Institute of Technology Management and Entrepreneurship

MEDIATING EFFECT OF TRAINING ON THE RELATIONSHIP BETWEEN TECHNOLOGY ADOPTION AND PRODUCTIVITY

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Khalfan Mohamed Saqer Saif Almehairbi

Doctor of Philosophy

2024

MEDIATING EFFECT OF TRAINING ON THE RELATIONSHIP BETWEEN TECHNOLOGY ADOPTION AND PRODUCTIVITY

KHALFAN MOHAMED SAQER SAIF ALMEHAIRBI

A thesis submitted
in fulfilment of the requirements for the degree of Doctor of Philosophy

Institute of Technology Management and Entrepreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2024

DECLARATION

I declare that this thesis entitled “Mediating Effect of Training on the Relationship between Technology Adoption and Productivity” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : ……

Name : Khalfan Mohamed Saqer Saif Almehairbi

Date : 3 Januari 2024

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Doctor of Philosophy.

Signature : .....

Supervisor Name : Profesor Madya Dr. Zanariah binti Jano

Date : 5 Januari 2024

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DEDICATION

This thesis is dedicated to my family.

UTeM
اونيۏرسيتي تيکنيکل مليسيا ملاک
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

ABSTRACT

Innovations in technology that are produced widely can change the quality of any sectors' activities. Firms are always investing more on technologies to leverage on their performance and have competitive advantage over others. Businesses always change and adapt to the ever-changing needs to be efficient and competitive in order to meet this edict. Technology is a major factor in maximizing efficiency and productivity in businesses. Several industries have reported impressive results from technology, including banking, agriculture, manufacturing, governance, education, health, and agriculture. Manufacturing is a labor- and capital-intensive sector that demands significant investments in technology and human resources. The United Arab Emirates' growing adoption of technology could be attributed to its concern for innovation and technology, as investments in these areas will help the country's businesses and government achieve their objectives and improve firm performance. Studies in the UAE investigate technology adoption in different industries. However, there is little empirical and literary evidence of technology adoption by manufacturing firms in the UAE. Results of technology adoption studies differ across contexts. Thus, there is a need to investigate the UAE manufacturing firms which are capital and labor intensive and require technology to function efficiently. The aim of the study was to establish a framework of technology adoption toward firm performance through firm size and training for manufacturing firms in the UAE. The research used a quantitative research design to administer survey questionnaires to owners, consultants and contractors in UAE construction industry. A multi-staged purposeful random sampling strategy was used to administer questionnaires to a total of 400 manufacturing firms. A total of 335 questionnaires were collected of which 330 responses were found valid and were finally used in the analyses. The quantitative data was analysed using Statistical Package for Social Science (SPSS) and Partial Least Square, Structures Equation Modelling (PLS-SEM) model were also employed. The research findings strengthen understanding of the manufacturing firms should improve the production of activities continuously and to set the required quality system in the different activities of the manufacturing so as to avoid any mistakes that may lead to rework of activities, and finally delay in time completion. It is also revealed that there is a strong, positive correlation between the two variables of technology adoption and manufacturing firm performance at r= .986**, furthermore, the part of the study which looked into the relationship between effect of firm size and the effect of training on the relationship between technology adoption and manufacturing firm performance in the UAE, with the necessity for basic firm size and training acting as a mediator. The study found a positive outcome indicating that firm size and training has a role in manufacturing performance when it comes to employing technology in manufacturing which finalized that firm size positively mediated the relationship between technology adoption and manufacturing performance. Likewise, training mediated the relationship between the technology adoption and the manufacturing performance. After the analysis, a framework of technology adoption toward firm performance was developed.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

