DIGITAL ENTREPRENEURSHIP INTENTION AMONG MBA STUDENTS IN MALAYSIA

By

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ABSTRACT

Unemployment is a pressing issue in most developing countries, particularly exacerbated by the labour market's incapability of absorbing a large number of graduate students. To address this problem, entrepreneurship has been identified as a useful tool. However, Malaysia's entrepreneurship ecosystem suffers from a clear gap, particularly in knowledge creation, product innovation, and technology absorption. With the emergence of digital technologies, a new form of entrepreneurship known as cyber/digital entrepreneurship has taken centre stage. This new approach focuses on the factors that affect entrepreneurial intention of students, particularly with the use of digital technologies. Despite this growing interest in digital entrepreneurship, there is still a lack of research on digital entrepreneurial intention. This study aims to investigate the impact of perceived knowledge of digital entrepreneurship on perceived desirability and feasibility elements, and whether it is necessary and sufficient to mediate the relationship between perceived knowledge and digital entrepreneurship intention. Data were collected from Malaysian MBA students using a cross-sectional study design, and the study hypotheses were tested using SMART-PLS 3.0. The study adopted simple random sampling and gathered data from 394 respondents through internet-mediated questionnaire. The empirical findings suggest that perceived knowledge of digital entrepreneurship, personal attitude, and self-efficacy are necessary antecedents to effective digital entrepreneurial intention. Additionally, attitude and digital entrepreneurial self-efficacy were found to mediate digital entrepreneurial intention. The practical implications of this study suggest that higher education institutions should improve the delivery of entrepreneurship education by emphasizing ICT-based learning applications and introducing ICT-emphasized entrepreneurial disciplines. Theoretical contribution includes the explicit

consideration of digitalization in relation to the antecedents and outcome of the study as well as integration of TPB, Social Learning Theory and Entrepreneurial Intention Theory dimensions as a comprehensive model to assess the antecedents of digital entrepreneurial intention.

Keywords: Digital Entrepreneurship Intention, Digital Knowledge, Attitude, Digital Self-efficacy.

ABSTRAK

Pengangguran adalah isu yang mendesak di kebanyakan negara membangun, terutamanya diburukkan lagi oleh ketidakupayaan pasaran buruh menyerap sebilangan besar pelajar siswazah. Untuk menangani masalah ini, keusahawanan telah dikenalpasti sebagai alat yang berguna. Walau bagaimanapun, ekosistem keusahawanan Malaysia mengalami jurang yang jelas, terutamanya dalam penciptaan pengetahuan, inovasi produk, dan penyerapan teknologi. Dengan kemunculan teknologi digital, satu bentuk keusahawanan baru yang dikenali sebagai keusahawanan siber/digital telah menjadi tumpuan. Pendekatan baru ini memberi tumpuan kepada faktor-faktor yang mempengaruhi niat keusahawanan pelajar, terutamanya dengan penggunaan teknologi digital. Walaupun minat yang semakin meningkat dalam keusahawanan digital, masih terdapat kekurangan penyelidikan mengenai niat keusahawanan digital. Kajian ini bertujuan untuk menyiasat kesan pengetahuan yang dirasakan keusahawanan digital terhadap unsur-unsur keinginan dan kebolehlaksanaan yang dirasakan, dan sama ada perlu dan mencukupi untuk menjadi pengantara hubungan antara pengetahuan yang dirasakan dan niat keusahawanan digital. Data dikumpulkan daripada pelajar MBA Malaysia menggunakan reka bentuk kajian keratan rentas, dan hipotesis kajian diuji menggunakan SMART-PLS 3.0. Kajian ini menggunakan persampelan rawak mudah dan mengumpulkan data daripada 394 responden melalui soal selidik berperantaraan internet. Penemuan empirikal menunjukkan bahawa pengetahuan yang dirasakan tentang keusahawanan digital, sikap peribadi, dan keberkesanan diri adalah penemuan yang terdahulu dan diperlukan untuk niat keusahawanan digital yang berkesan. Selain itu, sikap dan keberkesanan diri keusahawanan digital didapati menjadi pengantara niat keusahawanan digital. Implikasi praktikal kajian ini menunjukkan bahawa institusi pengajian tinggi perlu

meningkatkan penyampaian pendidikan keusahawanan dengan menekankan aplikasi pembelajaran berasaskan ICT dan memperkenalkan disiplin keusahawanan yang ditekankan ICT. Sumbangan teori termasuk pertimbangan jelas digitalisasi berhubung dengan antecedents dan hasil kajian serta integrasi TPB, Teori Pembelajaran Sosial dan Teori Niat Keusahawanan dimensi sebagai model komprehensif untuk menilai antecedents niat keusahawanan digital.

Kata Kunci: Niat Keusahawanan Digital, Pengetahuan Digital, Sikap, Efikasi Kendiri Digital.

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LIST OF ABBVREVIATIONS

ATT	Attitude
BHV	Basic Human Values Theory
DE	Digital Entrepreneurship
DEI	Digital Entrepreneurship Intention
DESE	Digital Entrepreneurship Self-Efficiency
DOSM	Department of Statistics Malaysia
EI	Entrepreneurial Intention
HEI	Higher Education Institution
MBA	Master of Business Administration
MCO	Movement Control Order
ME	Mediating Effect
MEDAC	Ministry of Entrepreneur Development and Cooperatives
MQR	Malaysian Qualification Register
PBC	Perceived Behavioural Control
PK	Perceived Knowledge
PV	Personal Values
SEM	Structural Equation Modelling
SN	Subjective Norms
TPB	Theory of Planned Behaviour

VIF	Variance Inflation Factors

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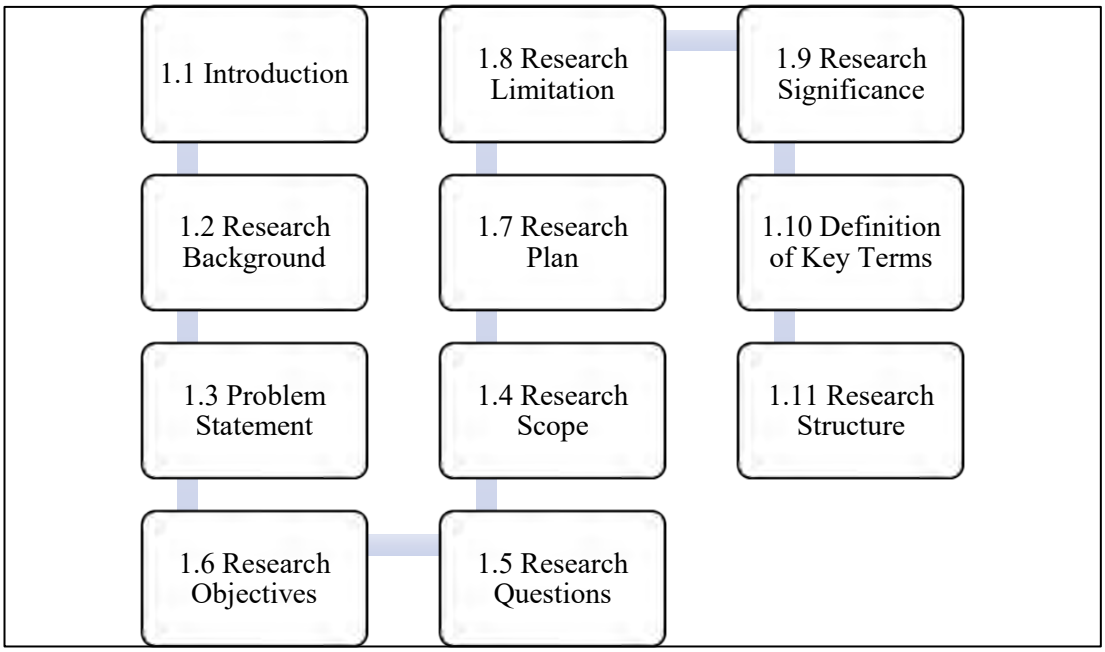
CHAPTER 1

INTRODUCTION

1.1. Introduction

This chapter provides an overview of the background of the research, including the problem statement identified within the body of knowledge, the scope of the study, the research questions, the research objectives, the research plan, the research delimitation including the sector and geographical area of analysis, and the significance of the study in terms of both academic and practical significance. Finally, the studys' overall structure is offered along with a description of some of the main terminology employed in it. Figure 1.1 provides a graphical representation of the structure to make it easier for readers to follow this chapter.

Figure 1.1: Structure of Chapter 1



1.2. Research Background

Entrepreneurship, termed by Schumpeter (1934) as a process of creative destruction, has been the forefront of most government policy worldwide and has equally received much scholarly attention (Youssef et al., 2021; Al-Mamary et al., 2020). Entrepreneurial intention, a dimension of much interest, is important because it has been argued to be a good predictor of actual new enterprise set-up (Krueger, 2000) with entrepreneurs considered to be the "engines of growth" and with appropriate utilization, entrepreneurs could vastly and positively contribute to their country's economic growth and social development (Al-Mamary et al., 2020; Moghavvemi et al., 2016). Arguably the most used model in past studies, the Entrepreneurial Intention Model by Linan and Chen (2004) proposed factors that could affect entrepreneurial intention, known as the motivations dimensions which was based on the Theory of Planned Behaviour (Ajzen, 1991). These factors, or also known as antecedents to intention, are largely known as personal attitude, subjective norm and perceived behavioural control (PBC) (Ajzen, 1991; Millman et al., 2010).

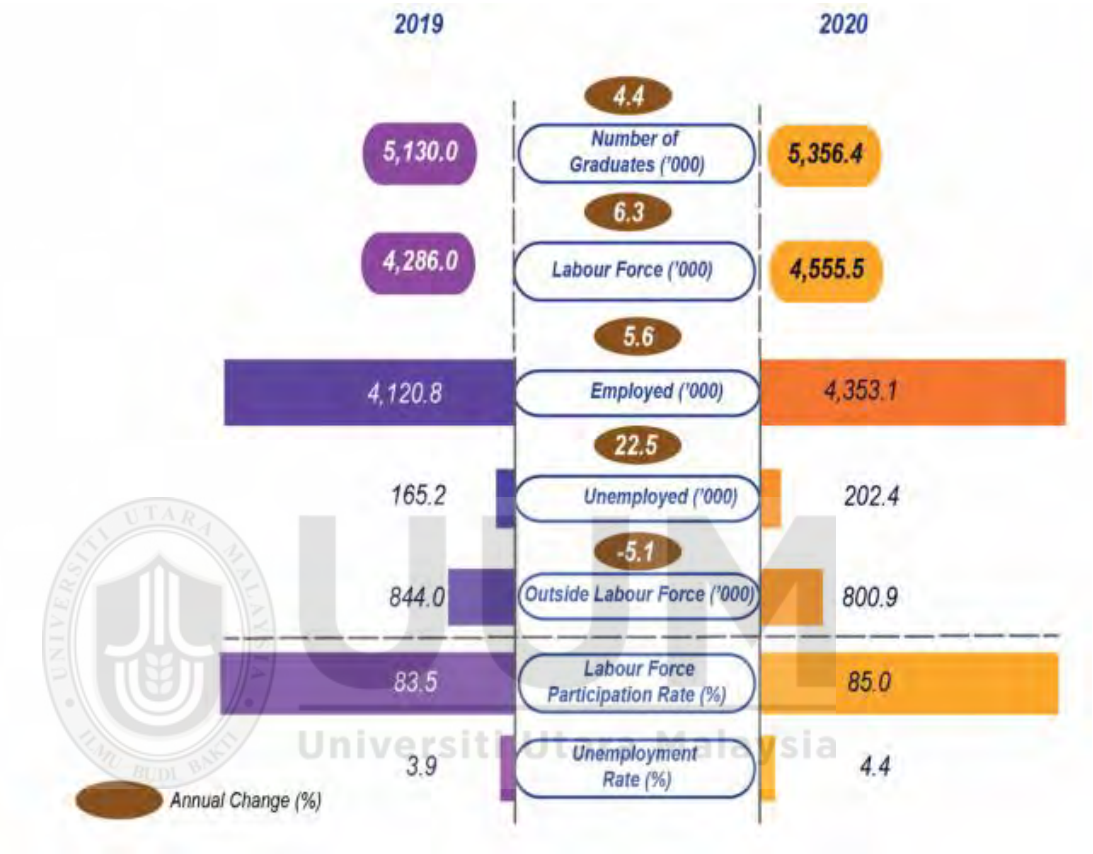
There are also arguments that these motivation factors can be coupled with the concept of self-efficacy, which is a prominent dimension in the Theory of Social Learning proposed by Bandura (1977) and that self-efficacy is slightly different from perceived behavioural control mentioned previously. Newman et al. (2019) argued that entrepreneurial self-efficacy is "an individual's belief in his/her capability to perform tasks and roles aimed at entrepreneurial outcomes." while perceived behavioural control mostly deals with the person's perception of control over his/her situation (Ajzen, 1991). Therefore, for a more comprehensive

framework of studying digital entrepreneurial intention, it is believed that both self-efficacy and PBC need to be included and tested together in the current study's framework.

In the entrepreneurship intention model (Linan, 2004), besides the motivations factors, there is another independent variable termed as entrepreneurial knowledge acting as an antecedent to perceived desirability and feasibility leading to entrepreneurial intention. Perceived knowledge, particularly digital entrepreneurial knowledge is seen as a particularly important to the context of the present study in terms of knowledge that can be gained in a higher education environment. As such, perceived digital entrepreneurial knowledge is chosen as an independent variable in the present study, adapting to Linan's (2004) entrepreneurial intention model, (also used in Wang et al.,'s (2020) and Farani et al., (2017)).

The digital shift of entrepreneurship spells another area of interest. Past two decades have seen the influence of technology in majority of industries both manufacturing and service sector (Dinesh and Sushil, 2021). It has become mandatory for industry to keep an eye on technological updates and making their systems compatible with these technological informs (Julien, 1995). Based on the Department of Statistics Malaysia (DOSM) (2021) graduate employability statistics, out of 5.36 million of graduates in 2020, some 202,000 persons are unemployed making the unemployment rate at about 4.4%. Figure 1.2 below depicts the graduate employment scenario in 2020.

Figure 1.2: Principal Statistics of Graduates, Malaysia, 2019-2020 (‘000)



Source: Department of Statistics Malaysia (DOSM), 2021

Delving deeper into the statistics, it could be seen that the annual change of unemployment is at 22.5% increase, which is considerably significant. This is further exacerbated where some 31.2% of graduates are working in semi-skilled and low-skilled occupation categories resulting in a mismatch in occupation (not fully utilising their education and skills). This skill-related underemployment presents a structural issue of labour market as the number of employed graduates in this (mismatch) category was high even before the COVID-19 pandemic (DOSM, 2021). Most developing countries are affected by the worldwide issue of

unemployment, and it has been stated that entrepreneurship is a useful way to address this problem (Ahmed et al., 2021) with acknowledgement of a critical role of entrepreneurship in job creation (Bernhofer and Li, 2014). Based on the researcher argument on this background, the next section will discuss and present the research gaps that leads to the problem statement of the present study.

1.3. Problem Statement

In the National Entrepreneurship Policy 2030 Report, Malaysia's entrepreneurship environment was argued to be vibrant and has been evolving year after year, evidenced by the nation's ranking on numerous worldwide indices measuring entrepreneurship, including the Global Entrepreneurship Index (GEI), Global Competitiveness Report (GCR), Global Innovation Index (GII), and Doing Business placing Malaysia as the second developing country after China to be in the top 50, beating other developed countries such as Greece, Lithuania and Poland. However, upon closer inspection of Malaysia's position in the sub-indices, there is a clear gap in Malaysia's entrepreneurship ecosystem especially in terms of knowledge creation and workers, product innovation and technology absorption. The sub-indices showed that although Malaysia scored 58/137 in the Global Entrepreneurship Index (2018), it has achieved the lowest score for technology absorption (9%), product innovation (12%) and high growth (13%).

The government of Malaysia especially the Higher Education Department has already embarked on several entrepreneurial-based initiatives such as collaboration with the Perbadanan Usahawan Nasional Bhd which provides entrepreneurship training to graduates and the Ministry of Entrepreneur

Development and Cooperatives (MEDAC) for the MoHE-MEDAC Siswapreneur programme (Malay Mail, March 12, 2021) in its effort to combat rising graduate unemployment. Another relevant problem is that the labour market is incapable of absorbing huge numbers of graduate students where private sectors lack potentials necessary for taking in all the graduates while the public sector alone cannot create work for everyone (Al-Mamary et al., 2020). This signals the importance of entrepreneurship, often argued as part of the solution for unemployment specifically and to the wellbeing of the economy in general. Indeed, the growing difficulties in finding jobs has forced many graduates to adopt innovative approaches (such as digital entrepreneurship) for a suitable career path (Millman et al., 2010 Al-Mamary et al., 2020).

This decline in graduate employability (which could also be read as rising graduate unemployment) presents the first problem that motivated the researcher to conduct this research as it is argued that one of the potential solutions to this unemployment issue and challenge is via new business set-up and entrepreneurship in general. Themes like personal capital (knowledge, social and professional networks), the entrepreneurial context, and how these affect the entrepreneurial realisation at different levels have not yet been systematically considered in past entrepreneurship research, which tends to cluster around the themes of strategy, performance, entrepreneurial attitude, and management (Galanakis and Giourka, 2017). Furthermore, in the course of studying entrepreneurship, it is also argued that there is an urgent need to study entrepreneurship intention as it is a good predictor to new business set-up behaviour. Understanding the factors that shape entrepreneurial intention can assist government to attract more entrepreneurs,

correct misconceptions and may encourage students to start new business by fostering a more conducive environment for entrepreneurial activities (Al-Mamary et al., 2020). Furthermore, in the current graduate unemployment and the Covid-19 pandemic where most business have shifted online, the need to study digital entrepreneurship and its intention is even more important and, especially among graduates, this type of study is very scarce (Youssef et al., 2021, Millman et al., 2010, Al-Mamary et al., 2019).

Based on entrepreneurship intention literature reviewed, the field digital entrepreneurship intention is still in its nascent stage (Youssef et al., 2021; Ahmed et al., 2021, Tajvidi and Tajvidi, 2020; Kraus et al., 2019) and even more scarce in the context of Malaysia (Ahmad et al., 2019). Digital technologies are playing a transformational role in the world economy with digital developments key to worldwide economic growth (Amirato et al., 2020). In the context of entrepreneurship, digital technologies are providing new opportunities of setting up business online enabling these entrepreneurs to sell their products worldwide and there is a need to study the link of digitalisation to the economy and its potential impact. Along with the pandemic challenges, a form of entrepreneurship, referred to as cyber/digital entrepreneurship, has emerged with foundation based on new technological advancements (Tajvidi and Tajvidi, 2020). The focus now is the factors that affect entrepreneurial intention of students and their link to digital technologies (Youssef et al., 2021) and further research on a range of undiscovered factors that may affect student's digital entrepreneurship intentions (Millman et al., 2010) is warranted as it is important to understand which particular factors would serve as a motivation to start an individual's own business (Ilerisoy et al., 2021).

However, despite the increase in interest in internet and digital entrepreneurship, few people actually intend to launch their own online firms (Wang et al., 2020).

Additionally, there is a strong argument in the literature that digital technologies should be studied explicitly while accounting for the variations between subgroups of students and those enrolled in business and management university courses (Youssef et al., 2021, Tajvidi and Tajvidi, 2020). This is coupled with some study findings that contradicts the successful ventures of graduate entrepreneurs throwing doubts on the sustainability of graduate new ventures. For example, a longitudinal study by Hanage et al., (2016) following 12 nascent graduate entrepreneurs over a seven-year period found that there an important new issue emerged where even for those that have an outward successful appearance, they were financially weak so that most of the graduates soon scaled down their growth ambitions. A few became increasingly in need of secure income, for instance caused by parenthood, and nearly all abandoned self-employment, either fully or partially, and sought employment. After about three years, fewer than half of them believed that they had acquired proper graduate employment and none realized the growth business which they had aspired to establish.

In another light, the explosion of digitalization, coupled with the necessity of staying at home and buying goods online due to lockdowns of the Covid 19 pandemic strongly calls for more entrepreneurial activities to be shifted online. Entrepreneurial capabilities are also vital assets to fight against and overcome the current situation of COVID-19 (Reis et al., 2021). Although technology seems to be present in every part of students' lives, their ICT usage and skills are not

distributed equally, which has an uneven effect on higher education (Millman et al., 2010). Even in a developing country such as Australia, Maritz et al., (2019) had found a sparse and inconsistent distribution of entrepreneurial education initiatives in Australian HEIs, especially against the backdrop of rapidly expanding start-ups and entrepreneurship ecosystems. In Table 2.2 discussed in Chapter 2 (section 2.2.2), the researcher found out that there is scant study done on digital entrepreneurial intention. Out of 35 articles reviewed that dealt explicitly with entrepreneurial intention, only 7 articles dealt specifically with digital entrepreneurial intention. This is both surprising and disquieting. In the age where the world is mostly digitised, there is still little studies done on digital entrepreneurship especially ones that deals with intention. The researcher therefore also responds to this paucity in knowledge and shall conduct this study in the context of digital entrepreneurship intention and its antecedents.

Table 2.2 in Chapter 2 (section 2.2.2) also propels another question: Would a single theory explain the antecedents to digital entrepreneurial intention? Or, would a combination of theories (an integrated framework) help to explain better? Although TPB is still the most popular theory in the study of entrepreneurial intention, alternative theories may be more appropriate for rising nations like Malaysia, where an integrated model allows for greater complexity in relation to students' entrepreneurial intention (Youssef et al., 2021). An emerging theoretical field of study still at infancy, digital entrepreneurship currently lacks solid integrated frameworks (Amirato et al., 2020). Responding to this lack of an integrative theory to explain antecedents of digital entrepreneurial intention (Al-Mamary et al., 2020), this study also therefore responds to this scarcity of

knowledge by conducting the research using a combination of theories (namely TPB, Entrepreneurial Event Theory, Social Learning Theory and Entrepreneurial Intention Theory) in the hope to better explain this phenomenon.

1.4. Research Questions

It is argued that despite recent advances in the literature on digital entrepreneurship intention, there are still significant gaps in our understanding of the elements that influence this desire. The primary research questions for this study are developed in light of these gaps (described in the preceding section) as follows:

Among MBA students,

RQ1: Does perceived knowledge of digital entrepreneurship influence perceived desirability (personal attitude and subjective norm) and feasibility (perceived behavioral control and digital entrepreneurship self-efficacy)?

RQ2: Do perceived desirability and feasibility have a significant relationship to digital entrepreneurship intention?

RQ3: Do perceived desirability and feasibility mediate the relationship between perceived knowledge of digital entrepreneurship and digital entrepreneurship intention?

In order to further support the study choice, it is argued that a causal link connects the two facets of the research scope and the research questions. The second side of the paper focuses on the implications of perceived desirability and feasibility in terms of the MBA students' intention to engage in digital entrepreneurship, while

the first side emphasizes the idea that perceived knowledge of digital entrepreneurship influences perceived desirability and feasibility. By connecting these two threads, a comprehensive picture of MBA students' decisions to launch new businesses can be obtained, which outlines the direction the agenda for digital entrepreneurship will go in the future. In the following chapter, this will be covered in more detail.

1.5. Research Objectives

The study's overall goal of developing a conceptual knowledge-desirability/feasibility-intention framework, focusing on the relationships between perceived knowledge of digital entrepreneurship, perceived desirability and feasibility, and perceived intention of engaging in digital entrepreneurship, is generated by the aforementioned research questions. The following goals are crucial in light of this overall goal and the study's research questions:

RO1: To identify the antecedents of digital entrepreneurship intention among MBA students.

RO2: To explore the relationships between perceived knowledge of digital entrepreneurship, perceived desirability, perceived feasibility and digital entrepreneurship intention among MBA students.

RO3: To investigate whether perceived desirability and feasibility mediate the relationship between perceived knowledge of digital entrepreneurship and digital entrepreneurship intention among MBA students.

Through the successful accomplishment of the aforementioned research objectives, this study aims to provide answers to the suggested research questions.

1.6. Research Scope

This section addresses the research scope of the study after discussing the problem description and research background. The two objectives of this dissertation are as follows in light of the aforementioned research gaps:

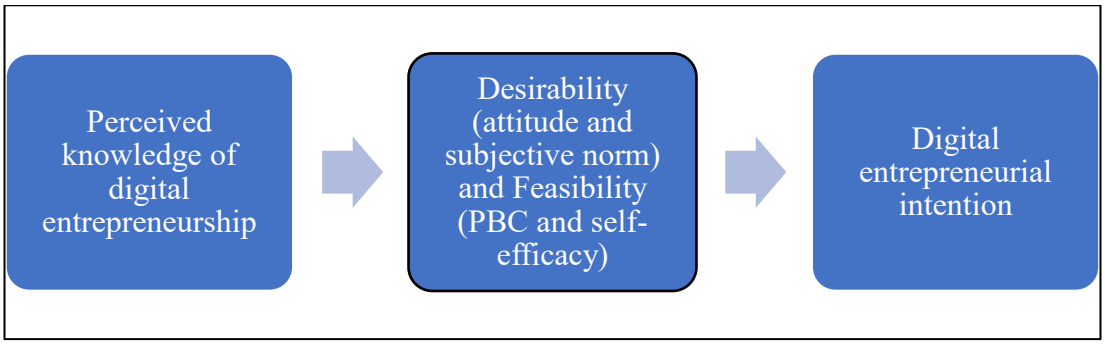
1) Determining the role of antecedents, encompassing perceived knowledge of digital entrepreneurship, perceived desirability and feasibility on digital entrepreneurship intention.

2) Investigating the consequences and mediating roles of perceived desirability and feasibility in terms of intention, specifically digital entrepreneurial intention.

Essentially, the goal of this study is to determine whether perceived knowledge of digital entrepreneurship has an impact on perceived desirability and feasibility elements and to determine whether it is both necessary and sufficient. The investigation will next focus on the impact such desirability and feasibility, which are influenced by perceived knowledge variables, has on digital entrepreneurial intention.

The research area covered by this dissertation is depicted in Figure 1.3. Exploring and comprehending the theoretical connections between perceived knowledge, desirability and feasibility, and digital entrepreneurial ambition is the goal.

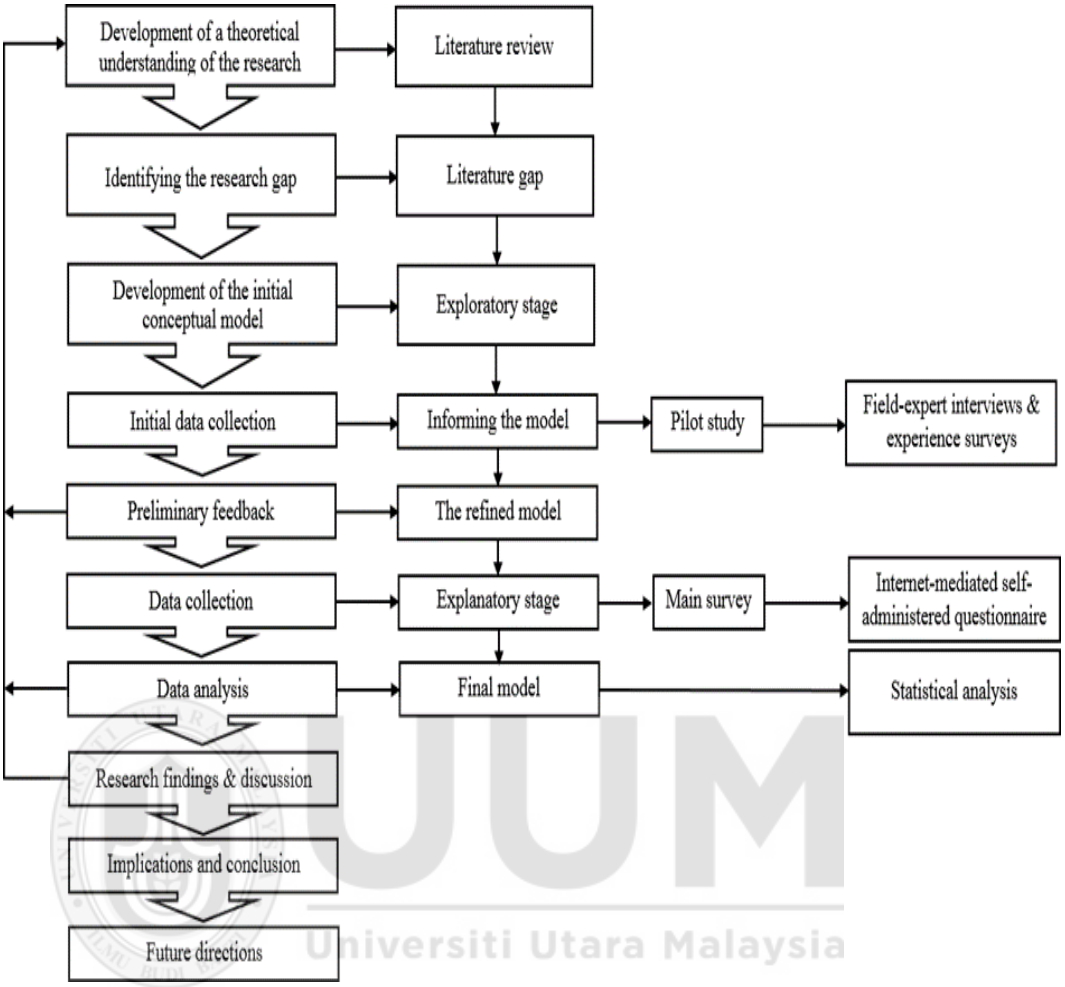
Figure 1.3: Research Scope



1.7. Research Plan

This section goes on to outline the study's research plan, which enables the researcher to successfully conduct this research project to the desired end and completion point, after discussing the research background, the research gaps, the scope of this research, and the research questions and objectives. The research strategy used to accomplish the study's key goals is shown in Figure 1.4.

Figure 1.4: Research Plan



1.8. Research Limitation

This section presents the study's boundaries in terms of the industry and geographic area it will be analysing.

1.8.1. Sector of Analysis

The focus of this dissertation's examination is on digital entrepreneurial intention in the setting of higher education. The primary justification for selection the higher education sector is that it faces a formidable task in regaining influence with the new generation of students, pushing it to

fundamentally alter its philosophy and method of imparting knowledge (Zainuddin et al., 2012). The higher education sector has a significant role in being a real incubator for students, as it is largely associated with resources to provide experienced educators who are capable for exposing students of what they can expect from the world of entrepreneurship. These higher education institutions are also in the position of providing space for students to reflect on their identities (whether personal, professional and intellectual) so that student can produce sustainable productivity and satisfaction in the long run. By doing so, universities can simulate the real world of entrepreneurship by providing tacit knowledge and heuristic judgment (Zainuddin et al., 2012).

Furthermore, universities, having to adapt to rapid changes especially in ICT, requires continuous adjustment in order to be able to embrace learning organization and would presumably need less emphasis on rigid organizational structure and to put more emphasis on a flexible organic structure and system so that they can be more receptive and adopt and manage new technologies (Zainuddin et al., 2012). But, for this to happen, the higher education institutions would probably need more evidence that the instalment of new technologies and new ways of teaching would result in a more entrepreneurial student who have the intention to start a new business. In order to see if the research phenomena can offer additional proof of the causal relationship between antecedents and digital entrepreneurial ambition, the higher education sector as a whole was chosen as the sector of examination in this study. As a result, the higher education sector is thought to be a suitable first area of examination for this study.

