

## Conference Paper

# A Suggested Model for Studying Technopreneurial Intention in Malaysia

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## Abstract

Technology entrepreneurship or technopreneurship is a future trend in the era of industrial revolution 4.0 (IR 4.0). Technopreneurship requires innovative, young and information-communication technology (ICT) savvy individuals. Many countries around the world, including Malaysia, has put in a lot of efforts to develop entrepreneurial skills among youngsters especially the students. However, developing competitive young technopreneurs remains challenging in Malaysia. For instance, Malaysians scored low in several entrepreneurial behaviors and attitudes identified by Global Entrepreneurial Monitor (GEM). Furthermore, not many Malaysians have started new businesses and the country recorded a low and declining early-stage entrepreneurship rate. Moreover, university students were not showing great interest in becoming entrepreneurs during their tertiary education. The future of IR 4.0 is unpredictable and full of challenges. Thus, the unattended issue of developing young and competitive technopreneurs will affect the ways Malaysians confront the unknown future. In the entrepreneurship literature, technological capability aspects and psychological aspects such as entrepreneurial orientation (EO) and entrepreneurial intention are under-researched. Therefore, based on Bandura's self-efficacy theory and individual EO (IEO) concept, this study proposes a model to explain the direct and indirect influence of ICT self-efficacy and IEO on technopreneurial intention. The potential contribution of this study is two-fold. Literally, it develops a new model for investigating technopreneurial intention. Practically, it provides insights on the implementation of policies in developing competitive entrepreneurial graduates, creating technology innovative individuals and transforming Malaysia into a knowledge economy. It also identifies the types of ICT capabilities that are crucial in developing innovative and entrepreneurial human capital. Additionally, it helps to strengthen and increase the participation of youngsters in the economy through technology entrepreneurial activities.

**Keywords:** entrepreneurial intention, model, students, technology

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## 1. Introduction

The world is now entering the era of industrial revolution 4.0 (IR 4.0) which emphasizes on digitization and automation of works. IR 4.0 focuses on extensive use of computer network, the Internet and digital technology. Rapid changes brought by IR 4.0 such as Internet of Things (IoT) and automation of works would bring new challenges to Malaysia's business platform. As such, technology entrepreneurship or technopreneurship is definitely the future trend of this digitalized business world. However, developing competitive entrepreneurs in Malaysia remains a great challenge. For instance, Malaysia scored a lower "perceived capabilities rate" (score=46.12), "entrepreneurial intention rate" (score=17.61) and "establish business ownership rate" (score=3.82) than the regional average score (48.22, 27.04 and 9.78 respectively) and global average score (48.86, 21.66 and 8.50 respectively) in the same year [1]. It was also found that not many Malaysians have started new businesses and the country recorded a low and declining early-stage entrepreneurship rate [1].

Developing innovative and entrepreneurial young human capital stock is crucial in facing challenges brought by IR 4.0 [2]. The development of technopreneurship requires creative, innovative, young and information-communication technology (ICT) savvy individuals. As such, Malaysian government has introduced Malaysia Education Blueprint 2015-2025 (Higher Education) or MEB (HE) to focus on developing entrepreneurial skills and supporting student-own enterprises. However, students were not showing high entrepreneurial tendencies such as need for achievement, need for autonomy, calculated risk taking, drive and determination and creative tendency [3]. Moreover, Malaysian employers also complained that students nowadays are lacking of entrepreneurial mindset. Although 60 percent of the students have involved with entrepreneurship activities and programs, only three (3) percent became entrepreneurs while during their tertiary education, the outcome was quite far from the goal of 15 percent set by MOHE [4].

Since MEB (HE) has incorporated innovation and entrepreneurial skills in it, there is a need to investigate to what extent Malaysian university students possess the necessary ICT capabilities in facing the challenges of IR 4.0. Moreover, Malaysian education system has also emphasized on enhancing students' ICT knowledge and capabilities since primary school; thus it is time to investigate to what extent the ICT capabilities help to create technology entrepreneurial students. However, those information are scarcely available. The entire future picture of IR 4.0 is still unpredictable and the results from MEB (HE) are vague. Thus, there are many challenges in developing competitive

technology entrepreneurs among the university students. If this problem is left unattended, it will definitely affect the ways we confront IR 4.0 and achieve transformation of Malaysian education system as highlighted in MEB (HE).