KESAN MEDIASI LATIHAN TERHADAP HUBUNGAN ANTARA PENGGUNAAN TEKNOLOGI DAN PRODUKTIVITI

ABSTRAK

*Inovasi dalam teknologi yang dihasilkan secara meluas boleh mengubah kualiti aktiviti mana-mana sektor. Firma sentiasa melabur lebih banyak pada teknologi untuk memanfaatkan prestasi mereka dan mempunyai kelebihan daya saing berbanding yang lain. Perniagaan sentiasa berubah dan menyesuaikan diri dengan keperluan yang sentiasa berubah supaya cekap dan berdaya saing untuk memenuhi perintah ini. Teknologi adalah faktor utama dalam memaksimumkan kecekapan dan produktiviti dalam perniagaan. Beberapa industri telah melaporkan hasil yang memberangsangkan daripada teknologi, termasuk perbankan, pertanian, pembuatan, tadbir urus, pendidikan, kesihatan dan pertanian. Pembuatan ialah sektor berintensif buruh dan modal yang memerlukan pelaburan besar dalam teknologi dan sumber manusia. Penggunaan teknologi yang semakin meningkat oleh Emiriah Arab Bersatu boleh dikaitkan dengan keprihatinannya terhadap inovasi dan teknologi, kerana pelaburan dalam bidang ini akan membantu perniagaan dan kerajaan negara mencapai objektif mereka dan meningkatkan prestasi firma. Kajian di UAE menyiasat penggunaan teknologi dalam industri yang berbeza. Walau bagaimanapun, terdapat sedikit bukti empirikal dan sastera tentang penggunaan teknologi oleh firma pembuatan di UAE. Keputusan kajian penggunaan teknologi berbeza mengikut konteks. Oleh itu, terdapat keperluan untuk menyiasat firma perkilangan di UAE yang memerlukan modal dan tenaga kerja yang intensif serta memerlukan teknologi untuk berfungsi dengan cekap. Matlamat kajian ini adalah untuk mewujudkan rangka kerja penggunaan teknologi ke arah prestasi firma melalui saiz firma dan latihan untuk firma perkilangan di UAE. Penyelidikan ini menggunakan reka bentuk penyelidikan kuantitatif untuk mentadbir soal selidik tinjauan kepada pemilik, perunding dan kontraktor dalam industri pembinaan UAE. Strategi persampelan adalah secara rawak bertujuan berbilang peringkat telah digunakan untuk mentadbir soal selidik kepada sejumlah 400 firma pembuatan. Sebanyak 335 soal selidik telah dikumpul di mana 330 jawapan didapati sah dan akhirnya digunakan dalam analisis. Data kuantitatif dianalisis menggunakan Statistical Package for Social Science (SPSS) dan Partial Least Square, model Structures Equation Modeling (PLS-SEM) juga digunakan. Penemuan penyelidikan mengukuhkan pemahaman firma pembuatan harus meningkatkan pengeluaran aktiviti secara berterusan dan untuk menetapkan sistem kualiti yang diperlukan dalam aktiviti pembuatan yang berbeza untuk mengelakkan sebarang kesilapan yang boleh membawa kepada kerja semula aktiviti, dan akhirnya kelewatan dalam masa penyiapan. Ia juga mendedahkan bahawa terdapat korelasi positif yang kuat antara dua pembolehubah penerimaan teknologi dan prestasi firma pembuatan pada r= .986**, tambahan pula, bahagian kajian yang melihat hubungan antara kesan saiz firma dan kesan latihan terhadap hubungan antara penggunaan teknologi dan prestasi firma pembuatan di UAE, dengan keperluan untuk saiz firma asas dan latihan bertindak sebagai pengantara. Hasil dari kajian ini mendapati bahawa terdapat kesan positif antara saiz firma dan latihan dan mempunyai peranan dalam prestasi pembuatan apabila ia melibatkan penggunaan teknologi dalam pembuatan yang memuktamadkan bahawa saiz firma secara positif mengantara hubungan antara penggunaan teknologi dan prestasi pembuatan. Begitu juga, latihan menjadi pengantara hubungan antara penggunaan teknologi dan prestasi pembuatan. Selepas analisis, rangka kerja penggunaan teknologi ke arah prestasi firma dibangunkan.*

ACKNOWLEDGEMENTS

In the Name of Allah, the Most Gracious, the Most Merciful

Firstly, all praises and thanks be to Allah the Almighty, for the blessing I received since the beginning of my journey. I would like to extend my appreciation to the Universiti Teknikal Malaysia Melaka (UTeM) for providing the research platform.

My greatest appreciation goes to my main supervisor, Associate Professor Dr. Zanariah Binti Jano, Institute of Technology Management and Entrepreneurship, Universiti Teknikal Malaysia Melaka (UTeM) for all her assistance, council, and encouragement.