Given the scope of the higher education industry and the variety of curricula it offers, the objective of promoting digital entrepreneurship may only be partially successful given the difficulty of this strategy. Additionally, it is possible that some programmes' potential lack of business education or focus will prevent crucial entrepreneurial activities from being completely implemented in all programmes running within the larger higher education sector. In an effort to better define the study's area of investigation, the particular MBA programme was highlighted while keeping the overall focus on the larger higher education industry in mind.

The MBA programme was picked for closer analysis because it is both related to more difficult start-up issues and is also adequately representative of the entire postgraduate market. Graduate entrepreneurship is vital to national competitiveness and a dynamic resource for local and regional economic growth (Millman et al., 2010). The argument that the qualities of this programme are in line with the fundamental ideas of the typical higher education sector leads to the conclusion that the MBA programme is a reasonable depiction of the postgraduate higher education sector. Business students are more closely scrutinised in connection to their effects on new business start-up issues that have recently emerged, which supports the choice of this area for analysis (Zainuddin et al., 2012; Hassan et al., 2020).

1.8.2. Geographical Scope

Malaysia serves as the study's geographic analysis area. In order to encourage entrepreneurship among their citizens, many developing nations, including Malaysia, see the development of entrepreneurship as a powerful tool for economic progress (Ahmad et al., 2019). The majority of research on technology startups is heavily concentrated on developed economies (Silva et al., 2019) currently focused within the USA, UK and the Netherlands (Lasso et al., 2019), thereby representing a gap in knowledge within the context of developing countries like Malaysia. Efforts to understand country specific conditions or home country profiles can wield numerous distinct effects on the degree of born globalness of high-tech start-ups (Amirato et al., 2020).

Furthermore, for emerging and developing economies, typically comprised of rapid-pace development countries with governmental policies with pro-liberation economic policies (Wright et al., 2005), numerous scholars have underscored the importance of such contexts calling for investigation of business performance in both developed and developing economies (Chacar and Vissa, 2005; Hoskisson et al., 2000; Vissa and Chacar, 2009). Because emerging economies are experiencing significant institutional transformations, with both opportunities and challenges for entrepreneurial firms (Boso et al., 2013), they account for a large proportion of populations in the “base-of-the-pyramid” with obstacles related to literacy, numeracy and cognition, which entail limited new product adoption and market consumption (Nakata and Weidner, 2012). Essentially, this situation also presents relevant opportunities

for entrepreneurship research, which is still limited, since these locations remain outside the typical focus of entrepreneurship studies (Bruton et al., 2008; Xu and Meyer, 2013; Yamakawa et al., 2013).

1.9. Research Significance

With regard to its antecedents in particular, this study seeks to expand knowledge on the intention of digital entrepreneurship. This study's academic and practical implications are each presented in the next sections.

1.9.1. Practical Significance

Entrepreneurship has been touted as a tool to fight unemployment and poverty (Ahmad et al., 2019). Considering the complexities concerning the implementation of entrepreneurship curricula and the uncertainties about the benefits of such initiatives, this study offers novel insights for higher education institution on the entrepreneurship agenda. In this respect, this study offers useful insights for both educators seeking to adopt digital entrepreneurial curricula and policy-makers and regulatory bodies seeking to further promote the entrepreneurship agenda. Universities need to focus on the development of new and innovative entrepreneurial courses (perhaps using design thinking approach) that could be better and more effective than traditional courses and better equip the students in combating unemployment after they graduate (Youssef et al., 2021; Ahmad et al., 2019).

Educators are given managerial insights on how they can undertake digital entrepreneurship initiatives across their institution and successfully implement entrepreneurship education. In addition, policy-makers and legislators are given useful insights into how they can further motivate students to set-up new business and become digital entrepreneurs. The findings could provide a critical grounding for higher education institution (for example) who wish to enhance entrepreneurial education within the ever-expanding entrepreneurial ecosystem (Maritz et al., 2019).

1.9.2. Academic Significance

While prior research has explored the relationships between perceived knowledge and entrepreneurial intention, there is a lack of robust explanation of how digital education support (perceived knowledge of digital entrepreneurship) affect entrepreneurial intention among students and not understanding the role of digital technologies and the conditions of their use could lead to unexpected results. The usage of digital technologies should be understood to allow for stronger impact on entrepreneurial intention (Youssef et al., 2021). By understanding the antecedents of entrepreneurial intention, this study is significant in its role in helping universities in the need to build skills needed to become a digital entrepreneur.

Another major significance of this study lies in its comprehensive and integrated perspective, which allows a thorough and rigorous empirical investigation of the antecedents of digital entrepreneurial intention. This research further contributes to the entrepreneurship literature by integrating

recently developed constructs into a framework using previous fragmented and disjointed studies to conceptualise a comprehensive knowledge-desirability/feasibility-digital entrepreneurial intention model. In effect, this investigation brings new insight into the digital entrepreneurial intention field and clarifies existing knowledge on whether knowledge, desirability and feasibility can influence digital entrepreneurial intention. Hence, it is contended that the study is of academic significance. The framework also includes several theories in effort to contribute to unified framework for digital entrepreneurship intention.

1.10. Definition of Key Terms

This section presents the key terms or operational definition used in this study (depicted in Table 1.5).

Table 1.5: Definition of Key Terms

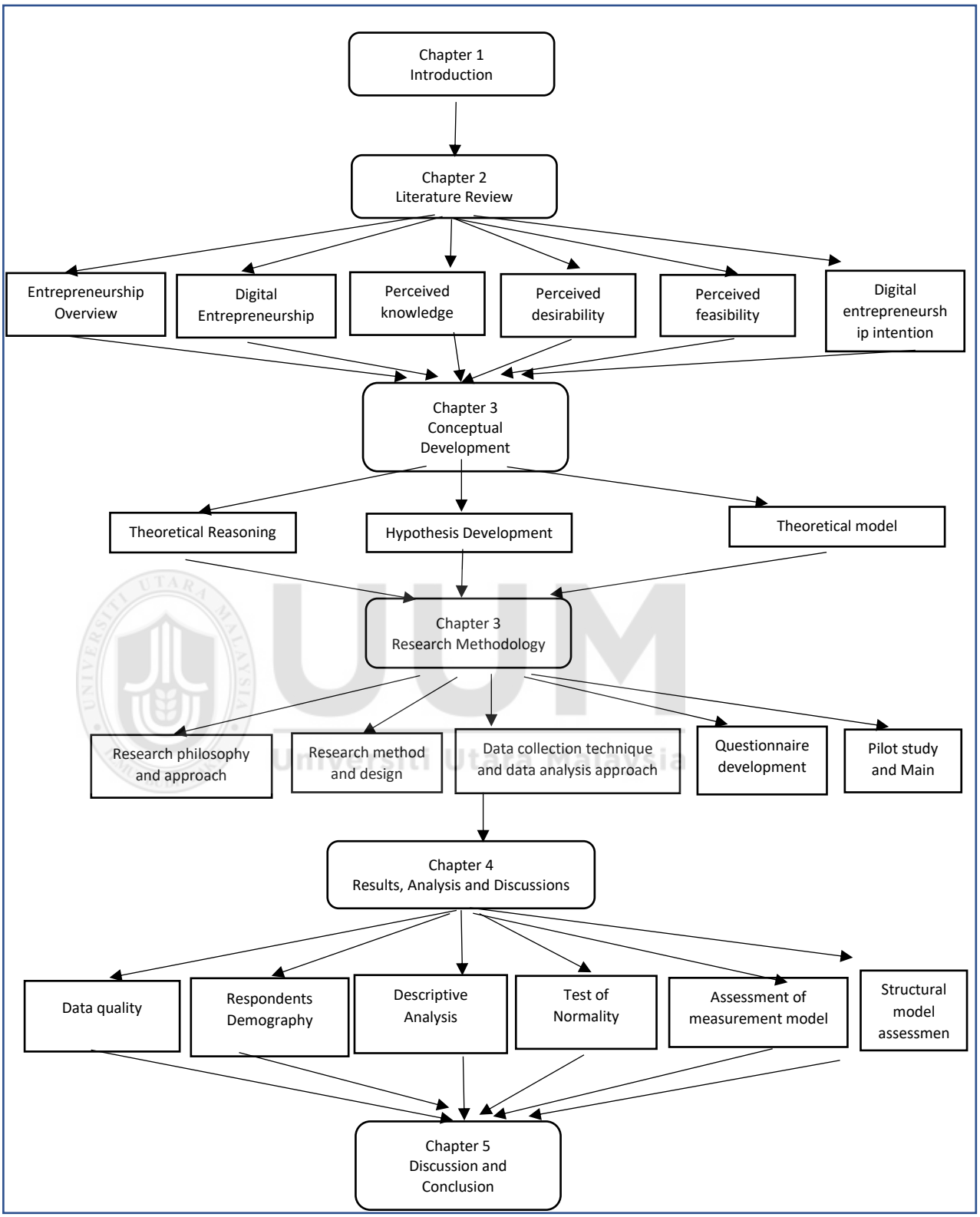
Key terms	Definition/operationalisation	Source
Perceived knowledge of digital entrepreneurship	perceived knowledge on digital entrepreneurship to constitute as "perceived knowledge and skills about internet entrepreneurship and these would include electronic law, common knowledge, computer ability, internet marketing and e-commerce to cope with potentially threatening situations or more challenging environments."	Wang et al., (2020), Silva et al., (2020)
Personal attitude	The degree to which the individual holds a positive or negative personal valuation about being an entrepreneur.	Ajzen (1991)

Subjective norm	The persons' perceived social appropriateness to participate or not in a specific behaviour and the perceived social pressure to carry out -or not to carry out- that entrepreneurial behaviour	Ajzen (1991)
Perceived behavioural control	The perceived degree of control over performance of the behaviour which is the degree to which a person perceive that he/she is able to perform certain behaviour and have control in doing it.	(Ajzen, 2002), Ahmad et al., (2019)
Digital entrepreneurship self-efficacy	Represents the user's personal confidence of a successful and purposeful usage of the technology itself to successfully perform tasks and roles of a digital entrepreneur.	Monllor and Soto-Simeone, (2020)
Digital entrepreneurship intention	The desire to establish an internet-based business with entrepreneurial activities done online.	Al-Mamary et al., (2020), Krueger et. al., (2000), Wang et al., (2020)

1.11. Research Structure

This section examines the chapters and major ideas covered in each chapter as well as the overall organisation of the dissertation. The introduction, literature review, conceptual formulation and research methods, analysis and results, discussions, and conclusions are the five chapters that make up this dissertation. The organisation of the chapters of this dissertation is shown in Figure 1.6.

Figure 1.6: Research Structure of This Study



Chapter 1 (Introduction) provides a summary of the dissertation using Figure 1.6 as a guide. Beginning with the backdrop of the research phenomenon, this chapter then examines the research gaps in the body of existing literature. The following sections of Chapter 1 describe the study's objectives, research questions, goals, research plan, research delimitation (including the industry and region under examination), and importance. The dissertation's broad structure is included in this chapter's conclusion, along with the study's major terms.

A theoretical framework on the primary research clusters addressing the research phenomena is provided in Chapter 2 (Literature Review), which also covers the pertinent literature surrounding the research issue. The first section of this chapter provides a succinct theoretical overview of the area of entrepreneurship, outlining its main components and methods. It also discusses how entrepreneurship has moved its emphasis to the digital revolution. A summary of the theoretical understanding of the idea of entrepreneurial intention is then provided, along with an explanation of its models and fundamental elements. The following major research clusters are highlighted: perceived knowledge of digital entrepreneurship, perceived desirability, perceived feasibility, and its related results of digital entrepreneurship intention.

Theoretical considerations on each of these research clusters are presented in Chapter 3 (Conceptual Development and Research Methodology), which offers a theoretical underpinning for different facets of the research phenomena. Accordingly, this chapter builds the perceived knowledge on digital

entrepreneurship, perceived desirability, perceived feasibility research clusters and develops their relevant dimensions. This study's primary goal of developing a strong conceptual knowledge - desirability/feasibility - digital entrepreneurship framework to adequately address the research issues is achieved with the aid of this study's synthesis of the major research clusters. A research framework is conceptualised based on the theoretical underpinnings of the integrated research phenomena that are attempted to be provided in this chapter. The integrated model is offered together with a description of the theoretical connections between the three major research clusters of knowledge, desirability/feasibility, and digital entrepreneurship intention. The chapter goes on to explain how each individual hypothesis was proposed before presenting the development of the relevant hypotheses. In the subsequent paragraphs, Chapter 3, the "research onion" of this dissertation's core methodology—including the research philosophy, the research approach, the research strategy, the research design, and the research method—is described and justified. The development of the questionnaire is then covered in detail in this chapter, covering the selection of the questionnaire and the layout of the questionnaire. The creation of the measurement scale and the justification for using primary data in this dissertation follows next. The sampling strategy used in this study is also covered in Chapter 3, along with ethical issues considerations. Details of the main survey and the pilot study are provided in the chapter's conclusion.

The proposed Structural Equation Modelling (SEM) data analysis approach is described, supported, and justified in Chapter 4 (Analysis, Results, and Discussion), which also includes the descriptive findings of the study. The

numerous analyses relating to the evaluation of measurement model, scale assessment processes, and common method bias are presented in this chapter. The findings of the structural equation modelling are then presented in Chapter 4, together with information on whether or not the proposed hypotheses are accepted. Chapter 4 also includes critical discussions with regard to the research questions, elaborating on the causal linkages between the antecedents and intention, and presenting the findings of the study, drawing on the findings for each proposed hypothesis in detail. The findings of each of the hypothesised associations are further discussed in this chapter, along with how well they agree with previous research and any instances where conflicting results are found. Following this empirical inquiry, a summary of theoretical perspectives on digital entrepreneurial intention is provided.

Finally, Chapter 5 (Conclusions), which presents the final model and brings the study's findings to a close, revisits the research objectives and summarises the research questions. The major contributions of the study are also covered in this chapter, along with the most important managerial ramifications that may be drawn from it. The research limitations and suggested future research opportunities are discussed in Chapter 5's conclusion.

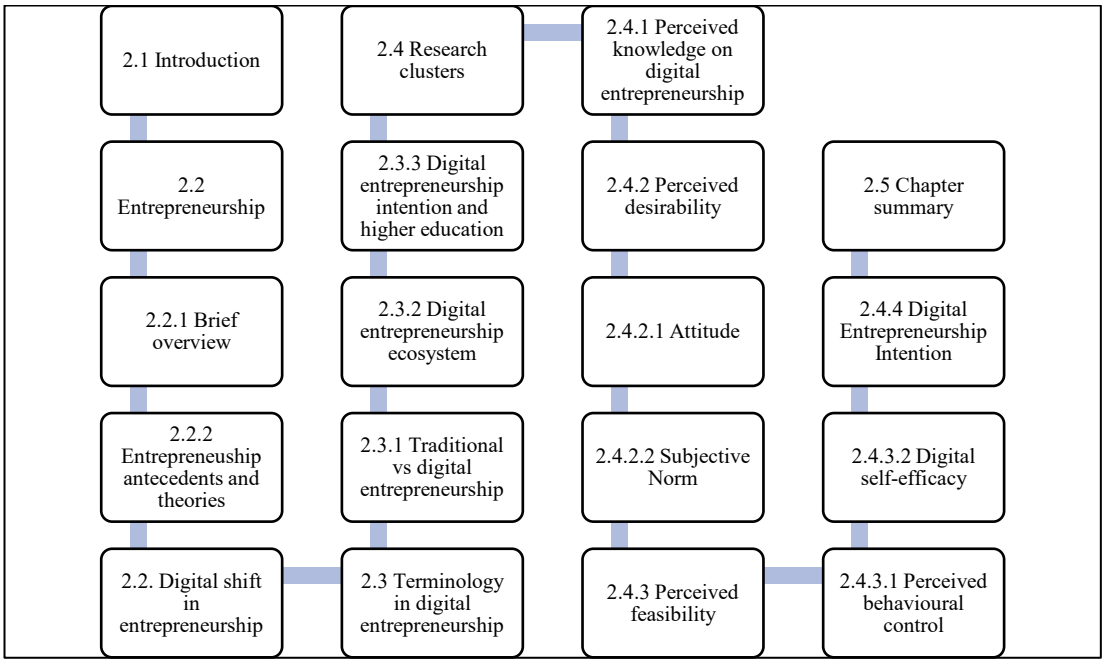
CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter will mostly discuss the overview of the literature surrounding the topic of digital entrepreneurship with specific focus on the antecedents of digital entrepreneurship intention. This chapter will provide theoretical background to the research phenomenon as well as the key research clusters surrounding the research issue, with the primary goal of reviewing the pertinent extant literature. This will help in building and evaluating the conceptual framework of entrepreneurial knowledge-beliefs-digital entrepreneurship intention. It will also highlight the primary critical issues connected to the suggested study topics. Figure 2.1 depicts the structure of this chapter.

Figure 2.1: Structure of Chapter 2



2.2. Entrepreneurship

2.2.1. A brief overview

Schumpeter (1934), arguably the most cited authority on entrepreneurship, had described entrepreneurship as "a process of creative destruction". Requiring generation and implementation of new ideas and solutions, entrepreneurship involves the dynamic process of creation, vision and change (Youssef et al., 2021). It involves positive attitudes towards identifying innovative business opportunities and developing new business (Al-Atabi and DeBoer, 2014) and could also be from enhancing existing business' productivity via innovative approach employment (Toma, 2014). UK's Quality Assurance Agency Guidance on Enterprise and Entrepreneurship Education (QAA, 2018, p.7) had defined entrepreneurship as "the application of enterprise behaviours, attributes and competencies into the creation of cultural, social or economic value. This can, but not exclusively, lead to venture creation." Gruber and MacMillan (2017) as cited in Galati et al., (2020) classified entrepreneurs based on two variables, namely social identity and role identity, and came up with three different social identities of entrepreneurs (Darwinian, Communitarian and Missionary):

1. Darwinian entrepreneurs focus on "the self" and pursuing their private, economic self-interest through the execution of traditional business logics, with competition as their primary frame of reference in the social space.
2. Communitarian entrepreneurs focus on the community. They provide support (and believe they also deserve support from) for their social

community by following logics that embody shared norms, beliefs and trust.

3. Missionary entrepreneurs focusing on society in its broader meaning. Their mission logic embodies a strong sense of responsibility for the world, thus deriving self-worth from acting to improve the world.

Al-Mamary et al., (2020) contended that entrepreneurship include the process of management, organization and development of a project in order to make profit. Shane and Venkataraman (2000) stated that entrepreneurship involves discovery, assessment and exploitation of opportunities, leading to creation of new products, services or production processes, or, new strategies and organisational forms, and new markets for products and inputs that did not formerly exist. Entrepreneurship literature mostly focuses generally on manufacturing industries and underestimates the service industries, which have been largely ignored (Al-Omoush, 2020). There therefore is the need for a substantive shift in the framing and focus of the field in order to foster the creation of consensus-changing research enabling us to better understand when, how and why entrepreneurship happens, and who becomes involved (Dy and Agwunobi, 2019).

2.2.2. Entrepreneurship Intention Antecedents and Theories

This section provides a discussion of past studies with primary objective of synthesizing the antecedents of entrepreneurship intention and therefore provide the basis for variables that are chosen in this study.

Table 2.2: Antecedents of Entrepreneurial Intention

Author (year)	*Antecedents*	*Theory*
Youssef et al., (2021)	IV: educational support, relational support, structural support; MedV: personal attitude, perceived behavioural control	Theory of planned behaviour, contextual factors were measured using entrepreneurship support model
Ilerisoy et al., (2021)	IV: design, construction and technology courses; MedV: Attitude, self-efficacy, innovativeness and learning motivation	Theory of planned behaviour and Entrepreneurial education theory
Al-Mamary et al., (2020)	IV: attitudes towards behaviour, social norms, self-efficacy, autonomy, innovativeness, risk-taking, proactiveness and competitive aggresiveness	Theory of planned behaviour, Social learning theory and Entrepreneurial Orientation theory
Ahmad et al., (2019)	IV: Attitude, subjective norm and perceived behavioural control; MedV: perceived desirability and perceived feasibility	Theory of planned behaviour and Entrepreneurial Event theory
Reis et al., (2021)	Meta competence: personal and behavioural, functional, knowledge and cognitive, values and ethics	Meta competence framework
Galanakis and Giourka (2017)	IV: personality, attitude, knowledge, social ties	Theory of planned behaviour
Zayadin et al., (2020)	IV: Entrepreneurial social capabilities, identity and self-efficacy, confidence, knowledge of social and market values	Theory of planned behaviour and Social learning theory
Munoz (2018)	IV: values, awareness, motivation, self-efficacy	Theory of planned behaviour and Social learning theory
Monllor and Soto-Simeone (2020)	IV: Technology self-efficacy; MedV: Entrepreneurial self-efficacy	Theory of planned behaviour
Duan et al., (2021)	IV: accessible markets, fundings and finance, business support, human capital, government and institution, social cultural	Economic factors and Social and cultural environment theory

Tomy and Pardede (2020)	IV: self-skill awareness, entrepreneurial resources, entrepreneurial network; MedV: entrepreneurial self-efficacy	Theory of planned behaviour and Social learning theory
Bello et al., (2018)	IV: Creativity; MedV: entrepreneurial self-efficacy; ModV: Social context	Theory of planned behaviour and Social learning theory
Hueso et al., (2021)	IV: Openness to change, self-trancendence, conservation, self-enhancement; MedV: personal attitude, subjective norm, perceived behavioural control	Theory of planned behaviour and Theory of basic human values
Towers et al., (2020)	IV: student entrepreneurial capacity building; ModV: entrepreneurial skills and mindset	Theory of planned behaviour and entrepreneurship education theory
Wang et al., (2020)	IV: perceived knowledge of internet entrepreneurship; MedV: internet entrepreneurial self-efficacy	Theory of planned behaviour, social learning theory and entrepreneurship education theory
Abubakre et al., (2020)	IV: IT culture; ModV: personal innovativemess, experience	Social cultural theory and entrepreneurial orientation theory
Mancha and Shankaranarayanan (2021)	IV: entrepreneurial orientation, entrepreneurial self-efficacy, basic digital literacy, digital technology self-efficacy	Entrepreneurial orientation theory, social learning theory, entrepreneurial education theory and theory of planned behaviour
Shukla et al., (2021)	IV: entrepreneurial attitude; ModV: ICT skills	Theory of planned behaviour and Entrepreneurial education theory
Abdelsalam et al., (2021)	IV: work-family conflicts; ModV: level of education, marital status	Entrepreneurial Event theory
Polas et al., (2020)	IV: perceived capability, social perceptions, individual competencies; MedV: perceived opportunity	Social and cultural environment theory
Londono et al., (2020)	IV: attitudes, subjective norm, anticipated positive emotions, anticipated negative emotions MedV: desires, frequency of past behaviours, perceived behavioural control	Theory of planned behaviour and value-attitude-behaviour theory

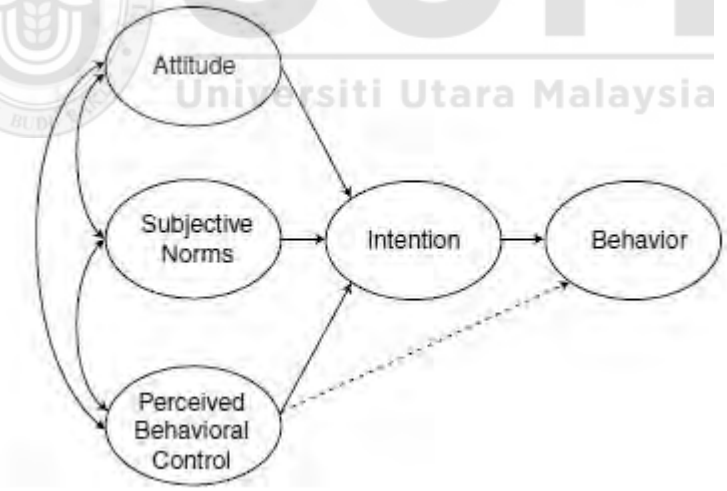
Bernhofer and Li (2014)	IV: personal background, motivation and family background; MedV: attitude, subjective norm, perceived behaviourial control	Theory of planned behaviour and Social and cultural environment theory
Hassan et al., (2020)	IV: Entrepreneurial education, financial support, market availability; MedV: Entrepreneur Attitude	Theory of planned behaviour and entrepreneurship education theory
Hatak et al., (2015)	IV: Age; ModV: job identification	Social and cultural environment theory
Ngoasong (2018)	IV: Context; MedV: Entrepreneurship digital competencies	Social Learning Theory
Camilleri (2019)	IV: pace of technological innovation; MedV: perceived ease of use, perceived usefulness, technologies anxiety	Entrepreneurial Event Theory
Touzani et al., (2015)	IV: Cultural factors, contextual factors	Social and cultural environment theory
Lapter and Shaytan (2021)	IV: Creativity, analyticity, intuition, flexibility of thinking	
Datta et al., (2020)	IV: Affective, normative and calculative commitment; ModV: Entrepreneurial responsiveness, entrepreneurial climate	
Soomro and Shah (2021)	IV: Technopreneurial related activities, Technopreneurial self-efficacy and Technopreneurial motivation	Theory of Planned Behaviour
Sun et al., (2017)	IV: Know-what; MedV: know-why, know-who, know-when, attitude, subjective norm, perceived behavioural control	Theory of planned behaviour and entrepreneurship education theory
Zainudin and Mohd Rejab (2010)	IV: Subjective norm	Theory of planned behaviour
Millman et al., (2010)	IV: gender, income, discipline and online activity; MedV: awareness, attainability, feasibility, issues and barriers	Social and cultural environment theory
Farani et al., (2017)	IV: Entrepreneurial knowledge; MedV: attitude, subjective norm, perceived behavioural control	Theory of planned behaviour and entrepreneurship education theory

Note: IV=Independent variables, MedV=Mediating variable, ModV=Moderating variables and DV= Entrepreneurial Intention

Source: Author's compilation (2022)

Upon scrutinization of the table, several trends became clear. Theory of planned behaviour (TPB) by Ajzen (1991) dominates as the main theory used to explain entrepreneurial intention where almost 95% of the literature reviewed in the table used TPB. This is concurred by Hueso and Jaen (2021) in their systematic literature review on entrepreneurial intention where they also stated that TPB is the most prominent model to explain the start-up intention. Figure 2.3 below depicts the Theory of Planned Behaviour.

Figure 2.3: Theory of Planned Behaviour



Source: Ajzen, 1991

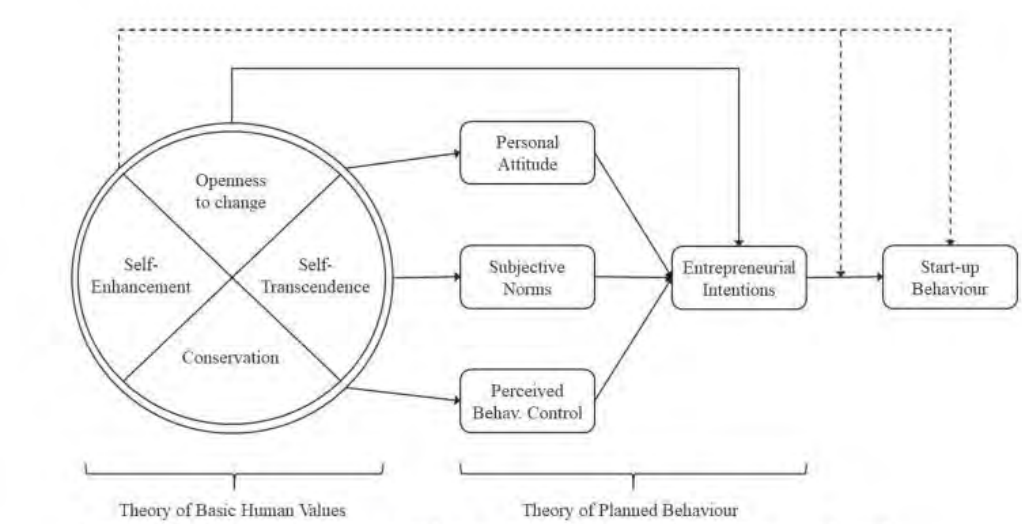
The main claim of TPB is that the possibility of engaging in (entrepreneurial) behaviour would increase with a stronger intention to do so (Ajzen, 1991). Affective (reactions to feelings and emotions), cognitive (beliefs, memories, and perceptions of events), and conative factors (intentions and predictions about a person's behaviour in response to an event) all have an impact on behaviour (Fishbein and Ajzen, 1975). In this model, the constructs explaining the individuals' entrepreneurial intention (EI) include the personal attitude (PA) towards entrepreneurship, subjective norms (SN) and the perceived behavioural control (PBC). PA is the positive or negative evaluation or appraisal of the entrepreneurial behaviour and its consequences, SN denotes the support expected from the individual's close environment (family, friends, relatives, etc.) and PBC indicates the perceived ease or difficulty in undertaking entrepreneurial actions. Further explanation of these constructs will be presented in the research clusters section (section 2.4).

Another interesting phenomena is that most of the literature that uses TPB places its dimensions (attitude, social norm and perceived behavioural control) as mediating variables and antecedents in predicting entrepreneurial intention. Therefore, in this study, we concur to this phenomenon and will use TPB as one of the underpinning theory with its dimension as mediating variables. TPB elaborates that behavioural intention (in this study, entrepreneurial intention) are defined by attitude towards the behaviour, subjective norm as well as perceived control over the behaviour (Ajzen and Kruglanski, 2019).

Furthermore, to support our use of TPB Model in our present study, Hueso and Jaen (2021) found that from 2011 to 2020's publications, the initial findings are that the study of Personal Values (PVs) (Attitude, Subjective norm and PBC) and Entrepreneurial Intention (EI) is a very novel area of research and that the term "value" is used with very different meanings and not only as "personal guiding principles". Hueso and Jaen (2021) further asserted that the first articles utilising PVs in EI research were only discovered in 2011.

Another important trend observed is that past literature does not use TPB alone. It is mostly combined with other entrepreneurial-related theory in an effort to explain intention in the entrepreneurial context. A plethora of entrepreneurial-related theories were used, i.e. entrepreneurial education theory, entrepreneurship intention theory (used mostly in literature that deals with higher education context), entrepreneurial event theory and entrepreneurship orientation theory. Not only that, psychological-based theories were also popular (i.e. social learning theory, basic human values theory (BHV), value-attitude-behaviour hierarchy theory). As an example of a combination of theories, Hueso and Jaen (2021) offered the BHV–TPB framework as an integrative framework based on their analysis of entrepreneurial intention literature review, presented in Figure 2.4 below:

Figure 2.4: BHV-TPB Framework



Note(s): Solid lines represent relationships tested in the papers analysed. Dotted lines represent relationships yet to be tested

Source Hueso and Jaen (2021)

In this model, BHVs is assumed to be the antecedents of entrepreneurial intentions with PVs (Personal Attitude, Subjective Norms and Perceived Behavioural Control) being the mediating variables. However, although BHV has been suggested in this integrative framework, the authors also concur that there are several papers in their review that have used other theories with conflicting results. This calls for more research using other integrative framework. To this effect, Hueso and Jaen (2021) offered some knowledge gaps and potential research avenues presented in Figure 2.5.

