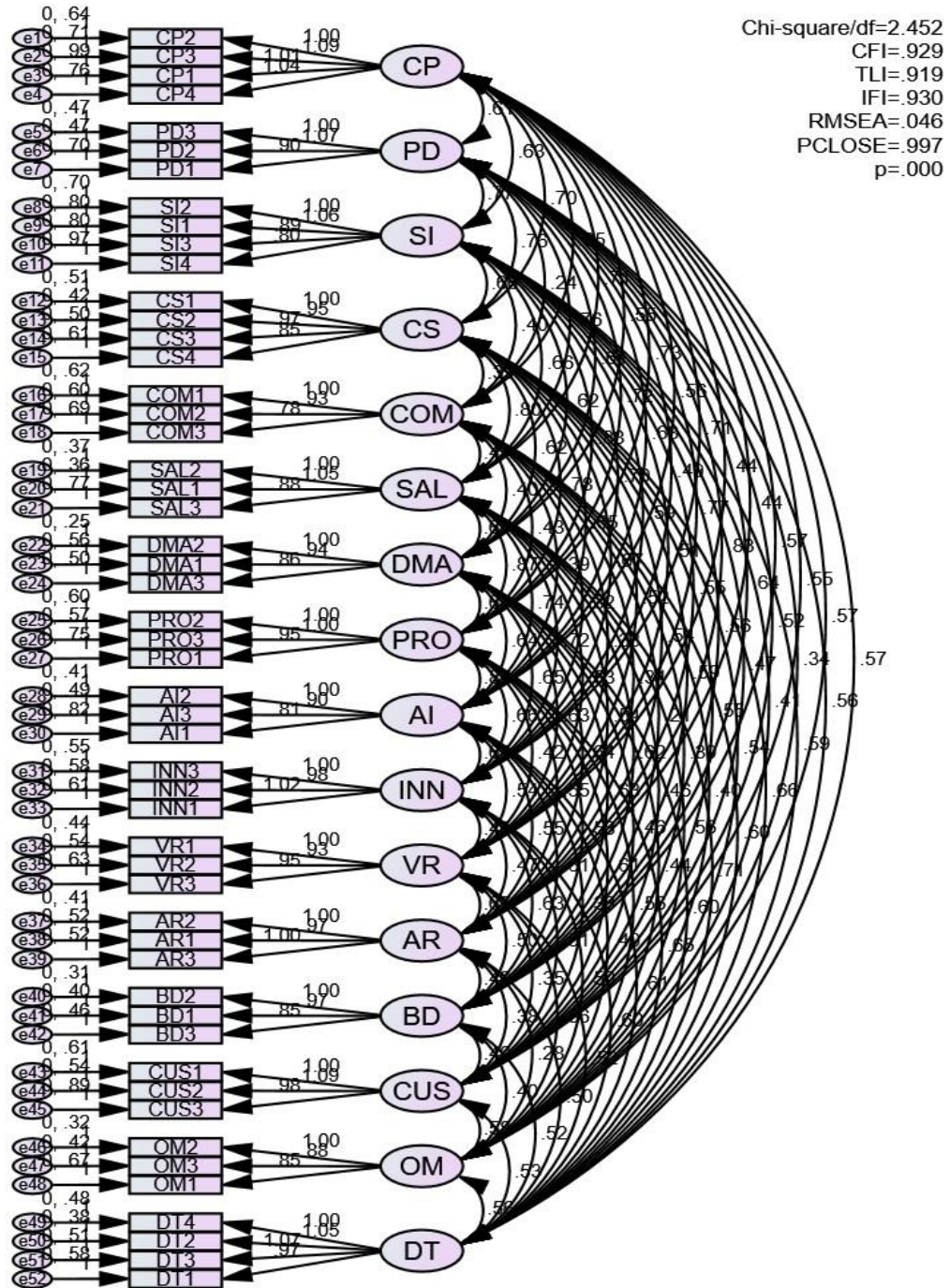


Figure 5.1: Sixteen correlated first-order factors of Confirmatory Factor Analysis. Source: Own research.

According to the directives provided by Hair et al. (2010) and Fan et al. (2016), furthermore, the following section considers the model fit indices in the confirmation factor analysis. These include the Chi-square (χ^2), CMIN/DF, CFI, TLI, and RMSEA. Construct validity is optimal when standardized loadings are higher than or equal to 0.5, the average variance extracted (AVE) also necessitates having a similar value, and the composite reliability (CR) should never be less than 0.7 to ensure adequate convergent validity, as stated in the rule of thumb 1 of Hair et al. (2010). However, if the AVE is greater than the maximum shared variance (MSV) among the constructs and the AVE estimates for the two components surpass the square of the correlation between factors, then discriminant validity can be assumed.

Table 5.2 Goodness of fit results for CFA analysis

χ^2	P-value	CMIN/DF	CFI	TLI	RMSEA
2829.5	.000	2.452	.929	.919	.046

Source: Own research.

As can be seen in Table 5.2, the goodness of fit indices was within the ranges of ($\chi^2 = 2829.5$, $p=.000$, CMIN/DF = 2.452, CFI = .929, TLI = .919 and RMSEA = .046) (Hair et al., 2010; Fan et al., 2016).

Tables 5.3 and 5.4 show that the measurement model matches the CFA findings, proving its worth in assessing the research model. The standard loading analysis exceeded 0.5 to satisfy convergence and discriminant validity requirements. Construct validity results (AVE > 0.5, CR > 0.7, AVE > MSV, square root of AVE > inter-constructs correlation) were also supported for all constructs (Hair et al., 2010; Soares & Pinho, 2014; Akter et al., 2016). In sum, deriving from empirical results of confirmatory factor analysis and theoretical evidence, this exploration indicates that the measurement model (sixteen correlated first-order factors) is a superior model to analyze structural equation modeling in the next step for estimating research hypotheses (H1a, H1b, H1c, H1d, H1f, H2a, H2b, H3a, H3b, H3c, H4a, H4b, H4d, H4e, and H4f).

Table 5.3 Convergent validity, discriminant validity, and construct reliability results for CFA analysis

	CR	AVE	MSV
CP	.864	.615	.382
PD	.911	.773	.313
SI	.845	.578	.346
CS	.887	.662	.434

COM	.866	.684	.232
SAL	.906	.763	.332
DMA	.889	.728	.295
PRO	.888	.725	.346
AI	.862	.678	.294
INN	.868	.688	.341
VR	.860	.671	.328
AR	.873	.696	.328
BD	.875	.701	.300
CUS	.836	.631	.290
OM	.849	.654	.330
DT	.885	.659	.434

Source: Own research.

Table 5.4 A correlation matrix of sixteen first-order factors for CFA analysis

	CP	PD	SI	CS	COM	SAL	DMA	PRO	AI	INN	VR	AR	BD	CS	OM	DT
CP	.784															
PD	.413	.879														
SI	.522	.489	.760													
CS	.618	.514	.544	.814												
COM	.246	.129	.270	.278	.827											
SAL	.513	.418	.446	.576	.275	.873										
DMA	.443	.379	.476	.507	.264	.429	.853									
PRO	.518	.396	.588	.557	.249	.510	.418	.852								
AI	.428	.406	.507	.507	.244	.470	.460	.542	.823							
INN	.584	.314	.456	.554	.212	.486	.494	.442	.444	.829						
VR	.374	.509	.413	.452	.230	.375	.502	.296	.408	.366	.819					
AR	.390	.559	.451	.478	.240	.389	.518	.392	.422	.386	.573	0.835				

BD	.525	.451	.479	.548	.159	0463	.538	.435	.491	.547	.444	.445	.837			
CUS	.494	.360	.398	.495	.282	.340	.381	.440	.297	.429	.305	.340	.373	.794		
OM	.517	.239	.353	.494	.293	.417	.372	.414	.318	.428	.323	.259	.382	.538	.809	
DT	.566	.428	.551	.659	.481	.576	.543	.523	.529	.562	.501	.495	.531	.533	.575	.812

Source: Own research.

5.5 Structural equation modeling analysis

From the analyzed empirical results in the measurement model (sixteen correlated first-order factors) in the confirmation factor analysis, this model is accepted with a good fit model, good convergent validity, and good discriminant validity. In the structural equation modeling analysis, all goodness of fit indices were satisfactory and supported the measurement model's validity ($\chi^2 = 3182.7$, $p = 0.000$, $CMIN/DF = 2.630$, $CFI = 0.917$, $TLI = 0.909$, and $RMSEA = 0.049$) based on the findings shown in Figure 5.2 (Hair et al., 2010; Fan et al., 2016).

Furthermore, Table 5.5 shows that the study hypotheses were statistically significant at 1% and 5%, which were essential findings. Each pair of factors had a positive influence (as stated in Table 5.5) when the measurement model examined research hypotheses (H1a, H1b, H1c, H1d, H1f, H2a, H2b, H3a, H3b, H3c, H4a, H4b, H4d, H4e, and H4f) (as illustrated in Figure 5.2).

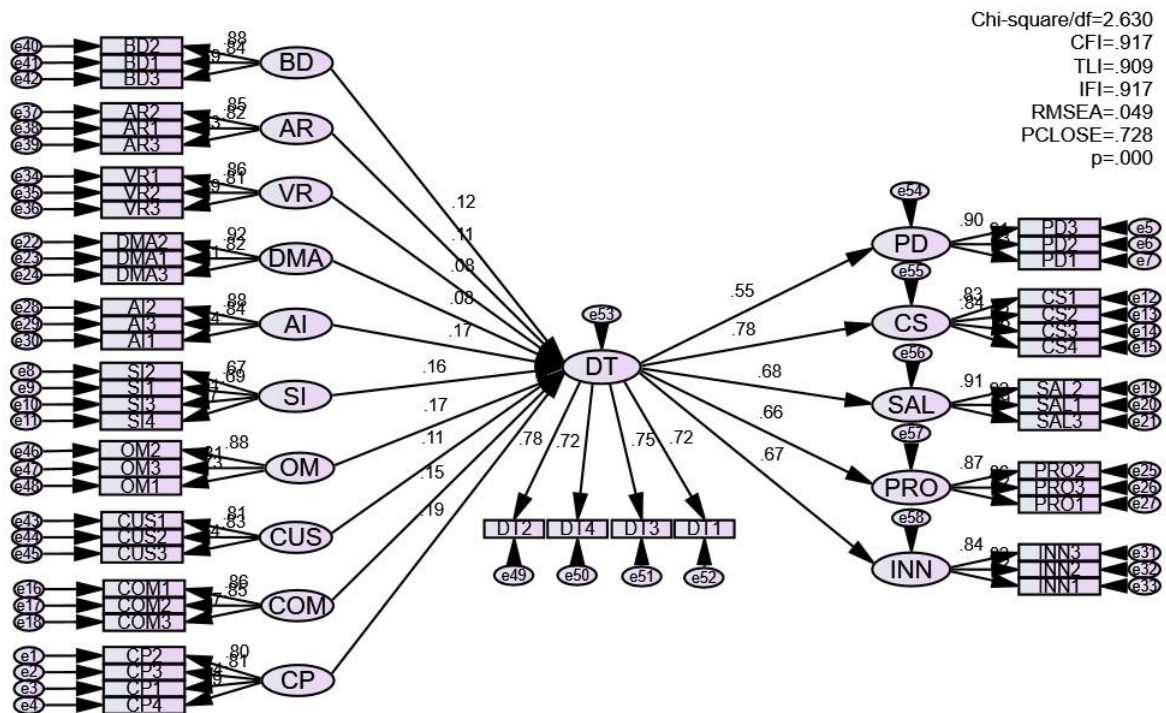


Figure 5.2: The results of Structural Equation Modeling Analysis. Source: Own processing.

As shown in Table 5.5, statistically significant hypotheses were found, such as H1a, H1b, H1c, H1d, H1f, H2a, H2b, H3a, H3b, H3c, H4a, H4b, H4d, H4e, and H4f. These results showed that adopting digital transformation was positively impacted by factors: big data capture and analytics (BD), augmented reality (AR), artificial intelligence (AI), virtual reality (VR), digital marketing and advertising online (DMA), social influence (SI), organization mission (OM), customer (CUS), competitor (COM) and competitive pressure (CP). Similarly, the adoption

of digital transformation (DT) also had a positive relationship with company performance based on factors such as customer engagement (CS), profitability (PRO), sales growth (SAL), productivity (PD), and innovation (INN). Additionally, the R-square of DT was 82.4 percent, indicating that the fluctuation of DT depended on 82.4 percent of independent variables, and similar to the way explain the R-square of CS, PRO, SAL, PD, and INN.

Table 5.5 Results of Structural Equation Modeling Analysis

Research hypotheses		SRW	P-value	Results	R-squared	
H1a	BD --> DT	.124	.000***	Supported	DT	.824
H1b	AR --> DT	.108	.002***	Supported	CS	.614
H1c	AI --> DT	.171	.000***	Supported	PRO	.437
H1d	VR --> DT	.077	.022**	Supported	SAL	.461
H1f	DMA --> DT	.077	.022**	Supported	PD	.306
H2a	SI --> DT	.158	.000***	Supported	INN	.447
H2b	OM --> DT	.172	.000***	Supported		
H3a	CUS --> DT	.110	.001***	Supported		
H3b	COM --> DT	.151	.000***	Supported		
H3c	CP --> DT	.188	.000***	Supported		
H4a	DT --> CS	.783	.000***	Supported		
H4b	DT --> PRO	.661	.000***	Supported		
H4d	DT --> SAL	.679	.000***	Supported		
H4e	DT --> PD	.553	.000***	Supported		
H4f	DT --> INN	.669	.000***	Supported		

Source: Own research.

Notes: Significance is statistical at 10% (*), 5% (**), 1% (***). SRW: Standardized regression weights, R-squared: Squared multiple correlations.

More specifically, the findings of hypotheses (H1a, H1b, H1c, H1d, and H1f) are in accordance with the research conducted by Chandra and Kumar (2018), which indicated the relative advantage of technology that positively affects the adoption of augmented reality. This research first investigates several other outcomes, including hypotheses (H4a, H4b, H4d, H4e, and H4f). The findings of Venkatesh et al. (2003), who conducted a study on the effect of social influence on behavior intention in the context of user acceptance of information technology, show no statistically significant relationship between the two variables. However, the result of the testing hypothesis (H2a) does not agree with these findings. The study findings from hypotheses (H3a, H3c) are in line with those of Tripopsakul (2018), who highlighted the importance of competitive pressure and customers about the adoption of social media by entrepreneurial students. However, the consequences of hypotheses (H3b, H3c) differ significantly from those introduced by Mckinnie (2016) and Oliveira et al. (2014), who found no relationship between

competitive pressure and the adoption of cloud computing in their study. Furthermore, the results of the second hypothesis (H2b) validated the findings of Karatepe and Aga (2016), who concluded that the goal of an organization positively impacted employee performance.