In the extant literature, entrepreneurial intention has attracted the interest of many researchers including local researchers, for examples [5-6]. However, intentional studies that focus on a specific type of entrepreneurship, such as technopreneurship are scarce. Moreover, several important aspects have also been overlooked by the existing literature. For instance, technological capability aspects and psychological aspects such as a person's entrepreneurial orientation (EO) has not been sufficiently taken into account by existing studies. Although research has found that entrepreneurial training which provides certain skills and abilities to students has proven to promote student's entrepreneurial intention [7], not many studies have concentrated on ICT capabilities and entrepreneurial behavior. In other words, the relationship between being ICT savvy and being entrepreneurial has not been fully explored. In addition, there is also a paucity of studies that investigated EO at individual level [8] and studies that addressed individual entrepreneurial orientation (IEO) are still scant. Thus, new studies are suggested to investigate the relationship between knowledge acquisition and EO and penetrate into the context of entrepreneurial universities and developing countries [9]. Furthermore, not many studies have combined self-efficacy and IEO to explain technology-entrepreneurial intention. Researcher has suggested that graduates' entrepreneurial orientation should be investigated further and entrepreneurial theories should underpin technology entrepreneurship studies [10].

Due to the above mentioned gaps, this study aimed to suggest a model to study the direct and indirect relationship between information-communication technology (ICT) self-efficacy, individual entrepreneurial orientation (IEO) and technopreneurial intention.

## 2. Literature Review

### 2.1. Self-efficacy theory and technopreneurial intention

Self-efficacy can be explained as "people's judgements of their capabilities to organize and execute courses of action required attaining designated types of performances" [11]. It can be simply referred to self-beliefs or self perceived ability of doing something [12]. One's own ability or capabilities can be obtained from education or training courses that he/she has attended to. University students are required to take-up

information communication technology (ICT) courses to obtain various ICT knowledge and capabilities such as using computer and the Internet to complete tasks. It is believed that university students possess ICT self-efficacy which can be explained as their perceived capabilities in performing computer- and internet-related tasks [13]. Thus, ICT self-efficacy comprises computer self-efficacy and internet self-efficacy [14]. Previous studies have shown a positive relationship between a person's knowledge, skills or abilities and entrepreneurial intention [7, 15-16]. Nonetheless, [17] obtained some interesting results whereby entrepreneurial education had less impact on Norwegian graduates' interest to start own businesses. The contradicting results suggested that the influence of entrepreneurial capabilities on entrepreneurial intention requires further investigation. In addition, identifying critical contents to be added into the education courses is also important in fostering future entrepreneurial activities among the students [18]. Therefore, it is important to determine the ICT-related contents to be transferred to students in developing future entrepreneurs.

## 2.2. Individual entrepreneurial orientation (IEO) and technopreneurial intention

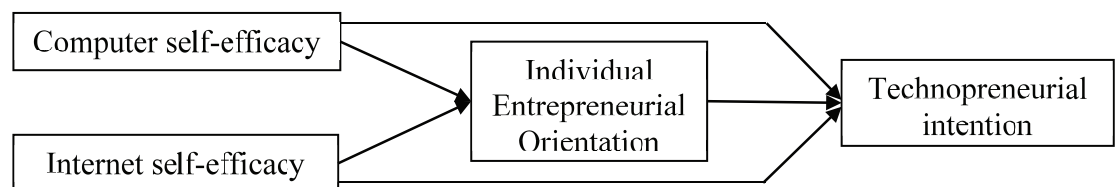
The foundation of entrepreneurial orientation (EO) was originated from [19] which emphasizes on dimensions such as innovativeness, pro-activeness and risk-taking. It was then extended into five dimensions by [20] to include autonomy and competitive aggressiveness. For years, EO has been recognized as firm-level construct that determines a firm's performance [21-22]. However, some researchers argued that EO should also be treated as individual-level construct [23]. This is because over the past 30 years, the relationship between EO and individual's entrepreneurial attitude has become one of the main research agenda of entrepreneurship research [9]. Moreover, it is also crucial to assess its relationship with entrepreneurial mindset, specifically in identifying the components that are crucial in developing entrepreneurial behaviors through education, training and organizational interventions [24]. Indeed, extant studies have found that individual EO (IEO) affects entrepreneurial intention [7, 15].

## 2.3. The mediating role of IEO

Entrepreneurial training programs and co-curriculum activities helped to develop students' entrepreneurial knowledge, skills and attitudes [25]. Indeed, entrepreneurial education helped to develop a pool of talented human capital that possessed

entrepreneurial knowledge, abilities, skills and attitudes. It also played an important role in establishing an entrepreneurial society [26]. Undeniably, capabilities obtained from entrepreneurial education have proven to cultivate entrepreneurial intention [7]. However, the relationship between entrepreneurial education and entrepreneurial intention is not direct [27]. Furthermore, current studies are expected to extend the entrepreneurial education-entrepreneurial intention relationship by examining mediation effects [28]. For instance, technological capabilities significantly determined technopreneurial intention; furthermore, the relationships between technological capabilities and technopreneurship intention were mediated by knowledge sharing capabilities [10]. Thus, the relationship between entrepreneurial education and entrepreneurial intention requires further re-examination.

Base upon the above discussions, the following model and hypotheses were suggested:



**Figure 1:** The research model.

Hypotheses:

- H1: Computer self-efficacy positively influences technopreneurial intention.
- H2: Internet self-efficacy positively influences technopreneurial intention.
- H3: Individual entrepreneurial orientation mediates the relationship between computer self-efficacy and technopreneurial intention.
- H4: Individual entrepreneurial orientation mediates the relationship between Internet self-efficacy and technopreneurial intention.

The variables in the Figure 1 can be operationalized as follows:

1. Computer self-efficacy: the extend of perceived competency and confident in using computer in diverse situation to solve computer-related tasks.
2. Internet self-efficacy: the extend of perceived ability in using Internet related tools and communicating or interacting through Internet-based media.
3. IEO: the students' perceived level of their own innovativeness, proactiveness and risk taking

4. Technopreneurial intention: the degree of how hard or how much effort that a student is willing to exert in becoming a technopreneur.

### 3. Conclusion and Expected Contributions

This study was aimed to suggest a model to study technopreneurial intention. Based on the literature review, information communication technology (ICT) self-efficacy was found to consist of computer self-efficacy and internet self-efficacy. These two self-efficacies were posited to have direct influence on technopreneurial intention. Furthermore, the relationships were further posited to be intervened by individual entrepreneurial orientation (IEO).

The expected contributions of this study is two fold. Literally, this study suggests a new model for investigating ICT self-efficacy and IEO as antecedents of technopreneurial intention. As intention can be deemed as a good predictor for behavior, the model provides some new insights on factors influencing technopreneurial intention. Practically, the model is relevant to Malaysian government policies in developing competitive young entrepreneurs. Specifically, it supports MEB (HE) in developing competitive entrepreneurial graduates, creating technology innovative individuals and providing quality vocational education and training (TVET). In addition, the model determines the crucial ICT capabilities for developing technopreneurs. Thus, it can be applied in various technology-based entrepreneurship initiatives carried out by governmental agencies such as *Majlis Amanah Rakyat (MARA)*, *Perbadanan Usahawan Nasional Berhad (PUNB)*, *Institut Keusahawanan Negara (INSKEN)*, Malaysia Digital Economy Corporation (MDEC) and Malaysian Global Innovation & Creativity Centre (MaGIC). It also has the potential in identifying some crucial types of ICT self-efficacy which can be applied in developing educational study plan. Specifically, higher-education institutions can use the model in developing suitable ICT-related programs or training courses that can help to foster technology entrepreneurial students. It is believed that the model may have significant impact on identifying the types of ICT capabilities that are crucial in being technology entrepreneurial for the youngsters. As such, higher learning institutions (HLI) can develop competitive ICT courses that help to enhance the students' ICT capabilities and further foster technology entrepreneurs. Consequently, developing technology entrepreneurs could help to transform the country from a conventional economy to innovative, high-technology and knowledge economy. It could also help the country to face with the rapid changes in the IR 4.0 era

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