Figure 2.5: Knowledge Gaps and Future Research Opportunities

Knowledge gaps	Research opportunities
Value dimensions vs basic human values	(1) Role of individual values (2) Specific combinations of basic values
Single dimensions vs complete value circumplex	(1) Role of individual dimensions (2) Combinations of two adjacent dimensions (3) Combinations of opposing dimensions (4) Cancelling out effects (5) Direct and indirect effects of value dimensions
Effects on different types of intentions	(1) SEIs vs general EIs (2) Sustainable EIs (3) Small life style venture vs scalable start-up (4) High-technology vs traditional craft venture (5) Intention to internationalise, to grow, to innovate or to quit
Theoretical frameworks	(1) TPB vs competing intention models (e.g. entrepreneurial event model, social cognitive career theory) (2) BHV vs alternative value theories (e.g. work values)
Different samples	(1) Representativeness of student samples (2) Young vs older adults (3) Natives vs immigrants
Context characteristics	(1) Cultural values (2) Life stages (3) Family or personal circumstances
PVs in entrepreneurship education	(1) Malleability of PVs (2) Design of education interventions to affect PVs (3) Evaluation of entrepreneurship education (4) PVs and learning (5) PVs and entrepreneurial identity

Source: Hueso and Jaen (2021)

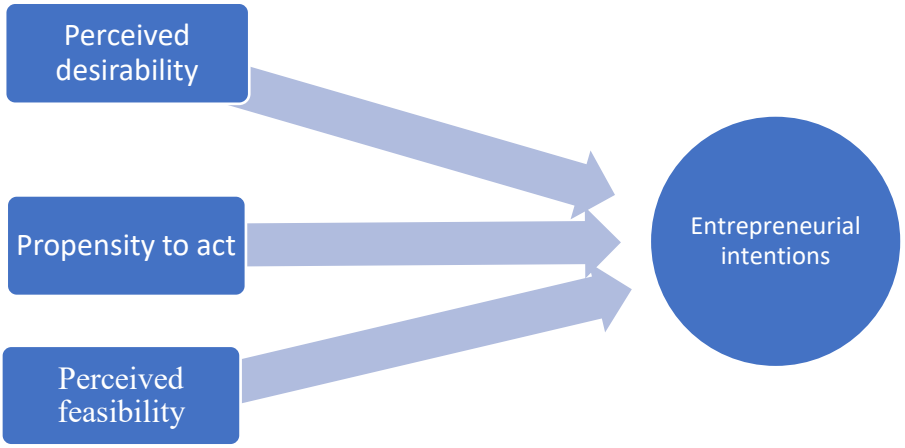
Responding to the suggestions in the figure above, for the purpose of the current study, the researcher utilised TPB's PVs assuming the same mediating role but will combine it with other framework/theories as well such as the entrepreneurial intention model by Linan (2004) and social learning theory model by Bandura (1977, 1978, 1986) to fill the knowledge gaps effects on single dimensions, different types of intention (high technology vs traditional craft ventures), theoretical frameworks, different samples (representative of student samples –in this case, MBA students) and PVs in entrepreneurship education.

One of the measurements that was frequently used was self-efficacy, a main measurement in the social learning theory put forth by Bandura (1977, 1978, 1986). Other common theories that were used were social and cultural environment theory and entrepreneurial event theory (made popular by Shapero et al., (1982)), meta competence framework and personal traits theory.

Interestingly, these theories were placed as independent variables (mostly) to explain factors that influence TPB belief dimensions (attitude, social norm and perceived behavioural control). However, there are too many factors that were used in past studies making it difficult to actually use a single theory or dimension for a study on the independent variable that plays a role in influencing entrepreneurial intention. A study by Munoz (2018) reveals that no single factor (considered to be crucial) is necessary or sufficient for triggering judgments concerning new enterprise creations or decisions. In order to grasp what underlies these kinds of decisions, it demands combinatorial thinking. There seems to be a need to do more research on these factors so that the researcher knows more about them and build on the knowledge of which factors are more influential. Previous studies have not investigated comprehensively the entrepreneurship determinants and factors that influence it (Al-Omoush, 2020). There is a need to further examine the cognitive conditions that together lead to decisions that consider social and environmental factors in the development of new ventures (Munoz, 2018). The researcher therefore responds to this call of knowledge and shall use a combination of theories (i.e. entrepreneurship intention theory, entrepreneurial

event theory, social learning theory and TPB) to guide us in the present research. Figure 2.6 below depicts the Entrepreneurial Event Theory.

Figure 2.6: Entrepreneurial Event Theory

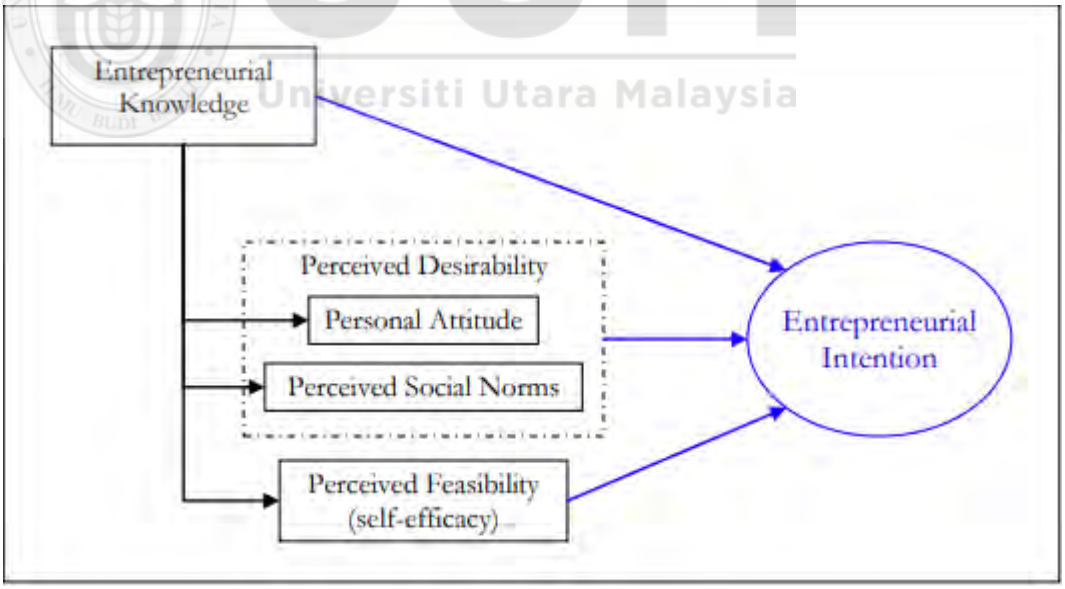


Source: Krueger et al., 2000

The entrepreneurial event theory originated from Shapero and Shokol in 1982 and has since been used in past literature to explain entrepreneurial intention (see Krueger et al., 2000; Abdelsalam et al., 2021). Shapero (per Krueger, 2000) argued that entrepreneurial intentions depend on the perceptions of personal desirability, feasibility and propensity to act where desirability is the attractiveness a person perceives about creating new business, perceived feasibility is the degree to which the individual feels capable of launching a business and propensity to act is the personal disposition to act on one's decisions.

Integrating both TPB and the entrepreneurial event theory' constructs of perceived desirability and feasibility, the entrepreneurship intention theory by Linan (2004) is built based on another interesting question of the degree of realism in the perception where some people may have an inaccurate impression of their own capability to carry out a behaviour. Linan (2004) argued that this may stem from new elements appearing on the scene, or to facing non-familiar situations inducing the performance of the behaviour even though their actual capacity is negligible. According to the author, in the case of entrepreneurship, specific knowledge would help increase a realism of perceptions. Figure 2.7 below depicts entrepreneurship intention Theory.

Figure 2.7: Entrepreneurship intention theory



Source: Linan, 2004

This model also featured intuitive elements of perceived desirability and perceived feasibility. Perceived desirability, a concept derived from Shapero and Sokol's (1982) entrepreneurial event theory (described earlier in Figure

2.6) corresponds well with personal attitude and perceived social norms while perceived feasibility (self-efficacy) corresponds with perceived behavioural control. In this model, the author assumes the existence of interactions among the three explanatory elements. As a final note, the author reiterates that greater knowledge of entrepreneurial environment (one that could be given in a higher education context) would surely contribute to more realistic perceptions about entrepreneurship providing greater awareness about the existence of that career option making the intention to become an entrepreneur more credible. Entrepreneurship intention theory was chosen as an underpinning theory in the present study because it is commonly used in the higher education context (incidentally also the context of the present study) in past literature (see for example Linan, 2004; Linan et al., 2011, Farani et al., 2017).

Lastly, the table also provide another significant finding. There is sporadic study done on digital entrepreneurial intention. Among the literature reviewed in the table (approximately 35 articles), only 7 articles dealt specifically with digital entrepreneurial intention. This gave strong indication of a need to conduct more study on digital entrepreneurship intention because knowledge of the entrepreneurial intentions of students is a significant precursor in understanding how to encourage entrepreneurship in universities related to the image of entrepreneurship as a career alternative (Tomy and Pardede, 2020). This dissertation will discuss more on the digital shift in entrepreneurship in the next section.

2.2.3. The Digital Shift in Entrepreneurship

Technological advancement has long been considered as a major influencing factor of business entrepreneurship (Al-Omoush et al., 2018). Digitalisation is an all-encompassing development in entrepreneurship where business models face a huge shift towards entire digital environments. New businesses are created out of arising opportunities due to digitalisation, while existing branches and businesses alter from offline to online business where "digital entrepreneurship" has a novel form of entrepreneurial activities (Kraus et al., 2019). Being a significant economic drivers, digital technologies constitute about 12% of total investment in countries of the Organisation for Economic Co-operation and Development (OECD) from 2000-2012 with contribution of that investment to GDP growth comparable to non-information-technology investments (OECD, 2014) making digital technology innovations both sources of operational efficiencies (e.g. management of inputs to the supply chain) and new forms of business models (Mancha and Shankaranarayanan, 2021) .

Digital technologies have been shown to directly support and enhance entrepreneurial processes. They have also been shown to indirectly encourage the entrepreneurial activities of new student entrepreneurs. (Secundo et al., 2020 (b)). Digital technologies enable entrepreneurs to develop new arrangements moving beyond the traditional industry boundaries to include networks and ecosystems and thereby fast-tracking the evolution of new ventures (Huang et al., 2017). Modern firms have progressively implemented

digital technology for an array of benefits including ability to respond quickly to customer needs, improve customer-side operations, drive sales, increase efficiencies and eventually reduce costs (Oppong et al.,2020).

Digital entrepreneurship has been defined as a subcategory of entrepreneurship in which some or all of what would be physical in traditional organizations are been digitized (Dutot and Van Horne, 2015). In terms of technological context, it is the description of the current practices and equipment inside the firm, as well as the set of available technologies outside the firm (Oliveira and Martins, 2011). Technological context has been measured using different traits, for example, information system infrastructure (IS), technology readiness, IS expertise, organizational information technology competence and security applications (Oliveira and Martins, 2011; Hanafizadeh and Zare Ravasan, 2018). Even at the corporate level, exploitation of technological opportunities has been touted to give technological distinctive competencies (Martin-Rojas et al., 2011).

There is significant evidence of the digital shift in entrepreneurship and at the time this dissertation was written, the world is still facing the Covid-19 pandemic and most businesses were shifted online. By giving entrepreneurs new opportunities to launch businesses and the ability to sell their goods and services, digital technologies, including the Internet, smartphones, and other applications, play a transformative role in changing the entrepreneurship process globally (Youssef et al., 2021; Elia et al., 2016). Companies like Uber,

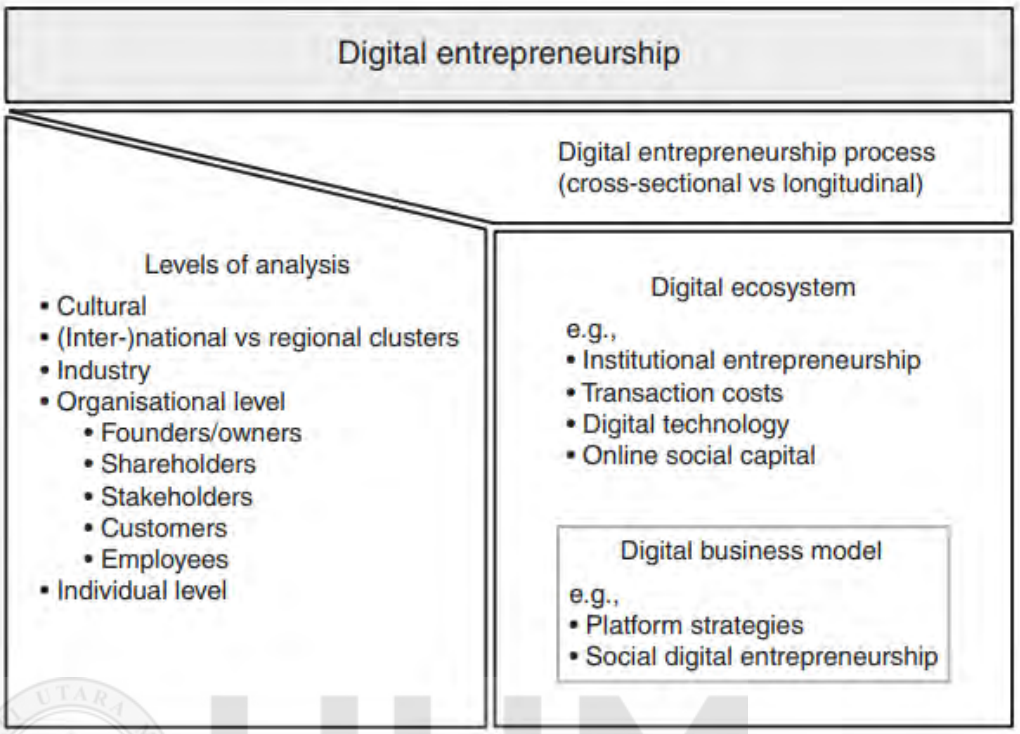
Amazon, and ING Direct are now operating in business sectors like tourism based on the use of these technologies. These firms are responding to new needs of the consumers (i.e. need for information on a digital platform) which in turn requiring new firms and new types of entrepreneurs (Youssef et al., 2021). Therefore, it could be safely argued that digital technology is a factor that serves as an external enabler forming an essential part of the entrepreneurial opportunity with regards to the outcome as well as the process (Monllor and Soto-Simeone, 2020). Nambisan (2017) argued that new digital technologies have the ability to handle uncertainties inherent in the entrepreneurial process. Digital technologies, for instance, lower the cost of doing business, expand markets, and solve issues with company setup, lowering risk and promoting simplicity of use and flexibility, which encourages more individuals to engage in entrepreneurial activities. (Youssef et al., 2021).

Furthermore, due to availability of public access to new technological advancement, many entrepreneurs are using new technologies for their entrepreneurial activities, influencing the way it is conducted and thereby changing greatly the entrepreneurial concept. Now, start-ups and micro-small companies are using multi-channels such as Facebook/Instagram and social media to introduce new ideas, products and services (at a low cost) and also to attract customers (Tajvidi and Tajvidi, 2020). Al-Omoush et al., (2020) in their study found that IT infrastructure and technological distinctive competencies' importance in permitting the exploitation of technological opportunities for the development of e-banking entrepreneurship.

Although current studies highlighting the importance of integrating entrepreneurial and strategic thinking, stressing how capabilities are critical for exploiting business opportunities (Agarwal et al., 2010; Hitt et al., 2001; Liao and Phan, 2016), these and other issues are surprisingly underexplored in the context of technology entrepreneurship (Lamine et al., 2018). In this respect, technology entrepreneurship is based on the fields of entrepreneurship and technology-based innovation (Beckman et al., 2012a).

Despite being critical to economic progress and regional transformation (Schumpeter, 1943; Venkataraman, 2004) and its numerous impacts on national and regional levels, technology entrepreneurship does constitute special peculiarities and inflicts several challenges, such as design, implementation and measurement of supportive public policies (Brown and Mason, 2014; Dalmarco et al., 2018), acquisition of competencies and strategic articulation (Prahalad and Hamel, 1990; Zahra, 1996), and coordination of teams in high-technology environments (Puranam et al., 2006) demanding novel theorizing of how entrepreneurial opportunities are formed and enacted (Monllor and Soto-Simeone, 2020). To this effect, Kraus et al., (2019) provided a very useful map of research avenues in digital entrepreneurship presented in Figure 2.9.

Figure 2.8: Research Map of Digital Entrepreneurship



Source: Kraus et al., (2019)

Kraus et al., (2019) further iterated that there is sparsity in research that address individual prerequisites for successful digital entrepreneurship. This is an important avenue because experience, education, vision, purpose, values, timing and focus are directly linked to entrepreneurial success. Not only that, entrepreneurs' family background, commitment, motivation and knowledge and personal skills related to the industry are all important factors contributing to entrepreneurial success.

2.3. Terms Related to Digital Entrepreneurship

2.3.1. Traditional Entrepreneurship vs. Digital Entrepreneurship

There are significant differences between traditional entrepreneurship and digital entrepreneurship. Digital entrepreneurship concept is widely

understood to refer to entrepreneurs building their companies based on activities and niche markets freely accessible on the internet (Millman et al., 2009). Therefore, a digital entrepreneur is defined as an individual developing a business based on the internet connectivity model (i.e. IP based protocol) and then strategically manages their business models and technologies by implementing product, service, process and knowledge innovation for fast growth outcomes (Millman et al., 2010; Wong, 2008). Digital entrepreneurship is characterized as a process of accumulating strategies and resources with technological systems to achieve the organizational goals (Tajvidi and Tajvidi, 2020). It deals with the innovation in the use of scientific and technological knowledge to start a new venture (The Canadian Academy of Engineering, 1998).

Digital entrepreneurship differs from traditional ones in several ways. Present digital entrepreneurs, compared to traditional entrepreneurs, do not follow a predefined blueprint or highly defined business plan. The behaviour and decisions of these digital entrepreneurs are formed throughout the whole entrepreneurial process, where continuous evolution of technology and on-going interactions with the digital economy will initiate, create and change the digital entrepreneurial process dynamically (Kraus et al., 2019). Tajvidi and Tajvidi (2020) had summarised the criterion of differences presented in Table 2.10.

Table 2.9: Criterion of Differences between Digital Entrepreneurship and Traditional Entrepreneurship

Criterion	Traditional Entrepreneurship	Digital Entrepreneurship
Entrance and Exit	Hard to create and establish	Easy to create and establish
Cost	High	Low
Re-entering	Time-consuming	Not time-consuming or costly
Distributional in the marketplace	Expensive and slow product distribution	Cheaper and quicker product distribution
Workplace	Geographical limitation in hiring	No geographical limitation and possibility to hire employees or partners around the world
Information Technology knowledge	Not necessary	A must and essential
Products and services	Hard to modify and innovate products and services	Easy to modify and innovate digital products
Commitment	Less ambiguous and challenging	Commitment in virtual companies are more ambiguous and challenging

Source: Tajvivi and Tajvidi, 2020

2.3.2. Definition and Types of Digital Entrepreneurship

Kraus et al., (2019), in their systematic literature review of digital entrepreneurship, provided a comprehensive review of how digital entrepreneurship has been defined in past literature presented in Figure 2.11.

Figure 2.10: Definitions of Digital Entrepreneurship

Author	Definition of digital entrepreneurship
Davidson and Vaast (2010, p. 8)	Digital entrepreneurship: pursue new venture opportunities presented by new media and internet technologies
Guthrie (2014, p. 116)	[Digital entrepreneurship is] the creation of a venture to produce and generate revenue from digital goods across electronic networks
Hair *et al.* (2012, p. 2)	Digital entrepreneurship may be defined as entrepreneurship in which some or all of the entrepreneurial venture takes place digitally instead of in more traditional formats
Hull *et al.* (2007, p. 293)	Digital entrepreneurship is a subcategory of entrepreneurship in which some or all of what would be physical in a traditional organisation has been digitised
Le Dinh *et al.* (2018, p. 1)	Digital entrepreneurship is defined as the reconciliation of traditional entrepreneurship with the new way of creating and doing business in the digital era
Richter *et al.* (2017, p. 300)	Entrepreneurship […] is […] defined as occupying niches, monetizing business opportunities, as well as being innovative, radical and risk-taking
Sussan and Acs (2017, p. 66)	Digital entrepreneurship […] includes any agent that is engaged in any sort of venture be it commercial, social, government, or corporate that uses digital technologies. […] In other words, they are performing activities that need digital engagement but may not in themselves be digital, for example, an Uber taxi driver

Source: Kraus et al., (2019)

The figure above seems to point to several alternative definition of digital entrepreneurship, but Kraus et al., (2019) argued that in a nutshell, digital entrepreneurship involves sale of products or services through electronic networks. While this is acceptable given the fact that a digital business model would include some sort of transaction through electronic networks, the researcher prefers the more comprehensive definition of Hull et al's., (2007, page 293) where digital entrepreneurship is "a subcategory of entrepreneurship in which some or all of what would be physical in a traditional organization has been digitized" which will be used in the present study.

Sussan and Acs (2017) listed three emerging business models, where the sharing and voluntary contributing of users in online platforms act as a game changer for transaction cost-based businesses. The first digital business model is the multisided platforms business model in which users offer free content on

multisided platforms as it can be experienced on Facebook and Instagram. The second business model is the sharing of unused tangible assets, for example. AirBnB and Uber, proving to be extremely successful throughout the globe. The third user-intensive business model combines paid and unpaid customers relying on their customer's network externalities for example Spotify with its either unpaid or its premium model. From another perspective, Hull et al., (2007) argued that there are basically three types of digital entrepreneurship:

1. Mild digital entrepreneurship – establishing internet-based economy as a supplement or complement to its traditional form of business
2. Moderate digital entrepreneurship – entering into the digital economy with great emphasis on digital-based products and delivery of digital components
3. Extreme digital entrepreneurship – entirely operates in cyberspace for production, goods and services, marketing, promotion and distribution

2.3.3. Digital Entrepreneurship Ecosystem

The last decade has seen a significant growth in entrepreneurship ecosystems and support structures particularly enhance entrepreneurship and the entrepreneurial mindset (Maritz et al., 2019). There have been several definitions of "entrepreneurial ecosystem" (EE) developed for the past two decades (Isenberg, 2011; Mason and Brown, 2013) with the general consensus is that a functional EE provides the capitals (financial, knowledge, institutional, social and others) that enable entrepreneurs to discover, assess and exploit market opportunities (Duan et al., 2021).

Arguably the most cited work (cited more than 300 times in Google Scholar) on digital entrepreneurship ecosystem is one done by Sussan and Acs (2017) giving us an understanding of specific players in the digital entrepreneurship ecosystem. According to the authors, a digital ecosystem is "a self-organizing, scalable and sustainable system composed of heterogeneous digital entities and their interrelations focusing on interactions among entities to increase system utility, gain benefits, and promote information sharing, inner and inter cooperation and system innovation" (Li et al.as cited in Sussan and Acs, 2017, p. 58). A digital ecosystem consists of users and participant with the chance to access connected devices, e.g. computers, mobiles, tablets. The World Wide Web further created an open space for information, knowledge, data and even free labour. As a consequence, digital ecosystems therefore possess self-generative nature functioning on a service-oriented logic where users can act as providers at the same time thereby providing great opportunities for entrepreneurs (Sussan and Acs, 2017).

This digital ecosystem is closely linked to the new/digital economy, defined as "one based on knowledge and information, relying on sub-sectors such as entirely digital goods and services and mixed goods, that is, physical goods that are sold through the internet." This type of new economy would spell an interdependent, interconnected economy made possible by a network structure and tremendous flexibility of ICT (Zekos, 2003). The emergence of Web2.0 technology, open-source software and application program interfaces makes it relatively easy to start and operate a small internet/digital business (Millman et al., 2010). Technological contexts, however, inflict different challenges for the

startups, such as, (1) regulation requirements; (2) technology/legal uncertainty; (3) contexts with low tolerance to failures; (4) long-cycle product development; (5) manufacturing/development costs; and (6) markets with low acceptance to incremental updates (Silva et al., 2021).

2.3.4. Digital Entrepreneurship Intention and Higher Education

The purpose of this section is to present work that have dealt with digital entrepreneurship intention in higher education so that it may provide support of why this context is chosen in the current study. Monllor and Soto-Simeone (2020) argue that digital technology has been quickly adopted is higher education, providing a basis to conduct this study. When students become entrepreneurs, they could provide resolutions to a challenge in their academic communities (Oppong et al., 2020). Coincidentally, university's research has been the growing source for the ideas and core technologies that drive entrepreneurial endeavors (Wegner et al., 2019) making the university or higher education institution a perfect breeding ground for graduate entrepreneurs. This impression pointed to opportunities for academic entrepreneurial knowledge; for example, enabling a student to create a new start-up, assist the progress of technology shift by incubators and other places after or the process of learning from academics (Oppong et al.,2020).

While there is no unique definition of graduate entrepreneurship, it is generally described as the interaction between a graduate and new venture creation (Millman et al., 2010; Nabi et al., 2006). In higher education institutions (HEIs), entrepreneurship education is generally promoted as a mechanism for

educating and developing student for an entrepreneurial career (Nabi and Holden, 2008). There are differing focus of entrepreneurship education across the world. In China, for example, entrepreneurship education in their HEIs focuses more on general employment orientation either in corporate position or self-employed entrepreneurs. It is a bit different in other entrepreneurship literature where entrepreneurship education in the western world usually concentrates on new venture creation and less on getting a job in the corporate sector (Millman et al., 2010).

Studies on entrepreneurship education as a higher education topic is gaining importance with academics and policymakers trying to encourage students' entrepreneurship intention with modification the curricula and mode of instruction (Youssef et al., 2021). Towers et al., (2020) argued that an essential HEI objective in supporting entrepreneurial career paths and opportunity recognition processes include development of enterprising behaviours, attributes, skills and competences such as creative thinking, communication, problem-solving, decision-making, opportunity-seeking, autonomy and self-confidence. Institutional support and environmental turbulence, have been argued to be closely linked to product innovation strategies in technology new ventures creations within transitional economies (Li and Atuahene-Gima, 2014). Entrepreneurship as a career option has become gradually more desirable, providing a real need to develop an opportunity-oriented entrepreneurial mind-set among university students providing students with prospects to discover or nurture entrepreneurial aspirations and higher

education institutions must focus on producing graduates who are not only job seekers but also job creators (Tomy and Pardede, 2020).

There are several studies in developed countries that provided support in the use of TPB in the context of higher education. For instance, a Massachusetts Institute of Technology (MIT) student entrepreneurial intention study conducted by Luthje and Franke (2003) found evidence of the linkage between personal characteristics and contextual factors and entrepreneurial intention. There are growing strand of literature that investigates the role of digital technologies on entrepreneurial performance in higher education (Youssef et al., 2021) and Sousa et al., (2019) argued the need to employ new methods in efforts to promote entrepreneurial activity in the present digital era. The nexus between advancement of Information and Communications Technology (ICT) and its subsequent integration into higher education institution (HEI) has dramatically transformed these HEIs in recent decades and has been touted as the ideal incubator for entrepreneurship antecedents (Zainuddin et al., 2012. In fact, Towers et al., (2020) argued that HEIs worldwide are facing challenges of relevance are being tasked to equip their students and graduates with the knowledge, skills and competencies essential for the modern work environment thus creating knowledge and solutions to many emerging societal problems.

Previous studies agree that education has long been confidently related with improved entrepreneurial opportunity (Henley, 2004), and those with the

increased skills and knowledge derived from increased education are able to access and select better entrepreneurial opportunities (Daniel et al., 2019). Extant literature has highlighted the importance of university proximity to entrepreneurial activity by addressing the knowledge spillover theory of entrepreneurship (Acs et al., 2013; Agarwal et al., 2007). However, even though digital technology influences all stages of the entrepreneurial process, there is little knowledge how it fits into and benefits business or entrepreneurship programs (Monllor and Soto-Simeone, 2020). Students are distinctive entrepreneurial agents embedded in the unique contexts of higher education institutions, with universities being knowledge-intensive institutions, providing consistent access to entrepreneurial or technological resources, such as education programs, knowledge and infrastructure, and yet, little attention has been paid to the characteristics of students as entrepreneurial agents and the uniqueness of the contexts in which they are embedded (Harima et al., 2021).

Kraus et al., (2019), in their systematic literature review of digital entrepreneurship found that despite the increasing importance of digital entrepreneurship, surprisingly few papers address the teaching of digital entrepreneurship. The authors argued that teaching of digital entrepreneurship is not only a current hot topic but also feasible in many educational environments because it directly addresses student's real life coupled with low start-up and running costs of this type of education.

2.4. Research Clusters

2.4.1. Perceived Knowledge on Digital Entrepreneurship

Rae (2012) argued that although student entrepreneurs usually do not know in advance what they need to learn in order to accomplish their goals, educators and facilitators need to provide information, knowledge and ensure a range of learning sources (such as digital and web-enabled media) is readily available to students when required. Longva and Foss (2018) (as cited in Harima et al., 2021) shown that previous studies on the impact of entrepreneurship education had used five different types of outcome measures:

(1) cognitive (knowledge about entrepreneurship);

(2) skill-based (e.g. opportunity recognition, creative thinking);

(3) affective (e.g. passion/ inspiration, attitude to entrepreneurship);

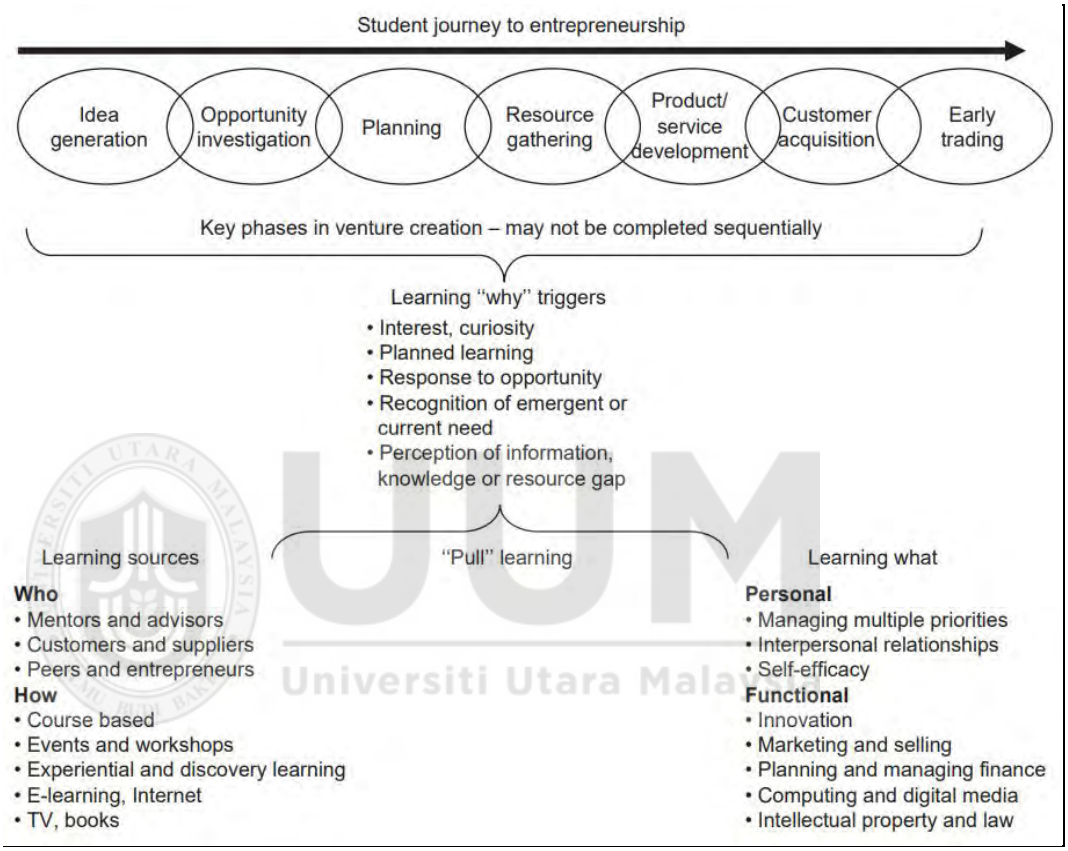
(4) conative (entrepreneurial intention, entrepreneurial self-efficacy) and

(5) behavioral (e.g. nascency, venture creation).