5.6 Multigroup invariance analysis

The size of businesses and the kind of creative industries they operate in are the two main foci of the control variables used in the multigroup invariance study. In this section, the groups given in Tables 5.6 and 5.7 are combined to perform the analysis with uniform groupings and sample sizes. Byrne (2004 & 2010) provides the foundation for multigroup invariance analysis by outlining two methods for doing comparison tests of invariance across groups: the conventional χ^2 difference method and the practical CFI difference method. As a result, we compute the probability of $\Delta\chi^2$, the χ^2 difference ($\Delta\chi^2$), and the degree of freedom difference (Δdf) for the multigroup invariance and non-invariance test. The control variables' results indicated a statistically significant difference in the value for the creative industry fields ($\Delta\chi^2 = 91.76$, $\Delta df = 30$, p-value = 0.000% < 5%) and for company size ($\Delta\chi^2 = 82.22$, $\Delta df = 45$, p-value = 0.013% < 5%). Therefore, they showed that the χ^2 difference has a statistical significance, meaning there was a difference in loadings across groups and multigroup non-invariance (Byrne, 2004 & 2010; Her et al., 2019).

Table 5.6 Multigroup invariance analysis based on creative industries

Research hypotheses		Design and New Media		Creative services, Publishing and Printed Media		Audio-visuals	
		SRW	P-value	SRW	P-value	SRW	P-value
H1a	BD -> DT	-.032	.655	.151	.007***	.187	.005***
H1b	AR -> DT	.120	.050**	.098	.100*	.077	.185
H1c	AI -> DT	.053	.340	.308	.000***	.099	.104
H1d	VR -> DT	.057	.262	.105	.085*	.127	.048**
H1f	DMA -> DT	.104	.102	.093	.082*	-.019	.774
H2a	SI -> DT	.205	.002***	.112	.071*	.157	.033**
H2b	OM -> DT	.154	.007***	.110	.033**	.209	.004***
H3a	CUS -> DT	.074	.169	.162	.006***	.180	.005***
H3b	COM -> DT	.106	.038**	.205	.000***	.041	.434
H3c	CP -> DT	.402	.000***	.007	.889	.270	.000***
H4a	DT -> CS	.785	.000***	.729	.000***	.790	.000***
H4b	DT -> PRO	.759	.000***	.631	.000***	.498	.000***
H4d	DT -> SAL	.828	.000***	.568	.000***	.595	.000***
H4e	DT -> PD	.637	.000***	.461	.000***	.525	.000***

H4f	DT -> INN	.719	.000***	.551	.000***	.685	.000***
R-squared (DT)		.897		.832		.812	
R-squared (CS)		.616		.532		.624	
R-squared (PRO)		.576		.398		.248	
R-squared (SAL)		.685		.322		.353	
R-squared (PD)		.406		.212		.276	
R-squared (INN)		.517		.304		.470	
Observations		214		249		211	

Source: Own research.

Notes: Significance is statistical at 10% (*), 5% (**), 1% (***). SRW: Standardized regression weights, R-squared: Squared multiple correlations.

According to the information in Table 5.6, three different groups were combined and considered. These categories included creative services with publishing and printed media, audiovisuals, design, and new media. The findings indicated that the hypotheses H1a, H1c, H2b, H3a, and H3b were statistically significant by 1% and 5%, respectively, in the group, including creative services and publishing and printed media. On the contrary, the findings obtained by the audiovisual group were H1a, H1d, H2a, H2b, H3a, and H3c. These results were similar to those achieved by the design and new media group's outcomes for H1b, H2a, H2b, H3b, and H3c. Specifically, H4a, H4b, H4d, H4e, and H4f were statistically significant in the three groups.

Table 5.7 Multigroup invariance analysis based on the size of companies

Research hypotheses		Group 1		Group 2		Group 3		Group 4	
		SRW	P-value	SRW	P-value	SRW	P-value	SRW	P-value
H1a	BD -> DT	.078	.341	.107	.183	.057	.360	.268	.000***
H1b	AR-> DT	.178	.008***	.089	.269	-.006	.947	.045	.415
H1c	AI -> DT	.271	.000***	.223	.030**	.332	.007***	.034	.504
H1d	VR -> DT	.057	.359	.148	.097*	.110	.153	.073	.189
H1f	DMA -> DT	.125	.128	.048	.482	.109	.194	.019	.744
H2a	SI -> DT	.258	.005***	.057	.513	.029	.807	.196	.011**
H2b	OM -> DT	.201	.010***	.039	.590	.026	.675	.329	.000***

H3a	CUS - > DT	.250	.000***	.039	.606	.104	.156	.031	.629
H3b	COM -> DT	.088	.125	.234	.000***	.196	.003***	.076	.147
H3c	CP -> DT	.049	.492	.306	.002***	.205	.023**	.187	.003***
H4a	DT -> CS	.672	.000***	.744	.000***	.795	.000***	.835	.000***
H4b	DT -> PRO	.596	.000***	.716	.000***	.731	.000***	.572	.000***
H4d	DT -> SAL	.624	.000***	.632	.000***	.818	.000***	.666	.000***
H4e	DT -> PD	.512	.000***	.590	.000***	.556	.000***	.522	.000***
H4f	DT -> INN	.720	.000***	.568	.000***	.646	.000***	.718	.000***
R-squared (DT)		.914		.811		.869		.836	
R-squared (CS)		.451		.554		.632		.697	
R-squared (PRO)		.355		.513		.535		.327	
R-squared (SAL)		.389		.399		.669		.443	
R-squared (PD)		.262		.348		.309		.273	
R-squared (INN)		.518		.322		.418		.516	
Observations		171		159		134		210	

Source: Own processing.

Notes: Significance is statistical at 10% (*), 5% (**), 1% (***). SRW: Standardized regression weights, R-squared: Squared multiple correlations.

There were four groups, which were separated and combined in Table 5.7. For example, Group 1 included company members numbering between 1 and 50; Group 2 was individuals numbering between 51 and 100; Group 3 comprised individuals numbering between 101 and 500; Group 4 was individuals numbering 501 or more (501-1000, 1001-5000, and 5001 and more). The analysis findings showed that there was a positive correlation between the adoption of digital transformation (DT) and the following factors: customer engagement (CS), profitability (PRO), sales growth (SAL), productivity (PD), and innovation (INN) in all four groups. Furthermore, findings were found in each group; H1a is the

only research hypothesis with statistical significance in group 4, while H1b and H3a displayed the same results in group 1 and group 3, respectively. In particular, the statistical significance of H1c was found for groups 1, 2, and 3, while H3c was detected for groups 2, 3, and 4.

6. DISCUSSION

The study's objective is to resolve the determinants of the factors affecting the adoption of digital transformation using the TOE framework for innovation companies and to understand how the adoption of digital transformation impacts these companies in Vietnam. The defined hypotheses were developed from the theoretical background and prior studies, along with 68 surveyed questions.

The findings showed that four factors (blockchain, financial strength, social community, and cost reduction) did not meet the Cronbach alpha reliability. Furthermore, the measurement model evaluated the research hypotheses (H1a, H1b, H1c, H1d, H1f, H2a, H2b, H3a, H3b, H3c, H4a, H4b, H4d, H4e, and H4f) as indicated in Figure 5.1. The measurement model matched the confirmatory factor analysis results and met the valid requirements for the SEM analysis.

According to the analysis results (shown in Table 5.5), five factors of the technological context (big data capture and analytics, augmented reality, artificial intelligence, virtual reality, digital marketing, and online advertising) positively influenced the adoption of digital transformation. At the 1% significance level, augmented reality, artificial intelligence, big data capture, and analytics were statistically significant, but at the 5% significance level, virtual reality, digital marketing, and online advertising had a moderately statistical significance at a p-value of 2%. These results showed that the specified hypotheses (H1a, H1b, H1c, H1d, and H1f) were accepted. However, there were differences in the standard regression weight between five technological factors, such as big data capture and analytics (SRW = .124, p-value < .000), augmented reality (SRW = .108, p-value < .002), artificial intelligence (SRW = 0.171, p-value < .000), virtual reality (SRW = 0.077, p-value < 0.022), digital marketing and online advertising (SRW = 0.077, p-value < 0.022). These mean that virtual reality, digital marketing, and online advertising are the lowest predictors of the adoption of digital transformation compared to remaining technological factors; in other words, when virtual reality increases by 1 unit, the digital transformation adoption rises by 0.077 units.

Similarly, two factors of the organizational environment, including social influence (SRW = .158, p-value < .000) and organizational mission (SRW = .172, p-value < .000), also had a positive impact on the decision to implement a digital transformation. Therefore, the stated hypotheses (H2a and H2b) were statistically significant with a p-value of 1%; nevertheless, the organizational mission is a better predictor of acceptance of digital transformation than social influence. The last part of the TOE framework was the environmental context with factors such as the customer (SRW = .110, p-value < .001), competitor (SRW = .151, p-value < .000), and the competitive pressure (SRW = .188, p-value < .000). The findings

showed that they had a positive relationship with the adoption of digital transformation with a statistically significant p-value of 1%, so the specified hypotheses (H3a, H3b, and H3c) were accepted. However, the customer factor is the weakest predictor of digital transformation adoption compared to other environmental factors.

Furthermore, five factors related to company performance were customer engagement (SRW = .783, p-value < .000), profitability (SRW = .661, p-value < .000), sales growth (SRW = .670, p-value < .000), productivity (SRW = .553, p-value < .000), and innovation (SRW = .669, p-value < .000), the findings indicated that they were dramatically statistically significant with a p-value of 1%. As such, the defined hypotheses (H4a, H4b, H4d, H4e, and H4f) were also accepted. The impact between digital transformation adoption and customer engagement is the strongest effect on each other compared to other company performance factors; for instance, when digital transformation adoption grows by 1 unit, customer engagement is predicted to climb by .783 units.

More especially, the R-square values of the dependent variables were adoption of digital transformation (R-square = .824), customer engagement (R-square = .614), profitability (R-square = .437), sales growth (R-square = .461), productivity (R-square = .306) and innovation (R-square = .447). These mean that the adoption variable of digital transformation fluctuates 82.4% from independent factors (big data capture and analytics, augmented reality, artificial intelligence, virtual reality, digital marketing, and online advertising, social influence, organizational mission, customer, competitor, and competitive pressure) with on average 82.4%. Like other dependent factors, the dependent variable of innovation oscillates 44.7% from the independent factor (adoption of digital transformation) at an average rate of 44.7%.

Tables 5.6 and 5.7 show how adopting digital transformation affects company performance. However, when separated into several groups using two control variables (company size and creative industry fields), the results showed non-invariance groups, which meant having differences in findings among groups. From this, it can infer technological, organizational, and contextual variables that also play a crucial role in successfully adopting digital transformation within Vietnam's creative businesses.

In terms of the technological context, this research reveals that well-applied technologies like big data capture and analytics (H1a) and artificial intelligence (H1c) offer numerous advantages for creative businesses, such as the following: collecting customer data; providing insight; analyzing the market, competitors, consumer trends through their behaviors; evaluating business goals; detecting users on social networks through demographics; and so on. A further benefit of AI is the creation of ever-smarter computer systems (Oztemel & Gursev, 2020).

For instance, one of the benefits of big data in digital marketing and online advertising (H1f) is that it allows for the lowest possible price charge to advertisers (Jobs et al., 2016). In addition to its applications in market research, big data is used in other areas of business as well, such as information technology and operations; a global media giant, Netflix, is using big data to improve its service to customers by delivering content over the Internet (Sarstedt & Mooi, 2019). Similarly, major Vietnamese companies, including SCTV, VIETTEL, FPT, VNPT, VTVcab, and HTVC, all have over-the-top television applications (ABEI, 2020) for broadcasting through the internet.

As a result of the research done, it is clear that both augmented reality (H1b) and virtual reality (H1d) are integral parts of the digital ecosystem, as they lead to more satisfying and productive interactions between businesses and their customers (Pangilinan, Lukas & Mohan, 2019). The findings (H1b, H1d) corroborate those of Olshannikova et al. (2015), who suggest that AR and VR might be useful for large data visualization. Similarly, Siriborvornratanakul's (2018) research shows that augmented reality systems enhance user experiences and technical problems. The application of augmented reality technology in innovative products allows the collection of relevant information from user interaction, which can then be used to produce cultural creative product recommendations (Peng, 2013) and improve the museum visit experience (Clini et al., 2014). It is helpful for customers in the online fashion industry to utilize apps that are implemented in AR and VR since these technologies help customers choose the appropriate size and style of items. More specifically, creative firms in digital media publish a range of digital material to the public. This content can be easily read, listened to, and seen online or in print newspapers through intelligent devices at the same time as the event itself with the help of AR and VR. Broadcasters have rapidly adopted virtual studios and automated studio systems equipped with augmented reality and virtual reality technologies to manufacture television programs that offer a different experience for viewers, as well as practicality and vibrancy in each program. This rapid adoption of these technologies has occurred in tandem with the robust development of social networks.

This research also confirmed two hypotheses about the organizational context: social influence (H2a) and organizational mission (H2b), which play a crucial role in the digital transformation of creative enterprises. It can be argued that the growth of information and communication technology and social networks has considerably impacted people's lives. As a result, individuals now have several freedoms to communicate with themselves, meet new friends, and share new knowledge and information. From the perspective of Smailovic et al. (2018), social influence can be limited regarding how people feel, think, and do. This

observation is in line with innovative products or services in creative industries, which focus on providing the proper material or advertising to the right user and viewer and aim to attract customers who can easily access and digest it (Kim & Chandler, 2018). In addition, this research is also aware of the fact that the mission of an organization is crucial to the success of technologically advanced businesses. The simple reason is that accepting digital transformation brings about the development of cutting-edge IT infrastructure and alters the company's culture, particularly its digital one. Moreover, leadership at all levels is essential to the success of the digital transformation process.

Three environmental context factors, such as the customer (H3a), the competitor (H3b), and the competitive pressure (H3c), are also shown to play an essential role in the acceptance of digital transformation in innovative companies. Derived from the above analysis, it is clear that many innovative businesses have turned to cutting-edge technologies, including mobile applications, social networks, live chat, and bot chat, to provide a better customer experience and enhance their interactions with the company's target demographic. Enhancing the consumer experience improves client satisfaction (Gil-Gomez et al., 2020), as measured by product and service quality (Lee et al., 2018). Similarly, how competition is one of the primary drivers of innovation in producing or delivering goods and services, creative businesses are compelled to adopt cutting-edge scientific and technological methods, increase the efficiency of their workforce, and implement appropriate management practices to survive. As such, it leads to a quality of social life, and the growth of the Vietnamese economy will be improved. As a result, creative goods and services are of higher quality, more varied, and beautifully designed to meet society's growing demand. Tripopsakul (2018) highlights the use of social media technology in company management and customer communication, demonstrating that young business owners can successfully compete against competitors using lower prices. The experiment conducted by Rahman et al. (2020) found similar results, illustrating that the pressure of competitors and customers positively affects SMEs' use of social media.