Last but not least, from the bottom of my heart a gratitude to my family and my Country United Arab Emirates for encouragements and support during my research period and life. My constant love also to all my children, Madeya, Erhamah, for their patience and understanding. I would also like to thank my beloved parents for their endless support. Finally, thank you to all my friends and the individual(s) who have offered their assistance, support, and inspiration to embark on my study.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

TABLE OF CONTENTS

		PAGE
DECLARATION		
APPROVAL		
DEDICATION		
ABSTRACT		**i**
ABSTRAK		**ii**
ACKNOWLEDGEMENTS		**iii**
TABLE OF CONTENTS		**iv**
LIST OF TABLES		**vii**
LIST OF FIGURES		**ix**
LIST OF ABBREVIATIONS		**x**
LIST OF SYMBOLS		**xii**
LIST OF APPENDICES		**xiii**
LIST OF PUBLICATIONS		**xiv**
CHAPTER		
1.	**INTRODUCTION**	**1**
1.1	Introduction	1
1.2	Background of the Study	1
1.3	Problem Statement	6
1.4	Aim of the Research	11
1.5	Research Questions	11
1.6	Research Objectives	11
1.7	Scope of the Research	12
1.8	Significances of the Research	13
1.9	Conceptual Definition	14
1.10	Thesis structure	15
1.11	Summary	16
2.	**LITERATURE REVIEW**	**17**
2.1	Introduction	17
2.2	Firm Performance	17
2.3	Training	23
2.4	Firm size	24
2.5	Technology	27
	2.5.1 Technology Adoption	28
2.6	Technology Adoption Models	32
	2.6.1 Theory of Reasoned Action	34
	2.6.2 Theory of Planned Behaviour	38
	2.6.3 Technology Acceptance Model	43
	2.6.4 Technology Diffusion Theory	45
	2.6.5 Unified Theory of Acceptance and Use of Technology	48
	2.6.5.1 Performance Expectancy (PE)	57

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2.6.5.2 Effort Expectancy (EE) 59
2.6.5.3 Social Influence (SI) 61
2.6.5.4 Facilitating Conditions (FC) 64
2.6.5.5 Actual Usage 65
2.7 Justification for Extending UTAUT Model in the Research 66
2.8 Framework and Hypothesis Development 69
2.8.1 Performance Expectancy and Technology Adoption 70
2.8.2 Effort Expectancy and Technology Adoption 71
2.8.3 Social Influence and Technology Adoption 72
2.8.4 Facilitating Conditions and Technology Adoption 73
2.8.5 Technology Adoption and Firm's Productivity 74
2.8.6 Technology Adoption, Training, and Firm's Productivity 75
2.8.7 Technology Adoption, Firm size, and Firm's Productivity 77
2.9 Summary 78

3. RESEARCH METHODOLOGY 79
3.1 Introduction 79
3.2 Philosophical Perspective 79
3.2.1 Positivist Approach 80
3.2.2 Interpretive Approach 81
3.2.3 Research Approach Adopted in this Study 82
3.3 Why Quantitative Research in this Research 83
3.4 Research Design 84
3.5 Research Population 86
3.6 Sampling Strategy 87
3.6.1 Sample Frame 88
3.6.2 Sample Size 88
3.6.3 Sampling Technique 90
3.7 Method of Data Collection 92
3.8 Instrumentation Development 93
3.8.1 Operational Definitions and Measurement of the Research Constructs 94
3.9 Data Analysis 80
3.10 Pre-Testing and Pilot Study 97
3.10.1 Pilot Test 98
3.10.1.1 Pilot Test Reliability 99
3.10.1.2 Pilot Normality Test 100
3.11 Data Analysis Techniques 103
3.12 Summary 105

4. RESULTS AND DISCUSSION 106
4.1 Introduction 106
4.2 Questionnaire Administration 107
4.3 Preliminary Data Analysis 107
4.3.1 Missing Values analysis (MVA) 108
4.3.2 Diagnosis of Outliers 109
4.3.3 Data Normality 110
4.3.4 Collinearity Test 114
4.3.5 Reliability Test 115

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

4.4 Socio-demographic characteristics of the real respondents 116
4.5 Response Evaluation Criteria 118
4.6 Results for Research Objective 1 119
4.7 Results for Research Objective 2 121
4.8 Partial Least Squares (PLS) Regression 122
4.8.1 Evaluation of measurement model 124
4.8.1.1 Reliability Assessment 125
4.8.1.2 Convergent Validity Assessment 126
4.8.1.3 Discriminant Validity 128
4.8.2 Evaluation of Structural Model 131
4.8.2.1 Path Coefficients Evaluation 135
4.8.2.2 Coefficient of Determination (R^2) Assessment 136
4.8.2.3 Effect Size (f^2) Evaluation 138
4.8.2.4 Predictive Relevance (Q^2) Assessment 139
4.8.2.5 Goodness-of-Fit (*GoF*) Assessment 140
4.9 Discussion 141
4.10 Summary 143