Pollard and Wilson, (2014) as cited in Secundo et al., (2020) further iterate that students at all levels of education, need to be equipped with an entrepreneurial mindset, defined by five constituent elements: (1) the capability to think creatively, strategically, analytically and reflectively, (2) sureness in one's talents, (3) the ability to work in partnership, (4) good communication skills and (5) knowledge of the current business context. Figure 2.12 below shows a model of learning and new venture creation developed by Rae (2012) based on earlier models developed by Gibb and Ritchie (1982), Gibb (2002 and Atherton

(2007). It shows seven generic stages, very often not followed sequentially and not all were necessarily completed.

Figure 2.11: Model of Learning and New Venture Creation



Source: Rae (2012)

Past studies on the impact of entrepreneurship education on students' entrepreneurial intentions are equivocal where these studies have confirmed a significant relationship between entrepreneurship education and entrepreneurial intention (Harima et al., 2021). For instance, information and communication technologies (ICT) facilitates educational support for entrepreneurship by allowing students to develop soft skills such as creativity and critical thinking (problem solving), skills that are a strong pursuit of an entrepreneur (Youssef et

al., 2021; Rae, 2012). Entrepreneurs need to be creative, a forecaster and risk-taker, skills that researchers have argued could be taught and learnt through entrepreneurship education (Ahmed at al., 2021; Al-Atabi and DeBoer, 2014). Interestingly, because digital entrepreneurship usually stems from the widespread use of the internet, Shukla et al., (2021) discusses on the specific internet skills that would assist these digital entrepreneurs to go online, with these skills being: operational skills, informational skills and creative skills. Basically, operational skills are necessary in order to operate the system and network hardware and software, while information skills is the ability to understand and handle the structured features of a computer and a network. The last skill, creative skills, include art, internet product design, internet media or software-based advertisement and media.

Current intensive use of ICT in higher education have been argued to affect entrepreneurial intention (Youssef et al., 2021). In fact, Millman et al.'s study indicates that the discipline (programme or course) that the student is studying at the time their survey was done (circa 2010) is significantly associated with digital entrepreneurship intention where they argue that those who were studying IT-related disciplines are more likely to have higher level of digital entrepreneurship intentions (Millman et al., 2010). Furthermore, with diverse challenges of digital entrepreneurship, coupled with constantly advancing technological infrastructures, new developments to society are continuously offered (Kraus et al., 2019). Even though all new businesses involve complexities and risks, technology new ventures, are usually faced with more challenging environments, as they are designed to create a new product or service under conditions of

extreme uncertainty (Silva et al., 2020). This is seconded by Monllor and Soto-Simeone (2020) where their found preliminary evidence that exposure to, and, hands-on experience with digital technology in entrepreneurship education programs have an impact on students' intentions to become entrepreneurs. Further agreed upon by Tomy and Pardede (2020), the authors iterate that entrepreneurial thinking has a strong correlation with self-efficacy which can be imparted by ensuring an encouraging environment (diverse resources, opportunities, skills, and social networks) thereby contributing to the reinforcement of entrepreneurial self-efficacy. In fact, they argue that self-skill cognizance and the awareness of support services and networks can considerably improve self-efficacy and thereby improve entrepreneurial intention in a higher education environment.

A study by Wang et al., (2020) confirms that internet entrepreneurship knowledge has a positive correlation with internet entrepreneurial self-efficacy, which aligns well with self-efficacy theory. In the context of e-commerce, education on internet entrepreneurship equips individuals with the knowledge and skills to cope with potentially threatening situations with these individuals having propensity to exhibit more positive efficacy expectations about internet entrepreneurship and these measures include electronic law, common knowledge, computer ability, internet marketing and e-commerce (Wang et al., 2020). Investment in digital manufacturing technology by business schools and entrepreneurship programs, for example, can help increase students' confidence in their technological and entrepreneurial abilities (Secundo et al., 2020). To this end, Orser et al., (2019) provided a good suggestion to the types of programs or

policies that can assist business owners to better utilise digital technology presented in Figure 2.12 below.

Figure 2.12: Types and Programmes/Policies Digital Technology Utilisation

1st order themes	2nd order themes	Response strategies
Access to resources	Fiscal incentives	Offer fiscal incentives for ICT adoption (such as, tax credits to purchase ICT)
		Provide financial support to intermediaries for IT curriculum development
	Promotion	Engage women to leverage their networks/contacts to increase participation in programmes
		Ease the administrative burden and processes of applying for ICT support programs
	Collaboration	Promote ICT adoption programs and availability of ICT resources
	Mentoring	Collaborative to maximise resource availability, including with ICT experts to update program content. Include men and women as resources, not just women
	Role models	Develop mentorship programs. Different mentors for different needs, such as emotional versus technology adoption needs. Identify and promote entrepreneurial women role models who utilise IT
Program design	Good practices	Identify and showcase good practises
	Firm/owner characteristics	Content should be firm-stage and age-group specific
		Programs should be personalised, and reflect owner intentions
		Learning objectives should focus on increasing confidence in technology
	Culture	Prioritise support of firms operating in the services sectors. Create a comfortable learning environment
Program delivery	Interactive	Provide hands-on, interactive learning experiences
	Just-in-time	Given time scarcity, utilise online programs, social media, short course formats
	Women 2 women	Employ women's association to educate about the impact of IT on firm performance

Source: Orser at el., (2019)

Although there is evidence that digital application can improve entrepreneurial intention of university students, further examination is required to validate this assumption (Tomy and Pardede, 2020). Following past literature review, the

researcher defines perceived knowledge on digital entrepreneurship to constitute as perceived knowledge and skills about internet entrepreneurship and these would include electronic law, common knowledge, computer ability, internet marketing and e-commerce to cope with potentially threatening situations or more challenging environments.

2.4.2. Perceived Desirability

Krueger and Brazeal (1994), as cited in Moghavvemi et al., (2016) argued that an entrepreneurial event and the entrepreneurial intention requires two critical constructs: perceived desirability (attitude and social norms), and perceived feasibility (self-efficacy, perceived behavioural control) and that these two are to be both desirable and feasible in order to affect the intentions toward the behaviour. In this section, the researcher will first discuss the first construct component, perceived desirability. Perceived desirability (a concept derived from the Entrepreneurial Event Model (EEM)), is originally coined by Krueger and Brazeal (1994, p. 96), and later used by several other author (see for example Zampetakis, 2008) is defined as the "degree of attraction an individual perceives towards a specific behavior" (intrapersonal and extra personal) and would reflect the individual's perception of the personal benefits of an outcome. EEM contends that there need to be a pre-existing attitude perceiving behaviour as desirable for an individual to make a decision to act (Shapero and Sokol, 1982). Perceived desirability could be regarded as the degree of attractiveness for an individual to form a business and can be formed by those who are significant or close to an individual, such as acquaintances, friends and family (Ahmad et al., 2019).

2.4.2.1. Attitude

Attitude, defined as an individual's tendency or disposition to respond with some degree of a positive or negative evaluation of objects or phenomena (Ajzen, 1991; Fishbein and Ajzen, 2010), reflects a person's inclination towards a certain object of the attitude based on their evaluation along the good–bad continuum and could be based on previous experience, observation and learning to react and behave in a consistent manner (Fini et al., 2012; Hsu and Huang, 2012). People's action and behaviour are aligned with their attitude (Ajzen and Fishbein, 2005), and that attitude depend on conviction and expectation regarding how the behaviour could have a personal impact for them (Krueger et al., 2000). Optimistic attitudes towards sustainable changes need doggedness and resolve if change is to be achieved. To transform attitudes into actual behaviour, individuals need to believe that they can achieve whatever they set out to achieve (Munoz, 2018).

Youssef et al., (2021) in their study of digital entrepreneurial intention among higher education students found out that personal attitudes, along with perceived behavioural control are a very strong determinant of entrepreneurial intention. Earlier literature, see for example Luthje and Franke (2003), has also argued that entrepreneurial attitude is strongly linked to entrepreneurial intention and that it is the outcome of the method of education (a very intense technical education, for example). Attitude has been argued to shape judgement in the form of better behavioural

assessment order to evaluate and act on risky situations and ability to make critical decisions (Ilerisoy et al., 2021). Ajzen (1991) had stated that attitude towards behavior refers to the degree to which the individual holds a positive or negative personal valuation about being an entrepreneur.

2.4.2.2. Subjective Norm

Subjective norm is the persons' perceived social appropriateness to participate or not in a specific behaviour (Ajzen, 1991). This variable is usually stimulated by the attitudes of individuals, groups and networks that are important to the individual (family, friends, peers and important others). Subjective norm would measure the perceived social pressure to carry out - or not to carry out- that entrepreneurial behaviour (Ajzen, 1991). Farani et al., (2017) first argued that subjective norm plays a significant role towards student's entrepreneurial intention and is considered as one of the motivational antecedents towards digital entrepreneurship intentions. However, in their empirical investigation among Iranian students in higher education, they found that subjective norm was not a significant predictor to digital entrepreneurial intention which lends a strong argument for further research on the impact of subjective norm on entrepreneurial intention.

2.4.3. Perceived Feasibility

Krueger (1993) had defined perceived feasibility as the perception that a person is actually capable of starting a business. In his later work, the author further discusses perceived feasibility as "the perception regarding their own ability to carry out a specific behavior" (becoming an entrepreneur) (Krueger and Brazeal, 1994, p. 97). Linan et al., (2011) had defined perceived feasibility as

the extent to which individuals consider themselves being able to carry out certain behaviour where presence of role models, mentors or partners would be a decisive element. Perceived feasibility therefore echoes the perception of a personal capability to do a particular job or set of tasks and this is an instance where if people do not believe that they have the skill and capability to take action, they will not even think about a certain behavioral intention (Krueger and Brazeal, 1994, p. 97). As such, perceived feasibility refer to the sense capability with regards to the performance of certain behaviour (Shapero and Sokol, 1982). It is assumed that students who believed in digital entrepreneurship as a realistic alternative would be more likely to pursue an entrepreneurial career option (Millman et al., 2010).

2.4.3.1. Perceived Behavioural Control (PBC)

PBC refers to the perceived degree of control over performance of the behaviour (Ajzen, 2002). It is the degree to which a person perceive that he/she is able to perform certain behaviour and have control in doing it (Ahmad et al., 2019). Ajzen (1991) in his earlier work had defined PBC as the perception of the degree of ease in the fulfilment of the behaviour of interest. PBC constitutes two points: whether individuals could implement the targeted behaviour and how they perceive that they can realize it (Saraih et al., 2017). Therefore, PBC mostly discusses control beliefs, an individual's beliefs about the presence of factors that may aid or deters the performance of the behavior (Ajzen, 2001). Engle et al., (2010) argue that the more an individual have faith that he/she is in control when it comes to

performing certain behaviour, the higher the likelihood that he/she will behave in that way. It is important to study the behavioural side of entrepreneurship because although there is a strong innovation and economy orientation in media content, the lack of attributes study related to the behavioural side of entrepreneurship is clear (Mart-Sanchez et al., 2020).

2.4.3.2. Digital Technology Self-Efficacy

Self-efficacy, associated with the ability to initiate and maintain a behavior under uncertainty enable a person to define higher goals and reduce threats and helplessness (Ilerisoy et al., 2021). Entrepreneurial self-efficacy has been defined as the confidence of an individual in his/her potentials and capabilities in performing entrepreneurial roles and tasks without need for help from others (Al-Mamary et al., 2020). It is the the perception that a person has of being self-confident in manifesting entrepreneurial intentions (Bello et al., 2018). Self-efficacy is important and has proven robust in predicting general and specific behaviours (Krueger et al., 2000). Entrepreneurial self-efficacy is concerned with a person's beliefs as to whether he/she is capable of carrying out the various roles and tasks associated with entrepreneurship (Tomy and Pardede, 2020,) coupled with an individual's belief in their capability to successfully perform the roles and tasks of an entrepreneur (Wang et al., 2020). In the context of the present study, technological or digital self-efficacy represents the user's personal confidence of a successful and purposeful usage of the

technology itself (Monllor and Soto-Simeone, 2020) to successfully perform tasks and roles of a digital entrepreneur. A very essential feature of self-efficacy is that it is task and domain specific (Wang et al., 2020). Therefore, for the purpose of this study, digital self-efficacy is to measure the self-efficacy of an individual in a digital domain (Mancha and Shankaranarayanan, 2021).

Central in sustainable decision-making, individuals with high self-efficacy exert more control over their own motivation, behaviour and social environment. Therefore, enterprising individuals with strong values and motivation towards sustainable change are more likely to make the sustainable decisions (in this study, new venture) they need when their self-efficacy levels are also high (Munoz, 2018). Self-efficacy, perceived capabilities to manage innovation, risk, leadership, can be referred to as "the strength of a person' belief that he or she is capable of successfully performing the various roles and tasks of entrepreneurship" and have been strongly linked to entrepreneurial intention where individuals with higher levels of entrepreneurial self-efficacy usually exhibits higher levels of entrepreneurial intention but present-day studies have not tested whether there exists a direct relationship between technology self-efficacy and entrepreneurial intention (Monllor and Soto-Simeone, 2020). Tomy and Pardede (2020) further argued that self-efficacy, a key personal capability that motivates entrepreneurial behaviours, is vital to the willingness to act in an entrepreneurial way.

Wang et al., (2020) argue that there is a need for an online scale for digital self-efficacy due to the difference between internet/digital entrepreneurship and traditional offline entrepreneurship in several respects:

1. Digital entrepreneurship incorporates the internet as part of its value proposition. While traditional entrepreneurship does not exclude the internet, it is considered as an addition rather than the primary focus.
2. Digital entrepreneurs require some technical abilities, such as website creation, basic HTML knowledge and use, internet marketing knowledge (including social media marketing, search engine optimization, etc. which are not as crucial for the traditional entrepreneur
3. Digital entrepreneurs must have the skills to make use of new technologies and online tools/applications since customers look for convenience when they shop online and can easily search online for solutions to their problems
4. Online businesses are not as constrained by geographic and temporal boundaries and therefore, individuals can easily use online retailing platforms and start their own businesses at a low-cost.

Existing scales for entrepreneurial self-efficacy focus on leadership, traditional marketing and business operation skills and would probably fail to capture the unique qualities of internet entrepreneurship. For instance, current scales have no items that capture internet technology utilization

skills, internet marketing skills and e-commerce across boundaries. (Wang et al., 2020). To this end, Wang et al., (2020) offered the online scale as depicted in Figure 2.14 below.

Figure 2.13: Online Scale for Digital Entrepreneurship Self-Efficacy

Leadership	**Technology Utilisation**	**Internet Marketing and E-Commerce**
Ability to be a leader	Having a basic ability in computer file management	Ability to formulate an innovative internet marketing strategy (such as viral marketing)
Ability to make others agree with their (the entrepreneur) thoughts	Ability to install and manipulate basic types of computer hardware to help my business	Ability to create a unique electronic commerce website
Ability to find work partners who complement their (the entrepreneur) ability	Ability to use multi-media hardware to help my business	Knowing how to formulate a pricing strategy for my e-shop
Ability to have pleasant conversations with their (the entrepreneur) work partners	Ability to install and use website applications	Ability to analyse the cost structure of my e-shop
Ability to make decisions after deliberation		Ability to propose a profitable business model for electronic commerce
		Ability to easily gain access to the resources needed to operate my e-shop
		Ability to solve tariff problems pertaining to importing and exporting

Wang et al.,'s (2020) scales were tested and found to have acceptable reliability (all exceeded the threshold value of 0.70). As such, due to the newness of this digital self-efficacy concept, the researcher have decided to adopt their scale in the present study.

2.4.4. Digital Entrepreneurship Intention

Intention, as defined by Ajzen (1991) is the willingness to try and how much of an effort that will be taken to perform a behaviour. Entrepreneurship intention, therefore, has been defined as the desire to establish a business whether on its own or a part of a group with intense desire to commit the act of entrepreneurial efforts (Al-Mamary et al., 2020; Krueger et. al., 2000). It thus reflects the state of mind that drives attention, experience and action to pursue an entrepreneurial venture (Virick et al., 2015). Put simply, entrepreneurial intention is the state of mind that directs attention and action towards creating a new business (Bird, 1988, Tomy and Pardede, 2020). Entrepreneurship intention, categorized as individual measures, are typically used as short term assessment of entrepreneurial education programme (EEP) and most research has been focused on assessment at the individual level (Maritz and Brown, 2013). A well designed EEP should allow assessment to take place at various critical points (including individual assessment) because effective assessment could occur at the start, during and after the programme (Maritz and Brown, 2013).

Digital entrepreneurship, a modern and emerging concept in entrepreneurship, is an internet-based business practice (Tajvidi and Tajvidi, 2020). Therefore,

digital entrepreneurship intention could be defined as the desire to establish an internet-based business with entrepreneurial activities done online. Meanwhile, digital entrepreneurs have been defined as individuals who deliver products/services mainly through digital technology (Abubakre et al., 2020).

2.5. Chapter Summary

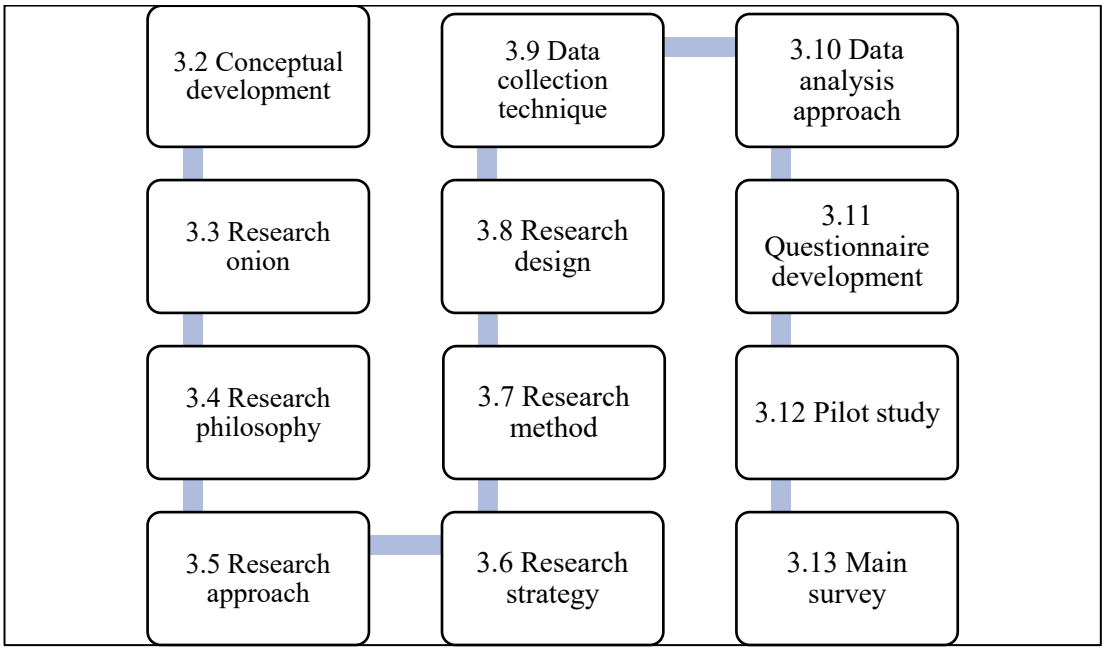
This chapter has discussed past literature on the topics of entrepreneurship, digital entrepreneurship, antecedents of digital entrepreneurship intention which demarcated the research clusters into perceived knowledge on digital entrepreneurship, perceived desirability, perceived feasibility and digital entrepreneurship intention which forms the basis of the present study. In the next chapter, this dissertation will present the theoretical reasoning with its subsequent theoretical framework and hypothesis development. The next chapter will then continue with the methodologies chosen to conduct the present research.

CHAPTER 3
CONCEPTUAL DEVELOPMENT AND RESEARCH METHODOLOGY

3.1. Introduction

This chapter is broadly divided into two main sections. The first section discusses the conceptual development including theoretical reasoning and how related hypotheses are developed with discussion on the linkage between the variables including the mediation hypotheses. The section then moved on to present the theoretical model of this study. The second section then discusses the research methodology used in this study. This include presentation of how this study is conducted in term of its research paradigm and strategy, data collection method, data analysis and how questionnaire was developed. Figure 3.1 presents the structure of this chapter in a graphical manner.

Figure 3.1: Structure of Chapter 3



3.2. Conceptual Development

3.2.1. Theoretical Reasoning

This section forms the core of this study's theoretical underpinnings and consequently the theoretical reasoning in order to conceptualise the research framework. The main theory or model used in this study is the Entrepreneurial Intention Model by Linan and Chen (2004) and Theory of Planned Behaviour (TPB) by Ajzen (1991) that was first presented in chapter 2. In the Entrepreneurial Intention Model, the authors argue that entrepreneurial intention is influenced by several antecedents which were divided into the exogenous variable of entrepreneurial knowledge and endogenous variables of perceived desirability (personal attitude and subjective norm) and perceived feasibility (self-efficacy).

Personal attitude, subjective norm and perceived behavioural control are all elements of Theory of Planned Behaviour (Ajzen, 1991), a theory frequently used in extant literature to study the influencing factor or antecedents of intention which is argued to be a good predictor of behaviour. Self-efficacy, another antecedent that have been argued to influence entrepreneurial intention stems from the Social Learning Theory (Bandura, 1984) and also a basis of entrepreneurial intention theory by Linan (2004). Wang et al., (2020) and Farani et al., (2017) had also adapted these models in a more simplified way where the authors had only chosen perceived knowledge on digital entrepreneurship influencing perceived digital entrepreneurial self-efficacy and digital entrepreneurial intention to suit the context of digital

entrepreneurship. In this study, the researcher combined these three models with digital context as scope in the hope to be able to better explain digital entrepreneurial intention among the MBA students. The next section will discuss how the hypotheses in this study were developed.

3.2.2. Hypothesis Development

In order to theorise the final model, this section seeks to build theoretical links between the constructs. In the previous section, the theoretical underpinnings that lead to the development of the theoretical model was presented to achieve the main aim of developing an integrated digital entrepreneurship intention model. As a result, this section makes an effort to propose some ideas regarding the connections between the embedded constructs. The hypotheses development section is divided into three major sections: 1) linkage between independent variables and mediating variables, 2) linkage between the mediating variables to the dependent variable and 3) linkage between independent, mediating and dependent variables.

3.2.2.1. Linkage between Independent Variables and Mediating Variables (X to M)

3.2.2.1.1. Perceived Knowledge on Digital Entrepreneurship and Perceived Desirability

There were contentions where entrepreneurial knowledge is argued to influence perceived desirability which are personal attitude and subjective norm. In a study of university students in Turkey, it was

found that the core courses (in this study is elementised by the variable "Perceived knowledge on digital entrepreneurship"**)** in a specific education program (in the study it was a technical course in architecture) has a positive effect on entrepreneurial behavior, namely attitude, and entrepreneurial intention (Ilerisoy et al., 2021). Farani et al., (2017) had also argued that entrepreneurial knowledge plays a significant role on digital entrepreneurial intention. It is therefore hypothesized that:

Hypothesis	Hypothesis Description
H1	Perceived knowledge on digital entrepreneurship has a significant relationship with personal attitude
H2	Perceived knowledge on digital entrepreneurship has a significant relationship with subjective norm

3.2.2.1.2. Perceived Knowledge on Digital Entrepreneurship and Perceived Feasibility

Entrepreneurial knowledge is also argued to influence perceived feasibility which is perceived behavioural control and perceived digital entrepreneurship self-efficacy as evidenced in a study by Ilerisoy et al., 2021). Monllor and Soto-Simeone (2020) in their study found that students, when exposed to the technology entrepreneurial lifestyle and receive mentoring and feedback, are provided with experiences that students will ascribe to their skills and abilities, leading to increased technological self-efficacy. It is therefore hypothesized that:

Hypothesis	Hypothesis Description
H3	Perceived knowledge on digital entrepreneurship has a significant relationship with perceived behavioural control
H4	Perceived knowledge on digital entrepreneurship has a significant relationship with perceived digital entrepreneurship self-efficacy

3.2.2.2. Linkage between Mediating Variables and Dependent Variables (M to Y)

3.2.2.2.1. Perceived Desirability and Digital Entrepreneurial Intention

Perceived desirability has been contended to lead to digital entrepreneurial intention. Ilerisoy et al., (2021) in their study of entrepreneurial intention of university students in Turkey, showed evidence of a strong linkage between attitude and entrepreneurial intention. A study by Ahmad et al., (2019) has also found a significant relationship between attitude and subjective norm and entrepreneurial intention and this is further supported by a study on Iranian students by Farani et al., (2017). Therefore, it is hypothesized that:

Hypothesis	Hypothesis Description
H5	Personal attitude has a significant relationship with digital entrepreneurial intention
H6	Subjective norm has a significant relationship with digital entrepreneurial intention

3.2.2.2.2. Perceived Feasibility and Digital Entrepreneurial Intention

Perceived feasibility has been contended to lead to digital entrepreneurial intention (Ilerisoy et la., 2021). Ahmad et al., (2019) strongly contend with evidence from the findings of their study on tourism students in Malaysia that perceived feasibility is a strong antecedent to entrepreneurial intention. Therefore, it is hypothesized that:

Hypothesis	Hypothesis Description
H7	Perceived behavioural control has a significant relationship with digital entrepreneurial intention
H8	Perceived digital entrepreneurship self-efficacy has a significant relationship with digital entrepreneurial intention

3.2.2.3. Mediation Linkages (X to M to Y or c')

3.2.2.3.1. Perceived Knowledge on Digital Entrepreneurship and Perceived Desirability (Attitude and Subjective Norm) and Digital Entrepreneurship Intention

Perceived desirability is argued to mediate the relationship between Perceived knowledge on digital entrepreneurship and digital entrepreneurship intention. Youssef et al., (2021) showed evidence that personal attitude played a mediating role in the relationship between higher education support and entrepreneurial intention showing a link between digitalized education support and entrepreneurial intent. Positive attitudes towards entrepreneurship have been argued to positively affect the attractiveness of starting a business as more

favourable attitudes justify more favourable perceptions of desirability of the behaviours related to the objective of becoming an entrepreneur Ahmad et al., 2019).

Subjective norms differ across cultures, with norms more supportive of entrepreneurial activity in some countries than in others. Affirmative belief from people relevant to the individual boosts a favourable desire to start their own business. It follows that adverse expectation leads to a lower level of motivation and generates unfavourable perceptions of business creation (Ahmad et al., 2019).

Farani et al., (2017) further argued that motivational factors (attitude, subjective norms, perceived behavioural control) have been researched and found as a mediating variable in the previous studies (see for example Karimi et al., 2015; Zhao et al., 2005). However, few empirical studies on motivational factors as mediators on the relationship between entrepreneurial knowledge and digital entrepreneurial intention making it predominantly valuable to extend the body of evidence in this field (Farani et al., 2017).

Therefore, it is hypothesized that:

Hypothesis	Hypothesis Description
H9	Personal attitude mediates the relationship between perceived knowledge on digital entrepreneurship and digital entrepreneurial intention

H10	Subjective norm mediates the relationship between perceived knowledge on digital entrepreneurship and digital entrepreneurial intention

3.2.2.3.2. Perceived Knowledge on Digital Entrepreneurship and Perceived Feasibility (PBC and Digital Self-Efficacy) and Digital Entrepreneurship Intention

Perceived feasibility is argued to mediate the relationship between perceived knowledge on digital entrepreneurship and digital entrepreneurship intention. Jointly, perceived behavioural control (PBC) and the other TPB antecedents have been found to explain 56 per cent of the variance in students' intention to engage in entrepreneurship (Ahmad et al., 2019). Self-efficacy (in this case "Perceived digital entrepreneurship self-efficacy") were also found to have a positive association with entrepreneurial intention where students were more likely to start-up a business when they perceive that they could perform the tasks related to entrepreneurship (Shook and Bratianu, 2010).

Knowledge gained from the courses affect intent by the improvement of students' innovation capacity and realizing new business opportunities where past literature had observed that students who were taking technology course has an increasing entrepreneurship intent in that they have the ability (self-efficacy) to express themselves with

three-dimensional programmes and virtual networks (Monllor and Soto-Simeone, 2020).