This study's most important discovery is that the adoption of digital transformation is positively correlated with five factors related to company performance in Vietnam's creative industries. These factors are customer engagement (H4a), profitability (H4b), sales growth (H4d), productivity (H4e), and innovation (H4f). This study also highlights the positive outcomes of a creative company's adoption of digital transformation strategies, including advanced technologies, expanding the customer base, reducing the cost of operations, improving managerial decision-making, higher profits, and enhancing productivity. These opinions align with the findings of Goerzig and Bauernhansl

(2018), who discover that digital transformation improves high-tech processes, goods, and services while also bringing about more profits, and a larger share of the market, greater productivity, and lower costs (Huang et al., 2020). In reality, the digital transformation of creative companies can lead to the development of systems capable of collecting relevant data for strategic goals. By analyzing collected data, innovative businesses may better understand client habits and needs. As a result, digital transformation alters the business system of creative companies and dramatically increases their income; it also provides a basis for making business strategies that aid in growth because the interconnection between high-tech infrastructure improves company activities and expands the scope of customers. Nevertheless, digital transformation requires an in-depth experience and understanding of technological advancement (Şerban, 2017). It also requires creating close customer engagement regularly to improve their enjoyment (Kunz et al., 2017). One of the most considerable barriers associated with digital transformation is the convergence of infrastructure systems and the synchronization of obtained and protected data. In addition, the benefits of digital transformation include the application of modern systems and devices in conjunction with advanced technologies, all of which collaborate to reduce the reliance on manual labor, improve productivity and the quality of the consumer experience, reduce expenses, and increase profits.

The following step in the research, an integral part of this conceptual model, focuses on two essential control variables: the company's size and the creative industry's fields. The statistical analysis determines dissimilarity among the groups, in which the entire sample break into many groups and a method known as multigroup invariance analysis is used in the model. Consequently, the findings showed that the groups were not invariant, which translates to the fact that there is a significant difference in the research findings between the groups. These findings are quite different from those of Chandra and Kumar (2018), which show no statistically significant correlation between the firm size and the use of augmented reality in online commerce. Similarly, the size of the company did not appear to have a statistically significant role in the adoption of EDI; however, the opposite result was in the study on the acceptance of RFID, ERP, and ERP and e-Commerce systems (Gangwar et al., 2014).

The following are some of the primary reasons why, in general, the digital transformation will be a successful endeavor, as was previously described. To begin, external and internal elements of creative firms serve as the foundation for choices on digital transformation. Second, digital transformation paves the way for numerous prospects, including the growth of profitability, the preservation of good relationships and loyalty with customers, the development of new markets, and the creation of a stable development over other businesses. Third, by

improving their operational processes, creative organizations can improve their distribution of resources, which, in turn, increases their output. The fourth characteristic of innovative goods and services is a customized and visually appealing user interface generated from the newest technological platforms for the customer's convenience. The last benefit of digital transformation is an increase in employee engagement as well as a reduction in company expenses. However, the following hurdles must be overcome to successfully implement more digital transformation in creative enterprises. To begin with, the top managers of creative firms must grasp digital transformation and the digital economy. This awareness and comprehension must be raised. Second, investment in cutting-edge technology must make sense for the business sectors that the long-term plan will target. Third, creative companies need to change their organizational culture to digital firms; this requires employees to have a digital mentality and a high level of agreement between the company's critical departments about digital transformation.

7. RECOMMENDATIONS

This dissertation successfully applied the TOE framework approach to identify factors affecting the adoption of digital transformation and detect the relationship between digital transformation adoption and factors of company performance; thus, the research has highlighted the vital role of digital transformation in creative companies in Vietnam. These have shown that the wave of digital transformation has been affirming its influence on creative companies in particular and Vietnam's creative industries in general. Adopting digital transformation helps innovative firms transform from traditional to digital companies by restructuring businesses and improving operational efficiency and core value for businesses. Innovative products and services based on high-tech platforms enable companies to create more new customer values and experiences than competitors in the market. As mentioned, the big creative company in the world, Netflix Corporation (Netflix, 2022), which was an original company that sold and rent DVDs, has effectively had a typical digital transformation of the OTT streaming platform with more than 221.8 million subscribers in the world to watch pay TV, online movies and VOD. Similarly, large domestic enterprises have also implemented many OTT platforms, which enable viewers and subscribers to watch pay TV, live TV, and VOD, including SCTV, VIETTEL, FPT, VNPT, VTV CAB, and HTVC (ABEI, 2020). Therefore, within the scope of the dissertation, this thesis suggests some recommendations for creative companies and creative industries to implement digital transformation more successfully in Vietnam as follows.

First, the research framework can guide top management in creative companies to determine which digital technologies are currently on the cutting edge of trends in creative industries. As a result, creative companies can satisfy both the demands of their users (i.e., customer engagement improvement, client experience advance, more intelligent products and services) and the operations of their management (i.e., practically useful high-tech platforms and applications, improvement of business operations, enhancement of data visualization) while also maintaining their competitive sustainability.

Recommendation 1: Digital transformation strategy of creative organizations must be based on cutting-edge technological aspects such as the acquisition and analysis of large amounts of data, augmented reality, artificial intelligence, virtual reality, digital marketing, and online advertising.

Second, in the context of Vietnam's creative companies, organizational and environmental factors are also essential components of an adequate foundation for the execution of the digital transformation. In fact, the advancement of digital

platforms and social networks has had an enormous impact on the lives of individuals, such as the formation of habits and behaviors regarding the use of goods and services. In addition to this, it also generates competitive pressure and makes it easier for competitors to build products and services that are more intelligent. For this reason, creative businesses need to deeply analyze the impact of customer behavior patterns and the trends shown by competitors in the relevant industries based on their mission to achieve tremendous success with digital transformation.

Recommendation 2: The digital transformation strategy in creative companies needs to focus on relevant aspects such as social impact, organizational mission, client, competitor, and competitive pressure.

Third, the empirical investigation of this study showed that factors in the context of technology have practical importance except for the blockchain factor. This result proved that at the time of the practical survey, blockchain had been unnoticed and did not affect the adoption of digital transformation in Vietnam's creative industries. However, blockchain is now popularly applied in the creative economy related to digital assets, including digital certificates for intellectual property and user identification. Furthermore, other digital products, music or video, can also be stored in the blockchain as part or a whole.

Recommendation 3: In addition to the technical factors of practical significance for adopting digital transformation in this study, creative companies should also pay attention to the blockchain factor for developing digital transformation.

Fourth, the digital transformation strategy often comes from the scope of governance and the business paradigm in the company. Innovative products and services are distributed through multichannel platform systems in the internet infrastructure so creative companies can quickly reach many global clients. However, the deployment of digital transformation projects is often very complicated for investing because the investment cost is too high. The business goal is not easy to achieve in the short term. However, the outcome of this research pointed out that financial strength is not a key factor affecting the adoption of digital transformation, and this proves that financial problems do not make it difficult for creative companies in Vietnam.

Recommendation 4: The financial strength of creative companies should be carefully taken care of at the top management level. Digital transformation projects must have a plan with the proper budget to conduct them in the long term.

Fifth, digital transformation is not only applicable to the use of high technology, but also changes the current working processes of an organization, in which

digitizing processes such as business, management, production, reporting, and coordination among departments. These bring many benefits to businesses and employees, such as saving time, increasing productivity, remotely working, and quickly facilitating information exchange through social communities. Innovative products can be published on social networks to increase the interaction between publishers and viewers. However, the social community is not crucial in adopting digital transformation in this study.

Recommendation 5: Creative companies need to take advantage of the strengths of social communities to interact, publish, and share innovative products with users following demographic characteristics.

Sixth, the digital transformation of enterprises needs to have time and enormous investment costs in the long term, so it will be difficult to achieve profits in the short term. Because of this, the investigation's result pointed out that adopting digital transformation cannot lead to cost reduction as an essential factor of company performance for creative companies in Vietnam. However, investing in digital transformation can improve the efficiency of work processes and reduce unnecessary tasks in current processes. High-tech enables flexible application platforms for business situations handled in the real world.

Recommendation 6: Digital transformation of creative companies needs to consider the cost reduction factor, which is also a key factor in the company performance measure of enterprises resulting from the high-tech investment.

8. CONTRIBUTION TO SCIENCE AND PRACTICE

This research aims to identify factors based on the TOE framework that affect the adoption of digital transformation in creative companies in Vietnam, as well as the influence of the adoption of digital transformation on factors of company performance.

8.1 Theoretical contribution

This study investigates the proposed conceptual framework designed and tested in Figure 3.1. The findings indicated a positive relationship between some factors derived from the TOE framework and the adoption of digital transformation, as well as company performance and adoption of digital transformation. The following theoretical knowledge from the above analysis contributes to this study, and they include as follows:

First, this study contributes to knowledge by extending an advanced understanding of digital transformation and the implementation of digital technologies in the contexts of technology, organization, and environment.

Second, most of the previous studies carried out in the creative industries (e.g., Dong & Truong, 2020; Hung, 2016; Thu et al., 2019; Hoa, 2018; Loi et al., 2019; British Council, 2018) did not focus on problems associated with digital transformation. Therefore, this investigation fills a gap in the research by providing a more profound knowledge of adopting digital transformation in creative industries, which had never been explored earlier.

Third, this research expands the literature on the TOE framework concerning digital transformation and its implementation in the creative industries. The findings also highlighted ten key factors influencing the adoption of digital transformation, consisting of the technology context (big data capture and analytics, augmented reality, artificial intelligence, virtual reality, digital marketing, and online advertising), the organization context (social influence, organization mission) and the environment context (customer, competitor, competitive pressure). Five vital factors are affected by adopting digital transformation such as customer engagement, profitability, sales growth, productivity, and innovation. However, two control variables (company size and creative industry fields) pointed out a difference in the study result between groups when determining the factors that affect the adoption of digital transformation and whether company performance is affected by digital transformation adoption.

Fourth, this study provides the methodological basis for investigating digital transformation in creative industries, the specific field of creative industries, other technologies, industries, and different geographies.

8.2 Practical implication

This study has valuable benefits for the management level of creative companies in the creative industries, and the research outcome is practical for innovative companies. This research also motivates them to invest in digital technology and enhance company performance and competitiveness. The findings are a practical implication as follows.

First, an in-depth understanding of the growth of the creative industries in Vietnam relates to technological, organizational, and environmental aspects, the achieved advantages, and the driving forces of development.

Second, the result of the study can help policymakers understand creative companies in the business environment to open relevant policies for high-technology investment in the creative industries.

Third, this research has many significantly practical implications for scientific communities, readers, researchers, creative companies and creative industries, and creative communities to understand more about empirical research related to digital transformation applied in the developing country like Vietnam's creative industries that affect company performance.

Fourth, the study result provides valuable insights to help the top management of creative companies re-evaluate their corporation and make the right decision for innovation and investment in digital technologies to achieve high firm performance.

In sum, digital transformation is a crucial foreground for creative companies in Vietnam and plays a significant role in creative industries in the digital age. From the results of this study, creative companies, experts in creative industries, suppliers of high technologies, and other relevant parties in this field can actively review factors influencing company performance in the context of technology, organization, and environment to improve the business activities, competitive advantages, and take appropriate measures.

8.3 Research limitation

This study fits the context of the creative industries in Vietnam. However, it still has several limitations that can be resolved and are a chance for future research as follows:

The scope of this empirical investigation focused on only one developing country, Vietnam, instead of other underdeveloped countries.

This study examined selected factors that influence the proposed research model; however, upcoming studies should reveal additional factors that would improve the research framework.

The survey focused only on the majority of two cities, Hanoi City and Ho Chi Minh City, where many creative companies operate, and a minority of other provinces in Vietnam.

This research depends on the subjective views of top management in implementing digital transformation in Vietnamese creative companies.

9. CONCLUSION

This dissertation examines an empirical study of the adoption of digital transformation and its influence on the performance of creative companies in Vietnam using the TOE framework and the structural equation modeling (SEM) approach. Quantitative research was conducted to consider the suggested research framework using the structural equation modeling approach to answer research questions, research objectives, and research hypotheses.

As a result, big data capture and analytics, augmented reality, artificial intelligence, virtual reality, digital marketing and advertising online, social influence, organizational mission, customer, competitor, and competitive pressure positively affected the adoption of digital transformation in creative companies in Vietnam. The adoption of digital transformation significantly affected customer engagement, profitability, sales growth, productivity, and innovation. However, multigroup analysis based on control variables (company size, creative industry fields) revealed a difference between the analyzed groups, which means the results of research hypotheses testing are affected by those variables.

The study results showed the importance of high technologies in Vietnam's creative industries, except for blockchain technology at the time of the survey. In addition, the influence of society, the pressure of competitors, the organization's mission, and the customers have contributed to implementing digital transformation. Therefore, the findings have brought many valuable values to companies for deciding on a suitable investment. Innovated products and services meet customer demands, enhance customer experiences from the digital platform applications, and gain more revenue and profit. These results demonstrate that digital transformation is the right path for creative companies in a developing country like Vietnam.

However, there are still many limitations even though this dissertation has had many attempts during implementation. This investigation focuses on Vietnam's creative industries. Only selected factors are studied in the research framework. Especially this research is the first study to show the adoption of digital transformation in the context of creative industries in Vietnam derived from the TOE framework. The conceptual framework in Figure 3.1 can be used as a vital research orientation for subsequent studies, so future research needs to carry out as follows.

First, the data analysis of the control variables illustrated the different results between groups in creative industries compared to all of them, so the upcoming studies of the specific field in creative industries should be conducted.

Second, the following studies can apply this research framework to other specific technologies, industries, or different geographies.

BIBLIOGRAPHY

- [1] ABEI, Truyền hình trả tiền OTT “bùng nổ” tại thị trường Việt Nam (OTT pay TV "explodes" in Vietnam market), [online] @2020 [cit. 2022-4-12]. Available from: <https://abei.gov.vn/phat-thanh-truyen-hinh/truyen-hinh-tra-tien-ott-%E2%80%9Cbung-no%E2%80%9D-tai-thitruong-viet-nam/107382>
- [2] ABU-DALBOUH, H. M. A questionnaire approach based on the technology acceptance model for mobile tracking on patient progress applications. *Journal of Computer Science*, 2013, vol. 9, no. 6. pp. 763–770.
- [3] ACETO, G., PERSICO, V. and PESCAPÉ, A. A Survey on Information and Communication Technologies for Industry 4.0: State-of-the-Art, Taxonomies, Perspectives, and Challenges. *IEEE Communications Surveys & Tutorials*, 2019, vol. 21, no. 4, pp. 3467–3501.
- [4] AHMED, I. Technology organization environment framework in cloud computing. *Telkomnika*, 2020, vol. 18, no. 2, pp. 716-725.
- [5] AKTER, S., WAMBA, S. F., GUNASEKARAN, A., DUBEY, R. and CHILDE, S. J. How to improve firm performance using big data analytics capability and business strategy alignment? *International Journal of Production Economics*, 2016, vol. 182, pp. 113–131.
- [6] ALASKAR, T. H., MEZGHANI, K. and ALSAKI, A. K. Examining the adoption of Big data analytics in supply chain management under competitive pressure: evidence from Saudi Arabia. *Journal of Decision Systems*, 2021, vol. 30, no. 2–3, pp. 300–320.
- [7] ANANTRASIRICHAJ, N. and BULL, D. Artificial intelligence in the creative industries: a review. *Artificial Intelligence Review*, 2022, vol. 55, no.1, pp. 589–656.
- [8] ARCOS, L. C. The blockchain technology on the music industry. *Brazilian Journal of Operations & Production Management*, 2018, vol. 15, no. 3, pp. 439–443.
- [9] ARORA, A. and ARORA, M. Digital-Information Tracking Framework Using Blockchain. *Journal of Supply Chain Management Systems*, 2018, vol. 7, no. 2, pp. 1–7.
- [10] ARRIBAS, V. and ALFARO, J. A. 3D technology in fashion: From concept to consumer. *Journal of Fashion Marketing and Management*, 2018, vol. 22, no. 2, pp. 240-251.