5. CONCLUSION AND RECOMMENDATIONS 144
5.1 Introduction 144
5.2 Summary of Research Objectives 144
5.2.1 Research Objective 1 144
5.2.2 Research Objective 2 145
5.2.3 Research Objective 3 146
5.2.4 Research Objective 4 148
5.3 Contribution of the Research 150
5.3.1 Theoretical Contribution 150
5.3.2 Policy Implication 150
5.3.3 Practical Contribution 151
5.4 Limitations and Future Research 151
5.5 Recommendations for Future Research 152
5.6 Conclusions 153

REFERENCES 154
APPENDIX A 193

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT) (Author)	51
2.2	Taxonomy of previous research on Technology Adoption Model UTAUT	53
3.1	Table of sample size determination (Krejcie and Morgan, 1970)	82
3.2	Operational definition and measurement of constructs	95
3.4	Reliability Assessments	100
3.5	KMO and Bartlett's test for all constructs	101
3.6	Normality Assessments Results	101
4.1	Questionnaire administration	107
4.2	Residuals Statistics	110
4.3	Data normality	111
4.4	Collinearity diagnostics	114
4.5	Reliability test	115
4.6	Respondents' profile	116
4.7	Response evaluation criteria	118
4.8	Rank of antecedent of technology adoption in the UAE manufacturing firms	119

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

4.9	Results of correlation between technology adoption and manufacturing firm performance in the UAE	121
4.10	Criteria used in the assessment and validation of measurement and structural models in PLS-SEM analysis	123
4.11	Measurement models reliability	125
4.12	Convergent validity	127
4.13	Discriminant validity using HTMT ratio criterion	130
4.14	Discriminant validity using Fornell and Larcker criterion	131
4.15	Hypothesis testing	134
4.16	Path coefficients	136
4.17	R^2 evaluation	137
4.18	Effect sizes (f^2)	139
4.19	Predictive relevance	140
4.20	Output of AMOS	141

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	Theory of Reasoned Action (TRA) (Chiou, 1998)	36
2.2	Theory of Planned Behavior (TPB) (Rhodes and Courneya, 2003)	39
2.3	Technology Acceptance Model (TAM)	44
2.4	Innovation diffusion theory	47
2.5	Unified theory of acceptance and use of technology	50
2.6	Theoretical framework	69
4.1	First run structural model	132
4.2	Second run structural model	133
4.3	Final model t-statistics	133

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF ABBREVIATIONS

ATA	-	Antecedent of Technology Adoption
AVE	-	Average Variance Extracted
BI	-	Behavioural Intention
DIT	-	Diffusion of Innovation Theory
DOI	-	Diffusion of Innovation
EE	-	Effort Expectancy
EFS	-	Effect of Firm Size
ET	-	Effect of Training
FC	-	Facilitating Conditions
HR	-	Human Resource
HTMT	-	Hetro-Trait-Mono-Trait
IC	-	Intellectual Capital
ICT	-	Information, Communication, and Technology
IDM	-	Innovation Diffusion Model
IDT	-	Innovation Diffusion Theory
IOP	-	Islamicity of Product
IoT	-	Internet-of-Things
IT	-	Information Technology
MM	-	Motivational Model
MP	-	Manufacturing Performance

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

MPCU	-	Model of PC Utilisation
MRA	-	Multiple Regression Analysis
NFI	-	Validity of Convergence
OPM	-	Ordered Probit Model
PBC	-	Perceived Behavioural Control
PE	-	Performance Expectancy
PEOU	-	Perceived Ease of Use
PLS	-	Partial Least Square
PU	-	Perceived Usefulness
SCT	-	Social Cognitive Theory
SEM	-	Structural Equation Model
SI	-	Social Influence
SPSS	-	Statistical Package for Social Sciences
TAM	-	Technology Acceptance Model
TDT	-	Technology Diffusion Theory
TORA	-	Theory of Reasoned Action
TPB	-	Theory of Planned Behaviour
TPC	-	Theory of Planned Conduct
TRA	-	Theory of Reasoned Action
UAE	-	United Arab Emirates
UTAUT	-	Unified Theory of Acceptance and Use of Technology
VIF	-	Variance of Inflation Factors

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF SYMBOLS

R^2 - coefficients of determination

f^2 - effect sizes

Q^2 - cross-validated redundancy ()

UTeM
اونيۏرسيتي تيکنيکل مليسيا ملاك
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
Appendix A	Questionnaire	193

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF PUBLICATIONS

The followings are the list of publications related to the work on this thesis:

Almehairbi, K.M.S., Jano, Z., and Mosali, N.A., 2022. Structural Relationship of Technology Adoption and Performance Factors in UAE Manufacturing Industry, *International Journal of Sustainable Construction Engineering and Technology*, 13(4), pp. 320-337.