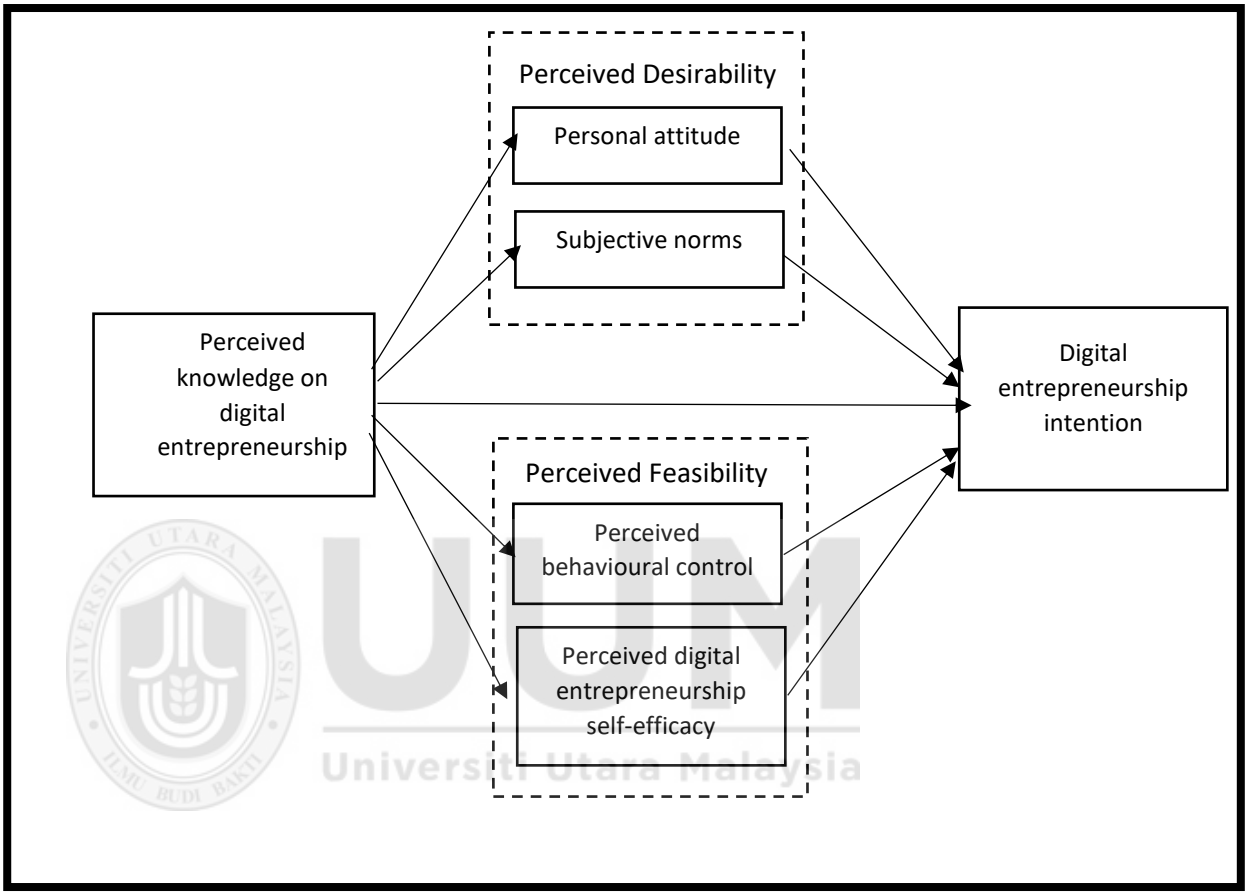
Therefore, it is hypothesized that:

Sub-Hypothesis	Hypothesis Description
H11	Perceived behavioural control mediates the relationship between perceived knowledge on digital entrepreneurship and digital entrepreneurial intention
H12	Perceived digital entrepreneurship self-efficacy mediates the relationship between perceived knowledge on digital entrepreneurship and digital entrepreneurial intention

3.2.3. Conceptual Model

Figure 3.2 below presents this study's theoretical model in a graphical form.

Figure 3.2: The Theoretical Model



3.2.3.1. Linking the Theoretical Model to the Entrepreneurship Intention Model, Entrepreneur Event Model, Theory of Planned Behaviour and Social Learning Theory

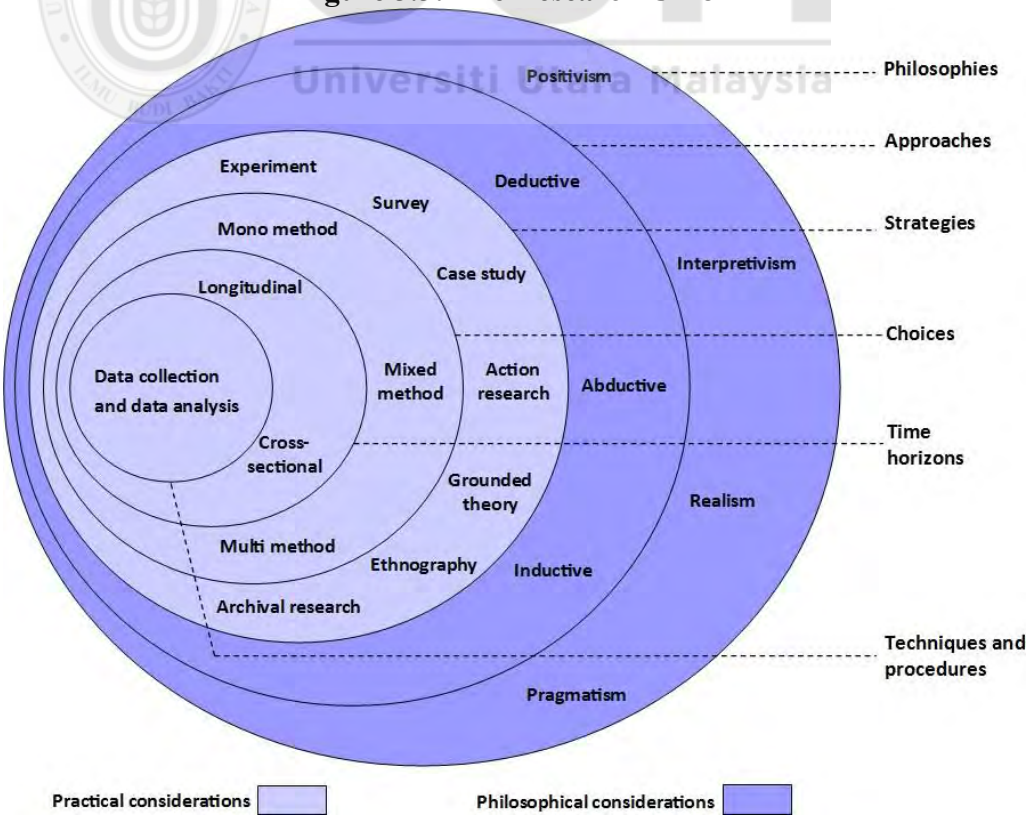
As previously described in section 3.2.1, the model utilizes four main theories of Entrepreneurship Intention Model, Entrepreneurship Event Theory, Theory of Planned Behaviour and Social Learning Theory. In our theoretical model, the link between knowledge, perceived desirability and perceived feasibility is underpinned by entrepreneurial intention model and entrepreneurial event theory. The elements in perceived desirability

and feasibility and its linkage to digital entrepreneurial intention is based on Theory of Planned Behaviour (constructs of personal attitude, subjective norm and perceived behavioural control) and Social Learning Theory (Perceived digital entrepreneurship self-efficacy).

3.3. The Research Onion

The first part of this chapter has laid the essential foundation concerning the research phenomenon and in this second part, the research methodology applicable to this study is now presented. The second part will start with a presentation of the research onion proposed by Saunders et al., (2009, page 108) that will guide the methodology conducted in the present study. Figure 3.3 presents the research onion.

Figure 3.3: The Research Onion



Source: Saunders et al., 2009, page 108

The research onion developed by Saunders as depicted in figure 3.3 above deals with the main philosophical and methodological consideration within which is addressed to effectively answer a study's research questions. This onion comprises of elements of a rigorous social research project, particularly in the context of business and management. The outer layers address the philosophical considerations of the research while the inner layers cover the practical considerations. As stated by Saunders et al. (2009), a comprehensive research onion is frequently used in business management studies to help produce answers to the research questions. In the current study, the researcher used this research onion to develop and justify the philosophical and methodological aspects of this dissertation.

3.4. Research Philosophy

According to Saunders et al. (2009), research philosophy is primarily used as a term to refer to the development of research knowledge and the nature of that knowledge. It consists of critical presumptions about a researcher's worldview that serve as the foundation for the key components of a study's research strategy and methods. Numerous eminent scholars have come to the conclusion that positivism, realism, interpretivism, and pragmatism—four major philosophical positions that fall within the first layer of the research onion—are the ones most frequently used in management research (e.g., Creswell, 2003; Saunders et al., 2009; Bryman and Bell, 2015). These positions are also shown in Figure 3.3. As the foundation for choosing an appropriate research philosophy to be used in the current study before

choosing appropriate research methodologies, the research philosophy is thought of as the initial stage of the research methodology. Table 3.4 provides a comparison of the four main research philosophies from the perspectives of epistemology, ontology, axiology, and technique.

Table 3.4: Major Research Philosophies

	Positivism	**Interpretivism**	**Realism**	**Pragmatism**
Epistemology: the researcher's view regarding what constitutes acceptable knowledge	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research integrating different perspectives to help interpret the data
Ontology: the researcher's view of the nature of reality or being	External, objective and independent of social actors	Socially constructed, subjective, may change, multiple	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	External, multiple, view chosen to best enable answering of research question.
Axiology: the researcher's	Research is undertaken in a	Research is value bound, the	Research is value laden; the	Values play a large role in interpreting

view of the role ofvalues in research	value-free way, the researcher is independent of the data and maintains an objective stance	researcher is part of what is being researched, cannot be separated and so will be subjective	researcher is biased by world views, cultural experiences and upbringing. These will impact on the research	results, the researcher adopting both objective and subjective points of view
Data collection techniques most often used	Highly structured, large samples, measurement, quantitative, but can use qualitative	Small samples, in- depth investigations, qualitative.	Methods chosen must fit the subject matter, quantitative or qualitative	Mixed or multiple method designs, quantitative and qualitative

Source: Saunders et al., 2009

3.4.1. Research Philosophy in Digital Entrepreneurship

According to a review of the literature, positivism and interpretivism are the two main research philosophies used in entrepreneurial intention research (Youseff et al., 2021).

3.4.1.1. Positivism

Based on the Table 3.4 above, positivism is commonly referred to as a research paradigm or philosophical stance relying on information and positive facts (verified data) derived from sensory experience and interpreted through rational and mathematical treatments (Saunders et al., 2009). It is where the social realm is considered as like the natural world, indicating that social science is subjectto investigation in a similar way to physical science (Bryman, 2001). In the entrepreneurial context, positivism has been a dominant perspective, given the fact that the majority

of entrepreneurial literature is derived from the facts of experience (Carter and Ellram, 2003) driving on the considerations that reality is 'out there' and the researcher should be concerned to find the most objective and effective way to gatherinformation or positive facts about such a reality (Bryman and Bell, 2015).

Often characterized by quantitative technique, concerned with the development of research models and research hypotheses to be tested with empirical data (Bryman, 2001)and due to its emphasis on theory testing, the positivist approach has made a considerable contribution to entrepreneurial research, particularly in terms of its theoretical implications and managerial insights (Bryman, 2001).

3.4.1.2. Interpretivism

On the other hand, the interpretivism paradigm has also been used in entrepreneurial research as a philosophical stance. This paradigm asserts that the social world cannot be considered as similar to physical science, because social science is far too complex to be studied only through theories and scientific explanations (Saunders et al., 2009). Opposed to positivism, interpretivism's central belief is that reality can only be fully understood through interpretation of and intervention in reality (Bryman, 2001) which is evolving and dynamic, with a wide array of subjective interpretations of social acts or realities (Bryman and Bell, 2015).

Different from positivism, the interpretivism paradigm is often characterised by qualitative research and does not rely on the establishment of the measurement of facts (Burrell and Morgan, 2000). More importantly,

the interpretivism paradigm contributes to the entrepreneurial field by providing in- depth and information-rich knowledge,(Mangan et al., 2004). Furthermore, the interpretivist approach argues that the researcher cannot avoid influencing the phenomena they study (Saunders et al., 2009).

3.4.2. Philosophical Stance of This Study

Based on the awareness of the both positivism and interpretivism paradigm maintained above, the researcher can now confidently choose the appropriate research philosophy for this study. Thus, this dissertation's philosophical viewpoint fits into the positivist school of thought, which holds that knowledge from study is already "out there" and can be seen in the natural world. Additionally, the primary goal of this study is to undertake an empirical investigation utilising real data, which is consistent with a positivist viewpoint. As a result, this study adopts the positivism paradigm as its philosophical stance because it holds that research knowledge can be observed and empirically evaluated, and that the social world may be subjected to the same methods of examination as physical science (Bryman and Bell, 2015).

3.5. Research Approach

Deductive, inductive, and abductive research methodologies are the three basic types that are frequently utilised in social science research. They make up the second layer of the study "onion" created by Saunders et al. (2009), which is shown in Figure 3.3. Table 3.5 provides a review of the salient characteristics of different research methodologies.

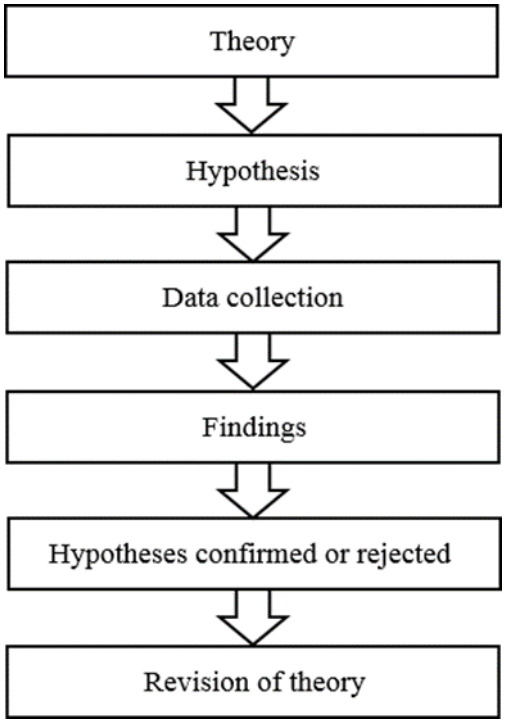
Table 3.5: Research Approach

Research approach	Starting point	Objective	Findings
Deductive	Begins with a theory thatcan be in the form of theoretical framework	Testing theory	Deductively drawn through confirming or falsifying prior hypotheses constitute findings; - Statistical generalisability
Inductive	Empirical observations	Developing theory	Inductively drawn based onempirical observation constituting findings; - Analytical generalisability
Abductive	May start with real-life observation and/or withpre-perceptions and theoretical knowledge	Developing theorythrough developing an understanding of anew phenomenon	Abductively drawn through suggesting hypotheses and the application of these hypotheses to the empirical research constitutes findings; - Relatively generalisable

Source: adapted from Kovacs and Spens, 2005

The researcher can therefore safely select the best research approach for this study based on the key characteristics of the various social science research approaches shown in the above table. The deductive approach, which draws a logical understanding of a particular topic from the theory, is the research strategy used in this dissertation. Deduction is used as a research strategy in the majority of studies on entrepreneurship that used quantitative techniques in order to evaluate theories (Bryman and Bell, 2015). Figure 3.6 illustrates the deductive procedures.

Figure 3.6: The Process of Deduction



Source: Bryman and Bell, (2015, p. 23)

3.6. Research Strategy

This section discusses research strategies, which make up the inner layers of the research "onion" and encompass the study's practical aspects (Figure 3.3). Seven major research strategies that are frequently used in business and management research are experiment, survey, case study, action research, grounded theory, ethnography, and archival research, according to leading social scientists (e.g., Gummesson, 1999; Bryman, 2001; Burrell and Morgan, 2000; Saunders et al., 2009; Bryman and Bell, 2015). These methods can be applied in accordance with the research's objectives, such as exploratory, descriptive, or explanatory (Yin, 2003).

3.6.1. Research strategies in Digital Entrepreneurship

There is a wide array of research strategies adopted in the field of entrepreneurship research. Table 3.7 presents research strategies that were used in past studies on entrepreneurship and its related intention.

Table 3.7: Research Strategies/Methods

Research strategy	Source
Quantitative	Linan and Chen (2019); Yousseff et al., (2021), Zainuddin and Rejab (2010), Zainuddin et al., (2012), Ilerisoy et al., (2021), Ahmad et al., (2019), Al-Mamary et al., (2020), Castro Soeiro et al., (2016); Herrmann et al., (2018); Kuester et al.(2018); Maiolini et al., (2016); Oumlil and Juiz (2018); Ziyae et al., (2014)
Qualitative	Smith and Beasly (2011), Di Domenico et al., (2014); Dutot and Van Horne (2015); Dy et al., (2017); Guthrie (2014); Richter et al., (2017); Spiegel et al. (2016); Troxler and Wolf (2017); Wright (2015); Zaheer et al., (2018)
Theoretical	Maritz and Brown (2013); Ebel et al. (2016); Giones and Brem (2017); Hair et al. (2012); Hsieh and Wu (2018); Hull et al. (2007); Le Dinh et al. (2018); Nambisan (2017); Sarma and Sunny (2017); Smith et al. (2017); Srinivasan and Venkatraman (2018); Sussan and Acs (2017); Van der Ven (2017)
Case study	Rae (2012), Tajvidi and Tajvidi (2020); Davidson and Vaast (2010); Hu et al.(2016); Liao et al. (2013); Nichols et al., (2017); Nzembayie (2017); Ojala (2016);

Based on the table above, it would seem that quantitative have generally been the least used as the research strategy in entrepreneurship research. This is confirmed by Kraus et al., (2019) in their literature review of digital entrepreneurship where they found that out of 35 articles analysed, most of them (49 per cent) followed a qualitative approach (including case studies).

They further assume that the superior number of qualitative studies contributes to a yet unsorted pile of articles with various, partly non-overlapping topics.

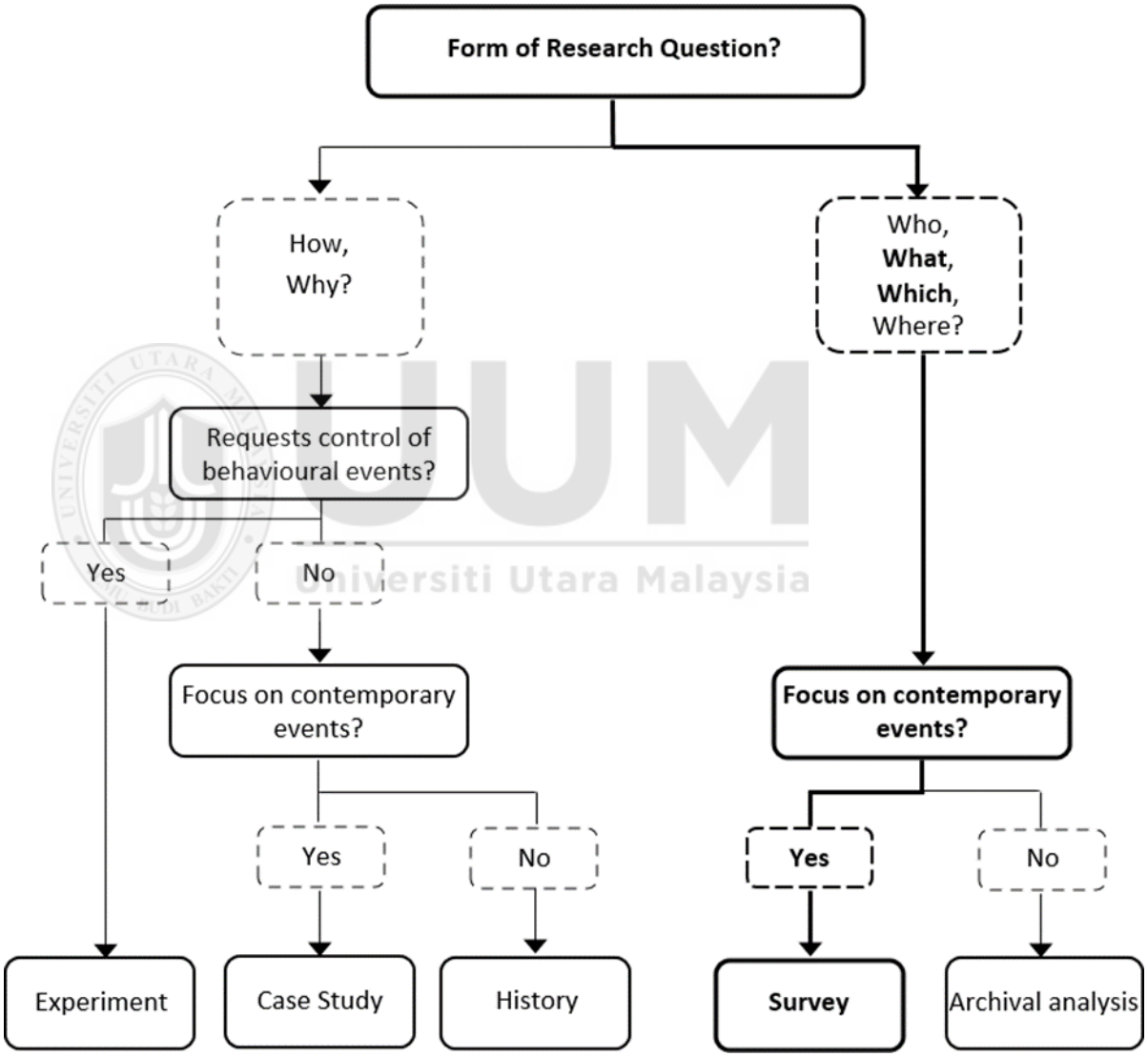
According to these reviews, quantitative strategy (surveys) is generally thought to be appropriate for the current study in order to contribute more to the methodologies inherent to research strategies in entrepreneurship research, which can be used as a milestone approach in choosing appropriate research strategies for this study. The research plan for this dissertation will be covered in the subsequent section.

3.6.2. Research Strategy of This Dissertation

The primary research questions of this study are 'What are the antecedents to digital entrepreneurial intention?' and 'does perceived desirability and feasibility mediate the relationship of the antecedents and intention?' The creation of a theoretical model for digital entrepreneurship intention is another major goal of this work. This calls for the empirical investigation of postulated links (proposed hypotheses) between research variables, which were discussed earlier in this chapter. Explanatory research is therefore considered acceptable to fulfil the main goal of the study as well as provide a solution to its central query. This amply demonstrates the relationship between the chosen approach and the study's explicative objective (survey). From a philosophical standpoint, the survey technique adheres to the positivist method because it can focus on the subject that the researcher wants to investigate inside a specific theory (theoretical context) or conceptual framework (Saunders et al., 2009). In their 2015 framework, Bryman and Bell outline standards for selecting the best

research approach depending on the nature of the research questions being asked (see Figure 3.8). The research strategy used in this study is depicted in Figure 3.8.

Figure 3.8: Selection of Research Strategy



Source: Yin, (2003); Bryman and Bell, (2015)

In light of the aforementioned justifications and in accordance with the aforementioned framework, it follows that the survey approach is the most suitable data collection strategy for achieving the main goals of this study and providing answers to the research questions. The nature of the survey strategy is briefly covered in the next subsection.

3.6.2.1. Surveys

The survey strategy, arguably the most common approach in business and management research, is widely employed to answer 'what, which and where' types of questions (Saunders et al., 2009; Chicksand et al., 2012). The survey strategy, built on the logic of deductive inquiry, is consistent with the present study's research approach of deductivism and in line with explanatory studies (the purpose of this research dissertation), where it is employed in the interest of examining causal relationships among variables (Bryman and Bell, 2015).

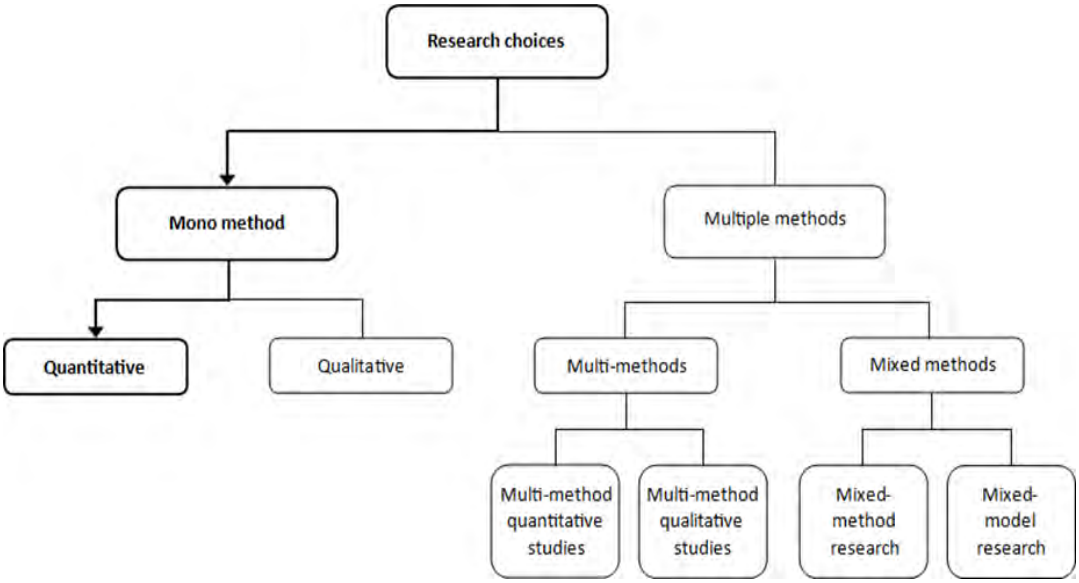
Saunders et al. (2009) posit that the survey strategy is associated with three main data collection techniques: questionnaires, structured observations and structured interviews. Amongst these techniques, the survey questionnaire is the most common approach in entrepreneurship research (Saunders et al., 2009) as it is easy to administer and relatively inexpensive and non-invasive. Considering these advantages, the adopted survey strategy fits perfectly with the research resources (e.g. time, money) available to the author and also the extent of existing knowledge on the

entrepreneurship intention topic. It would also enable this study to sample sufficient respondents to measure the posited variables and test the research hypotheses. Hence, the questionnaire survey is employed in this study as it can assist the researcher in examining the antecedents of digital entrepreneurship intention by providing an efficient and suitable tool for obtaining the required information.

3.7. Research Method

Following the discussion of the proper research strategy, this part briefly discusses the selection of the research method, which is another layer of our research "onion" (Figure 3.3). The quantitative method, which focuses on numerical (numbers) data, and the qualitative method, which focuses on non-numeric (words) data, are the two basic methods for gathering data in business and management research (Saunders et al., 2009) and choosing the appropriate research approach for the study using the advice provided by Saunders et al., (2009). This guide is presented in the figure 3.9 below.

Figure 3.9: Choices of research methods



Source: Saunders et al., (2009)

The bold arrows and boxes in Figure 3.9 show the selection of the research methodology for this dissertation. This dissertation's chosen research philosophy, the positivist paradigm, and research strategy, deductive reasoning regarding verifying existing knowledge, led to the adoption of a mono-quantitative method.

3.8. Research Design (Time Horizon)

The practical consideration of the study's time-based horizon is covered in this section, which addresses another inner layer of the research "onion." The majority of entrepreneurship research falls into the cross-sectional or longitudinal categories. While the longitudinal approach seeks to examine the same notion throughout time, the cross-sectional approach focuses on a specific occurrence (or phenomena) at a certain point in time (snapshot approach) (Saunders et al., 2009).

3.8.1. Rationale for Using Cross-Sectional Approach in this Dissertation

There can be an employment of different time horizons based on different types of research questions and circumstances because they are associated with use of time and can incorporate time in different settings (Saunders et al., 2009; De Vaus, 2009). Based on this study's research questions, the cross-sectional approach was adopted in this dissertation, as the researcher is interested in a snapshot of current antecedents that might lead to the digital entrepreneurial intention of MBA students. This study seeks to empirically assess the theorised model through empirical observations (data collection) at a particular point of time. Furthermore, this study does not intend to map any changes or development of entrepreneurial intention or examine their impact over time, thus the longitudinal approach was excluded for this study.

3.9. Data Collection Techniques

This section continues to cover the data collection methods applicable for this study, creating the last layer of the study's research onion, after discussing the research philosophy, research approach, research strategy, research method, and research design. As mentioned in a previous section, questionnaires are the most popular method for gathering data when using the survey approach in entrepreneurship research (Saunders et al., 2009).

A questionnaire is typically thought of as a tool for gathering data in which each respondent is required to answer the same set of questions in a predetermined order (Saunders et al., 2009, p. 360). Questionnaires allow researchers to look at and clarify cause-and-effect links between variables and work best with explanatory

studies and analytical research (Saunders et al., 2009). In order to guide this study and provide answers to the research questions, it is consistent with the current research's goals to understand the causal links between antecedents and digital entrepreneurial intention.

Additionally, the questionnaire method was chosen since it is thought to be the best research tool for gauging the suggested study hypotheses and research questions. This is due to the fact that the questionnaire technique can offer the current study a tool to quickly and affordably gather the necessary information on a group of people's intentions towards digital entrepreneurship. The section on the creation of the questionnaire contains more information about the chosen method of data collecting.

3.10. Data Analysis Approach

This section wraps up the final layer of the research onion by addressing the data analysis strategy after having previously covered the choice of data collection method for this study. The study's goal plays a major role in the technique of data analysis chosen (Hair et al., 2010). As mentioned previously, the purpose of this study is explanatory, where the researcher seeks to investigate cause-and-effects relationships to understand the impacts of support and knowledge on perceived desirability and feasibility and thereafter on digital entrepreneurship intention. With reference to the proposed research model in Figure 3.2, multiple relationships exist among variables that need to be tested. Therefore, the Smart-PLS technique is used as it will enable the researcher to examine multiple relationships of

dependent and independent variables while considering interaction effects among the posited variables (Kaplan, 2000) and furthermore depicts all of the relationships amongst independent and dependent variables and expresses them in a series of equations (Kline, 2011). Moreover, Smart-PLS attempts to analyse all the relationships between variables in one sitting, producing less biased results (Kaplan, 2000).

The structural equation modelling (SEM) technique is a widely used data analysis approach in analysing structural models that encompass independent and dependent variables (Bagozzi and Yi, 2012). In comparison to other multivariate techniques like multiple regressions, factor analysis, and path analysis, the Smart-PLS method generally has numerous advantages. The Smart-PLS method enables the estimation of multiple separate causal relationships simultaneously, whereas other multivariate techniques are only able to examine one relationship at a time. This effectively allows for a comprehensive examination of a structural model's relationships in a single sitting (Kaplan, 2000; Bagozzi and Yi, 2012). This capability is extremely important to the study because it enables the estimation of all the posited hypotheses (H1 through H12) regarding perceived knowledge, perceived desirability, perceived feasibility, and intention to engage in digital entrepreneurship simultaneously, leading to more precise and reliable findings. According to Bagozzi and Yi's (2012) additional argument that the use of Smart-PLS provides an integrative function as a single umbrella of methods that covers testing measurements and causal hypotheses, Smart-PLS is the method of choice for data analysis that is in line with the goal of the study. Another data analysis software that was used was SPSS for the respondent’s demographic characteristics,

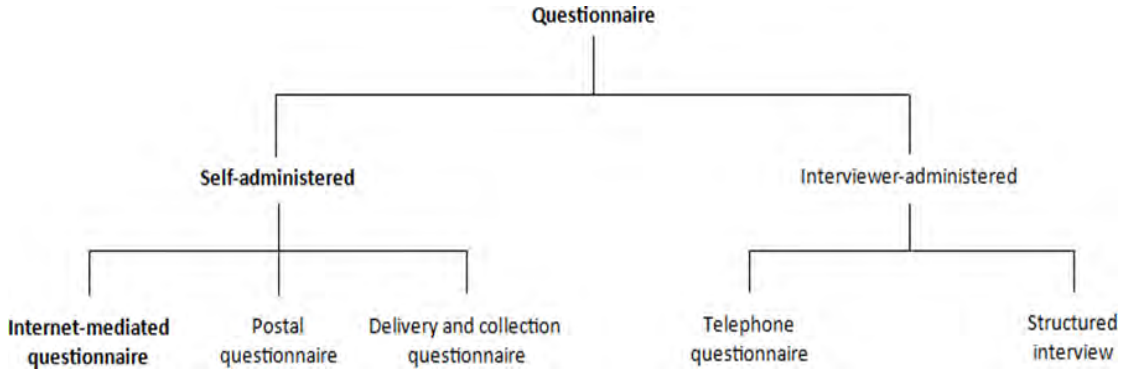
descriptive analysis (mean scores and standard deviation) and test of normality (skewness and kurtosis).