- [11] AWA, H. O. and OJIABO, O. U. A model of adoption determinants of ERP within T-O-E framework. *Information Technology & People*, 2016, vol. 29, no. 4, pp. 901-930.
- [12] AWA, H. O., OJIABO, O. U. and EMECHETA, B. C. Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs. *Journal of Science and Technology Policy Management*, 2015, vol. 6, no. 1. pp. 76–94.
- [13] BAKER, J. *The Technology–Organization–Environment Framework*. In book: Information Systems Theory. Chapter: 12. Publisher: University of Hamburg, Hamburg, Germany, 2011.
- [14] BAYO-MORIONES, A., BILLÓN, M. and LERA-LÓPEZ, F. Perceived performance effects of ICT in manufacturing SMEs. *Industrial Management and Data Systems*, 2013, vol. 113, no. 1, pp. 117–135.
- [15] BERGEN, M. and PETERAF, M. A. Competitor Identification and Competitor Analysis: A broad-based Managerial Approach. *Managerial and Decision Economics*, 2002, vol. 23, no. (4–5), pp. 157–169.
- [16] BERMAN, S. J. Digital transformation: Opportunities to create new business models. *Strategy and Leadership*, 2012, vol. 40, no. 2, pp. 16–24.
- [17] BERTOLA, P. and TEUNISSEN, J. Fashion 4.0. innovating fashion industry through digital transformation. *Research Journal of Textile and Apparel*, 2018, vol. 22, no. 4, pp. 352-369.
- [18] BEUREN, I. M., POLITELO, L. and MARTINS, J. A. S. Influence of family ownership on company performance. *International Journal of Managerial Finance*, 2016, vol. 12, no. 5, pp. 654–672.
- [19] BITTER, S. and GRABNER-KRÄUTER, S. Consequences of customer engagement behavior: when negative Facebook posts have positive effects. *Electronic Markets*, 2016, vol. 26, no. 3. pp. 219–231.
- [20] BHAVARAJU, S. From subconscious to conscious to artificial intelligence: A focus on electronic health records. *Neurology India*, 2018, vol. 66, no. 5, pp. 1270–1275.
- [21] BRITISH COUNCIL. The Role of Cultural and Creative Hubs of Vietnam. *British Council in Vietnam*, 2018, pp. 1–26.
- [22] BRUSH, T. H., BROMILEY, P. and HENDRICKX, M. The free cash flow hypothesis for sales growth and firm performance. *Strategic Management Journal*, 2000, vol. 2, no. 4. pp. 455–472.

- [23] BYRNE, B. M. Testing for Multigroup Invariance Using AMOS Graphics: A Road Less Traveled. *Structural Equation Modeling*, 2004, vol. 11, no. 2, pp. 272–300.
- [24] BYRNE, B. M. *Structural Equational Modeling with AMOS: Basic Conceptes, Applications, and Programming* (2nd ed.). Routledge/Taylor & Francis Group, 2010.
- [25] CAPOBIANCO, A. and NYESO, A. Challenges for Competition Law Enforcement and Policy in the Digital Economy. *Journal of European Competition Law and Practice*, 2018, vol. 9, no. 1, pp. 19–27.
- [26] CARMIGNIANI, J., FURHT, B., ANISETTI, M., CERAVOLO, P., DAMIANI, E. and IVKOVIC, M. Augmented reality technologies, systems and applications. *Multimedia Tools and Applications*, 2011, vol. 51, no. 1, pp. 341–377.
- [27] CHANDRA, S. and KUMAR, K. N. Exploring factors influencing organization adoption of augmented reality in E-commerce: Empirical analysis using technology-organization-environment model. *Journal of Electronic Commerce Research*, 2018, vol. 19, no. 3, pp. 237–265.
- [28] CHAZDON, S. A. and LOTT, S. Ready for engagement: using key informant interviews to measure community social capacity. *Community Development*, vol. 41, no. 2, pp. 156–175.
- [29] CHE ARSHAD, N. and IRIJANTO, T. T. (2022). The creative industries effects on economic performance in the time of pandemic. *International Journal of Ethics and Systems*, vol. ahead-of-print, no. ahead-of-print.
- [30] CHEN, G., XU, B., LU, M. and CHEN, N.-S. Exploring blockchain technology and its potential applications for education. *Smart Learning Environments*, 2018, vol. 5, no. 1. pp. 1–11.
- [31] CLINI, P., FRONTONI, E., QUATTRINI, R. and PIERDICCA, R. Augmented Reality Experience: From High-Resolution Acquisition to Real Time Augmented Contents. *Advances in Multimedia*, 2014, vol. 2014, no. D1. pp. 1-9.
- [32] COHEN, L., MANION, L. and MORRISON, K. *Research Methods in Education* (sixth). Routledge/Taylor & Francis Group, 2007.
- [33] COLOMBO, F. Reviewing the cultural industry: From creative industries to digital platforms. *Communication and Society*, 2018, vol. 31, no. 4, pp. 135–146.

- [34] CRAWFORD, K. and STARK, L. The Work of Art in the Age of Artificial Intelligence: What Artists Can Teach Us About the Ethics of Data Practice. *Surveillance & Society*, 2019, vol. 17, no. 3/4. pp. 442–455.
- [35] CRUZ-NEIRA, C., FERNÁNDEZ, M. and PORTALÉS, C. Virtual Reality and Games. *Multimodal Technologies and Interaction*, 2018, vol. 1, no. 8. pp. 1-5.
- [36] DANIALI, S. M., BARYKIN, S. E., ZENDEHDEL, M., KALININA, O. V., TEOR, T. R., ILYINA I. A., ALESSEEVA, N. S., LISIN, A., MOISEEV, N. and SENJYU, T. Exploring UTAUT Model in Mobile 4.5G Service: Moderating Social–Economic Effects of Gender and Awareness. *Social Sciences*, 2022, vol. 11, no. 187, pp. 1-13.
- [37] DAVIS, C. H., CREUTZBERG, T. and ARTHURS, D. Applying an innovation cluster framework to a creative industry: The case of screen-based media in Ontario. *Innovation: Management, Policy and Practice*, 2009, vol. 11, no. 2, pp. 201–214.
- [38] DAVIS, F. D. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, 1989, vol. 13, no. 3. pp. 319–339.
- [39] DECISION No. 1726/QĐ-BTTTT. Phê duyệt đề án xác định bộ chỉ số đánh giá chuyển đổi số của các Bộ, cơ quan ngang Bộ, cơ quan thuộc Chính Phủ, các Tỉnh, Thành phố trực thuộc Trung ương và của Quốc gia (Approving scheme for creation of digital transformation indexes applicable to ministries, ministerial-level agencies, governmental agencies, provinces and central-affiliated cities and national digital transformation indexes) [online] @2020 [cit. 2022-04-15]. Available from: <https://thuvienphapluat.vn/van-ban/Cong-nghe-thong-tin/Quyết-dinh-1726-QĐ-BTTTT-2020-Bo-chi-so-danh-gia-chuyen-doi-so-cua-bo-co-quan-ngang-bo-455335.aspx>
- [40] DECISION No. 1755/QĐ-TTg. Phê duyệt chiến lược phát triển các ngành công nghiệp văn hóa Việt Nam đến năm 2020, tầm nhìn đến năm 2030 (Approving the development strategy of Vietnamese cultural industry by 2020 and with a vision to 2030) [online] @2016 [cit. 2019-11-15]. Available from: <https://thuvienphapluat.vn/van-ban/van-hoa-xa-hoi/Decision-1755-QĐ-TTg-development-strategy-of-vietnamese-cultural-industry-2020-2030-323923.aspx>
- [41] DECISION No. 1970/QĐ-BTTTT. Phê duyệt đề án xác định chỉ số đánh giá mức độ chuyển đổi số doanh nghiệp và hỗ trợ thúc đẩy doanh nghiệp chuyển đổi số (Approving the scheme on determining digital transformation index applied to businesses and supporting them promote digital transformation)

[online] @2021 [cit. 2022-04-14]. Available from: <https://thuvienphapluat.vn/van-ban/Doanh-nghiep/Quyiet-dinh-1970-QD-BTTTT-2021-xac-dinh-Chi-so-danh-gia-muc-do-chuyen-doi-so-doanh-nghiep-497354.aspx>

- [42] DONG, C. V. and TRUONG, H. Q. The determinants of creative goods exports: evidence from Vietnam. *Journal of Cultural Economics*, 2020, vol. 44, no. 2, pp. 281–308.
- [43] DRONYUK, I., MOISEIENKO, I. and ML GREGUŠ, J. Analysis of Creative Industries Activities in European Union Countries. *Procedia Computer Science*, 2019, vol. 160, pp. 479–484.
- [44] DUTRA, A, TUMASJAN, A. and WELPE, I. M. Blockchain is changing how media and entertainment companies compete. *MIT Sloan Management Review*, 2018, vol. 2018, no. Fall. pp. 39–46.
- [45] ERCAN, O. and SAMET, G. Literature review of industry 4.0 and related technologies. *Journal of Intelligent Manufacturing*, 2020, vol. 31, no. 1, pp. 127-182.
- [46] EROKHINA, T. B., MITKO, O. A. and TROILIN, V. V. Digital Marketing and Digital Logistics in Consumer Communication. *European Research Studies Journal*, 2018, vol. 21, no. 2, pp. 861–867.
- [47] FAHMI, F. Z., KOSTER, S., and VAN DIJK, J. The location of creative industries in a developing country: The case of Indonesia. *Cities*, 2016, vol. 59, pp. 66–79.
- [48] FAN, Y., CHEN, J., SHIRKEY, G., JOHN, R., WU, S. R., PARK, H. and SHAO, C. Applications of structural equation modeling (SEM) in ecological studies: an updated review. *Ecological Processes*, 2016, vol. 5, no. 1, pp. 1–12.
- [49] FLEISCHMANN, K., DANIEL, R., & WELTERS, R. Developing a regional economy through creative industries: innovation capacity in a regional Australian city. *Creative Industries Journal*, 2017, vol. 10, no. 2, pp. 119–138.
- [50] FUJIANI, L. Top management characteristics and company performance: An empirical analysis on public companies listed in the Indonesian stock exchange. *European Research Studies Journal*, 2018, vol. 21, no. 2. pp. 62–76.
- [51] GANGWAR, H., DATE, H. and RAOOT, A. D. Review on IT adoption: Insights from recent technologies. *Journal of Enterprise Information Management*, 2014, vol. 27, no. 4. pp. 488–502.

- [52] GIL-GOMEZ, H., GUEROLE-NAVARRO, V., OLTRA-BADENES, R. and LOZANO-QUILIS, J. A. Customer relationship management: digital transformation and sustainable business model innovation. *Economic Research-Ekonomska Istraživanja*, 2020, vol. 33, no. 1. pp. 2733–2750.
- [53] GOERZIG, D. and BAUERNHANSL, T. Enterprise Architectures for the Digital Transformation in Small and Medium-sized Enterprises. *Procedia CIRP*, 2018, vol. 67, pp. 540–545.
- [54] GOUVEA, R. and VORA, G. Creative industries and economic growth: stability of creative products exports earnings. *Creative Industries Journal*, 2018, vol. 11, no. 1, pp. 22–53.
- [55] GSO, Động thái và thực trạng kinh tế xã hội Việt Nam 5 năm 2016-2020 (Movements and socio-economic situation of Vietnam during 5 years 2016-2020), [online] @2021a [cit. 2022-4-10]. Available from: <https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2021/06/dong-thai-va-thuc-trang-kinh-te-xa-hoi-viet-nam-5-nam-2016-2020/>
- [56] GSO, Báo cáo tình hình kinh tế - xã hội quý IV và năm 2021 (Socio-economic situation in the fourth quarter and 2021), [online] @2021b [cit. 2022-4-10]. Available from: <https://www.gso.gov.vn/en/data-and-statistics/2022/01/socio-economic-situation-in-the-fourth-quarter-and-2021/>
- [57] GUO, L. and XU, L. The effects of digital transformation on firm performance: Evidence from China’s manufacturing sector. *Sustainability (Switzerland)*, 2021, vol. 13, no. 22, pp. 1–18.
- [58] GWEE, J. Innovation and the creative industries cluster: A case study of Singapore’s creative industries. *Innovation: Management, Policy and Practice*, 2009, vol. 11, no. 2. pp. 240–252.
- [59] HAIR, J. F., BLACK, J. W. C., BABIN, B. J., and ANDERSON, R. E. Multivariate Data Analysis. In *Pearson Prentice Hall (Vol. 7)*, 2010.
- [60] HASEEB, M., HUSAIN, H. I, 'SLUSARCZYK, B. and JERMSITTIPARSERT, K. Industry 4.0: A solution towards technology challenges of sustainable business performance. *Social Sciences*, 2019, vol. 8, no. 5. pp. 1-24.
- [61] HENSON, R. K. and ROBERTS, J. K. Use of exploratory factor analysis in published research: Common errors and some comment on improved practice. *Educational and Psychological Measurement*, 2006, vol. 66, no. 3, pp. 393–416.
- [62] HER, Y., SHIN, H. and PAE, S. A multigroup SEM analysis of moderating role of task uncertainty on budgetary participation-performance relationship:

- Evidence from Korea. *Asia Pacific Management Review*, 2019, vol. 24, no. 2, pp. 140–153.
- [63] HOA, N. Q. Relationship between Cultural Industry and Economic Growth in Vietnam. *Proceedings of 14th International Conference on Humanities and Social Sciences 2018 (IC-HUSO 2018) 22nd-23rd*, 2018, vol. 2018, no. November. pp. 804–812.
- [64] HUANG, C. K., WANG, T. and HUANG, T. Y. Initial Evidence on the Impact of Big Data Implementation on Firm Performance. *Information Systems Frontiers*, 2018, vol. 2018, no. July. pp. 1–13.
- [65] HUANG, C. K., WANG, T. and HUANG, T. Y. Initial Evidence on the Impact of Big Data Implementation on Firm Performance. *Information Systems Frontiers*, 2020, no. 22, pp. 475–487.
- [66] HUNG, N. M. Vietnam: Challenges and Opportunities for Publishers. *Publishing Research Quarterly*, 2016, vol. 32, no. 3, pp. 266–271.
- [67] HWANG B. N., HUANG, C. Y. and WU, C. H. A TOE approach to establish a green supply chain adoption decision model in the semiconductor industry. *Sustainability (Switzerland)*, 2016, vol. 8, no. 168. pp. 1-30.
- [68] IMRAN, M., HAMEED, W. U. and HAQUE, A. U. Influence of Industry 4.0 on the production and service sectors in Pakistan: Evidence from textile and logistics industries. *Social Sciences*, 2018, vol. 7, no. 12. pp. 0–21.
- [69] IRIMIA, E., and STANCU, I. Study of some factors influencing company performance. *Metalurgia International*, 2013, vol. 18, no. (SPEC.3), pp. 126–131.
- [70] JAVED, F. Customer satisfaction and customer perceived value and its impact on customer loyalty: The mediational role of customer relationship management. *Journal of Internet Banking and Commerce*, 2017, vol. 22, no. S8. pp. 1–15.
- [71] JAW, Y. L., CHEN, C. L. and CHEN, S. Managing innovation in the creative industries - A cultural production innovation perspective. *Innovation: Management, Policy and Practice*, 2012, vol. 4, no. 2. pp. 256–275.
- [72] JOBS, C., GILFOIL, D. and AUKERS, S. How marketing organizations can benefit from big data advertising analytics. *Academy of Marketing Studies Journal*, 2016, Vol. 20, No. 1, pp. 18–36.
- [73] JORESROG, K. G. Simultaneous factor analysis in several populations. *Psychometrika*, 1971, vol. 36, pp. 409-426.