Almehairbi, K.M.S, Jano, Z., and Mosali, N.A., 2022. Antecedents of Technology Adoption by Manufacturing Firms in the UAE, *International Journal of Sustainable Construction Engineering and Technology*, 13(4), pp. 175-184.

UTeM
اونيۏرسيتي تيکنيکل مليسيا ملاک
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

CHAPTER 1

INTRODUCTION

1.1 Introduction

The research is introduced in this chapter. The motivation for the research is mentioned in the background section of the study. This chapter identifies and presents the issue and literature gaps in the research domain. Additionally, the aims, research questions, and research objectives are stated. Additionally, the scope and importance of the study, as well as conceptual and practical definitions, the thesis' structure, and a summary, are all included.

1.2 Background of the Study

The study's goal was to provide a framework of technology adoption towards firm performance through firm size and training for UAE manufacturing enterprises. As a result, technology is fast evolving to fulfil shifting demand for new goods and services (Boothby et al., 2010; Al-Fadhli et al., 2016; Isaac et al., 2019; Nuseir and Aljumah, 2020). Technology is crucial in today's businesses. It boosts corporate effectiveness through technology operations. The world is quickly changing as a result of technology, which has played a significant role in organisational growth by improving operations and reducing obstacles. Technology innovations that are widely generated can affect the quality of any sector's activity. Firms are constantly investing in technology in order to improve their performance and get a competitive edge over their competitors (Boothby et al., 2010; Ahmad et al., 2019; Clohessy and Acton, 2019; Papadopoulos et al., 2020). Because of technological

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

improvements, firms are encouraged to automate their management and processes in order to efficiently target clients with low-cost business solutions (Nuseir and Aljumah, 2020).

Increasing corporate productivity and efficiency necessitates the use of technology. Various industries, including banking (Aboelmaged and Gebba, 2013), government (Ahmad and Khalid, 2016), agriculture (Nakano et al., 2018), health (Alrahbi et al., 2019), education (Mohammad AlHamad, 2020), and manufacturing have all documented remarkable effects of technology (Kristianto et al., 2012; Yadegaridehkordi et al., 2018; Nuseir and Aljumah, 2020). Technology has mostly benefited enterprises in rich countries, with evidence of replication in developing countries. For example, there are several papers demonstrating how ubiquitous it is in developing countries, with the bulk of them coming from the UAE (Almuraqab, 2016; Ahmad and Khalid, 2017; Ameen and Willis, 2018; Ameen et al., 2018; Ahmad et al., 2019; Mohammad Al-Hamad, 2020). This refers to precisely the United Arab Emirates (UAE) has considered securing the spread of technology throughout its economy a key strategic goal. Numerous rankings of technology and information, communication, and technology (ICT) penetrations in the areas of government readiness, individual readiness and usage, technology friendly environment, ICT infrastructure, digital literacy improvement, knowledge economy, ICT prioritisation and promotion, ICT leveraging, and affordability of ICT services demonstrate this (Aboelmaged and Gebba, 2013; Al Athmay, 2015; Rodrigues et al., 2016).

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Corporations all around the world employ numerous technologies to improve efficiency and performance along their value chains, from acquiring to production to selling. This technology could include social media applications, digital marketing, mobile and collaborative technologies, e-commerce, new machines, the Internet of Things (IoT), big data analytics, and artificial intelligence (Singh et al., 2017; Alkhater et al., 2018; Ameen and Willis, 2018; De Vass et al., 2018; Nuseir and Aljumah, 2020; Papadopoulos et al.,

2020). The rate at which these technologies are adopted by the intended organisations determines their significance.