3.11. Questionnaire Development

3.11.1. The Choice of Questionnaire

Generally, there are two main types of questionnaires in social science research (see Figure 3.10): self-administered questionnaires (Internet-mediated, postal and delivery- collection questionnaires), in which the presence of the researcher is not required; and interviewer-administered questionnaires (structured interviews and telephone questionnaires), where the researcher is present (Saunders et al., 2009). The following figure displays the different types of questionnaires used in research. The bold texts indicate the choices selected in this study.

Figure 3.10: Types of Questionnaires



Source: Saunders et al., (2009, p. 357)

According to Saunders et al. (2009), the study questions and aims in general, and in particular the following elements, have an impact on questionnaire choice:

- The right sample size is needed for data analysis.
- The variety and quantity of questions needed to gather data
- Importance of enlisting a particular demographic as participants
- The deadline for finishing data collecting
- Whether automating data entry is practical.
- Fieldwork's financial ramifications

Given these elements and the key research topic of the current study, an Internet-mediated self-administered questionnaire was used as the data collection method for this dissertation.

3.11.2. Justification for Employing an Online (Internet-mediated) Survey in this Dissertation

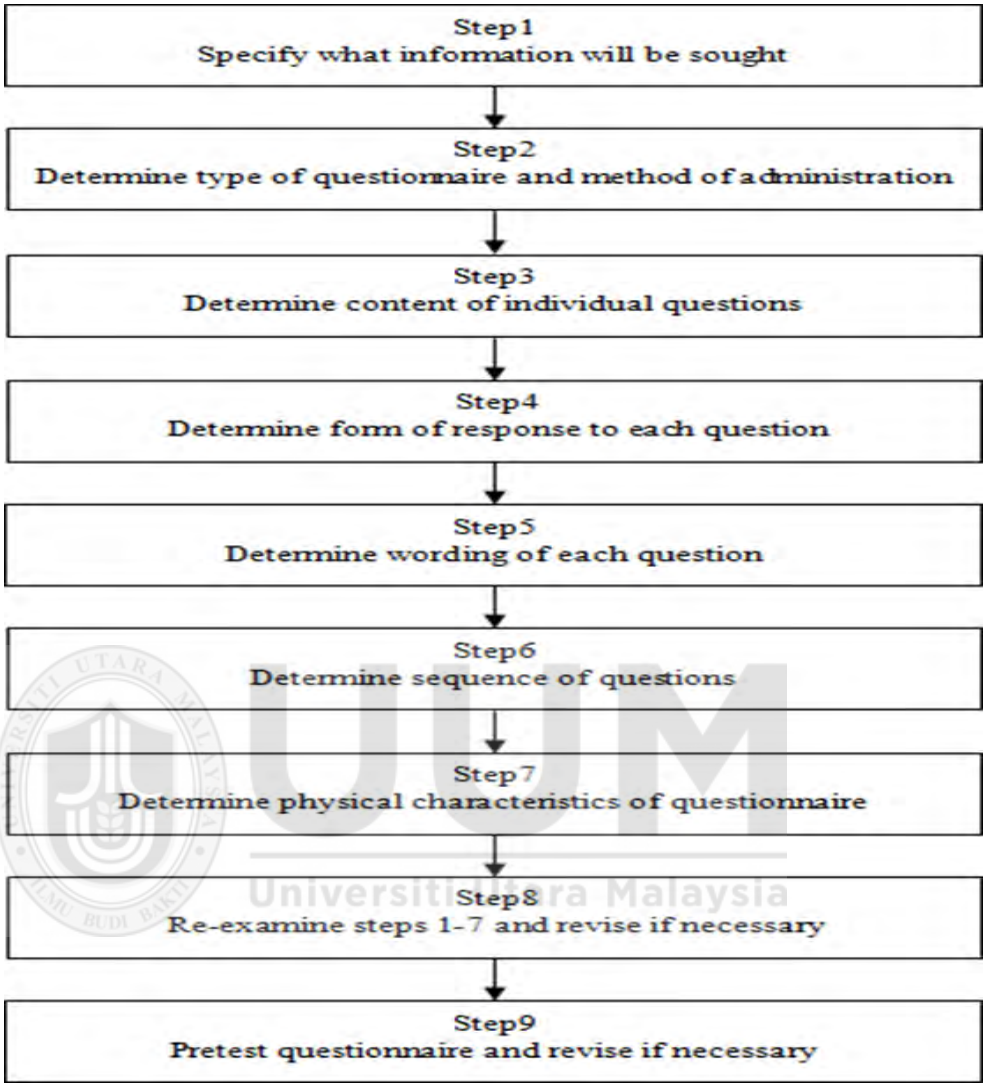
Internet-mediated survey has both time- and cost-effective advantage. With this method, there is a low chance of respondents' responses being distorted, and when utilising email, there is a high likelihood that the response is coming from the right individual (Saunders et al., 2009). The respondents are also given convenience because they can finish the survey whenever it is convenient for them. More importantly, a survey conducted online gives the researcher access to sizable, quality samples of MBA students who can respond to our study questions during the movement control order (MCO) period and who are able to provide the necessary data. Through specific design strategies, which will be covered in more detail in the following part, the

researcher could also reduce the possible danger of missing data (Sue and Ritter, 2007). In light of the aforementioned factors, it is decided that this study should utilise the Internet-mediated questionnaire.

3.11.3. Design of Questionnaire Structure

The researcher now moved on to questionnaire design concerns after determining the type of questionnaire required and its mode of administration. To maximise questionnaire quality, Churchill and Iacobucci (2002) present a nine-step process for questionnaire construction (see Figure 3.11). Because the mentioned stages are very helpful for creating a suitable questionnaire, the researcher carefully built the questionnaire based on them.

Figure 3.11: Procedure for Developing a Questionnaire



Source: Churchill and Iacobucci, (2002)

3.11.4. Measurement Scale Development

The measurements used in this investigation came from a number of sources. As was previously argued, preceding research had already produced a set of validated measurement scales appropriate for this investigation, so it was not necessary for this study to construct brand-new measurement scales from start.

Table 3.12 below summarises the measurements, sources and their corresponding Cronbach Alpha results.

Table 3.12: Summary of Constructs Used

Type of Constructs	Dimension	Sources	Cronbach Alpha	Number of items
Independent Variable	Perceived knowledge of digital entrepreneurship	Wang et al., (2020)	0.81	4
Mediating Variable	Personal Attitude	Youseff et al., (2021) (Based their measurement on Linan and Chen (2009)	0.96	5
	Subjective Norm	Linan and Chen (2009)	0.77	3
	Perceived behavioural control	Linan and Chen (2009), Youseff et al., (2021)	0.93	6
	Digital entrepreneurial self-efficacy	Wang et al., (2020)	0.94	16
Dependent Variable	Digital entrepreneurial intention	Linan and Chen (2009), Youseff et al., (2021), Wang et al., (2020)	0.95	3
Total				37

3.12. Pilot Study

The researcher tested the generated questionnaire in advance of the main survey to see whether the questions were fully coherent and to see if any needed to be changed or eliminated to guarantee that the questionnaire was capable of eliciting the information needed to answer the research questions. Before starting the main survey, the researcher wanted to check for any potential issues and provides early feedback that helps to guarantee clarity and convenience of completion (Malhotra and Grover, 1998). Forza (2002) suggests that in order to properly pre-test survey questionnaires, the proposed survey should be examined by academics as well as potential informants or respondents. In order to pilot-test the questionnaire, the researcher adhered to Forza's (2002) instructions. With these groups in mind, the researcher conducted two stages of pre-testing on the questionnaire.

In the first stage, three academics from the Universiti Utara Malaysia and UNIKL were invited to pilot-test the survey through a number of informal (online) interviews in September 2021. These academics, previously contacted and informed about the pilot test, were sent a copy of our survey questionnaire along with the conceptual model and the research hypotheses (which was emailed to each of these academics one week before conducting the interview), therefore providing them with an overview of the research purpose and objective. The chosen academics were reasonably knowledgeable and experienced in the entrepreneurship field. In order to evaluate whether the measurements accurately measured the constructs, phrasing and layout concerns during the interview were also examined (face validity). The questionnaire was very slightly changed as a

result of these interviews, mostly in terms of how to present the digital components for the self-efficacy (perceived feasibility) factors.

These changes were made to the second version of the survey, which was then distributed to the 30 MBA students who were the study's target respondents. This stage allows the researcher to assess the measurement scales' content validity, or how well they accurately reflect the full content of the digitalization, to make sure they are measuring the construct they are intended to measure (Hair et al., 2010). The content validity of the utilised measures was further confirmed by the pilot study, even though it was already assumed in this investigation because the researcher directly used well-established and validated trustworthy scales from prior studies.

3.13. Main Survey

The researcher then carried out the primary survey after the pilot study. In this section, the primary concerns that must be addressed while conducting a thorough survey are covered, including the implications of sampling and the methods used to collect data.

3.13.1. Sampling

Sampling, a crucial component of any empirical study, involves choosing the appropriate subjects, events, or objects from which to gather the necessary data (Bryman and Bell, 2015). Saunders et al. (2009) made the case that a researcher should take into account the proper use of sampling in their research regardless

of the research questions and objectives because it is comparatively impractical and unrealistic to collect and analyse data from every possible case due to limitations of time, access, and money. The sample procedure, according to Saunders et al. (2009) and Bryman and Bell (2015), should include the following five crucial steps:

• choosing the most suitable sample method

• determining the target demographic

• figuring out the sample size

• establishing a sampling frame.

• carrying out the sampling procedure and ensuring the sample's validity

These five steps were carried out for this study's sampling and are discussed in the following.

3.13.1.1. Sampling Technique

There are two types of main sampling techniques in social research which are probability sampling (representative sampling) and non-probability sampling (judgemental sampling) (Saunders et al., 2009). The main feature of probability sampling is there is an equal chance or probability for each sampling case (in this case individuals) to be selected from the population. with (i.e. selected samples can be representative of the population). Saunders et al., (2009) have argued that this enables the statistical estimation of the characteristics of the population from the sample in order

to answer the research inquiries. Commonly associated with survey-based strategies and explanatory studies, this sampling technique is also widely employed in quantitative research, where the key purpose of sampling is to achieve a representative sample to explain certain research phenomenon (Saunders et al., 2009; Bryman and Bell, 2015).

Non-probability sampling differs from probability sampling in that there isn't a set probabilistic possibility that certain objects will be chosen to represent a sample of the population (i.e. the selected sample is not representative of the population). This would imply that the researcher cannot draw statistical conclusions about the features of the population because the likelihood of objects being chosen from the population is unknown (Saunders et al., 2009). Non-probability sampling is frequently used in qualitative research, and its primary goal is to gather certain items or situations that can help researchers understand a phenomenon in depth (Creswell, 2003). Research findings may not be generalised using the non-probability sampling technique, at least not on the basis of statistics (Saunders et al., 2009). The sample techniques employed in earlier quantitative studies on students' entrepreneurial intentions in the higher education sector are described in Table 3.13 below.

Table 3.13: Sampling Methods used in Entrepreneurial Intention Studies

Sampling technique	Studies that have used the sampling technique	Sample characteristics
Random	Linan and Chen (2019), Youssef et al., (2021), Millman et al., (2010)	undergraduate
Census	Zainuddin and Mohd-Rejab (2010), Zainuddin et al., (2012),	undergraduate
Purposive	Ahmed et al., (2021)	undergraduate

Considering the above arguments, the researcher has chosen probability sampling as it is deemed appropriate for this study given its ability to provide a representative sample essential for validating and generalising the findings, in line with the study's research method and research purpose and also consistent with the selected survey research strategy where inferences were made from the collected samples to answer the research inquiries. With reference to Table 3.13, coupled with the advantages and relevance to this study, the most appropriate sampling technique for this study is simple random sampling, as this study does not require face-to-face contact, the sampling frame does not contain clusters or strata, it is relatively cost-efficient and the required sample is of a manageable size. Furthermore, simple random sampling is in line with the study's choice of data analysis (i.e. structural equation modelling) as recommended by Kaplan (2000) when employing the Smart-PLS data analysis technique.

3.13.1.2. Population

After identifying the sampling technique, the next step in the sampling process implicates identifying the target population. The target population is concerned with the universe of units from which the qualified samples are selected (Bryman and Bell, 2015). As this research seeks to investigate the antecedents of digital entrepreneurial intention among MBA students in Malaysia, in order to acquire the information required for answering the research inquiry, it is deemed wise to target postgraduate students in higher education that are involved in the MBA programme. Hence, the target population in this study is MBA students in the higher education industry in Malaysia for both the public and private colleges and universities. This population is deemed appropriate for the study and is expected to provide this study with data that is consistent with the digital entrepreneurial intention focus of the theoretical model.

The Malaysian Qualification Register (MQR) (2021) database was used to identify the population of this research. The MQR database contains detailed information on higher education institutions that provided MBA education in Malaysia. MQR registry provides both a 'quick' and 'advanced' search through which we ran an advanced search on MBA programmes and excluded undergraduate programmes. Accordingly, 3,694 MBA students were identified and exported to a Microsoft Office Excel 2010 workbook. This database of 3,694 MBA students is considered the population for this research. The researcher feels that the MQR database is

a good indicator considering the appropriateness of this database at the academic level would facilitate in ensuring the accurate representation of the population and minimising the possibility of sampling frame error.

3.13.1.3. Sample Size

According to Saunders et al., (2009), choice of sample size mainly depends on the following:

a) the type of data analysis technique the researcher intends to carry out (often statistical analyses have a minimum threshold for the required data cases)

b) the margin of acceptable levels of statistical error (this is associated with the accuracy that a researcher requires for any estimates made from the sample to the population)

c) the size of the population from which the sample is selected

d) a sufficient level of certainty that ensures the characteristics of collected samples will represent target population

e) the number of questions (if many questions are asked, a larger sample size is required)

In reality, the choice of sample size, apart from the type of data analysis, is made according to practical considerations of available resources, time, budget and other limitations (Saunders et al., 2009; Bryman and Bell, 2015)

indicating that the choice of sample size is largely linked with the data analysis technique and the resources available to the researcher. With this in mind, the researcher attempted to determine the sample size based on the study's data analysis approach (SEM) while not compromising the other abovementioned factors.

Hair et al. (2010) and Kline (2011) had recommended that the range of sample sizes suitable for SEM analysis is 150-400, varying according to the complexity of the research model in terms of the number of posited variables. To make factor analysis feasible, they suggest using a minimum of five samples per observed variable for SEM analysis. This study's proposed research model consists of six theoretical constructs, each of which have seven observed variables on average (see Figure 3.2 and Table 3.12). This indicates that a minimum of 210 samples are needed to run the SEM analysis (6 (number of constructs) * 7 (number of observed variables) * 5 (number of required samples per observed variables) = 210). With this in mind, the researcher set the threshold of the sample size to 300 so that the minimum threshold of 210 samples could safely be reached. This sample size is appropriate for the proposed statistical technique of SEM based on Hair et al.'s (2010) recommendation in line with the study's choice of sampling technique because it meets the sample size requirement for the simple random sampling technique, which works better over a few hundred.

3.13.1.4. Sampling Frame

After determining the sample size, this section continues to address the sampling frame of this research and discuss how it is selected. The sampling frame consists of the listing of all units within the population who have been selected as samples (Bryman and Bell, 2015) related to the list of the members of the target population from whom the sample is drawn (Saunders et al., 2009). It represents the list of all potential respondents to whom the participation requests will be sent. Normally, determining the size of the sampling frame relies on the chosen sample size and the expected response rate that will yield the required sample size (Bryman and Bell, 2015).

Klassen and Jacobs (2001) assert that the best expected response rate for online surveys conducted in is approximately 11% (ranging from 5-11%). Thus, in order to acquire 300 samples (the required sample size) we need a sampling frame of 2727 (2727*(11/100) = 300). With this in mind, the researcher set the threshold for the size of the sampling frame to 2,727, so it could potentially provide us with the required 300 samples, which falls within the recommended range of 150 to 400 considered acceptable for this research.

3.13.2. Survey Unit Analysis and Key Respondents

According to Flynn et al. (1999) and Slack et al. (2010), the unit of analysis is primarily concerned with people, businesses, plants, groups, systems, and

projects, and it is determined in accordance with the research question (Bryman and Bell, 2015). The core respondents in this study were those who were enrolled in an MBA degree, who served as the analysis unit. This was decided based on the presented study questions that aim to investigate the determinants of the intention of digital entrepreneurship of MBA students in Malaysian higher education.

3.13.3. Online Survey

This part continues the sampling process by discussing the data collection procedure. The final version of the questionnaire, which had been altered during the pilot project, was given to the 2,727 MBA students who had been chosen for the main survey via an online survey. A Google form was used to generate an online survey. Abbreviations, jargon, vagueness, confusion, double negatives, questions that are beyond the respondent's capabilities, leading and double-barrelled questions, and questionnaire items with more than 20 words were avoided when creating the online survey instrument in accordance with the pilot study revisions to ensure unbiased responses and a higher response rate (Sue and Ritter, 2007). In order to remove respondent bias and assess their competency for this research, additional demographic questions like age, employment history, the sort of educational institution they attend, and—most importantly—whether they are enrolled in an MBA programme were included (Klassen and Jacobs, 2001).

Another issue that could occasionally arise with online surveys is social desirability bias, which happens when a respondent provides a socially acceptable response or responds in a way that will be regarded favourably by their organisation rather of an honest or true response (Creswell, 2003). This problem was addressed in the online survey by confirming the anonymity of respondents and confidentiality of answers, a strategy frequently used in survey-based research to reduce social desirability bias. Respondents were also assured that their identity and affiliation would be completely hidden throughout the entire research process (Forza, 2002; Sue and Ritter, 2007).

In order to ensure that the online survey went smoothly and without misunderstanding, specific instructions about how to complete each survey question were also supplied. Additionally, the researcher only allowed respondents to choose one option for each question, minimising response bias and facilitating statistical analysis. In order to lessen the chance of common method variance, response alternatives were presented using checkboxes for screening and demographic questions and radio buttons for Likert-type scale questions (Field, 2009). Additionally, a multi-page format was used in the online survey to prevent respondent fatigue, which is frequently brought on by too much scrolling in a one-page survey (Sue and Ritter, 2007). In order to help respondents anticipate the time needed to complete the entire survey, the researcher included a progress bar to each survey page that displays the percentage of the survey that has been completed. Additionally, and perhaps more importantly, the researcher used a feature provided by the web-based survey service when designing the online survey that prevents respondents

from submitting the survey if any question is left unanswered, ensuring the elimination of the risk of missing data, which is essential for data analysis (Sue and Ritter, 2007; Field, 2009). At the end of the survey, the researcher included a brief message of appreciation and an optional section requesting respondents to share their contact information if they wanted a copy of the research summary report.

3.13.4. Survey Administration

Using the MQR database, the researcher sent an email invitation to the targeted MBA students via the person in charge of MBA programmes in each university, along with a link to the online survey, guaranteeing participant confidentiality and making the survey easy for responders to access. The Web-based survey tool of Google form, which gave the researcher on the functionality for creating and managing the survey, generated the link to the online survey. Between August and September 2021, a period of around four weeks, data collecting was done. The follow-up request was sent to all 2,727 participants in the sample frame since the researcher was unable to determine with certainty which respondents had already finished the survey. However, a note was added to the follow-up email stating, “if you have already participated in the survey, please disregard this email”.

In the first three weeks after distributing the survey, the researcher had almost all of the responses. 415 replies were received out of a total 2,727 contacts who received the survey invitation email. The fact that every comment came from a different MBA student is very crucial to note. 21 responses—out of the

415 received—were discarded as not being from MBA students. Considering the characteristics of these 21 respondents, the researcher did not include their data in the dataset being examined (this study only focuses on MBA students as the target population). The validity of the responses and the reliability of the data were further ensured by this. Last but not least, the dataset to be analysed comprised the information from 394 MBA students who are proficient enough to complete the survey. As a result, the effective response rate (394/(2727-21)) and the raw response rate (415/2727) are both 14.6%. In light of the reported average response rate of about 11%, the response rates are therefore acceptable (Klassen and Jacobs, 2001).

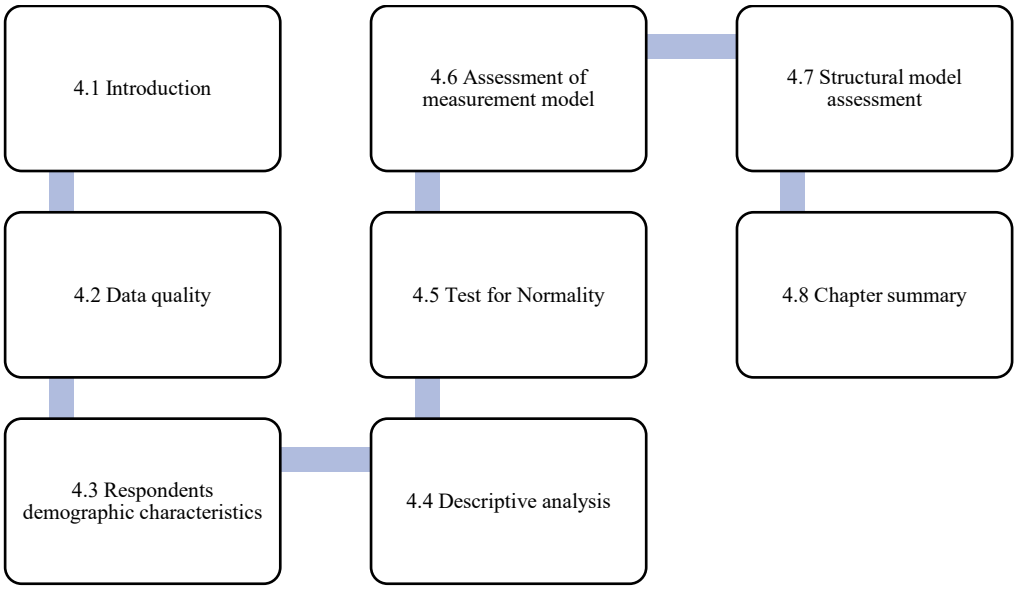
CHAPTER 4

ANALYSIS, RESULTS AND DISCUSSION

4.1. Introduction

This chapter will present the results of the statistical data analysis and its interpretation. The chapter will first present response rate and quality including data screening where data was checked for missing values, outliers, and normality. Then, the demographic characteristics of respondents who were included in the study and its subsequent discussion is presented. The next section presents the results from the data analysis as well as the hypotheses testing for both the direct links and mediating effects. This section will also include the discussion of the specific findings. The last section provides an entire summary of the findings of the study. Figure 4.1 below depicts the chapter flow in a diagrammatic format to assist reader in following the chapter flow.

Figure 4.1: Structure of Chapter 4



4.2. Data Quality

Data was screened for missing values and outliers in order to ensure data quality. As mentioned in Chapter 3, the online survey ensures that there are no missing values in the response as respondents will not be able to submit their responses if there are any questions left unanswered. This is the first step in ensuring there are no missing values. The researcher further checks the dataset using SPSS missing values analysis and the results indicate that there are no missing values in our dataset. The online survey also ensures that there are no outliers in our dataset as the respondents can only click responses from 1 to 5 therefore ensuring that the responses will not go below 1 or beyond 5.

4.3. Respondents' Demographic Characteristics

The study captured the demographic characteristics of the respondents to help in understanding how the respondents are characterized. The demographic data include characteristics of gender, age, working experience and what was the discipline that the respondents took at their undergraduate level. The demographic section also asked the respondents whether their family is involved in business and lastly the type of education institution they are involved in, whether it is private university /college or public university/college. Table 4.2 presents the demography of the respondents.

Table 4.2: Respondents Demography

Characteristics	Sub-Characteristics	Frequency (N=394)	Percentage (100%)
Gender	Male	196	49.7
	Female	198	50.3
Age	25-35 years old	154	39.1
	36-50 years old	112	28.4
	Below 25 years old	68	17.3
	Above 51 years old	60	15.2
Working experience	1-5 years	124	31.5
	6-10 years	105	26.6
	More than 16 years	95	24.1
	11-15 years	70	17.8
Undergraduate degree discipline	Business, economics and management	250	63.5
	Engineering and sciences	132	33.5
	Others	12	3.0
Family involved in business	Yes	332	84.3
	No	62	15.7
Type of education institution respondent is in now	Private university/college	239	60.7
	Public university/college	155	39.3

In terms of gender, there is almost an equal distribution between male and female MBA students hinting at an equally proportionate gender views on digital entrepreneurship intention. The biggest proportion of age comes from the millennial age group (25-35 years old) with the second biggest from the Gen X age group indicating technologically savvy respondents but still in the stages of raising families with heavy financial commitments (i.e. student's debt) and would

therefore would presumably have a strong desire for financial stability with an already set view of how they would manage their life.

Almost 60% of the respondents have 1 to 10 years of working experience indicating that they would presumably have a good network and ability to manage their working responsibilities. Majority of the respondents (at 63.5%) have a business-related undergraduate degree indicating that they would have some business knowledge background that would probably be useful for starting up a business. An overwhelming number of respondents (at 84.3%) have family involved in business indicating good exposure to a business environment and presumably support from family members should they want to start a business. Lastly, most of the respondents come from private university or college which could indicate the financial ability to support private higher education tuition fees.

4.4. Descriptive Analysis

This section employed the descriptive approach such as mean and standard deviations to describe the views of respondents with respect to the variables as displayed in Table 4.3. Responses to all items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). All the mean scores for all the constructs were higher than four (4). This indicates a non-normal distribution. Table 4.3 presents the mean and standard deviation for all the constructs under study.

Table 4.3: Mean Scores and Standard Deviation for All Construct

Constructs	N	Mean	Standard Deviation
Perceived Knowledge	394	4.4175	0.66073
Personal Attitude	394	4.5467	0.55543
Subjective Norm	394	4.5305	0.61072
Perceived Behavioural Control	394	4.4607	0.61315
Digital Entrepreneurship Self-Efficacy	394	4.4097	0.52123
Digital Entrepreneurship Intention	394	4.5626	0.56287

4.5. Test for Normality

In any statistical analysis, normality test is very important to determine whether the dataset is well-modelled by a normal distribution to ensure that the findings are accurate, reliable and valid. For this study, normality was explored using skewness and kurtosis to check the normal distribution of the data. For a normally distributed data, skewness and kurtosis values range of -2 to +2 were used as opined by Hair et al. (2010). The results as presented in Table 4.4 revealed that although the skewness is within the -2 to +2, kurtosis for the majority of the indicators were not within the acceptable limit of -2 and +2, hence the result is leaning towards a non-normal distribution of data.

Table 4.4: Skewness and Kurtosis for the Normality Test

Construct	N	Skewness		Kurtosis	
	Statistics	Statistics	Std. Error	Statistics	Std. Error
Perceived Knowledge	394	-1.337	0.123	2.242	0.245
Personal Attitude	394	-1.468	0.123	3.006	0.245
Subjective Norm	394	-1.679	0.123	3.692	0.245
Perceived Behavioural Control	394	-1.251	0.123	1.588	0.245
Digital Entrepreneurship Self-Efficacy	394	-0.424	0.123	-0.775	0.245
Digital Entrepreneurship Intention	394	-1.532	0.123	2.989	0.245

4.6. Assessment of Measurement Model

SMART-PLS (Version 3) and SPSS (Version 27) were chosen for this research. This was to ensure that analysis involving complex research models with many variables and items and non-parametric data are solved. PLS is also suitable for estimating higher-order models or hierarchical component models that consist of two layers of constructs (Hair et al., 2017). The PLS approach entails two stages of assessment; measurement and structural model assessment. The measurement model examines the reliability and discriminant validity of the constructs while the structural model evaluates the significance level of the path coefficients within the model to test the hypotheses. Both analytical results are presented in the next sections. The measurement model basically tests two types of validity; convergent and discriminant validity. The outcomes of the validity test are shown in the subsequent sections.

4.6.1. Internal Consistency and Convergent Validity

The internal consistency and convergent validity indicate the extent a measure connects positively with other measures of the same construct (Hair et al., 2017). Basically, items loading, Cronbach alpha, composite reliability and average variance extracted (AVE) are used to examine the reliability and validity of items. Item loadings are the correlations between the items and the construct (Hair et al., 2017). According to Byrne (2016) and Hair et al. (2017), strong item loadings greater than 0.70 should be retained while weaker item loadings between 0.4 and 0.7 should be retained as their deletion does not impact on the indicator reliability and validity (i.e., AVE and CR).

The results shown in Table 4.5 below depict that the item loadings range between 0.641 and 0.910 and these items are significant ($p < 0.05$). Hence the constructs conform to convergent validity. AVE explains the degree of the items' variance associated with the construct. In order for convergent validity to be achieved, AVE is recommended to be greater than 0.50 (Hair et al., 2017). Table 4.5 shows that this study's measurement model achieved adequate convergent validity with all the constructs satisfying the average AVE values range between 0.512 and 0.789, which are above the 0.5 threshold. CR measures the construct's internal consistency. A construct is considered to have consistency reliability when the CR values are 0.7 or higher than 0.7, which is considered to have a good scale of reliability (Hair et al., 2017). Table 4.5 indicates that all constructs had CR values above 0.900 with Cronbach alpha between 0.852 and 0.936, which were greater than the threshold values of 0.70. This means that these constructs had acceptable composite reliability.

Table 4.5: Items Loadings, Cronbach Alpha, Composite Reliability and Average Variance Extracted

`Constructs	Items	Loadings	Cronbach alpha	Composite Reliability	Average Variance Extracted (AVE)
Perceived Digital Entrepreneurship Knowledge (PK)	PK1	0.848	0.877	0.915	0.73
	PK2	0.885			
	PK3	0.835			
	PK4	0.849			
Personal Attitude (PDPA)	PDPA1	0.827	0.889	0.918	0.692
	PDPA2	0.838			
	PDPA3	0.844			
	PDPA4	0.822			
	PDPA5	0.829			
Subjective Norm (PDSN)	PDSN1	0.849	0.852	0.910	0.771
	PDSN2	0.910			
	PDSN3	0.875			
Perceived Behavioural Control (PFPBC)	PFPBC1	0.789	0.903	0.925	0.673
	PFPBC2	0.819			
	PFPBC3	0.852			
	PFPBC4	0.844			
	PFPBC5	0.834			
	PFPBC6	0.784			
Perceived Digital Entrepreneurship Self-Efficacy (PFDESE)	PFDESE1	0.616	0.936	0.943	0.512
	PFDESE2	0.653			
	PFDESE3	0.664			
	PFDESE4	0.666			

	PFDESE5	0.659			
	PFDESE6	0.641			
	PFDESE7	0.721			
	PFDESE8	0.726			
	PFDESE9	0.725			
	PFDESE10	0.774			
	PFDESE11	0.739			
	PFDESE12	0.771			
	PFDESE13	0.767			
	PFDESE14	0.754			
	PFDESE15	0.772			
	PFDESE16	0.764			
Digital Entrepreneurship Intention (DEI)	DEI1	0.879	0.866	0.918	0.789
	DEI2	0.905			
	DEI3	0.880			

4.6.2. Content Validity (Estimates of Loadings)

Prior studies indicate that content validity is explored using cross-loading and the rule of thumb; that is, the value of the measured construct/variable should load higher than other study variables within the same row and columns (Hair Jr, 2010; Khan et al., 2018). The results as presented in Table 4.6 below shows that loadings are higher than other variables in the same row and column thereby confirming content validity.

Table 4.6: Content Validity

	Perceived Knowledge	Personal Attitude	Subjective Norm	Perceived Behavioural Control	Perceived Digital Entrepreneurship Self-efficacy	Digital Entrepreneurship Intention
PK1	**0.848**	0.426	0.338	0.511	0.456	0.356
PK2	**0.885**	0.536	0.466	0.596	0.532	0.426
PK3	**0.835**	0.443	0.293	0.461	0.51	0.455
PK4	**0.849**	0.464	0.416	0.526	0.533	0.408
PDPA 1	0.470	**0.827**	0.373	0.449	0.429	0.456
PDPA 2	0.482	**0.838**	0.494	0.483	0.421	0.448
PDPA 3	0.497	**0.844**	0.485	0.535	0.427	0.435
PDPA 4	0.424	**0.822**	0.568	0.527	0.453	0.429
PDPA 5	0.406	**0.829**	0.495	0.456	0.418	0.407
PDSN 1	0.366	0.445	**0.849**	0.507	0.507	0.326
PDSN 2	0.427	0.549	**0.910**	0.533	0.533	0.444
PDSN 3	0.383	0.521	**0.875**	0.545	0.545	0.366
PFPB C1	0.513	0.476	0.491	**0.789**	0.446	0.416
PFPB C2	0.510	0.540	0.516	**0.819**	0.525	0.308
PFPB C3	0.549	0.551	0.504	**0.852**	0.552	0.341
PFPB C4	0.495	0.453	0.453	**0.844**	0.517	0.328
PFPB C5	0.473	0.473	0.553	**0.834**	0.560	0.398

PFPBC6	0.487	0.404	0.437	**0.784**	0.517	0.362
PFDESE1	0.451	0.454	0.465	0.522	**0.616**	0.361
PFDESE2	0.516	0.539	0.462	0.568	**0.653**	0.388
PFDESE3	0.470	0.464	0.462	0.527	**0.664**	0.337
PFDESE4	0.407	0.480	0.435	0.525	**0.666**	0.328
PFDESE5	0.416	0.439	0.401	0.469	**0.659**	0.315
PFDESE6	0.384	0.401	0.397	0.393	**0.641**	0.344
PFDESE7	0.359	0.267	0.282	0.378	**0.721**	0.276
PFDESE8	0.301	0.240	0.237	0.313	**0.726**	0.254
PFDESE9	0.317	0.215	0.226	0.369	**0.725**	0.296
PFDESE10	0.435	0.324	0.249	0.402	**0.774**	0.391
PFDESE11	0.519	0.307	0.309	0.504	**0.739**	0.463
PFDESE12	0.382	0.264	0.247	0.391	**0.771**	0.331
PFDESE13	0.346	0.262	0.246	0.364	**0.767**	0.277
PFDESE14	0.390	0.424	0.344	0.456	**0.754**	0.387
PFDESE15	0.391	0.264	0.233	0.402	**0.772**	0.366
PFDESE16	0.536	0.404	0.313	0.492	**0.764**	0.461
DEI1	0.427	0.438	0.343	0.375	0.445	**0.879**
DEI2	0.423	0.500	0.430	0.404	0.454	**0.905**

DEI3	0.434	0.455	0.385	0.388	0.437	**0.880**

4.6.3. Discriminant Validity

Discriminant validity is used to detect how much a construct correlates with other constructs. This study adopted two approaches, mainly heterotrait-monotrait ratio (HTMT) and Fornell-Larcker criterion, to check for discriminant validity. HTMT studies the correlations between two constructs whereas Fornell-Larcker criterion compares the square root of the AVE value with other constructs' correlations.

4.6.3.1. Heterotrait-Monotrait Ratio (HTMT)

In order to confirm HTMT, it is expected that the HTMT ratio should be below 0.85 (Henseler et al., 2015). Table 4.7 shows that all the values fulfilled the HTMT criterion indicating that discriminant validity in this study was acceptable.

Table 4.7: Heterotrait-Monotrait Ratio (HTMT)

	1	2	3	4	5	6
1.PK						
2. ATT	0.617					
3. SN	0.510	0.663				
4. PBC	0.688	0.657	0.685			
5. ESE	0.638	0.552	0.519	0.674		
6. DEI	0.552	0.595	0.501	0.494 7	0.542	

4.6.3.2. Fornell-Larcker Criterion

Fornell and Larcker (1981) emphasized that to attain discriminant validity the square root of the AVE value must be greater than the correlation coefficients of other constructs in the rows and columns. Table 4.8 exhibits that the overall square root of the AVE of each construct was higher than other constructs' correlation coefficients in the rows and columns. Thus, discriminant validity was recognised for all constructs.

Table 4.8: Fornell-Larcker Criterion

	1	2	3	4	5	6
1.PK	0.855					
2. ATT	0.55	0.832				
3. SN	0.448	0.578	0.878			
4. PBC	0.616	0.589	0.601	0.821		
5. ESE	0.596	0.516	0.474	0.633	0.715	
6. DEI	0.482	0.524	0.436	0.438	0.501	0.888

4.7. Structural Model Assessment

The structural model reflects the paths hypothesized in the research framework. A structural model is assessed based on the R2, Q2 and significance of paths. But first, as part of structural model assessment, the assessment of collinearity is also conducted. The following sections discuss the analyses results for the structural model in detail.

4.7.1. Assessment of Collinearity

The issues of multicollinearity occur when the independent variable correlations are significantly high (Gaur & Gaur, 2006; Wong, 2019). This can be assessed using the tolerance value and the variance inflation factor (VIF). VIF shows how the variance of regression coefficient of one variable is influenced by the other predictor variables; and, according to Hair and Hult (2013), the VIF value should be less than 10 and tolerance value > 0.2. However, Hair et al. (2017) postulated the VIF value of 5 or higher and tolerance value of 0.2 or lower indicate potential collinearity. The results as presented in Table 4.9 below indicates that most of the VIF and tolerance values are within the acceptable threshold (VIF < 5 and tolerance value < 0.2) indicating low multicollinearity.

Table 4.9: Multicollinearity Test

Constructs	Collinearity Statistics	
	Tolerance Value	VIF
Perceived Digital Entrepreneurship Knowledge	0.533	1.877
Personal Attitude	0.528	1.894
Subjective Norm	0.557	1.796
Perceived Behavioural Control	0.428	2.338
Perceived Digital Entrepreneurship Self-Efficacy	0.556	1.800
Digital Entrepreneurship Intention	0.533	1.877

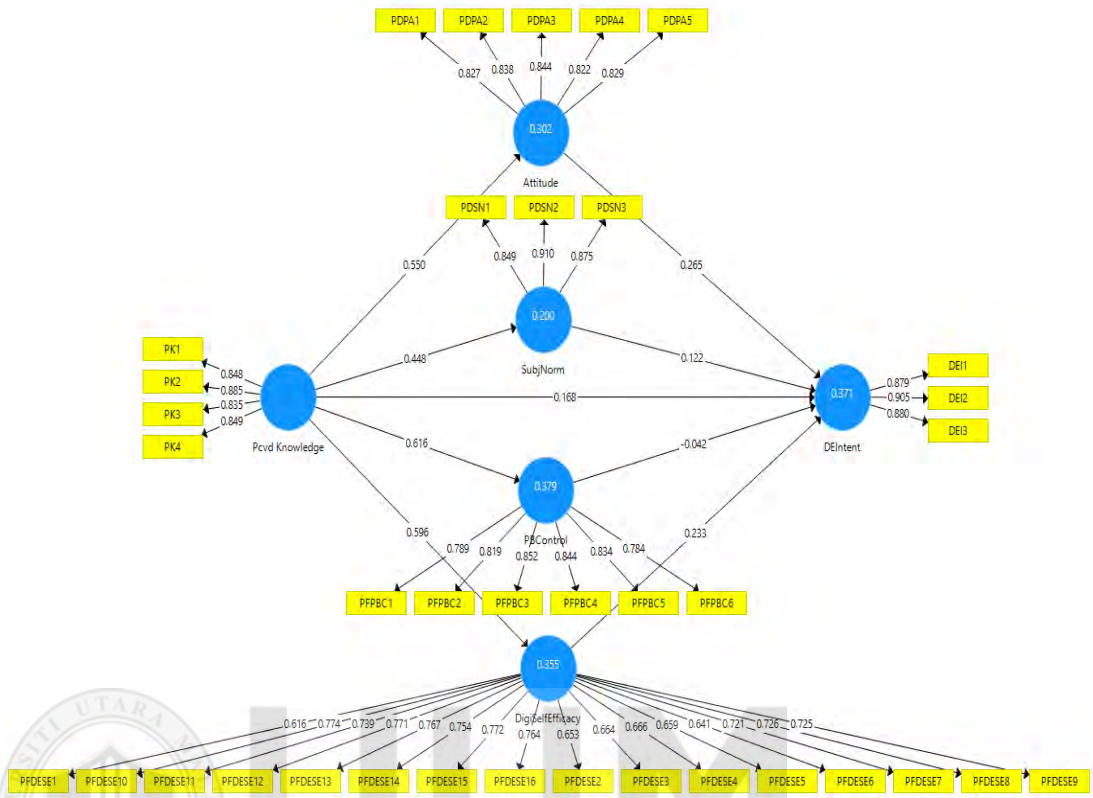
4.7.2. Assessment of Coefficient of Determination (R^2) and Predictive Relevance (Q^2)

The goodness of the model is determined by the strength of each structural path determined by R^2 value for the dependent variable (Penalver et. al., 2018), the value of R^2 should be equal or over 0.1 (Falk and Miller, 1992). The results in Table 4.10 show that all R^2 values are over 0.1. Hence, the predictive capability is established. Further Q^2 establishes the predictive relevance of the endogenous constructs. A Q^2 above 0 shows that the model has predictive relevance. The results show that there is significance in the predictions of constructs (see Table 4.10). Furthermore, the model fit was assessed using SRMR. The value of SRMR was 0.087, this is below the maximum value of .10, indicating acceptable model fit (Hair et al., 2016).

Table 4.10: Coefficients of Determination (R^2)

Constructs	R^2	Q2
Personal Attitude	0.302	0.205
Subjective Norm	0.200	0.151
Perceived Behavioural Control	0.379	0.253
Perceived Digital Entrepreneurship Self-Efficacy	0.355	0.168
Digital Entrepreneurship Intention	0.371	0.284

Figure 4.11: Measurement of Model Coefficient of Determination



4.7.3. Assessment of Path Coefficient (Significance of paths)

Further assessment of the goodness of fit, hypotheses were tested to ascertain the significance of the relationships.

4.7.3.1 Direct Effects

This study developed eight direct hypotheses. These hypotheses were tested through a bootstrapping procedure to generate the t-statistics. According to Hair et al. (2017), a 5% significance level or t-value greater than 1.96 for a one-tailed test proposes that the hypothesized relationship is significant. Table 4.12 summarizes the path coefficient estimates, t-value, p-value, and confidence intervals.

Table 4.12: Result Summary of Direct Hypotheses Testing

Hypo-thesis	Relationship	Path Coefficient	Standard Deviation	T-Statistics	P Values	Decision
H1	PK → ATT	0.550	0.046	11.937	0.000	Supported
H2	PK → SN	0.448	0.043	10.488	0.000	Supported
H3	PK → PBC	0.616	0.045	13.816	0.000	Supported
H4	PK → DESE	0.596	0.039	15.337	0.000	Supported
H5	ATT → DEI	0.265	0.085	3.136	0.002	Supported
H6	SN → DEI	0.122	0.077	1.586	0.113	Not Supported
H7	PBC → DEI	-0.042	0.076	0.561	0.575	Not Supported
H8	DESE → DEI	0.233	0.070	3.309	0.001	Supported

Note: PK=perceived knowledge of digital entrepreneurship; ATT=personal attitude; SN=subjective norm; PBC=perceived behavioural control; DESE=perceived digital self-efficacy; DEI=digital entrepreneurial intention

H1 evaluates whether PK has a significant impact on ATT. The results revealed that PK has a significant impact on ATT (β=0.550, t=11.937: p<0.05). H2 evaluates whether PK has a significant impact on SN. The results revealed that PK has a significant impact on SN (β=0.448, t=10.488: p<0.05). H3 evaluates whether PK has a significant impact on PBC. The results revealed that PK has a significant impact on PBC (β=0.616, t=13.816: p<0.05). In a study conducted by Rae (2012), learning from moments of

experience and discovery, which could come from social learning sources (such as mentors, advisors etc) and information sources (short courses and workshops) does influence the attitude (towards a more entrepreneurial-inclined attitude) of the student participants. This study supports the findings of this study where the researcher found out that there is a significant relationship between perceived knowledge and attitude and social norm. In another study by Dinesh and Sushil (2021), they found that the impact of technical skills can reduce the common barriers regarding innovation faced by most startups. This could probably explain why perceived knowledge on digital entrepreneurship would most likely translate into perceived technical skills and the reduction of barriers could translate into perceived behavioural control among the students.

In order to cope with contextual constraints, a study by Silva et al., (2021) on Brazilian start-ups reveals how these companies uses complementary tools and practices, like market research, business planning as well as variants of lab-to-market and the stage-gate approaches, which help them developing products and services, gathering financial resources as well as setting up the organization in opportunity exploitation endeavours. These could be the aspects of digital knowledge that could be integrated in the higher education curricula to increase the perceived knowledge and therefore affect attitude and perceived behavioural control by the students. Concurred by Hanage et al., (2016), access to entrepreneurship education might have alerted the graduates to survival issues earlier so that they may start to address them providing a scope for potential complementarity of postgraduate entrepreneurship

education –alerting the students to issues relating to the decision to start a business, as well as possible personal skills gaps, and focusing on sector-specific practical support during nascent entrepreneurship. Hassan et al., (2020) support the notion that entrepreneurship education and financial support are important in encouraging attitude of youths to venture into entrepreneurship.

H4 evaluates whether PK has a significant impact on DESE. The results revealed that PK has a significant impact on DESE (β=0.596, t=15.337: $p<0.05$). In tandem with similar study conducted by Zainuddin and Mohd Rejab (2010), there is a belief among students that specialized entrepreneurship knowledge does have the ability to build confidence in becoming a successful entrepreneur. Rae (2012) also contended that learning that occurred results in the students feeling that they are able to better manage time and multiple priorities, therefore developing self-efficacy to overcome lack of confidence and inertia. Oppong et al., (2020) found similar evidence where they found in their study of student start-ups that emerging start-ups' owners with a technology background engage more and are useful in doing business with their stakeholders by the usage of digital technologies (social media platforms) where they are shaping their institution and country for establishing their businesses through knowledge gaining. This result is further in line with findings by Wang et al., (2020) where digital/internet entrepreneurship knowledge represent personal accomplishment as it is positively related to personal mastery experiences, a key driver of personal

accomplishment, and as part of entrepreneurial education, it is one influential antecedent of entrepreneurial self-efficacy.

H5 evaluates whether ATT has a significant impact on DEI. The results revealed that ATT has a significant impact on DEI (β=0.265, t=3.136: p<0.05). In a study done by Alessa (2019) on master's student entrepreneurial intention in Saudi Arabia, it was found that attitude is significantly related to entrepreneurial intention, albeit only 6% of explication was detected. This is consistent with the findings of Al-Mamary et al., (2020) where attitude does have a direct and positive impact on entrepreneurial intention where their study confirms that student tend to work on their account rather than working for others. Similar with a study conducted by Bernardino et al., (2018) who found that entrepreneurs have personalities characterized by high levels of openness to experience, agreeableness, conscientiousness, extraversion and emotional stability and this is apparent in the attitude of these venture creators.

H6 evaluates whether Subjective Norm has a significant impact on Digital Entrepreneurship Intention. The results revealed that SN has an insignificant impact on DEI (β=0.122, t=1.586: p = 0.113). This finding is in line with previous studies (e.g. Al-Mamary et al., 2020, Farani et al., 2017). This particular insignificant result suggests that, at least for the MBA students, elements surrounding subjective norm such as approval from family members, friends and colleagues are of less significance. This could be because that this generation, in some literature referred to as "ME generation" (those born in the 1970's, 1980's and 1990's) (Twenge, 2006) demonstrate perceived high

level of self-esteem to the extent of believing that the world revolves around them (Zainuddin and Mohd Rejab, 2010) and therefore are very confident in how they should dictate their way of thinking without being too bothered of what others think. In a similar study conducted by Zainuddin and Rejab (2010), they have found out that although subjective norm is significant in predicting entrepreneurship intention, it has low explanatory power. This result, they argued, could be due to students having high locus of control and care less about other people's opinion of their career decision making. Our study's finding of insignificant relationship is also akin to findings by Scholten et al., (2004) and Linan et al., (2005) who argued that these students were given freedom of choice regarding their future undertaking without obligation to any party. Munoz (2018) further argue that recognition and intention may be related to triggering entrepreneurial decisions, but only if sustainability values and motivation are present.

There are, however, a contradictory finding in the study by Ahmad et al., (2019) where subjective norm was found to be significant to entrepreneurial intention (although this study is among tourism programme undergraduates) where the authors argue that subjective norm, an element of perceived desirability, signifies the intrinsic interest in entrepreneurship based on the evaluation of the attractive or unattractive outcomes that one will get. Oppong et al., (2020) furthermore gave supporting evidence to this contradiction where in their study of student start-ups, they found that more than 70% of the respondents said that their social media usage for business purposes is influenced by the peers who are vital for them and their businesses. Ties with

the family environment have been found to be among the main predictors of the academic entrepreneur's intention Toniolo et al., 2020). Bello et al., (2018) confirmed this contradictory and mixed findings where they argued that literature on family influence on entrepreneurial intentions and business start-ups suggest that such different findings might be related to the different stages of the entrepreneurship lifecycle. This concurs with this study's earlier statement that it is probable that MBA students are already mature persons who are quite confident in their stature and would translate into the insignificance of subjective norm to their digital entrepreneurship intentions.

H7 evaluates whether PBC has a significant impact on DEI. The results revealed that PBC has an insignificant impact on DEI (β=-0.042, t=0.561: p=0.575). this result is in contradictions with past studies where PBC was found to be a significant predictor to entrepreneurial intention. In the study by Farani et al., (2017), for example, PBC was found to have a significant relationship with digital entrepreneurial intentions. A possible explanation of the present study could trace back to Ajzen and Fishbein (2015) argument that motivational factors could vary significantly depending on situational context. Another possible explanation for the insignificant findings on PBC could also be that postgraduate students have a higher locus of control (Zainuddin and Mohd Rejab, 2010) bringing an indirect effect of varying motivational factors and that the stronger the desirability is perceived, the stronger is the effect on digital entrepreneurship intention (Ahmad et al., 2019).

H8 evaluates whether DESE has a significant impact on DEI. The results revealed that DESE has a significant impact on DEI (β=0.233, t=3.309: p<0.05). This is in accordance with past studies (e.g. Al-Mamary et al., 2020, Ahmad et al., 2019, Munoz, 2018). ME generation described earlier is also associated with extensive application of ICT, an integral part of their learning and lifestyle and in a similar study (but with undergraduates as respondents), Zainuddin and Mohd Rejab (2010), their findings indicate a similar positive and significant result. The authors argued that these students believe that their justification of choosing to become an entrepreneur are largely based on their perceived degree of feasibility where they believe that they possess qualities such as leadership, networking, knowledge, mental preparation and control. Therefore, it is safe to state that when the students feel that they have self-efficacy, it would be easier to start an entrepreneur project with the confidence that they possess all the necessary skills to start their their business (Al-Mamary et al., 2020).

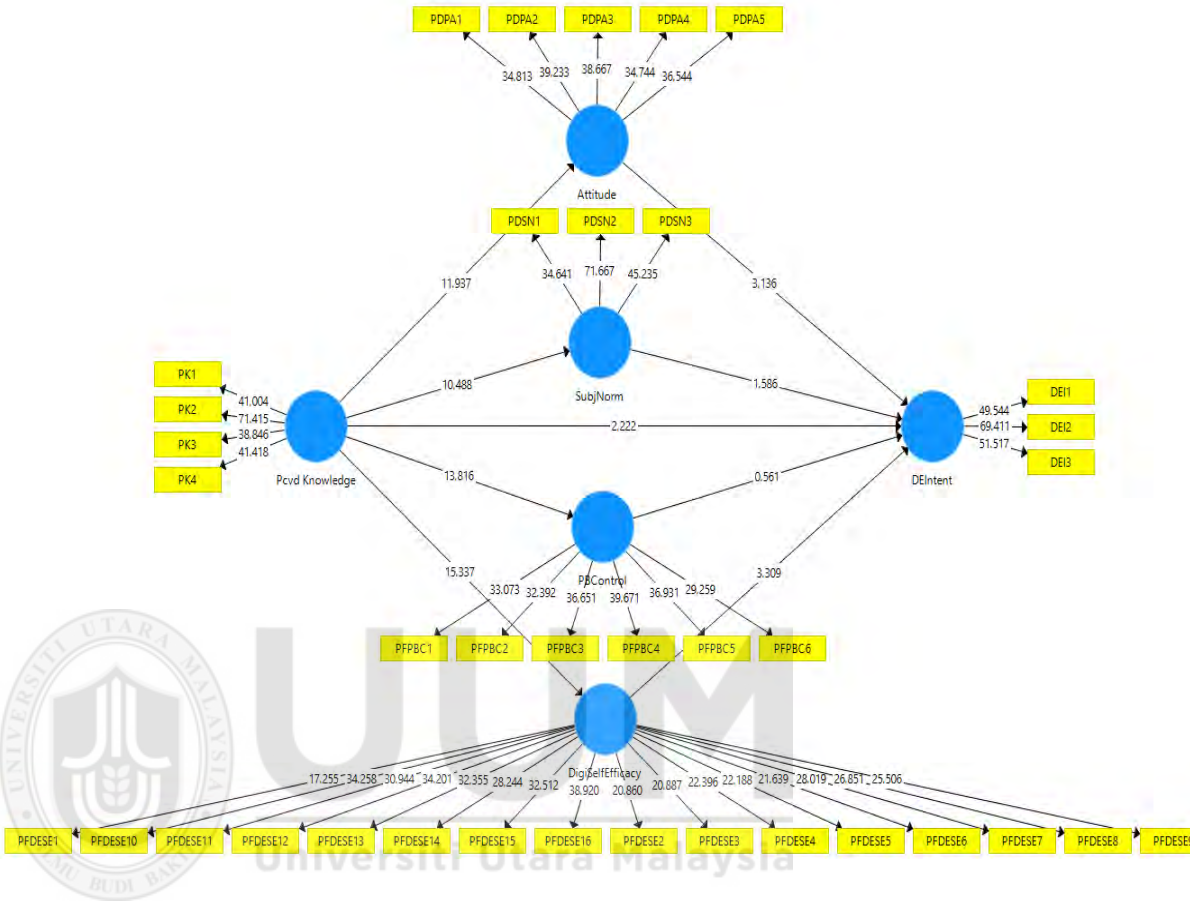
4.7.3.2 Mediation Effects

Mediation analysis was performed to assess the mediating role of Personal Attitude, Subjective Norm, Perceived Behavioural Control and Perceived Digital Entrepreneurship Self-Efficacy (MVs) on the linkage between Perceived Knowledge of Digital Entrepreneurship (IV) and Digital Entrepreneurship Intention (DV). The results are presented in Table 4.13 and its resulting graphical presentation is in Figure 4.14.

Table 4.13: Mediation Analysis

	Total Effect	T	Sig	Direct Effect	T	Sig		Effect	T	Sig	2.50 %	97.50 %	Decision
PK-DEI	0.482	8.580	0.000	0.168	2.222	0.026	H9: PK-ATT-DEI	0.146	2.998	0.003	0.058	0.248	Supported
							H10: PK-SN-DEI	0.055	1.531	0.126	-0.007	0.135	Not Supported
							H11: PK-PBC-DEI	-0.026	0.559	0.576	-0.113	0.069	Not Supported
							H12: PK-DESE-DEI	0.139	3.283	0.001	0.058	0.222	Supported

Figure 4.14: Graphical Representation of Inner Model after the Bootstrapping Procedure (n = 5000 bootstrapped samples)



The results (see Table 4.13) revealed that the total effect of PK on DEI was significant ((β=0.482, t=8.580: p<0.05). With the inclusion of mediating variable (MV), the impact of PK on DEI became significant (β=0.168, t=2.222: p<0.05). The indirect effect of PK on DEI through ATT was found significant (β=0.146, t=2.998: p<0.05). This shows that the relationship between PK and DEI is partially mediated by ATT. This is in line with past studies (e.g. Linan et al., 2011; Ruiz-Alba et al., 2019, Shukla et al., 2021) who found that a very important trait that has a significant impact on entrepreneurial intention is the entrepreneurial orientation or the entrepreneurial attitude of the individual. Individuals, especially those with a

family business background and with internet skills are usually found to have a positive attitude and leads to a positive entrepreneurial intention (Shukla et al., 2021).

The indirect effect of PK on DEI through SN was found insignificant (β=0.055, t=1.531: p=0.126). This shows that the relationship between PK and DEI is not mediated by SN. Past studies have shown mixed results of the role of SN in influencing entrepreneurial intention. Some studies (see for example, Grunsten (2004), Gelderen et al., (2006), Linan et al., (2011); Ahmad et al., (2019) supports the role of SN as an important variable towards EI because they argue that students lack knowledge and experience in entrepreneurship and therefore value the opinions of parents and peers. Some studies, however, produced contradicting results with argument that SN is an unpredictable predictor to EI because they debate that SN is not important for people who have a higher locus of control and there was no significant influence between SN and EI (Krueger et al., 2000, Basu and Virick, 2008 and Linan et al., 2005). This study contributes to growing evidence that SN is not a significant mediator to digital entrepreneurship intention. This result could also be coupled with evidence (from this study) that self-efficacy is a significant antecedent and this would probably mean that the postgraduate students feel a higher locus of control therefore rendering SN as a non-significant influence towards DEI.

The indirect effect of PK on DEI through PBC was found insignificant (β=-0.026, t=0.559: p=0.576). This shows that the relationship between PK and DEI is not mediated by PBC. Our result contradicts past studies (see for example Farani et al., 2017 and Linan et al., 2013, Youseff at al., 2020). Past research has argued that greater entrepreneurial knowledge led to a boost in self-confidence and more importantly contributes to feeling able to engage in entrepreneurial behaviour and perceiving controllability of that behaviour (Linan et al., 2013). A possible explanation for this research's contradictory findings is perhaps the argument by Fishbein and Ajzen (2010) who stated that the antecedents of behaviour can differ significantly and at times even be non-significant depending on situational and contextual factors. Another interesting finding from past study is that it has been found that positive perception of desirability in the pursuit of an entrepreneurial venture is a stronger predictor of intention than perceived feasibility (Ahmad et al., 2019) which could help to explain why PBC was found to be an insignificant mediator to digital entrepreneurial intention in this study.

The indirect effect of PK on DEI through DESE was found significant (β=0.139, t=3.283: p<0.05). This shows that the relationship between PK and DEI is partially mediated by DESE. This is in line with Linan et al.'s (2011) study where they contended that entrepreneurial knowledge has an indirect effect over the antecedents (particularly feasibility). This result could be explained by the fact that knowledge could lead to an increased perceived feasibility as to increased perceived possession of elements of leadership and networking that justifies the intention of being an entrepreneur (Zainuddin

and Mohd Rejab, 2010). Duran-Sanchez (2019) strongly suggest that entrepreneurship education is vital, not only to encourage an entrepreneurial spirit among young individuals but also to offer the basic skills, knowledge and innovative attitudes to carry out new business models successfully. ICT knowledge (for example creating a digital platform) are competencies essential for individuals to pursue digital entrepreneurship (Ngoasong, 2018).

Other scholars (see for example, Maritz and Brown (2013)) had found out that post-graduates are more self-efficacy driven which could help explain why digital entrepreneurship self-efficacy was found to be a mediator in this study. Rae (2012) and Ahmad et al., (2019) agrees where in their study, a similar result was found that learning leads to self-efficacy and therefore gives more confidence to the students to pursue new venture creations. It may be said that the implementation of the creativity potential (e.g., through training courses, education, work experiences) provide students the confidence in their abilities to successfully perform an entrepreneurial role and therefore produce a higher level of entrepreneurial intentions (Bello et al., 2018). Interestingly, Shukla et al., (2021) reported a similar opinion where the authors argued that digital individual's entrepreneurship attitude is developed when an individual is well-versed with ICT skills. In general, past studies (see for example Polas et al., 2020) have shown that there is a positive and significant link between perceived capability with the intention to become a sustainable entrepreneur.

Monllor and Soto-Simeone (2020) further explains this phenomenon by arguing that persons with higher levels of entrepreneurial self-efficacy would choose to join a university entrepreneurship program, take an entrepreneurship class and partake in activities that would assist them get closer to their entrepreneurial goals. Due to the importance of beliefs in one's self-efficacy, Mancha and Shankaranarayanan (2021) suggests that university courses that form a student's digital efficacy beliefs are vital for developing future digital innovators.

4.8 Chapter Summary

This chapter presented all the results of study inclusive of the descriptive, assessment of measurement model and structural model assessment. The direct and mediation hypotheses testing results were also presented along with its resulting discussions. The next chapter will conclude the findings of the study according to the research questions and objectives presented in Chapter 1.

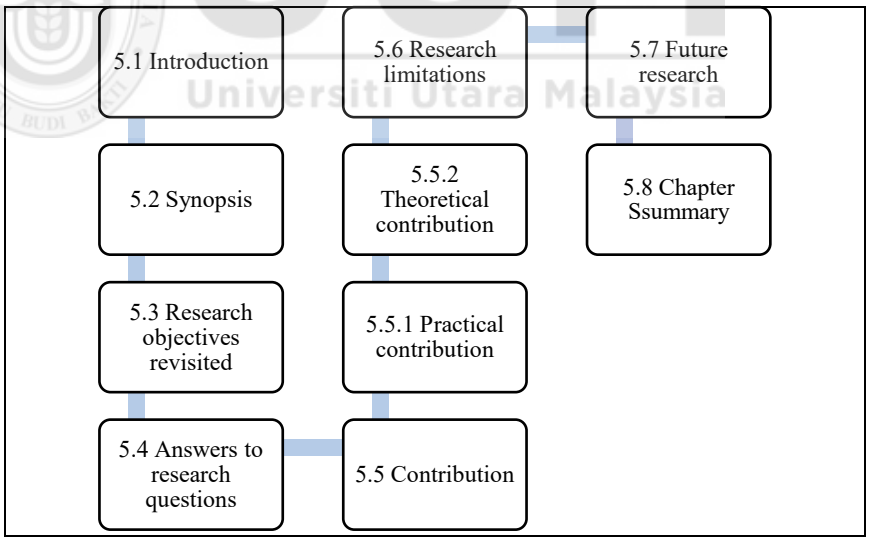
CHAPTER 5

CONCLUSION

5.1. Introduction

This last chapter brings this research project to a close by reviewing the original research aims and hypothesised questions, highlighting the major contributions of the study, and outlining the most important managerial ramifications that result from the research findings. Additionally, the research's shortcomings are described and suggestions for potential future research projects are made. This last chapter's flow is shown in Figure 5.1.

Figure 5.1: Flow of Chapter 5



5.2. Synopsis

For the past ten years, scholars and practitioners have been paying more and more attention to digital entrepreneurship (DE), a burgeoning area of entrepreneurship (Youseff et al., 2021). With the introduction of entrepreneurship programmes to promote more business start-ups, digital entrepreneurship has become a prominent topic that higher education institutions can use to their advantage (Maritz et al., 2019). However, over the course of this time, significant challenges have been noted in identifying the factors that influence digital entrepreneurs' intentions to start businesses (Munoz, 2018), and most recently, a number of new discussions have emerged that raise questions about whether implementing the current entrepreneurial agenda will improve digital entrepreneurship education and, ultimately, result in start ups (Hanage et al., 2016). It is essential and important from both an academic and a practical standpoint to try to grasp these complexities and uncertainties. This research project has theorised and empirically assessed a comprehensive model relating theoretical linkages among the fundamental research clusters of perceived knowledge of digital entrepreneurship, perceived feasibility and desirability, and the corresponding outcomes of digital entrepreneurship intention.

The research concentrated on Malaysian higher education institutions because they are one of the key educational sectors within the education industries and account for a sizable share of the country's overall student output. Due to its high volume and concentration of business-related aspects that are consistent with the primary attributes and components of higher education, and in line with the study's focus

on business education, the MBA cluster appears to be a good representative of the higher education sector. Through empirical investigation, this study has discovered new measurements and new research findings regarding current theoretical views of digital entrepreneurship intention. It has also revealed causal relationships between perceived digital entrepreneurial knowledge, perceived feasibility and desirability, and digital entrepreneurship intention.

A vital requisite for the effective perception of the feasibility and desirability of the attitude and the perceived self-efficacy of digital entrepreneurship is recognised as the complementing driving force of perceived knowledge of the field. Then, this perceived feasibility and desirability, driven by a synergistic combination of attitude and perceived self-efficacy in digital entrepreneurship, leads to the attainment of digital entrepreneurship intention. The objectives of the study and the questions that were posed are reviewed in the next section along with how they were completed.

5.3. Research Objectives Revisited

This research study had three consecutive objectives:

RO1: To identify the antecedents of digital entrepreneurship intention among MBA students.

RO2: To explore the relationships between perceived knowledge of digital entrepreneurship, perceived desirability, perceived feasibility and digital entrepreneurship intention among MBA students.

RO3: To investigate whether perceived desirability and feasibility mediate the

relationship between perceived knowledge of digital entrepreneurship and digital entrepreneurship intention among MBA students.

These research goals have been carefully implemented in this study, directing this investigation to address the research questions. This study conducted a thorough evaluation of relevant literature on digital entrepreneurship to accomplish these goals. This involved identifying the triggers for digital entrepreneurial intention (RO1), examining the pertinent literature addressing various elements that influence digital entrepreneurship intention, and finally reviewing the most recent research on the topic. In order to investigate and identify crucial factors influencing digital entrepreneurship intention over a five-year period, a systematic literature review approach was also used across top-tier entrepreneurship journals. This led to the identification of the crucial factors influencing digital entrepreneurship intention (RO1). The theoretical connections between perceived knowledge of digital entrepreneurship, perceptions of its feasibility and desirability, and intent to participate in it were investigated and addressed as a result of the synthesis of these study clusters (RO2).

A quantitative technique was then used in the form of a survey questionnaire to attempt an empirical evaluation of the theorised model. As a result, 394 sets of data were obtained from MBA students at Malaysian higher education institutions for this study. After applying the SMART-PLS technique to analyse the study model's postulated causal links, research conclusions derived from the empirical findings were then presented (RO3).

5.4. Answers to the Research Questions

The study formulated three main research questions:

RQ1: Does perceived knowledge of digital entrepreneurship influence perceived desirability (personal attitude and subjective norm) and feasibility (perceived behavioural control and digital entrepreneurship self-efficacy)?

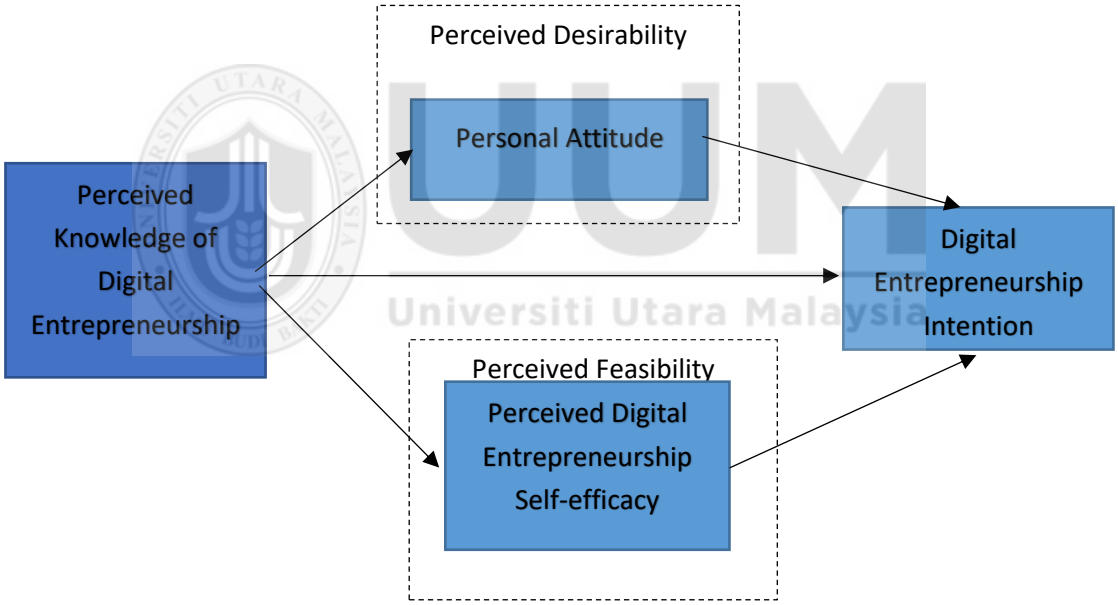
RQ2: Do perceived desirability and feasibility lead to digital entrepreneurship intention?

RQ3: Do perceived desirability and feasibility mediate the relationship between perceived knowledge of digital entrepreneurship and digital entrepreneurship intention?

Through the efficient implementation of the aforementioned research aims guiding this investigation, this research study attempted to provide answers to the research questions. The study's findings, which were reached by a careful examination and evaluation of the theorised model of perceived knowledge, perceived feasibility, and desirability, as well as intention for digital entrepreneurship, provide satisfactory answers to the study's research questions. The study model's capacity to address all of the research questions stems from its holistic and integrated design, which combines multiple entrepreneurship intention models into a single, all-encompassing model—something that has seldom been done before.

It is argued that the proposed model is a good representation of the theoretical relationships among the study's main research clusters and is capable of addressing the research questions based on the acceptable model fit indices and the relative statistical significance support for the majority of the hypotheses. The researcher present the final empirical model of our research, which is shown in Figure 5.2 below, in accordance with the research questions and, in particular, research aim 4.

Figure 5.2: Empirical Model of Digital Entrepreneurial Intention



Based on the empirical findings, it was determined that the antecedents of digital entrepreneurial intention, which primarily include perceived knowledge of digital entrepreneurship, personal attitude, and self-efficacy, are a necessary antecedent to the effective digital entrepreneurial intention. These research results essentially imply that perceived knowledge precedes perceived desirability (attitude), perceived feasibility (digital entrepreneurship self-efficacy), and last, perceived

intention to engage in digital entrepreneurship. Therefore, it could be suggested that in order to increase the number of startups among the postgraduate students in Malaysia, higher education institution and respective education ministry should look at the offering of a more digitized entrepreneurial and business knowledge to their students signifying that a synergetic combination of both these antecedents are deemed essential and adequate for adopting digital entrepreneurship agenda.

Additionally, based on the SEM results, it is determined that high levels of digital entrepreneurial intention are mediated by perceived desirability and feasibility, which may lead to more business launches. As a result, these empirical results show that the perceived desirability and feasibility causes an increase in the MBA students' intention to engage in digital entrepreneurship and provides benefits to that goal, thereby addressing RQ2 and RQ3. With respect to RQ3 and based on the empirical results, only attitude and digital self-efficacy were found to be a good predictor of digital entrepreneurial intention, providing evidence that other factors apparent in TPB theory (namely subjective norm and PBC) were not found to a significant predictor to digital entrepreneurship intention, at least in the case of MBA students in Malaysia. Effectively, these novel research findings imply that the subjective norm and PBC may not necessarily lead to digital entrepreneurship intention, as only attitude and digital self-efficacy significantly influence digital entrepreneurial intention. Therefore, it is largely argued that the implementation of courses on digital entrepreneurship leads to improved perceived desirability (attitude) and perceived feasibility (digital entrepreneurial self-efficacy), while the subjective norm and PBC is somewhat compromised, sustaining a significant

evidence in past studies on their role as a weak predictor to entrepreneurial intention.

By elaborating on the recently raised hypothesis that providing courses that advance digital entrepreneurship knowledge initiatives is indeed necessary, this research study expands the current understanding of entrepreneurial intention and improves perceptions of the desirability and viability of starting a new company. Based on such cutting-edge research results, this dissertation makes the assertion that implementing digital entrepreneurship-based curricula may be crucial for achieving the nation's entrepreneurship agenda because it offers the desired "win-win" opportunity for both higher education and economic benefits.

5.5. Contribution

5.5.1. Practical Contribution

The following conclusions can be recommended to practitioners and policy-makers based on the research findings of this study. In view of newly emerged findings from this study, it appears that perceived knowledge on digital entrepreneurship does lead to perceived feasibility (in the form of perceived digital entrepreneurship self-efficacy) which eventually leads to digital entrepreneurship intention. This spells a few practical contributions. First, higher education needs to improve the delivery of universities' entrepreneurship education by putting emphasis on ICT-based learning applications. Zainuddin and Mohd Rejab (2010) argued that this ICT emphasis should cover six main entrepreneurship education philosophies: review of

school of thought and objectives, realigning the learning process, designing the delivery methods, inclusion of integrated curriculum, enriching educator roles and lastly, promoting non-formal pedagogical methods. This is supported by results in a study by Monllor and Soto-Simeone (2020) who argued that there is a benefit for business schools and entrepreneurship programs to invest in digital technology and establish makerspaces in their campuses because students not only benefit from increased confidence in their technological abilities (TSE), but also from an increase in their entrepreneurial abilities (ESE), opening the door to a potential future as entrepreneurs (EI).

A validated framework for assessing the synergistic effects of the application of ICT-based knowledge on intentions for digital entrepreneurship is also made available to higher education institutions by this research. The approach broadly identifies the major entrepreneurship education activities in higher education that need to be executed in the high graduate employability mismatch context, namely knowledge on digital entrepreneurship. These may be accomplished by giving students access to digital entrepreneurship labs at their universities, which would enable them to manage their own businesses while receiving on-the-job practical entrepreneurship training. Students are thus given insightful information on the procedures they must follow in order to launch a successful business. Additionally, the precise activities listed under these key areas of digital entrepreneurship self-efficacy provide explicit guidance to higher education academics looking to boost students' perceptions of the feasibility and acceptability of their intended venture. For recent graduates as well as mid- or late-career professionals, it is important to analyse

how an entrepreneurial attitude and various potential work capacities fit (Maritz et al., 2019).

Additionally, by identifying the critical mediators of attitude and digital self-efficacy necessary for the effective implementation of start-ups, educators are better able to comprehend a wide range of proactive digital entrepreneurship activities. This, in theory, can assist educators in determining which areas of perceived attractiveness and feasibility need development and should be given priority. Given that the research model's coefficients for attitude and digital self-efficacy are the highest and most significant, it follows that educators should give these factors higher emphasis when prioritising their entrepreneurship education efforts. Further recommendations are made for higher education institutions to invest in digital self-efficacy enabling capacities and technologies as important resources that can give them access to strategic entrepreneurship advantages. In fact, Ikebuaku and Dinbabo (2018) have shown in their studies of how incubation centers set up in a university have given potential entrepreneurs access to infrastructures and resources necessary for entrepreneurial success.

Higher education institutions are advised to take advantage of attitude and digital entrepreneurship self-efficacy-related initiatives as a practise that is commercially viable, as the research findings suggest that attitude and self-efficacy are the two significant mediators that lead to digital entrepreneurship intention. As a result, higher education institutions and the ministry of higher

education should start to adopt ICT-related curricula by introducing ICT-emphasized entrepreneurial disciplines, as this method is generally simpler, quicker, and less expensive to execute than alternative methods. Once they understand how this initiative might help combat the rising graduate unemployment rate, this may further inspire instructors and students to embrace the digital entrepreneurial agenda.

Regulators and policymakers can also benefit from this research because it provides more insight into how to encourage postgraduate students to start their own digital businesses. On the one hand, strengthening digital entrepreneurship-related incentive programmes in the form of government subsidies, grants, or tax breaks can encourage students to pursue digital entrepreneurship. This will enable prospects for "win-win" outcomes for greater graduate employability and higher economic performance by balancing traditional employment and self-employment. Moreover, policy-makers can further promote the digital entrepreneurship agenda by creating awareness concerning the benefits and performance gains achieved from implementing this approach through sharing existing successful experiences. policy level encouragement can influence could influence and drive a cultural change of the entrepreneurs (or would-be entrepreneurs) from collectivism to individualism, by carrying out their activity despite the family and networks challenges (Zayadin et al., 2020). Policymakers should offer further regulations, promoting the institutionalization of digital academic venturing activities, and, therefore, promoting the connection between these activities and local businesses (Toniolo et al., 2020).

Practitioners are encouraged to share their digital entrepreneurship success stories and to make apparent the specific advantages gained from engaging in such self-employment activities. Such a promotion can take advantage of the anticipated economic advantages of digital entrepreneurship and can also lessen the financial costs related to graduates' lack of employability. This research offers knowledge that enables higher education institutions to view entrepreneurship, and the digital entrepreneurship approach in particular, as a means to commercial success or at least a long-term business opportunity, rather than as a moral or coercive imperative, which clearly benefits public policy-makers. In addition, it is advised that policymakers spend more money on infrastructures like digital entrepreneurship labs and incubators that improve knowledge and skills in the field. Additionally, by making it easier for the advantages of digital entrepreneurship to be realised in terms of profitability and economic performance, the agenda for digital entrepreneurship will be furthered.

Basically, this research can be useful for educators, and higher education institutions in particular, that are either keen or required to convert their traditional entrepreneurship education into digital entrepreneurship education. Universities are encouraged to offer relevant courses on internet entrepreneurship to enhance people’s perceived self-efficacy, which, in turn, can boost rates of internet entrepreneurship with course design focusing on the three facets of internet entrepreneurial self-efficacy: leadership, technology utilization and internet marketing and e-commerce, following the suggestion by Wang et al., (2020). In this regard, higher education institutions that

implement digital entrepreneurship education initiatives must make sure that their employees (educators) achieve the overall organisational objectives concerning digital entrepreneurship sustainability, as the environment can affect and be affected by employees' tasks and choices, which in turn affect institutions' economic health. Institutions will therefore profit from digital entrepreneurship training programmes that concentrate on educating and raising educators' awareness of the field, which can further improve the institution's commercial performance. Overall, the study provides interesting and trustworthy insights into how perceived knowledge of digital entrepreneurship, attitude, and self-efficacy function with respect to digital entrepreneurship intention in the context of postgraduate (MBA) students for both practitioners (i.e. higher education institutions) and regulatory policy-makers.

5.5.2. Theoretical Contribution

This study mainly contributes to the entrepreneurship field by explicitly considering digitalization in relation to the antecedents and outcome of the study. While previous literature stresses the effect of contextual factors (including knowledge), they have not considered digital technologies unambiguously (Youssef et al., 2021). The researcher need a better understanding on how perceived knowledge of digital entrepreneurship affects entrepreneurial intention. So far, there is a lack of robust explanation on how education affects entrepreneurial intent and this study has attempted to shed more information on the interplay of knowledge, perceived desirability

(personal attitude and subjective norm) and perceived feasibility (perceived behavioural control and digital self-efficacy) and digital entrepreneurial intention. This study has also theoretically contributed to the confirmation of digital entrepreneurship self–efficacy measurement by providing evidence of the reliability of the scales first proposed by Wang et al., (2020) and further confirmed by the present study. In fact, due to evidence of positive correlation between internet entrepreneurial self-efficacy and entrepreneurial intention, this scale could be utilised as a proxy to quickly identify whether a student intends to start an online business in the future.

Another theoretical contribution of this study is the integration of TPB dimensions (attitudes, subjective norm, and PBC), Social Learning Theory dimensions (self-efficacy), and Entrepreneurial Intention Theory dimensions (entrepreneurial knowledge, which in this study is perceived knowledge of digital entrepreneurship) to create a comprehensive model that can be used to assess the antecedents of digital entrepreneurial intention using the example of a digital entrepreneur. The three primary theories of entrepreneurial intention are combined into our suggested perceived knowledge-feasibility/desirability-digital entrepreneurial intention model, which is the first in this field to look at the research issue holistically and comprehensively. This hasn't been done very often in recent entrepreneurship literature (Al-Mamary et al., 2020).

Additionally, by reporting definitive findings and coming to an agreement with the most recent findings, this research adds to the body of literature on

entrepreneurship by bridging the gap in contemporary theoretical views of perceived knowledge-feasibility/desirability-digital entrepreneurial intention. This clarifies the divergent theoretical perspectives on the causes of the ambition to engage in digital entrepreneurship in higher education institutions, notably for the postgraduate sector. As a result, the research's findings can be used to improve current theories on digital entrepreneurs' intentions, leading to fresh perspectives and new directions for future study.

5.6. Research Limitations

The study has some limits, as with all research, however these constraints also present a number of opportunities for future research and new directions for this topic. First, the researcher acknowledged that other educational-related factors, such as institutional support, are not reflected within the antecedents construct in the research model. This is in line with the relevant literature, which contends that entrepreneurial knowledge does play a significant role in generating graduate business startups (Wang et al., 2020; Ahmad et al., 2019).

Second, although this research sought to cover the whole premise of digital entrepreneurial intention in the model, only postgraduate students were studied, which may limit the generalizability to other types of students residing in higher education system such as undergraduates and diploma students. Furthermore, only MBA students were involved as the researcher deemed that business and management related students are more likely to pursue new business ventures. Therefore, it may limit the generalizability of this study to other postgraduate programmes such as technical and vocational based programmes.

Third, other possible antecedents to the digital entrepreneurial intention may exist apart from the Entrepreneurial Intention Model's and TPB's Model, such as the importance of cultural orientation. In essence, the entrepreneurship intention may be influenced by a myriad of factors. The research clearly does not claim that all potential antecedents have been taken into account in the research model, nor can the model fully inform us of all aspects of digital entrepreneurial intention. More constructs could be included in the model, but doing so would require more theoretical justification, more time, and money, which was not practical for the research's current objectives. The addition of additional theoretical constructs and links could further complicate the research model.

Lastly, this research employed cross-sectional design without consideration of how the dynamic interrelationships between the variables could evolve over time. The research model could be used to reflect a longitudinal design that may be able to capture the intention and actual start-up and this type of study would need a longer period of time to see the evolution and sustainability of these start-ups (Zainuddin et al., 2012). Additionally, Malaysia was the chosen region for investigation, and just one nation's supply of data were used. Due to cultural differences, the research findings might not be completely applicable to other higher education sectors and different geographic situations.

5.7. Future Research

In general, the aforementioned restrictions present areas for future study. Additionally, the findings of this study open up various new directions for future research, giving it new focus. In light of this, the following areas for future work are central: First, considering that a person's entrepreneurial propensity may be influenced by a myriad of factors, future research may broaden the understanding of digital entrepreneurial intention from the lenses of other theories such as institutional theory, role theory (Espíritu-Olmos and Sastre-Castillo, 2015) and regulatory focus theory (Higgins, 1982) which could add value to mainstream entrepreneurship literature.

Second, considering the dearth of measures for digital entrepreneurial intention relevant to the postgraduate context, further research is warranted to develop and validate a set of relevant measures for the dimension consistent with the digital entrepreneurial intention context, so that the whole premise of digital entrepreneurial intention can be reflected. Third, future study may explore additional potential antecedents to the digital entrepreneurial intention and determine whether additional educational assistance, such as institutional resources, influences students' decisions to launch new businesses. Fourth, future studies may evaluate the applicability of the suggested theoretical model to various student kinds, such as undergraduate and diploma students, and compare these new findings with those from this research, given the focus of this study and the research model in particular. Therefore, additional research is necessary in the future, depending on theoretical support and the gathering of pertinent information.

Last but not least, additional research is advised to look at other developing markets in order to remove the potential impact of country-level variation in, say, market size, legal frameworks, and economic growth. For instance, future research can look at different geographic contexts to see whether there are any changes in the regulatory structures and educational norms in various regions. In this regard, a different research direction that could strengthen the research's generalizability would be to repeat the study for comparative analysis in other industrialised nations. Future research may also look into developing nations like China, one of the biggest producers of goods globally, and compare the results with those for industrialised nations.

5.8 Chapter Summary

The study's conclusion is provided in the last chapter, which reviews the study's goals, responds to its questions, and discusses its main findings while stressing their managerial applications, theoretical contributions, and limitations and future directions. A summary of the research was provided in a succinct synopsis at the beginning of the chapter. The research objectives were then reviewed, and it was explained how they helped to answer the research questions. A thorough overview of the research findings was provided, along with a summary of the replies to the research questions. Following that, a number of insightful managerial implications were presented for use by practitioners and regulatory policy-makers. Additionally, the main theoretical, methodological, and empirical contributions made by this study have been highlighted, emphasizing the value of the work

across a wide spectrum. The research's limitations were discussed in the final section, after which new opportunities and directions for future research were offered, creating a number of new pathways for future study.

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APPENDIX A: QUESTIONNAIRE

Survey Questionnaires

Dear Sir/Madam,

DIGITAL ENTREPRENEURSHIP INTENTION: THE MEDIATING EFFECT OF PERCEIVED DESIRABILITY AND PERCEIVED FEASIBILITY TOWARDS MBA STUDENTS

I refer to the above, whereby, I am conducting a study on above topic. This study is undertaken to fulfil the partial requirement of the academic program leading to a Doctor of Business Administration (DBA) at Universiti Utara Malaysia (UUM). By taking about twenty minutes of your valuable time, you are providing information that is pertinent to this research.

The general purpose of this study is to understand MBA student's intention to be a digital entrepreneur. Strict confidentiality is assured. The identity related to the code reflected on the instrument is known only to the researcher and will not be communicated in any form time.

Thank you very much for your time and cooperation. I greatly appreciate your contributions.

Yours sincerely,
Tan Wei Yet
900421
University Utara Malaysia
017-8888504

Questionnaire for Digital Entrepreneurship Intentions

Section A: Demographic

Kindly allocate [✓] to the respective questions.

1. Gender:
□ Male
□ Female

2. Age:
□ Below 25 years old
□ 25 – 35 years old
□ 36 – 50 years old
□ Above 51 years old

3. Working experience:
□ 1-5 years
□ 6-10 years
□ 11- 15 years
□ More than 16 years

4. Undergraduate Degree Discipline:
□ Business, economics and management
□ Engineering and sciences
□ Others

5. Family involved in business:
□ Yes
□ No

6. Type of education institution you are in now:
□ Public university/college
□ Private university/college

7. I am taking an MBA (Master of Business Management) course/programme at the moment
□ Yes
□ No

Section B: Perceived Knowledge of Digital Entrepreneurship

B: Perceived knowledge of Digital Entrepreneurship (PK)

Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1)

No	Items	1	2	3	4	5
PK1	I have basic common sense and knowledge regarding electronic law					
PK2	I understand basic website design					
PK3	I know how to formulate a marketing channel strategy for an e-shop					
PK4	I know how to offer the target market products that meet their needs					

Section C: Perceived Desirability and Feasibility

C1: Personal Attitude (PDPA)

Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1)

No	Items	1	2	3	4	5
PDPA1	Being an entrepreneur would entail great satisfaction for me.					
PDPA2	A career as entrepreneur is attractive for me.					
PDPA3	Among various options, I would rather be an entrepreneur					
PDPA4	Being an entrepreneur implies more advantages than disadvantages to me.					
PDPA5	If I had the opportunity and resources, I would like to establish my own firm					

C2: Subjective Norm (PDSN)

Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1)

No	Items	1	2	3	4	5
PDSN1	If I decided to create a firm, my close family will approve of this decision.					
PDSN2	If I decided to create a firm, my close friends will approve of this decision.					
PDSN3	If I decided to create a firm, my close colleagues will approve of this decision.					

C3: Perceived Behavioural control (PFPBC)

Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1)

No	Items	1	2	3	4	5
PFPBC1	I am prepared to start a viable firm.					
PFPBC2	I can control the creation process of a new firm					
PFPBC3	I know the necessary practical details to start a firm.					
PFPBC4	I know how to develop an entrepreneurial project					
PFPBC5	If I tried to start a firm, I would have a high probability of succeeding.					
PFPBC6	It is easy for me to start a firm and keep it working					

C4: Digital Entrepreneurial Self-efficacy (PFDESE)

Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1)

No	Items	1	2	3	4	5
PFDESE1	I possess the ability to be a leader					
PFDESE2	I can make others agree with my thoughts					
PFDESE3	I can find work partners who complement my ability					
PFDESE4	I can have pleasant conversations with my work partners					
PFDESE5	I have the ability to make decisions after deliberation					
PFDESE6	I have a basic ability in computer file management					
PFDESE7	I can install and manipulate basic types of computer hardware to help my business					
PFDESE8	I can use multi-media hardware to help my (future) business					
PFDESE9	I have the ability to install and use website applications					
PFDESE10	I can formulate an innovative internet marketing strategy (such as viral marketing)					
PFDESE11	I can create a unique electronic commerce website					
PFDESE12	I know how to formulate a pricing strategy for my (future) e-shop					
PFDESE13	I can analyze the cost structure of my (future) e-shop					
PFDESE14	I can propose a profitable business model for electronic commerce					
PFDESE15	I can easily gain access to the resources needed to operate my (future) e-shop					

PFDESE16	I can solve tariff problems pertaining to importing and exporting					

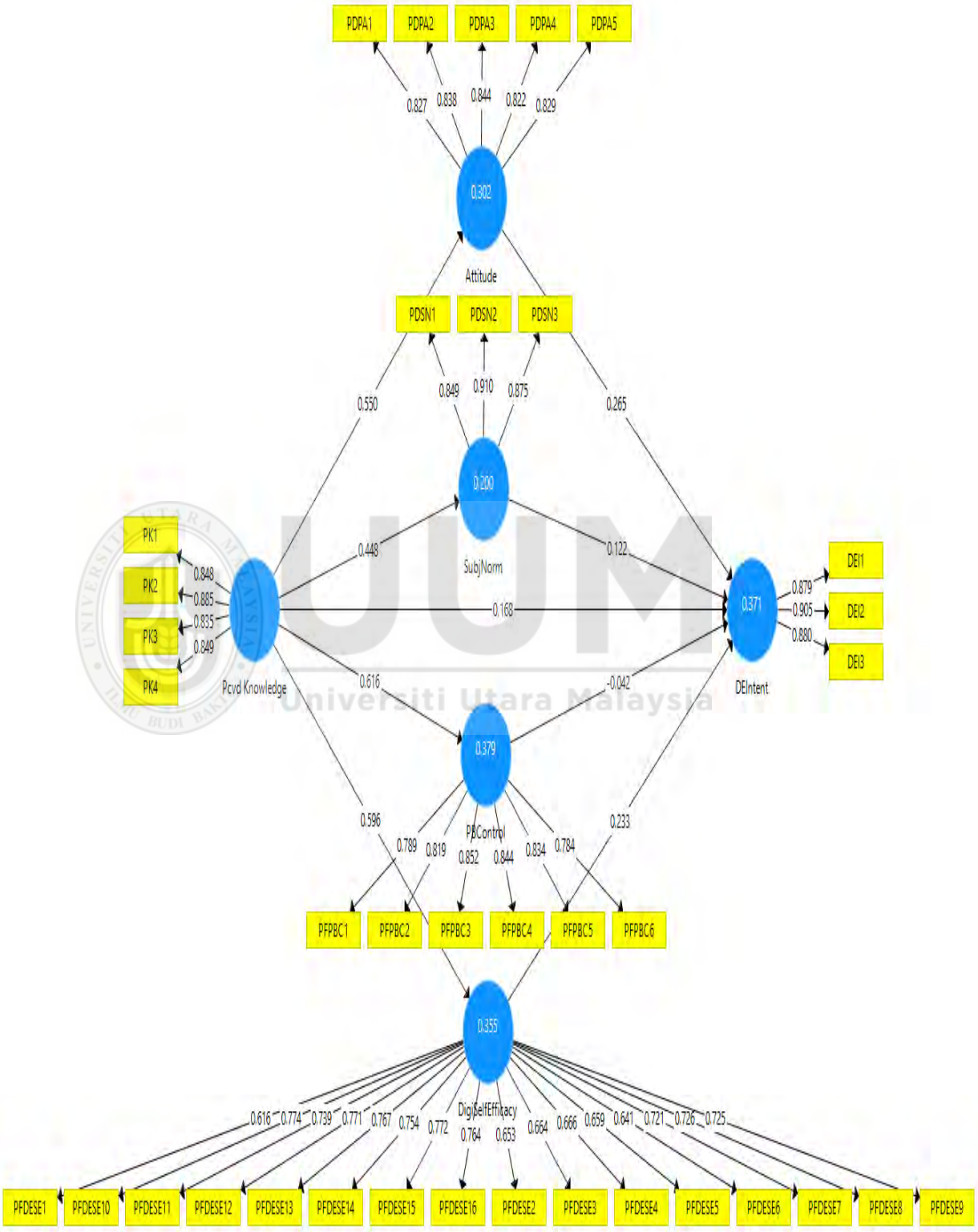
Section D: Digital Entrepreneurial Intention (DEI)

Strongly Agree (5), Agree (4), Undecided (3), Disagree (2) and Strongly Disagree (1)

No	Items	1	2	3	4	5
DEI1	I predict that one day I will set up my own e-commerce business					
DEI2	I am determined to start a business on the internet in the future					
DEI3	I am very serious about setting up an e-commerce business					

- Thank You -

APPENDIX B: MEASUREMENT OF MODEL COEFFICIENT OF DETERMINATION



APPENDIX C: GRAPHICAL REPRESENTATION OF INNER MODEL AFTER THE BOOTSTRAPPING