- [74] JONES, N., BORGMAN, R. and ULUSOY, E. Impact of social media on small businesses. *Journal of Small Business and Enterprise Development*, 2015, vol. 22, no. 4, pp. 611-632.
- [75] JUNG, T. H. and TOM DIECK, M. C. Augmented reality, virtual reality and 3D printing for the co-creation of value for the visitor experience at cultural heritage places. *Journal of Place Management and Development*, 2017, vol. 10, no. 2, pp. 140–151.
- [76] KALTUM, U., WIDODO, A. and YANUARDI, A. W. Local TV goes to global market through digital transformation. *Academy of Strategic Management Journal*, 2016, vol. 15, pp. 221-229.
- [77] KARATEPE, O. M. and AGA, M. The effects of organization mission fulfillment and perceived organizational support on job performance: The mediating role of work engagement. *International Journal of Bank Marketing*, 2016, vol. 34, no. 3. pp. 368–387.
- [78] KIM, Y. and CHANDLER, J. D. How social community and social publishing influence new product launch: The case of Twitter during the Playstation 4 and Xbox one launches. *Journal of Marketing Theory and Practice*, 2018, vol. 26, no. 1–2. pp. 144–157.
- [79] KIRYAKOVA, G., ANGELOVA, N. and YORDANOVA, L. The Potential of Augmented Reality to Transform Education into Smart Education. *TEM Journal*, 2018, vol. 7, no. 3, pp. 556–565.
- [80] KUNZ, W., AKSOY, L., BART, Y., HEINONEN, K., KABADAYI, S., VILLAROEL ORDINES, F., SIGALA, M., DIAZ, D. and THEODOULIDIS, B. Customer Engagement in a Big Data World. *Journal of Services Marketing*, 2017, vol. 31, no. 2, pp. 161-171.
- [81] LEE, S. H., LEEM, C. S. and BAE, D. J. The impact of technology capability, human resources, internationalization, market resources, and customer satisfaction on annual sales growth rates of Korean software firms. *Information Technology and Management*, 2018, vol. 19, no. 3, pp. 171–184.
- [82] LEOVARIDIS, C. and BAHN, M. Aspects regarding virtual reality as innovation in creative industries. *Revista Romana De Sociologie*, 2017, vol. 28, no. 3, pp. 157-172.
- [83] LESÁKOVÁ, Ľ., ONDRUŠOVÁ, A. and VINCZEVÁ, M. Factors determining profitability of small and medium enterprises in selected industry of mechanical engineering in the Slovak Republic – The empirical study. *E+M Ekonomie a Management*, 2019, vol. 22, no. 2, pp. 144–160.

- [84] LI, W. Y. The Application of Augmented Reality in Mobile Learning based on Cloud Computing. *Applied Mechanics and Materials*, 2013, vol. 422, pp. 172–175.
- [85] LI, W., NEE, A. Y. C. and ONG, S. K. A State-of-the-Art Review of Augmented Reality in Engineering Analysis and Simulation. *Multimodal Technologies and Interaction*, 2017, vol. 1, no. 3. pp. 1-22.
- [86] LIERE-NETHELER, K., PACKMOHR, S. and VOGELSANG, K. Drivers of Digital Transformation in Manufacturing. *Proceedings of the 51st Hawaii International Conference on System Sciences*, 2018, pp. 3926–3935.
- [87] LIN, D., LEE, C. K. M., LAU, H. and YANG, Y. Strategic response to Industry 4.0: an empirical investigation on the Chinese automotive industry. *Industrial Management and Data Systems*, 2018, vol. 118, no. 3. pp. 589–605.
- [88] LIU, M. T., DONG, S. and ZHU, M. The application of digital technology in gambling industry. *Asia Pacific Journal of Marketing and Logistics*, 20121, vol. 33, no. 7, pp. 1685–1705.
- [89] LOAN, T. T. Cultural Heritage in Vietnam With the Requirements of Sustainable Development. *International Relations and Diplomacy*, 2019, vol. 7, no. 4. pp. 172–187.
- [90] LOI, N. T., HOA, T. T. V., DUNG, T. M., HOA, N. Q. and HOA, H., V. A study on relationship between cultural industry and economic growth in Vietnam. *Management Science Letters*, 2019, vol. 9, no. 6. pp. 787–794.
- [91] LY, T. U. The mapping of creative hubs in Vietnam. *British Council in Vietnam*, 2014, vol. 1, pp. 1–30.
- [92] LY, T. U., AN, N. T. and QUYEN, P. U. Mapping creative hubs in Vietnam. *British Council in Vietnam*, 2018, vol. 2, pp. 1–42.
- [93] MAHAKITTIKUN, T., SUNTRAYUTH, S. and BHATIASEVI, V. The impact of technological-organizational-environmental (TOE) factors on firm performance: Merchant’s perspective of mobile payment from Thailand’s retail and service firms. *Journal of Asia Business Studies*, 2021, vol. 15, no. 2, pp. 359-383.
- [94] MALBAŠIĆ, I., REY, C. and POSARIĆ, N. Congruence Between Personal and Organizational Mission: The Role of Balanced Organizational Values. *Ekonomika Misao i Praksa*, 2018, no. 2. pp. 545–563.
- [95] MANGEMATIN, V., SAPSED, J. and SCHÜBLER, E. Disassembly and reassembly: An introduction to the Special Issue on digital technology and

- creative industries. *Technological Forecasting and Social Change*, 2014, vol. 83, no. 1, pp. 1–9.
- [96] MARGETIS, G., APOSTOLAKIS, K. C., NTOA, S., PAPAGIANNAKIS, G. and STEPHANIDIS, C. X-reality museums: Unifying the virtual and real world towards realistic virtual museums. *Applied Sciences*, 2021, vol. 11, no. 1, pp. 1-16.
- [97] MARKIDES, C. Disruptive Innovation: In Need of Better Theory. *The Journal of Product Innovation Management*, 2006, vol. 23, no. 1, pp. 19–25.
- [98] MARTINAITYTĖ, E and KREGŽDAITĖ, R. The factors of creative industries development in nowadays stage. *Economics and Sociology*, 2015, vol. 8, no.1 pp. 55–70.
- [99] MATEUT, S. Subsidies, financial constraints and firm innovative activities in emerging economies. *Small Business Economics*, 2018, vol. 50, no. 1. pp. 131-162.
- [100] MATT, C., HESS, T. and BENLIAN, A. Digital Transformation Strategies. *Business and Information Systems Engineering*, 2015, vol. 57, no. 5, pp. 339–343.
- [101] MAZURCHENKO, A. and ZELENKA, M. Employees’ Digital Competency Development in the Construction and Automotive Industrial Sectors. *Central European Business Review*, 2022, vol. 11, no. 1, pp. 41–63.
- [102] MCKINNIE, M. *Cloud Computing: TOE Adoption Factors By Service Model In Manufacturing*, 2016. Business Administration Dissertations. Georgia State University, Robinson College of Business, Programs in Business Administration.
- [103] MEUTIA and ISMAIL, T. The influence of competitive pressure on innovative creativity. *Academy of Strategic Management Journal*, 2015, vol. 14, no. 2. pp. 117–128.
- [104] MIKLOŠÍK, A., ŠTARCHOŇ, P., JANTOVÁ, M. and KUČHTA, M. The attitudes of Slovak digital native students towards online video advertising. *Communication Today*, 2022, vol. 13, no. 1, pp. 92–107.
- [105] MOHAMMED, F., IBRAHIM, O. and ITHNIN, N. Factors influencing cloud computing adoption for e-government implementation in developing countries: Instrument development. *Journal of Systems and Information Technology*, 2016, vol. 18, no. 3, pp. 297–327.
- [106] MPWANYA, M. F. and HEERDEN, C. H. van. Perceptions of managers regarding supply chain cost reduction in the South African mobile phone

- industry. *Journal of Transport and Supply Chain Management*, 2015, vol. 9, no. 1. pp. 1–11.
- [107] MÜLLER, K., RAMMER, C. and TRÜBY, J. The role of creative industries in industrial innovation. *Innovation: Management, Policy and Practice*, 2009, vol. 11, no. 2, pp. 148–168.
- [108] NETFLIX, [online] @2022 [cit. 2022-4-14]. Available from: <https://en.wikipedia.org/wiki/Netflix>
- [109] NGAH, A. H., ZAINUDDIN, Y. and THURASAMY, R. Applying the TOE framework in the Halal warehouse adoption study. *Journal of Islamic Accounting and Business Research*, 2017, vol. 8, no. 2, pp. 161–181.
- [110] NGOC, P. M. Sources of Vietnam’s economic growth. *Progress in Development Studies*, 2008, vol. 8, no. 3, pp. 209–230.
- [111] NURGRAHA, R. M. J. and MULYADI, H. Creating product innovation in micro creative industry in Indonesia. *Journal of Entrepreneurship Education*, 2018, vol. 21, no. 2, pp. 1–12.
- [112] NUSEIR, M. T. Digital media impact on smes performance in the UAE. *Academy of Entrepreneurship Journal*, 2018, vol. 24, no. 2, pp. 1–14.
- [113] NYLÉN, D. and HOLMSTRÖM, J. Digital innovation strategy: A framework for diagnosing and improving digital product and service innovation. *Business Horizons*, 2015, vol. 58, no. 1, pp. 57–67.
- [114] MARYUNANI, S. R. and MIRZANTI, I. R. The Development of Entrepreneurship in Creative Industries with Reference to Bandung as a Creative City. *Procedia - Social and Behavioral Sciences*, 2015, vol. 169, pp. 387–394.
- [115] MATARAZZO, M., PENCO, L., PROFUMO, G. and QUAGLIA, R. Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research*, 2021, vol. 123, pp. 642–656.
- [116] MAZZUCHELLI, A., CHIERICI, R., DI GREGORIO, A. and CHIACCHIERINI, C. Is Facebook an effective tool to access foreign markets? Evidence from international export performance of fashion firms. *Journal of Management and Governance*, 2021, vol. 25, no. 4, pp. 1107–1144.
- [117] MERGEL, I. Social media adoption and resulting tactics in the U.S. federal government. *Government Information Quarterly*, 2013, vol. 30, no. 2, pp. 123–130.

- [118] NWANKPA, J. K. and DATTA, P. Balancing exploration and exploitation of IT resources: The influence of Digital Business Intensity on perceived organizational performance. *European Journal of Information Systems*, 2017, vol. 26, no. 5. pp. 469–488.
- [119] NWANKPA, J. K. and ROUMANI, Y. IT capability and digital transformation: A firm performance perspective. *International Conference on Information Systems ICIS 2016*, 2016, pp. 1–16.
- [120] O'DWYER, R. Limited edition: Producing artificial scarcity for digital art on the blockchain and its implications for the cultural industries, 2020, vol. 26, no. 4, pp. 874-894.
- [121] OLIVEIRA, T., THOMAS, M. and ESPADANAL, M. Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors. *Information and Management*, 2014, vol. 51, no. 5, pp. 497–510.
- [122] OLSHANNIKOVA, E., OMETOV, A., KOUCHERYAVY, Y. and OLSSON, T. Visualizing Big Data with augmented and virtual reality: challenges and research agenda. *Journal of Big Data*, 2015, vol. 2, no. 22, pp. 1–27.
- [123] OYEKUNLE, O. A. A. and SIRAYI, M. The role of creative industries as a driver for a sustainable economy: a case of South Africa. *Creative Industries Journal*, 2018, vol. 11, no. 3, pp. 225–244.
- [124] OZTEMEL, E. and GURSEV, S. Literature review of Industry 4.0 and related technologies. *Journal of Intelligent Manufacturing*, 2020, vol. 31, no. 1, pp. 127–182.
- [125] PANGILINAN, E., LUKAS, S. and MOHAN, V. *Creating Augmented and Virtual Realities*. O'Reilly Media, 2019.
- [126] PAPPAS, I. O., MIKALEF, P., GIANNAKOS, M. N., KROGSTIE, J. and LEKAKOS, G. Big data and business analytics ecosystems: paving the way towards digital transformation and sustainable societies. *Information Systems and E-Business Management*, 2018, vol. 16, no. 3. pp. 479–491.
- [127] PARK, M., IM, H. and KIM, D. Y. Feasibility and user experience of virtual reality fashion stores. *Fashion and Textiles*, 2018, vol. 5, no. 32. pp. 1-17.
- [128] PATELI, A., MYLONAS, N. and SPYROU, A. Organizational adoption of social media in the hospitality industry: An integrated approach based on DIT and TOE frameworks. *Sustainability*, 2020, vol. 12, no. 17, 7132.

- [129] PATH, K. The Origins and Evolution of Vietnam's Doi Moi Foreign Policy of 1986. *TRaNS: Trans -Regional and -National Studies of Southeast Asia*, 2020, vol. 8, pp. 171–185.
- [130] PIERRE, S. J., VERGARA, R. I. C. and HELLEN, L. V. Effects of the use of digital technologies on the performance of firms in a developing country: are there differences between creative and manufacturing industries? *International Journal of Information Systems and Project Management*, 2022, vol. 10, no. 1, pp. 73–91.
- [131] PENG, C. T. Grey Relational Analysis & Augmented Reality to Construct A Recommendation System on Cultural Creative products. *Applied Mechanics and Materials*, 2013, vol. 311, pp. 343–347.
- [132] PETERSON, M., KOCH, V., GRÖNE, F. and VO, H. T. K. New Technology Briefing Online customers, digital marketing: The CMO-CIO connection. *Journal of Direct, Data and Digital Marketing Practice*, 2010, vol. 11, no. 3. pp. 219–221.
- [133] PILLAI, R. and SIVATHANU, B. Adoption of artificial intelligence (AI) for talent acquisition in IT/ITeS organizations. *Benchmarking*, 2020, vol. 27, no. 9, pp. 2599-2629.
- [134] PORTER, M. E. Strategy and the Internet. In *Harvard Business Review*, 2001, pp. 61–78.
- [135] POTTS, J. and CUNNINGHAM, S. Four models of the creative industries. *Revue d'Economie Politique*, 2010, vol. 120, no. 1, pp. 163–180.
- [136] RAHMAN, R. U., SHAH, S. M. A., EL-GOHARY, H., ABBAS, M., KHALIL, S. H., ALTHEEB, S. AL and SULTAN, F. Social media adoption and financial sustainability: Learned lessons from developing countries. *Sustainability (Switzerland) 2020*, vol. 12, no. 24, pp. 1–26.
- [137] RODRIGUEZ, M., AJJAN, H. and PETERSON, R. M. Social media in large sales forces: An empirical study of the impact of sales process capability and relationship performance. *Journal of Marketing Theory and Practice*, 2016, vol. 24, no. 3. pp. 365–379.
- [138] SADLOWSKA, K. M., KARLSSON, P. S. and BROWN, S. C. Independent cinema in the digital age: Is digital transformation the only way to survival?. *Economic and Business Review*, 2019, vol. 21, no. 3, pp. 411-438.
- [139] SARMAH, B., KAMBOJ, S. and KANDAMPULLY, J. Social media and co-creative service innovation: an empirical study. *Online Information Review*, 2018, vol. 42, no. 7, pp. 1146–1179.

- [140] SARSTEDT, M. and MOOI, E. A concise guide to market research: The process, data, and methods using IBM SPSS statistics. In *A Concise Guide to Market Research*, Springer, 2019.
- [141] SCHALLMO, D., WILLIAMS, C. A. and BOARDMAN, L. Digital transformation of business models-best practice, enablers, and roadmap. *International Journal of Innovation Management*, 2017, vol. 21, no. 8, pp. 1–17.
- [142] SCHERIBER, J. B., STAGE, F. K., KING, J., NORA, A. and BARLOW, E. A. Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review. *The Journal of Educational Research*, 2006, vol. 99, no. 6, pp. 323–337.
- [143] SCHOBER, P., BOER, C. and SCHWARTE, L. A. Correlation Coefficients: Appropriate Use and Interpretation. *Anesthesia and Analgesia*, 2018, vol. 126, no. 5, pp. 1763–1768.
- [144] SCHUMACHER, A., EROL, S. and SIHN, W. A maturity model for assessing Industry 4.0 readiness and maturity of manufacturing enterprises. *Procedia CIRP*, 2016, vol. 52, pp. 161–166.
- [145] SCHWERTNER, K. Digital transformation of business. *Trakia Journal of Science*, 2017, vol. 15, no. Suppl.1, pp. 388–393.
- [146] ŞERBAN, R.-A. The Impact of Big Data, Sustainability, and Digitalization on Company Performance. *Studies in Business and Economics*, 2017, vol. 12, no. 3, pp. 181–189.
- [147] SHOKOUYAR, S., SIADAT, S. H. and RAZAVI, M. K. How social influence and personality affect users' social network fatigue and discontinuance behavior. *Aslib Journal of Information Management*, 2018, vol. 70, no. 4, pp. 344–366.
- [148] SHANKAR, V. How Artificial Intelligence (AI) is Reshaping Retailing. *Journal of Retailing*, 2018, vol. 94, no. 4. pp. vi–xi.
- [149] SIRIBORVORNATANAKUL, T. Enhancing User Experiences of Mobile-Based Augmented Reality via Spatial Augmented Reality: Designs and Architectures of Projector-Camera Devices. *Advances in Multimedia*, 2018, vol. 2018, pp. 1–17.
- [150] SMAILOVIC, V., PODOBNIK, V. and LOVREK, I. A Methodology for Evaluating Algorithms That Calculate Social Influence in Complex Social Networks. *Complexity*, 2018, vol. 2018, pp. 1-20.

- [151] SOARES, A. M. and PINHO, J. C. Advertising in online social networks: the role of perceived enjoyment and social influence. *Journal of Research in Interactive Marketing*, 2014, vol. 8, no. 3. pp. 245–263.
- [152] SOBH, R. and PERRY, C. Research design and data analysis in realism research. *European Journal of Marketing*, 2006, vol. 40, no. (11–12), pp. 1194–1209.
- [153] SOLBERG, E., TRAAVIK, L. E. M. and WONG, S. I. Digital Mindsets: Recognizing and Leveraging Individual Beliefs for Digital Transformation. *California Management Review*, 2020, vol. 62, no. 4, pp. 105–124.
- [154] SON, B. H. Country Profile: Viet Nam. *WorldCP-Asia International Database of Cultural Policies*, 2013, vol. 1, pp. 1–96.
- [155] TAVAKOL, M. and DENNICK, R. Making sense of Cronbach’s alpha. *International Journal of Medical Education*, 2011, vol. 2, pp. 53–55.
- [156] TENG, X., WU, Z. and YANG, F. Research on the Relationship between Digital Transformation and Performance of SMEs. *Sustainability*, 2022, vol. 14, no. 6012, pp. 1–17.
- [157] THE ECONOMIST. *Creative Industries: Trade challenges and opportunities post pandemic*. The Economist, 2021.
- [158] THU, L. A., FANG, S. and KESSANI, S. S. Factors influencing Vietnam’s handicraft export with the gravity model. *Journal of Economics and Development*, 2019, vol. 21, no. 2, pp. 156–171.
- [159] TORBERT, W. R. A Developmental Approach to Social Science: A Model for Analyzing Charles Alexander’s Scientific Contributions. *Journal of Adult Development*, 2000, vol. 7, no. 4. pp. 255–267.
- [160] TORNATZKY, L. G. and FLEISCHER, M. *The processes of technological innovation*. Lexington books, Lexington, MA, 1990.
- [161] TRABUCCHI, D., BUGANZA, T. and PELLIZZONI, E. Give Away Your Digital Services: Leveraging Big Data to Capture Value. *Research Technology Management*, 2017, vol. 60, no. 2. pp. 43–52.
- [162] TRIPOPSAKUL, S. Social media adoption as a business platform: An integrated tam-toe framework. *Polish Journal of Management Studies*, 2018, vol. 18, no. 2. pp. 350–362.
- [163] UNCTAD. *Creative Economy Report 2008. The Challenge of Assessing the Creative Economy: towards Informed Policy-making*. United Nations, 2008.

- [164] UNCTAD. *Creative Economy Outlook: Trends in international trade in creative industries 2002–2015. Country Profiles: 2005–2014*. United Nations, 2018.
- [165] UPADHYAY, A., AYODELE, J. O., KUMAR, A. and GARZA-REYES, J. A review of challenges and opportunities of blockchain adoption for operational excellence in the UK automotive industry. *Journal of Global Operations and Strategic Sourcing*, 2021, vol. 14, no. 1, pp. 7-60.
- [166] VALENTINA, Z., ADINA, M. and ROBERT, C. Facing competition on a global market Zaharia. *Quality - Access to Success*, 2015, vol. 16, no. May. pp. 16–24.
- [167] VANVOORHIS, C. R. W. and MORGAN, B. L. Understanding Power and Rules of Thumb for Determining Sample Sizes. *Tutorials in Quantitative Methods for Psychology*, 2007, vol. 3, no. 2. pp. 43–50.
- [168] VENKATESH, V., MORRIS, M. G., DAVIS, G. B. and DAVIS, F. D. User acceptance of information technology: Toward a unified view. *MIS Quarterly: Management Information Systems*, 2003, vol. 27, no. 3. pp. 425–478.
- [169] VERHOEF, P. C., BROEKHUIZEN, T., BART, Y., BHATTACHARYA, A., QI DONG, J., FABIAN, N. and HAENLEIN, M. Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 2021, vol. 122, pp. 889–901.
- [170] VESELOVSKY, M.Y., IZMAILOVA, M. A., YUNUSOV, L. A. and YUNUSOV, I. A. Quality of Digital Transformation Management on the Way of Formation of Innovative Economy of Russia. *Quality - Access to Success*, 2019, vol. 20, no. 169, pp. 66–71.
- [171] VIVEK, S. D., BEATTY, S. E., DALELA, V. and MORGAN, R. M. A generalized multidimensional scale for measuring customer engagement. *Journal of Marketing Theory and Practice*, 2014, vol. 22, no. 4, pp. 401–420.
- [172] VON LEIPZIG, T., GAMP, M., MANZ, D., SCHÖTTLE, K., OHLHAUSEN, P., OOSTHUIZEN, G., PALM, D. and VON LEIPZIG, K. Initialising customer-orientated digital transformation in enterprises. *Procedia Manufacturing*, 2017, vol. 8, pp. 517–524.
- [173] WALKER, R. S. and BROWN, I. Big data analytics adoption: A case study in a large south african telecommunications organisation. *South African Journal of Information Management*, 2019, vol. 21, no. 1, pp. 1-10.
- [174] WATSON, P. B., SEATON, P., SIMS, D., JAMIESON, I., MOUNTIER, J., WHITTLE, R. and SAARIKOSKI, M. Exploratory Factor Analysis of the

Clinical Learning Environment, Supervision and Nurse Teacher Scale (CLES1T). *Journal of Nursing Measurement*, 2014, vol. 22, no. 1. pp. 164–180.

- [175] WEF. Agile Governance for Creative Economy 4.0. *World Economic Forum*, 2019, pp. 1–16.
- [176] WEF. *World Economic Forum White Paper. Digital Transformation of Industries: In collaboration with Accenture. Media Industry*. World Economic Forum, 2016.
- [177] WERE, G. Thirty years of Doi Moi in the museum: Changing representations of development in late-socialist Vietnam. *Asian Education and Development Studies*, 2019, vol. 8, no. 4, pp. 463–473.
- [178] YOUNG, H. P. Innovation diffusion in heterogeneous populations: Contagion, social influence, and social learning. *American Economic Review*, 2009, vol. 99, no. 5, pp. 1899–1924.
- [179] YUNIS, M., EL-KASSAR, A. N. and TARHINI, A. Impact of ICT-based innovations on organizational performance: The role of corporate entrepreneurship. *Journal of Enterprise Information Management*, 2017, vol. 30, no. 1, pp. 122–141.
- [180] ZHANG, H., WANG, J. and LIU, D. Experiences of Creative Industries Development in Developed Countries and Enlightenments. *Asian Social Science*, 2011, vol. 7, no. 8, pp. 237–240.
- [181] ZHU, F., LI, Q., YANG, S. and BALEZENTIS, T. How ICT and R&D affect productivity? Firm level evidence for China. *Economic Research-Ekonomska Istraživanja*, 2021, vol, 34, no. 1, pp. 3468–3486.

APPENDIX

Appendix A

Survey Questionnaire

A	Section One: Demographic questions	Code
1	What is your gender? (Giới tính của bạn là gì ?)	GEN
	- Male (Nam)	
	- Female (Nữ)	
2	What is your education level? (Trình độ học vấn của bạn là gì?)	EDU
	- Highschool (Trung học)	
	- Bachelor (Cử nhân)	
	- Master (Thạc sĩ)	
	- Ph.D (Tiến sĩ)	
	- Others (Khác)	
3	What is your job title? (Chức danh công việc của bạn là gì?)	JOB
	- Owner (Chủ doanh nghiệp)	
	- CEO (Chief Executive Officer) (Giám đốc điều hành)	
	- CFO (Chief Financial Officer) (Giám đốc tài chính)	
	- CTO (Chief Technology Officer) (Giám đốc công nghệ)	
	- CDO (Chief Digital Officer) (Giám đốc kỹ thuật số)	
	- CIO (Chief Information Officer) (Giám đốc công nghệ thông tin)	
	- Middle Level Manager (Quản lý cấp trung)	
	- Others (Khác)	
4	Where is your company? (Công ty của bạn ở đâu?)	POS
	- Hanoi city (Thành phố Hà Nội)	
	- Hochiminh City (Thành phố Hồ Chí Minh)	
	- Others (Khác)	
5	What is your sector? (Lĩnh vực làm việc của bạn là gì?)	SEC
	- Design (interior, graphic, fashion, jewelry, toys) (Thiết kế (Nội thất, đồ họa, thời trang, trang sức, đồ chơi))	

	- Creative services (architectural, advertising, cultural and recreational, creative research and development, digital and other related creative services) (Dịch vụ sáng tạo (Kiến trúc, quảng cáo, văn hóa và giải trí, nghiên cứu và sáng tạo, kỹ thuật số và các dịch vụ sáng tạo liên quan khác))	
	- New media (software, video games, and digitalized creative content) (Phương tiện truyền thông mới (Phần mềm, trò chơi video, và nội dung sáng tạo được số hóa))	
	- Audiovisuals (film, television, radio and other broadcasting) (Nghe nhìn (Phim, truyền hình, đài phát thanh và đài phát sóng khác))	
	- Performing arts (live music, theatre, dance, opera, circus, puppetry) (Nghệ thuật biểu diễn (Nhạc sống, nhà hát, khiêu vũ, nghệ thuật opera, xiếc, múa rối))	
	- Traditional cultural expressions (arts and crafts, festivals and celebrations) (Nghệ thuật văn hóa truyền thống (Nghệ thuật và thủ công, lễ hội và lễ kỷ niệm))	
	- Culture sites (archaeological sites, museums, libraries, exhibitions) (Địa điểm văn hóa (Địa điểm khảo cổ, bảo tàng, thư viện, triển lãm))	
	- Visual arts (painting, sculpture, photography and antiques) (Nghệ thuật thị giác (Hội họa, điêu khắc, nhiếp ảnh, và đồ cổ))	
	- Publishing and printed media (books, press and other publications) (Xuất bản và in ấn (Sách, tạp chí và các ấn phẩm khác))	
6	How many employees does your company have? (Có bao nhiêu nhân viên trong công ty của bạn?)	SIZE
	- 1-50	
	- 51-100	
	- 101-500	
	- 501-1000	
	- 1001 and 5000	
	- 5001 and more	
B	Section Two: Questions about digital transformation adoption in your company	Code

B1	Questions about technological factors	
	Big Data capture and Analytics (Own Processing from Chandra and Kumar, 2018)	BD
7	Technological innovations like Big Data capture and Analytics technology will be a foundation of my company's digital transformation (Những đổi mới công nghệ như phân tích và thu thập dữ liệu lớn sẽ là nền tảng của việc chuyển đổi số công ty tôi).	BD1
8	I believe that Big Data capture and Analytics technology will help in the betterment of my company's digital transformation (Tôi tin rằng công nghệ phân tích và thu thập dữ liệu lớn sẽ giúp cải thiện việc chuyển đổi số công ty tôi).	BD2
9	I believe that the adoption of Big Data capture and Analytics technology will help better digital transformation (Tôi tin rằng việc chấp nhận công nghệ phân tích và thu thập dữ liệu lớn sẽ giúp chuyển đổi số tốt hơn).	BD3
	Augmented Reality (Own Processing from Chandra and Kumar, 2018)	AR
10	Technological innovations like Augmented Reality technology will be a foundation of my company's digital transformation (Những đổi mới công nghệ như thực tế ảo tăng cường sẽ là nền tảng của việc chuyển đổi số của công ty tôi).	AR1
11	I believe that Augmented Reality technology will help in the betterment of my company's digital transformation (Tôi tin rằng công nghệ thực tế ảo tăng cường sẽ giúp cải thiện việc chuyển đổi số công ty tôi).	AR2
12	I believe that the adoption of Augmented Reality technology will help better digital transformation (Tôi tin rằng việc chấp nhận công nghệ thực tế ảo tăng cường sẽ giúp chuyển đổi số tốt hơn)	AR3
	Artificial Intelligence (Own Processing from Chandra and Kumar, 2018)	AI
13	Technological innovations like Artificial Intelligence technology will be a foundation of my company's digital transformation (Những đổi mới công nghệ như trí tuệ nhân tạo sẽ là nền tảng của việc chuyển đổi số của công ty tôi).	AI1

14	I believe that Artificial Intelligence technology will help in the betterment of my company's digital transformation (Tôi tin rằng công nghệ trí tuệ nhân tạo sẽ giúp cải thiện việc chuyển đổi số công ty tôi).	AI2
15	I believe that the adoption of Artificial Intelligence technology will help better digital transformation (Tôi tin rằng việc chấp nhận công nghệ trí tuệ nhân tạo sẽ giúp chuyển đổi số tốt hơn).	AI3
	Virtual Reality (Own Processing from Chandra and Kumar, 2018)	VR
16	Technological innovations like Virtual Reality technology will be a foundation of my company's digital transformation (Những đổi mới công nghệ như thực tế ảo sẽ là nền tảng của việc chuyển đổi số của công ty tôi).	VR1
17	I believe that Virtual Reality technology will help in the betterment of my company's digital transformation (Tôi tin rằng công nghệ thực tế ảo sẽ giúp cải thiện việc chuyển đổi số công ty tôi).	VR2
18	I believe that the adoption of Virtual Reality technology will help better digital transformation (Tôi tin rằng việc chấp nhận công nghệ thực tế ảo sẽ giúp chuyển đổi số tốt hơn).	VR3
	Blockchain (Own Processing from Chandra and Kumar, 2018)	BLO
19	Technological innovations like Blockchain technology will be a foundation of my company's digital transformation (Những đổi mới công nghệ như chuỗi khối sẽ là nền tảng của việc chuyển đổi số của công ty tôi).	BLO1
20	I believe that Blockchain technology will help in the betterment of my company's digital transformation (Tôi tin rằng công nghệ chuỗi khối sẽ giúp cải thiện việc chuyển đổi số công ty tôi).	BLO2
21	I believe that the adoption of Blockchain technology will help better digital transformation (Tôi tin rằng việc chấp nhận công nghệ chuỗi khối sẽ giúp chuyển đổi số tốt hơn).	BLO3
	Digital Marketing and Advertising online (Own Processing from Chandra and Kumar, 2018)	DMA
22	Technological innovations like Digital Marketing and Advertising online technology will be a foundation of my company's digital transformation (Những đổi mới công nghệ	DMA1

	nhu quảng cáo trực tuyến và tiếp thị số sẽ là nền tảng của việc chuyển đổi số của công ty tôi).	
23	I believe that Digital Marketing and Advertising online technology will help in the betterment of my company's digital transformation (Tôi tin rằng công nghệ quảng cáo trực tuyến và tiếp thị số sẽ giúp cải thiện việc chuyển đổi số công ty tôi).	DMA2
24	I believe that the adoption of Digital Marketing and Advertising online technology will help better digital transformation (Tôi tin rằng việc chấp nhận công nghệ quảng cáo trực tuyến và tiếp thị số sẽ giúp chuyển đổi số tốt hơn).	DMA3
B2	Questions about organizational factors	
	Social Influence (Adopted by Venkatesh et al., 2003)	SI
25	Many people who influence my perception think that my company should apply the digital transformation (Nhiều người ảnh hưởng đến nhận thức của tôi nghĩ rằng công ty nên ứng dụng chuyển đổi số).	SI1
26	Many people who are important to me think that my company should apply the digital transformation (Nhiều người quan trọng đối với tôi nghĩ rằng công ty tôi nên ứng dụng chuyển đổi số).	SI2
27	Many people who agree with digital transformation in my company have a high level (Nhiều người đồng ý chuyển đổi số trong công ty tôi có trình độ cao).	SI3
28	My company has supported the application of new technology in digital transformation (Công ty tôi đã ủng hộ việc ứng dụng công nghệ mới trong chuyển đổi số).	SI4
	Organization Mission (Adopted by Karatepe and Aga, 2016)	OM
29	I recognize the impact of the leadership of my company's digital transformation (Tôi nhận thấy tác động của vai trò lãnh đạo trong việc chuyển đổi số của công ty tôi).	OM1
30	I see the decisions are made by my company, which is consistent with the digital transformation mission (Tôi thấy các quyết định được thực hiện bởi công ty tôi phù hợp với sứ mệnh chuyển đổi số).	OM2
31	The digital transformation mission is standard for measuring behavior at my company (Sứ mệnh chuyển đổi số là tiêu chuẩn đo lường hành vi tại tổ chức tôi).	OM3

	Financial Strength (Adopted by Chandra and Kumar, 2018)	FS
32	I believe that my company has the capacity to absorb the cost of implementing digital transformation (Tôi tin rằng công ty tôi có năng lực để trang trải chi phí thực hiện chuyển đổi số).	FS1
33	The expensive implementation and maintenance of digital transformation may deter my company's adoption of digital transformation (Việc triển khai và duy trì chuyển đổi kỹ thuật số tốn kém có thể ngăn cản việc chấp nhận chuyển đổi kỹ thuật số của công ty tôi).	FS2
B3	Questions about environmental factors	
	Customer (Adopted by Tripopsakul, 2018)	CUS
34	I know my company's customers are ready to do use products and services by multiplatform applications, such as a mobile app, smart TV app, etc (Tôi biết nhiều khách hàng của công ty tôi sẵn sàng dùng các dịch vụ và sản phẩm bằng các ứng dụng đa nền tảng, chẳng hạn ứng dụng di động, ứng dụng tivi thông minh, v.v.).	CUS1
35	My company's customers are demanding the use of multiplatform applications for products and services (Nhiều khách hàng công ty tôi đang đòi hỏi việc sử dụng các ứng dụng đa nền tảng cho các sản phẩm và dịch vụ).	CUS2
36	It is easy for my company's customers to switch to other suppliers with similar products and services that my company provides (Nhiều khách hàng công ty tôi dễ dàng chuyển sang nhà cung cấp khác với các sản phẩm và dịch vụ tương tự công ty tôi cung cấp).	CUS3
	Competitor (Adopted by Mckinnie, 2016)	COM
37	My company is under pressure from competitors to adopt digital transformation (Công ty tôi chịu áp lực từ các đối thủ cạnh tranh trong việc chấp nhận chuyển đổi số).	COM1
38	Some of my company's competitors have already started applying the digital transformation (Một số đối thủ cạnh tranh của công ty tôi đã bắt đầu ứng dụng chuyển đổi số).	COM2
39	My company thinks that digital transformation has an influence on competition in the industry (Công ty tôi nghĩ rằng việc chuyển đổi số có ảnh hưởng đến sự cạnh tranh trong ngành).	COM3

	Competitive Pressure (Adopted by Tripopsakul, 2018)	CP
40	I believe my company will lose customers to competitors if my company does not adopt digital transformation (Tôi nghĩ rằng công ty tôi sẽ mất nhiều khách hàng về đối thủ cạnh tranh nếu công ty tôi không chấp nhận chuyển đổi số).	CP1
41	I feel it is a strategic necessity to apply digital transformation to compete in the marketplace (Tôi cảm thấy việc ứng dụng chuyển đổi số để cạnh tranh trên thị trường là điều cần thiết mang tính chiến lược).	CP2
42	Digital transformation will help my company to earn a more competitive advantage (Chuyển đổi số giúp công ty tôi đạt được lợi thế cạnh tranh hơn).	CP3
43	Digital transformation will help my company to outperform better than its competitors (Chuyển đổi số giúp công ty tôi vượt trội hơn so với đối thủ cạnh tranh).	CP4
	Social Community (Own processing from Hwang et al., 2016)	SC
44	Social media development plays a significant role in encouraging my company to adopt digital transformation (Sự phát triển truyền thông xã hội đóng vai trò quan trọng trong việc khuyến khích công ty tôi chấp nhận chuyển đổi số).	SC1
45	Organizations, community groups, and specialized interest groups can influence the digital transformation policies of my company (Các tổ chức, nhóm cộng đồng, và những nhóm lợi ích đặc biệt khác có thể ảnh hưởng đến các chính sách chuyển đổi số công ty tôi).	SC2
C	Questions about company performance	
	Customer Engagement (Own Processing from Kunz et al., 2017)	CS
46	Digital transformation can support the customer evaluation process to make a better-informed decision (Chuyển đổi số có thể hỗ trợ quá trình đánh giá khách hàng để đưa ra quyết định sáng suốt hơn).	CS1
47	Digital transformation helps my company, which aggregates customer choices and preferences can be used to generate customer values (Chuyển đổi số giúp công ty tôi tập hợp những sở thích và lựa chọn của khách hàng có thể được sử dụng tạo ra các giá trị khách hàng).	CS2

48	Digital transformation allows my company to improve the measurement of return on investment with the result from engagements through marketing campaigns (Chuyển đổi số cho phép công ty tôi cải thiện việc đo lường tỷ suất lợi nhuận thu được so với chi phí đầu tư với kết quả tương tác khách hàng thông qua các chiến dịch tiếp thị).	CS3
49	My company can use data-driven customer insights for developing products based on customer preferences (Công ty tôi có thể sử dụng các thông tin chi tiết của khách hàng dựa theo định hướng dữ liệu để phát triển sản phẩm dựa trên sở thích khách hàng).	CS4
	Profitability (Own processing from Veselovsky et al., 2019; Schwertner, 2017; Gil-Gomez et al., 2020)	PRO
50	My company can gain a greater profit if my company's digital transformation activities are better than competitors (Công ty tôi có thể đạt lớn nhuận lớn hơn nếu các hoạt động chuyển đổi số của công ty tôi tốt hơn đối thủ cạnh tranh).	PRO1
51	Digital transformation helps my company to build new business models, processes, software, and systems that result in more profit (Chuyển đổi số giúp công ty tôi nhiều hệ thống, phần mềm, quy trình và mô hình kinh doanh mới mang lại nhiều lợi nhuận hơn).	PRO2
52	Digital transformation improves customer experiences that lead to greater customer satisfaction, which in turn has a positive effect on my company's profitability (Chuyển đổi số cải thiện các trải nghiệm của khách hàng dẫn đến sự hài lòng khách hàng tốt hơn, từ đó có ảnh hưởng tích cực đến khả năng sinh lợi của công ty tôi).	PRO3
	Cost Reduction (Own processing from Liere-Netheler et al., 2017; Schwertner, 2017; Gil-Gomez et al., 2020)	COS
53	Digital transformation improves my company's production and service processes and helps to reduce costs such as set-up time and breakdowns (Chuyển đổi số cải thiện các quy trình dịch vụ và sản xuất công ty tôi, và giúp giảm các chi phí như thời gian lắp đặt, điều chỉnh thiết bị và hỏng hóc thiết bị).	COS1
54	Digital transformation helps my company to reduce costs by digitizing the processes of developing, testing, and producing new products and services (Chuyển đổi số giúp công ty tôi giảm	COS2

	các chi phí bằng việc số hóa các quy trình phát triển, thử nghiệm và sản xuất các dịch vụ và sản phẩm mới).	
55	Digital transformation allows my company's stakeholders to discard misleading data and have a unified source of information, as well as cost reduction related to data access, analysis, and exploitation (Chuyển đổi số cho phép các bên liên quan công ty tôi loại bỏ các dữ liệu nhầm lẫn và có nguồn thông tin thống nhất, cũng như giảm chi phí liên quan việc khai thác, phân tích và truy cập dữ liệu).	COS3
	Sales Growth (Own processing from Rodriguez et al., 2016; Schwertner, 2017; Gil-Gomez et al., 2020)	SAL
56	Digital transformation provides many professional tools for my company to communicate with clients and other stakeholders (Chuyển đổi số cung cấp nhiều công cụ chuyên nghiệp để giao tiếp với khách hàng và các bên liên quan khác).	SAL1
57	The digitization of production and service processes at my company opens up many new opportunities for expanding the international and global business (Việc số hóa các quy trình dịch vụ và sản xuất tại công ty tôi mở ra nhiều cơ hội mới cho việc mở rộng kinh doanh quốc tế và toàn cầu).	SAL2
58	Digital transformation helps to improve my company's performance by encouraging it to create and develop novel and valuable goods and services to create new sources of income (Chuyển đổi số cải thiện hiệu suất công ty tôi bằng cách khuyến khích công ty sáng tạo, phát triển các dịch vụ và sản phẩm có giá trị nhằm tạo ra nhiều nguồn thu nhập mới).	SAL3
	Productivity (Own processing from Gwee, 2009; Haseeb et al., 2019; Huang et al., 2018)	PD
59	Digital transformation creates high productivity through high skilled labor and advanced technology (Chuyển đổi số tạo ra năng suất cao thông qua công nghệ tiên tiến và lao động chuyên môn cao).	PD1
60	Digital transformation helps to attain an advanced level of operational effectiveness and automation (Chuyển đổi số giúp đạt được mức độ hiệu quả hoạt động và tự động hóa cao).	PD2
61	Digital transformation forces my company to improve and enhance IT human resources who have a higher productivity	PD3

	level (Chuyển đổi số buộc công ty tôi cải thiện và nâng cấp nguồn nhân lực công nghệ thông tin có năng suất cao hơn).	
	Innovation (Own processing from Gil-Gomez et al., 2020; Müller et al., 2009; Markides, 2006)	INN
62	Digital transformation helps my company to apply and innovate systems, policies, software, products, processes, devices, or services (Chuyển đổi số giúp công ty ứng dụng và đổi mới các hệ thống, chính sách, phần mềm, sản phẩm, quy trình và dịch vụ).	INN1
63	Digital transformation makes new products and services, which supply the customer (product innovation), as well as new technologies and processes within my company that raise efficiency and output's quality (process innovation) (Chuyển đổi số tạo ra các dịch vụ và sản phẩm mới cung cấp cho khách hàng (đổi mới sản phẩm), cũng như các quy trình và công nghệ mới trong công ty tôi nhằm nâng cao hiệu quả và chất lượng đầu ra (đổi mới quy trình)).	INN2
64	Digital transformation helps a business model innovation to enlarge the existing business market share by attracting new customers or encouraging current customers who use products or services more (Chuyển đổi số thực hiện việc đổi mới mô hình kinh doanh để mở rộng thị phần kinh doanh hiện hữu bằng cách thu hút các khách hàng mới hoặc khuyến khích các khách hiện tại sử dụng dịch vụ và sản phẩm nhiều hơn).	INN3
D	Questions about digital transformation adoption	
	Digital transformation adoption (Adopted by Tripopsakul, 2018)	DT
65	I think there are numerous advantages to applying digital transformation (Tôi nghĩ rằng có nhiều lợi ích khi ứng dụng chuyển đổi số).	DT1
66	Using business application platforms from digital transformation helps me to work easier compared to before (Sử dụng các nền tảng ứng dụng kinh doanh từ chuyển đổi số giúp tôi làm việc dễ dàng hơn so với trước đây).	DT2
67	I am ready to use business application platforms from digital transformation whenever it is possible (Tôi sẵn sàng sử dụng các	DT3

	nền tảng ứng dụng kinh doanh từ chuyển đổi số bất cứ khi nào có thể).	
68	I encourage using business platforms for digital transformation in the future (Tôi khuyến khích sử dụng các nền tảng ứng dụng kinh doanh từ chuyển đổi số trong tương lai).	DT4

Appendix B

Characteristics of Different Fit Indices Demonstrating Goodness-of-Fit Across Different Model Situations

	N < 250			N > 250		
	m ≤ 12	12 < m < 30	m ≥ 30	m ≤ 12	12 < m < 30	m ≥ 30
χ²	Insignificant p-values expected	Significant p-values even with a good fit	Significant p-values expected	Significant p-values even with a good fit	Significant p-values expected	Significant p-values expected
CFI or TLI	.97 or better	.95 or better	Above .92	.95 or better	Above .92	Above .90
RNI	May not diagnose misspecification well	.95 or better	Above .92	.95 or better, not used with N > 1,000	Above .92, not used with N > 1,000	Above .90, not used with N > 1,000
SRMR	Biased upward, use other indices	.08 or less (with CFI of .95 or higher)	Less than .09 (with CFI above .92)	Biased upward; use other indices	.08 or less (with CFI above .92)	.08 or less (with CFI above .92)
RMSEA	Values < .08 with CFI = .97 or higher	Values < .08 with CFI of .95 or higher	Values < .08 with CFI above .92	Values < .07 with CFI of .97 or higher	Values < .07 with CFI of .92 or higher	Values < .07 with CFI of .90 or higher

Appendix C

Cutoff Criteria for Several Fit Indexes

No.	Indexes	Shorthand	The general rule for acceptable fit is if data are continuous	Categorical data
<i>Absolute/predictive fit</i>				
<i>Chi-square</i>				
1	Chi-square	χ^2	The ratio of χ^2 to df \leq 2 or 3, valid for nested models/model trimming	
2	Akaike information criterion	AIC	Smaller the better; suitable for model comparison (nonnested), not a single model	
3	Browne–Cudeck criterion	BCC	Smaller the better; suitable for model comparison, not a single model	
4	Bayes information criterion	BIC	Smaller the better; suitable for model comparison (nonnested), not a single model	
5	Consistent AIC	CAIC	Smaller the better; suitable for model comparison	

			(nonnested), not a single model	
6	Expected cross-validation index	ECVI	Smaller the better; suitable for model comparison (nonnested), not a single model	
<i>Comparative fit</i>		<i>Comparison to a baseline (independence) or other models</i>		
7	Normed fit index	NFI	$\geq .95$ for acceptance	
8	Incremental fit index	IFI	$\geq .95$ for acceptance	
9	Tucker–Lewis index	TLI	$\geq .95$ can be $0 > TLI > 1$ for acceptance	0.96
10	Comparative fit index	CFI	$\geq .95$ for acceptance	0.95
11	Relative noncentrality fit index	RNI	$\geq .95$, similar to CFI but can be negative; therefore, CFI is a better choice	
<i>Parsimonious fit</i>				
12	Parsimony-adjusted NFI	PNFI	Very sensitive to model size	
13	Parsimony-adjusted CFI	PCFI	Sensitive to model size	
14	Parsimony-adjusted GFI	PGFI	The closer to 1, the better, though typically	

			lower than other indexes and sensitive to model size	
<i>Other</i>				
	Goodness-of-fit index	GFI	$\geq .95$ Not generally recommended	
	Adjusted GFI	AGFI	$\geq .95$ Performance poor in simulation studies	
	Hoelter .05 index		Critical N is the largest sample size for accepting that model is correct	
	Hoelter .01 index		Hoelter suggestion, N = 200, is better for a satisfactory fit	
	Root mean square residual	RMR	Smaller, the better; 0 indicates a perfect fit	
	Standardized RMR	SRMR	$\leq .08$	
	Weighted root mean residual	WRMR	$< .90$	$< .90$
	Root mean square error of approximation	RMSEA	$< .06$ to $.08$ with confidence interval	$< .06$

Appendix D

Results of Cronbach's alpha reliability

Factors	Observed variables	Cronbach's alpha	Corrected item – total correlation	Cronbach's alpha if item deleted	Results
1. BD	BD1	.873	.758	.891	Accepted
	BD2		.779	.780	
	BD3		.714	.858	
2. AR	AR1	.872	.742	.832	Accepted
	AR2		.776	.801	
	AR3		.748	.827	
3. AI	AI1	.858	.672	.856	Accepted
	AI2		.789	.745	
	AI3		.738	.795	
4. VR	VR1	.858	.760	.775	Accepted
	VR2		.731	.803	
	VR3		.707	.825	
5. BLO	BLO1	.453	.289	.342	Rejected
	BLO2		.340	.262	
	BLO3		.228	.485	
6. DMA	DMA1	.885	.753	.858	Accepted
	DMA2		.835	.783	
	DMA3		.743	.865	
	SI1		.697	.792	

7. SI	SI2	.842	.730	.777	Accepted
	SI3		.677	.801	
	SI4		.609	.829	
8. OM	OM1	.843	.654	.836	Accepted
	OM2		.777	.731	
	OM3		.700	.791	
9. FS	FS1	.345	.209	... /	Rejected
	FS2		.209	... /	
10. CUS	CUS1	.835	.700	.768	Accepted
	CUS2		.724	.743	
	CUS3		.666	.802	
11. COM	COM1	.864	.772	.782	Accepted
	COM2		.758	.793	
	COM3		.704	.845	
12. CP	CP1	.863	.674	.841	Accepted
	CP2		.744	.813	
	CP3		.734	.815	
	CP4		.694	.832	
13. SC	SC1	.581	.411	... /	Rejected
	SC2		.411	... /	
14. CS	CS1	.885	.775	.842	Accepted
	CS2		.782	.840	
	CS3		.753	.851	
	CS4		.688	.875	
	PRO1		.757	.860	

15. PRO	PRO2	.887	.795	.826	Accepted
	PRO3		.788	.833	
16. COS	COS1	.591	.383	.515	Rejected
	COS2		.410	.475	
	COS3		.405	.482	
17. SAL	SAL1	.903	.837	.834	Accepted
	SAL2		.839	.833	
	SAL3		.746	.910	
18. PD	PD1	.910	.785	.898	Accepted
	PD2		.838	.855	
	PD3		.837	.855	
19. INN	INN1	.868	.743	.819	Accepted
	INN2		.743	.819	
	INN3		.758	.805	
20. DT	DT1	.884	.709	.866	Accepted
	DT2		.780	.839	
	DT3		.747	.852	
	DT4		.757	.848	

Appendix E

Results of Exploratory Factor Analysis

Observed variables	Factors															
	CP	PD	SI	CS	COM	SAL	DMA	PRO	AI	INN	VR	AR	BD	CUS	OM	DT
CP2	.883															
CP3	.795															
CP1	.717															
CP4	.623															
PD3		.883														
PD2		.848														
PD1		.787														
SI2			.931													
SI1			.770													
SI3			.633													

SI4			.513														
CS1				.899													
CS2				.893													
CS3				.780													
CS4				.594													
COM1					.893												
COM2					.837												
COM3					.727												
SAL2						.958											
SAL1						.929											
SAL3						.727											
DMA2							.981										
DMA1							.783										
DMA3							.779										

PRO2								.920								
PRO3								.829								
PRO1								.790								
AI2									.962							
AI3									.792							
AI1									.692							
INN3										.882						
INN2										.802						
INN1										.781						
VR1											.849					
VR2											.848					
VR3											.703					
AR2												.880				
AR1												.802				

AR3												.768				
BD2													.944			
BD1													.831			
BD3													.722			
CUS1														.825		
CUS2														.815		
CUS3														.722		
OM2															.963	
OM3															.738	
OM1															.658	
DT4																.816
DT2																.808
DT3																.773
DT1																.701

LIST OF PUBLICATIONS

- [1] TRIEU, Tran Van Hai. Digital Transformation and Business Process Management in Creative Industries: The Case of Film Production Process. *Proceedings of the 22nd International Conference MEKON 2020*. Ostrava: VSB – Technical University of Ostrava, Faculty of Economics. 2020, pp. 195-205. ISBN 978-80-248-4410-7.
- [2] TRIEU, Tran Van Hai. Digital Transformation in Advertising: The case of Programmatic Advertising. *DOKBAT 2020 - 16th Annual International Bata Conference for Ph.D. Students and Young Researchers (Vol. 16)*. Zlín: Tomas Bata University in Zlín, Faculty of Management and Economics. 2020, pp. 519-528. ISBN 978-80-7454-935-9.
- [3] TRIEU, Tran Van Hai and PAVELKOVÁ, Drahomíra. The Relationship between Market Share Price of Companies in Creative Industry of Vietnam and (ROA, ROE, ROIC, and EPS). *International conference on business and finance 2020*. University of Economics Ho Chi Minh City, Institute of business research. 2020.
- [4] TRIEU, Tran Van Hai and PAVELKOVÁ, Drahomíra. Digital Transformation and its influence on performance of creative industry companies. *The 6th International Conference on Finance and Economics*. Ho Chi Minh City: Ton Duc Thang University. 2020, pp. 85-98. ISSN 2695-1215.
- [5] TRAN, Trieu Van Hai; PAVELKOVÁ, Drahomíra and HOMOLKA, Lubor (2022). Solow model with technological progress: An empirical study of economic growth in Vietnam through ARDL approach. *Quality - Access to Success*. 2022, Vol. 23, No. 186, pp. 194–202. ISSN 1582-2559.
- [6] TRAN, Trieu Van Hai. Effect of Gender and Regions on Determinants of Digital Transformation Adoption in Creative Services. *Quality - Access to Success*. 2022, Vol. 23, No. 186, pp. 30–36. ISSN 1582-2559.
- [7] TRIEU, Tran Van Hai and PAVELKOVÁ, Drahomíra. Different of Education Level and Job Position in Digital Transformation Adoption in Vietnam's Creative Industries. *Journal of Eastern European and Central Asian Research*. 2022, Vol. 9, No. 3, pp. 409-421. ISSN 2328-8272 (print), ISSN 2328-8280 (online).

AUTHOR'S CURRICULUM VITAE

PERSONAL INFORMATION

Van Hai Trieu Tran



(+84) 932.089.866



van_hai@utb.cz or tvhaitrieu@gmail.com

WORK EXPERIENCE

01.2021 – 05.2021: Investment Promotion Specialist

- Foreign Investment Agency, Ministry of Planning and Investment (Vietnam)
- Introducing and supporting investors inbound and outbound related to Vietnam's potential positions and laws in investment activities.
- Organizing investment promotion conferences.
- Training for provinces or cities about the improvement of investment promotion skills.

01.2015 – present: Part-time Lecturer

Topica Edtech Group (Vietnam)

- To teach courses, such as strategic management, human resource management, project management, marketing management, and psychology in business administration.

07.2017 – 12.2019: Senior Operation Manager

Dzones Hub – DatvietVAC Group Holding (Vietnam)

- Deploying PR, social media, and events, and writing scripts for content creation.
- Researching for over-the-top (OTT) projects with big data, blockchain, video social networks, virtual reality studio, and business processes development according to the organization's RACI matrix.

01.2017 – 06.2017: Market Researcher

Agriculture and rural development department in Ho Chi Minh City (Vietnam)

- Research for the agriculture market.
- Designing and building the storage database system to look up Ho Chi Minh City's agriculture market.

10.2013 – 06.2016: Head of Telecommunication Centre, Project Manager

Ho Chi Minh City Television Station, HTV TMS Co. LTD (Vietnam)

- Building and deploying the mobile TV car project and the G-PON internet project in digital Pay TV.
- Project appraisal, construction, and management of procurement procedures.
- To manage all activities of the telecommunication service center.

12.2003 – 10.2013: System Engineer, Project Manager

Ho Chi Minh City Television Station (Vietnam)

- Building, deploying and managing digital Pay-TV systems in cable, terrestrial, and satellite environments.
- Managing subscribers using digital Pay-TV in HCM City and other provinces.

01.2002 – 11.2003: Software developer

Thanh Dat company (Vietnam)

- Developing applications by program languages, such as PHP, C++, and Java.

EDUCATION AND TRAINING

04.2019 – present: Ph.D. student

Tomas Bata University in Zlín, Zlín (Czech Republic).

- Economics and Management.
- Scientific Research Methodology.
- Academic English.

09.2017 – 09.2010: Master’s degree

Open University in Ho Chi Minh City (Vietnam).

- Business Administration.
- GPA: 7.31/10

09.1997 – 02.2002: Bachelor’s degree

The University of Science in Ho Chi Minh City (Vietnam).

- Information Technology.
- GPA: 5.86/10

PERSONAL SKILLS

Mother tongues: Vietnamese

Other Language: English (Listening, Reading, Speaking, Writing: C1).

Best Skills: Communication, writing, leadership, training, negotiation, flexibility, presentation, research, organization, risk-taking, creativity, and teamwork.

Van Hai Trieu Tran

**Digital Transformation and Its Influence on
Performance of Creative Industry Companies: The case of
Vietnam**

**Digitální transformace a její vliv na výkonnost společností kreativního
průmyslu ve Vietnamu**

Doctoral Thesis

Published by: Tomas Bata University in Zlín,
nám. T. G. Masaryka 5555, 760 01 Zlín.

Edition: 5 pieces

Typesetting by: Van Hai Trieu Tran

This publication has not undergone any proofreading or editorial review

Publication year: 2022