Different authors have defined technology adoption differently. It is defined as the determination to fully use an innovation as the most advantageous course of action possible (Ameen, 2017). Rad et al. (2018) define technology adoption as the process by which individuals or organisations embrace a newly developed technology. Sharma and Mishra (2015), on the other hand, defined technology adoption as the process of selecting a technology for usage by a person or an organisation. Oliveira and Martins (2009) describe technology adoption as an organization's readiness to deploy technology infrastructure and information technology (IT) human resources. According to Abdallah (2016), technology adoption refers to how much a person or organisation uses technology. Abdallah (2016) defined technology adoption in this study as the degree to which a firm is ready to invest in new technology or systems and how much of it is really employed in its operations. Technologies are always evolving to meet the increasing demands created by the dynamic economic environment and continual changes in material and human requirements. As a result, technology adoption research is becoming increasingly relevant in a wide range of disciplines, including ICT, finance, marketing, business management, manufacturing, and others (Ahmad and Khalid, 2017). People, corporations, organisations, and governments all use technology to varying degrees.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

The importance of technology adoption by individuals, businesses, and governments is widely recognised (Marsh, 2018; Al-Maroof et al., 2020; Dhirasasna et al., 2020; Igwe et al., 2020; Liu et al., 2020); however, there is no general agreement on the factors that influence technology adoption or the reasons why it varies significantly across people, businesses, and organisations. As a result, finding the reasons of technology adoption is the key issue that researchers are concerned with.

Several models have been created over time to determine the elements that impact or drive technology adoption. The theory of reasoned action (TRA) underpins the bulk of these approaches. Later, it was referred to as the theory of planned behaviour (TPB) (Ajzen, 1991). A variety of strategies for researching technology uptake have emerged since then. The TAM (technology acceptance model) and the IDM (innovation diffusion model) are two examples. These concepts and models have been empirically used widely in the literature on technology adoption. These ideas explain why people are lured to contemporary technology and procedures (Almuraqab and Jasimuddin, 2017; Lou and Li, 2017; Salloum et al., 2019). The social cognitive theory (SCT), combined TAM and TPB (C-TAM-TPB), motivational model (MM), and model of PC utilisation (MPCU) are other models that contain technology adoption models (Rodrigues et al., 2016; Ameen, 2017; Ameen and Willis, 2018; Ameen et al., 2018). Venkatesh et al. eventually established the unified theory of acceptance and use of technology (UTAUT), which included the concepts and models. According to the theory, technology adoption is preceded by performance expectations, social influences, effort expectations, and advantageous conditions. These traits have been demonstrated to explain greater variance in technology adoption than other components from different theories and models (Rodrigues et al., 2016; Ameen et al., 2018). As a result, it may be stated that the highlighted parts have an effect.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

The use of technology by individuals, businesses, and governments generates demand. It is essential not for its own sake, but to boost productivity and performance. One of the primary reasons for organisations to embrace technology is to increase their competitiveness and performance. As a result, company performance has been demonstrated to improve with the use of technology (Brandon-Jones and Kauppi, 2018; Chae et al., 2018; Müller et al., 2018; Nakano et al., 2018; Ahmad et al., 2019; Mahroof, 2019; Chege et al., 2020; Igwe et al., 2020).

However, the use of new technologies does not necessarily result in increased corporate success. Even if a corporation or its employees adopt a new technology, they may lack the requisite expertise and experience to have an effect. Training has the potential to significantly influence the relationship between company success and the adoption of new technologies (Brandon-Jones and Kauppi, 2018; Nakano et al., 2018). Similarly, the value of each organization's use of technology is determined by its infrastructure—a collection of shared actual and intangible resources made up of computers, networks, communication, technologies, and data. The firm's size and competencies may be critical in achieving the required performance (Che and Zhang, 2016; De Vass et al., 2018). As a result, business size may mitigate the association between technology adoption and corporate success.

As a consequence of this study, a framework for technology adoption towards firm performance in the UAE manufacturing industry was developed, based on firm size and training. The framework enhanced the UTAUT model, which served as the primary theoretical basis for this research, by analysing its initial features and examining the mediation influence of training between technology adoption and company success. The UTAUT model was chosen because it unifies eight different models of technology adoption and has been shown to be more effective than other models at explaining variation in technology acceptance (Rodrigues et al., 2016; Venkatesh et al., 2016; El-Masri and Tarhini, 2017; Ameen et al., 2018; Ameen et al., 2019; Isaac et al., 2019). The proposed methodology might determine the moderating influence of business size on the link between technology adoption and firm performance, as well as the mediation effect of training on such a relationship.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA