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Examining the Characteristics of Academic Entrepreneurs: The Case of Malaysian Technology Driven University

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Abstract: With resources of MYR 564 million being invested on research and development in 2020 by the Malaysia government, it is crucial for Malaysian universities to develop an entrepreneurial ecosystem among academia. This is more significant among technical driven universities. The aim of this study is to examine the various factors that lead technology researchers to recognise and create opportunities. The case study is derived from one of Malaysia's technology driven universities. This research adopts a qualitative method in which the data were collected from nine lecturers and researchers who were actively involved in creating innovative products and services. Semi-structured interviews and observational methods were employed with six of the respondents. In this study, an exploratory research is selected to ask open questions, in order to find out the challenges and processes of academia in shaping entrepreneurial characteristics. Qualified respondents that is directly involved in the subject of study is selected. These participants are selected academics and researchers from technology management and engineering academic backgrounds. The findings show that networking was used to get resources, and opportunities were from the policy or government interventions and events such as seminars and conferences. Most of the respondents indicate that events are great opportunities to connect with the industry and external parties. Through extensive networking, technology researchers can build various programs for new researchers so that they realize the importance of opportunities, especially in the field of technology, as it is now booming. The implication of this study reflects the university's effort that can be viewed from the case, where self-efficacy and risk taking can be further promoted among academics who are moving from research to business venture. For the study to be conducted in the future, the researcher suggests the need to obtain a better understanding of conditions of uncertainty which shape opportunity creation and the scope of the research must be extended to other aspects. Future research should also include other institutions to see clearly the role of opportunity creation and the challenges faced by them.

Keywords: Entrepreneurship, business networks, business strategy, commercialization, research collaboration

1. Introduction

Hisrich and Peters (2000) stated that entrepreneurship is the process of creating something new (of value) by devoting the necessary time and effort, with assumed financial, psychic and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence. Marie and Saparito (2006) said that entrepreneurship is inextricably linked to innovation competitive advantage. Entrepreneurial activity is developed in the field of entrepreneurship and is defined as a new venture start-up rate, adjusted for the churning effect of business closure,

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initiated by educated entrepreneurs, and launched because of opportunity motivations (Stokes et al., 2010). The term "opportunity" is widely used in the theory of entrepreneurship (Casson and Wadeson, 2007). From entrepreneurial activity, most entrepreneurs are aware of the opportunities that can have a significant impact on individuals or groups of researchers. Many researchers are now beginning to actively implement projects especially in technology, with entrepreneurial opportunities and resources as a basis for progress in the field of entrepreneurship. According to the Princeton review (2013), researchers analyse and classify data in terms of responses, inclinations, and comparative studies on the same subject.

In a recent study by Al-Jubari, Hassan, and Liñán (2019) investigated the role of basic psychological needs of autonomy, competence, and relatedness as conceptualized in self-determination theory in shaping university student attitudes and intentions towards entrepreneurship. Their most relevant result was the confirmation that both intrinsic and extrinsic motivations can lead to entrepreneurial intention and, through it, to actually starting up new ventures. The results reported by studies such as those of Mohamad et al., (2021), Barba-Sánchez and Atienza-Sahuquillo (2017) and Al-Jubari, et al., (2019) stress the significant role that schools and universities play in motivating students in the development of their entrepreneurial career. In this regard, role models can also have a motivational impact (Radu & Loue, 2008) on choosing to become an entrepreneur. It would be interesting to propose some research within different contexts to understand if the academics who excel in scientific domains are also the most entrepreneurial hence indirectly linked with academics' personal attitude and perceived behavioural control (Neves & Brito, 2020). In this context, academic as technology researchers may demonstrate as influential role models in universities. However, the questions at the intersection of academic alertness of entrepreneurial opportunity among technology researchers are somewhat limited. Based on the information gathered, two main research questions that were asked by the researcher namely (1) Why does a particular individual come up with a venture idea (out of many possible ideas?) and (2) Why are some individuals more likely to come up with venture ideas (any ideas, not particular ideas?).

2. Entrepreneurial Opportunity Creation and University

The direction of universities has transformed over the last few decades, and the dimension of these universities goes well across traditional teaching and research elements (Etzkowitz et al., 2000). Encouragement by the government and public policy to shape economic development (Benneworth and Charles, 2005; Mian et al., 2016; Miller et al., 2016) as well as the request for a technology-based economy (Markuerkiaga et al., 2014) have motivated universities to lead significant transformations to become entrepreneurial (Ivanova and Leydesdorff, 2014). According to Clark (1998), an entrepreneurial university undergoes a process where the university seeks to innovate the way they manage their business. Although it is often used interchangeably, the literature on the term "entrepreneurial university" focuses on policy issues at an institutional and national level, while "academic entrepreneurship" emphasises management and entrepreneurship disciplines (Yusof and Jain, 2010). Academic entrepreneurship encompasses the exploration of knowledge that academics (students, faculty, and researchers) create via patents, licenses, start-ups, spin-offs, and industry collaboration (Guerrero and Urbano, 2012, 2014). The creation and exploration of knowledge from academics evolves from the opportunity creation.

Opportunity creation involves the process of promoting creativity and idea development (Freshman and Sophomores, 2012), idea incubation, building a prototype (Monosoff, 2010), competitions and expos, intellectual property and licensing of the innovation, design collaboration, and additional resources. Entrepreneurial opportunities exist and individuals only need to recognise them. Shane (2003) describes an entrepreneurial opportunity as "a situation in which a person can create a new means-end framework for recombining resources that the entrepreneur believes will yield a profit". Entrepreneurial opportunities will increase significantly if existing organisations do not take advantage of knowledge in full aspects. Therefore, any firms engaged in R&D activities that do not exploit their created knowledge to its full extent may serve as a seedbed for new ventures (Agarwal et al., 2004; Franco and Filson, 2000; Klepper and Sleeper, 2005).

The downside to the market of "ideas" or "opportunities" lies in the difficulty involved in protecting the ownership rights of ideas that are not associated with patents or copyrights of the different expectations held by entrepreneurs and investors on the economic value of ideas and business opportunities. Opportunities can be found in technological changes, political or regulatory changes, and socio-demographic changes as cited by Fuduric (2008) and Schumpeter (1934). According to Schumpeter (2008), entrepreneurial activity is the source of innovation in an economy. The recognition of business opportunities is a key aspect of the entrepreneurial process (Shane and Venkataraman, 2000). Although opportunities may exist, they can be exploited only if an entrepreneur recognises the opportunity and understands its value for further business (Shane and Venkataraman, 2000). According to Ozgen and Baron (2007) and Shane and Venkataraman (2000), information plays a central role in opportunity recognition.

In the research paper of international opportunity recognition among small and medium-sized family firms by Kontinen and Ojala (2011), the phenomenon was studied from the perspective of (1) network ties, (2) activeness and the alertness in searching for opportunities, and (3) prior knowledge. In a recent study, social-cultural capital is demonstrated through the dynamics of network structure, type and ties, which are interconnected by the contribution of contingent factors. Hence, the strength of a network tie is ascertained through the assessment of contingent factors within the network system, either constructively or in a counter-productive manner (Ibrahim et al., 2020; Pillai & Ahamat, 2018). The authors

demonstrated that despite an increasing amount of studies on academics' intentions, the focus has been mainly on knowledge transfer activity, such as spin-off creation (Fini and Toschi, 2016; Hesse and Brunjes, 2018), patent and licensing activities (Baldini et al., 2007; Walter et al., 2018) or collaboration with the industry (Bodas Freitas and Verspagen, 2017). These topics are widespread, yet they have been discussed in a limited scope (Huyghe and Knockaert, 2016; Miranda et al., 2017a). Thus, Balven et al. (2018) proposed for a more systematic analysis of micro-level investigations to deepen the understanding of academic entrepreneurship (Wright and Phan, 2018).

Universally, it is recognised that some universities are superior at commercialisation of research, facilitating entrepreneurial interactions with companies and/or spinning out in new ventures than others (Etzkowitz, 2001). Thus, there is still a nascent body of research that analyses the types of entrepreneurial universities, while having the urgent need to establish an empirically sustained taxonomy for entrepreneurial university researchers (Rodrigues & Ferreira, 2019). Therefore, this study acknowledges this gap in the literature relating to entrepreneurial academics' characteristics.

2.1 Theoretical Framework

The theoretical framework in Figure 1 shows that the dependent variable in this study is entrepreneurial opportunity, and that there are four independent variables which are venture ideas, source of opportunity, entrepreneurial in action, and future opportunity.

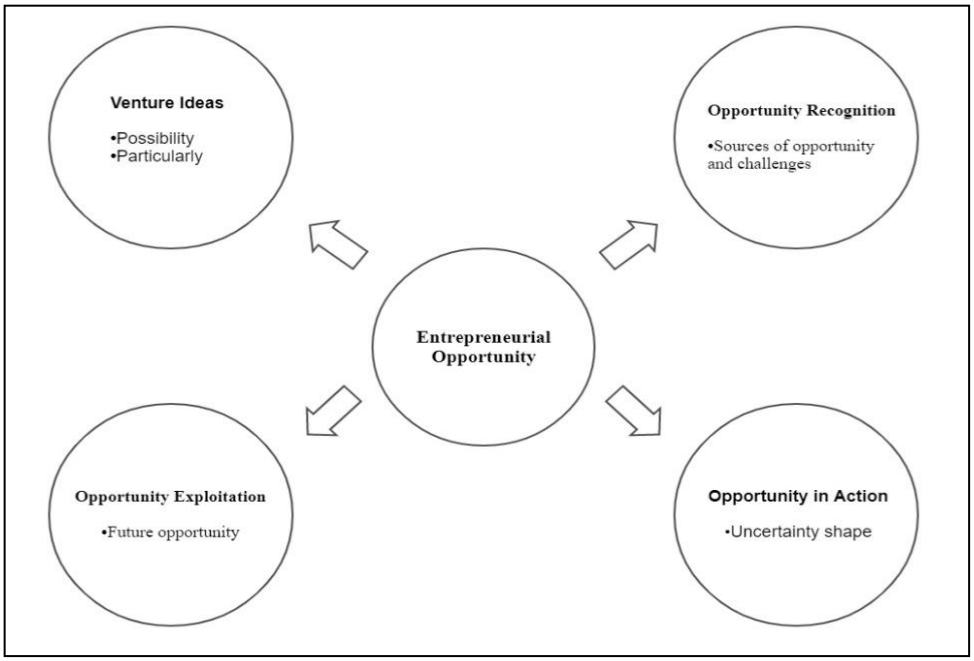

Fig. 1 - Theoretical Framework

3. Methodology

Ahamat and Chong (2015) claimed that the research methodology is an element that allows any researcher to systematically frame the study to address research questions and achieve research aims. Porta (2014) posited that research refers to a collaborative human activity in which social reality is observed on an objective basis with the focus on gaining a valid understanding of it. The research method selected for this study is the exploratory study, which is valuable in asking open-ended questions in discovering what is happening and to gain an insight into the topic of interest (Saunders et al, 2012). The location of the research study and data collection is held at Universiti Teknikal Malaysia Melaka (UTeM). UTeM was chosen because it is one of the pioneers of technology researchers that pursue the research to study opportunity creation. Data were collected from nine lecturers and researchers who were actively involved in creating innovative products and services. Interviews and observations were conducted with six of the respondents (Table 1). For the qualitative research design, the themes served as a direction for developing the questions.

Table 1 - Sampling of respondents

Respondents	Researcher's Code	Faculty

R1	Respondent 1	Electronic & Computer Engineering
R2	Respondent 2	Mechanical Engineering
R3	Respondent 3	Technology Engineering
R4	Respondent 4	Technology Management & Techno-preneurship
R5	Respondent 5	Electrical Engineering
R6	Respondent 6	Manufacturing Engineering

The interview questions were created based on the themes to ensure researchers can achieve the research objectives at the end of the research.

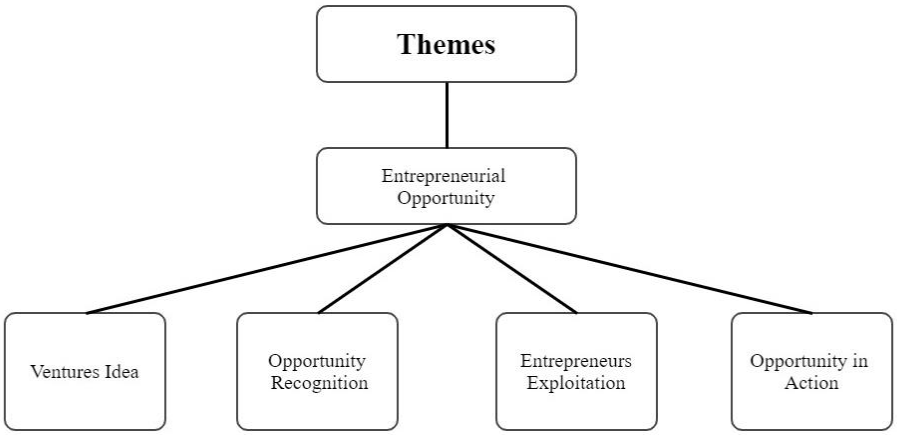

Fig. 2 - Theme of a research strategy

The theme is one of the research strategies that represents and demonstrates the theoretical framework developed in a research study through various resources from the literature review. The main point of this study is about entrepreneurial opportunity. There are four sub-topics as shown in Figure 2 above.

4. Data Analysis

The researchers interviewed six respondents consisting of technology researchers in UTeM, Malaysia. Respondent interviewees are from six faculties in the university, namely faculty 1, faculty 2, faculty 3, faculty 4, faculty 5 and faculty 6. The interview sessions were carried out over six weeks. The questions asked were related to the themes which are entrepreneurial opportunity, venture idea, opportunity recognition, opportunity exploitation and opportunity in action. Opportunity should be taken or used by entrepreneurs or researchers to earn benefits from their project. Individuals must work hard and be willing to take risks in order to capture the opportunities and to avoid failure in being productive. Opportunity is a space or situation in which a person is able to perform any work, activity, program, or to achieve the goals that have been set. As said by Respondent 1, "There is a space and support to do something for improvement". With the opportunity given, someone will do something for an improvement from one step to the next step for success. It is a platform or medium to expand an innovation or an invention. As stated by Respondent 3, the opportunity to get an award is dependent on the solution of problems and it is a platform to dive further into a new field or advancement. This notion was supported by Rae (2007) where he defines opportunity as the potential for change, improvement or advantage arising from the circumstances of our actions. Quoting from Respondent 4, "I think opportunity is an angle of researchers that should be created by society, politics and other elements or problems."

Opportunity creation comes not just by itself, but could also be purposely or accidentally created. Technology research opportunity is the ability to find the perfect timing to engage with respective technology developments and secure the right fund in order to support the technology development. Research opportunity in one of the universities is done at the national level and the commercialisation opportunities are developed with an external company. The opportunities are also evaluated in terms of the accuracy of time before taking it to the next step. During the interview with the respondents, the researcher addressed opportunities in the business by asking the question, "Do you come across various possibilities that open up potential business opportunities?" The result shows that one out of six respondents said "NO" while the rest said "YES" as shown in Table 2 below.

Table 2 - Potential to business opportunity

Respondents	Opportunity?	Explanation
Respondent 1	Yes	During attending exhibition
Respondent 2	Yes	Discussion with one potential company
Respondent 3	Yes	Good opportunity to recognize the product
Respondent 4	Yes	Push opportunity that come from industry
Respondent 5	Yes	Collaborate with industry
Respondent 6	No	For academic only

"My field of research is related with the development of a new process. It is quite difficult to commercialise in the area of research that I operate in because it involves the process of development," said Respondent 6. According to Respondent 5, the business opportunity through the research exists and it is the easiest when working with the industry to perform research on the problems and then apply the product to be commercialised into a business opportunity. This is because there are a lot of problems to be solved in the industry and the industry is willing to pay for solutions.

4.1 Venture Idea

Through ideas, a study will be explored until the next process to produce the output. Ideas can be acquired by individuals through a variety of methods, either accidentally or deliberately. Ideas may come from a problem and researchers generate ideas through curiosity to a problem that needs solving. The sources that contribute to the formation of an idea is shown in Table 3. Respondents said that the main way to get ideas for research and opportunity creation is through reading the material. Reading materials from literature reviews include academic books, articles, journals or magazines, newspapers, internet and more as stated by Respondent 2. The idea of the opportunity comes from reading new research publications and new technology experience. According to Bruce Barringer (2009), the best business ideas emerge when the general notion of an idea is merged with extensive library and internet research. The creation of the idea is usually triggered when we read extensively from a scientific literature. Apart from reading, ideas can also be triggered by the process of discussion between more than two parties. "Discussions with fellow researchers" as mentioned by Respondent 2 indicated that the opinion and the results of the discussion are usually very detailed and opinions can be shared and exchanged with those who are more knowledgeable in their area of study.

Table 3 - Sources of venture idea

Respondents	Description
Respondent 1	• Work as a team • Through reading • Participating in forum
Respondent 2	• Meet more often with companies • Participate in activities
Respondent 3	• Networking with industries • Involves in events
Respondent 4	• Expand with marketing principle • Joint a competition
Respondent 5	• Working with the industry
Respondent 6	• Networking events

Instead of generating new ideas, the consumers are provided with a list of problems and then asked to have a discussion over it, ultimately resulting in an entirely new product idea (Katiyar, 2005). Deep exploration can be made or reviewed from previous studies or through real projects. The discussions can also involve abandoned projects to find a solution and solve it. According to Respondent 4, various directions can be defined as opportunity creation from the society, surrounding environment, social element, politics, and the demand from industry. The most essential trends are economic trends, social trends, technological advances, political actions, and regulatory changes (Barringer, 2009). Similarly, a change in technology is growing rapidly nowadays. From the source venture ideas, there are two factors that influence individuals to come up with their idea. Figure 3 below shows the point of view for these factors.

The pull factor is generally described as a positive factor for entrepreneurship. Likewise, in the context of opportunity creation for technology researchers, opportunities are open to people under this factor, especially potential entrepreneurs (Abiznabiz, 2010). There are various attractive options provided which can be termed as independence, achievement, recognition, social status, personal development, and wealth (Carter et al., 2003). However, in this study, the pull factor influences the opportunity of people who may take a chance with the industry or organisation that offers them a potential business idea. "My experience in using pull factors involves me making industrial attachments to get the title of professional engineer. I work with a company that seeks a technology for commercialisation. Although it is still in development, I feel more prepared and I really try to cater to what the industry needed and wanted. They are willing to

commercialise at any time because they are the end user or the supply of the product," said Respondent 5. The pull factors used give a clear guidance to researchers on the objectives and targets to be achieved. This is because the industry or organisation requires the services of researchers to solve the problems.

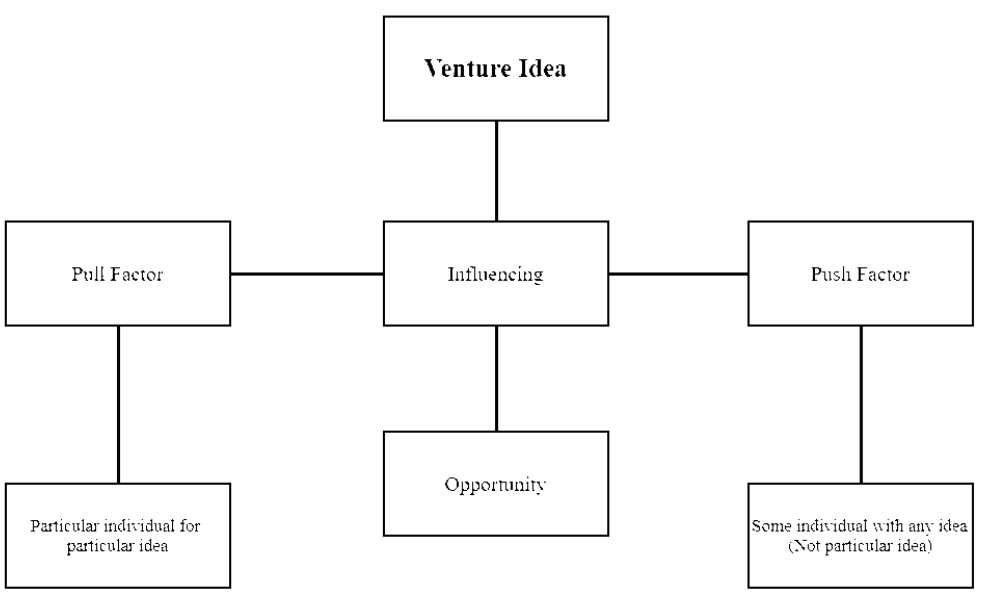

Fig. 3 - Venture idea influencing the opportunity by two factors

In terms of push factors, Respondent 5 said;

> "*to get the source for the push strategy, we must keep up to date with the current situation. Sometimes the use of a push strategy is not suitable for Malaysia as they have yet to reach the standard. However, a gap between us may be too large within the industry in using the pull strategy because they are not familiar with the ins and outs to talk about product development. Individuals also need other resources to ensure the success of the research. In my opinion, in ensuring the product can be commercialised in any product development, they have to utilise the two approaches which is the push and pull strategy*."

According to Respondents 6, there are not many successful products that are created from the push strategy because most of them are from the pull strategy. He stated that the chance of success in commercialising an invention or research using the pull factor is larger than using the push factor. Motivations for entrepreneurship will emerge if these two factors are combined. Meanwhile, if individuals or groups are interested to do the research through the push factor, they need to consider the originality and the uniqueness of the ideas.

4.2 Opportunity Recognition

The main source that is crucial in implementing an invention or conducting a research is the financial resource. Financial resource is important because it is a major contributor for opportunity creation. Without sufficient financial funds, a project or study will most likely be delayed or fail. As stated by Respondent 4, "Through the grant that we obtained, we will allocate a portion of the money to develop the product". Other than financial resource, resources such as manpower, material and method or process play an important role in succeeding in certain opportunity creation. As seen in the Figure 4 below, there are also various challenges of the resources and how resources can help in achieving success.

Funding or money resources are the main point of doing a research or business opportunity (Herald, 2013). According to Respondent 3, the opportunities and potential are there, but there are still many factors to consider. Besides funding, manpower or team members are valuable resources because work can be equally distributed among the team members (Ashton, 2007). Challenges that are often faced by technology researchers in this research are lack of information, competition with other researchers to get grants, and that some material are difficult to obtain because it needs to be imported. "Sometimes we have lack information for the respective sources, so we can get them from other parties through events such as conferences and seminars," said Respondent 2. When there is a lack of information, the possibility to get the resources is low and it hinders the success of the research. There may also be the need to compete to get the resources. The following Table 4 shows the medium in which respondents normally get the resources to assist the success of their research and business opportunities.

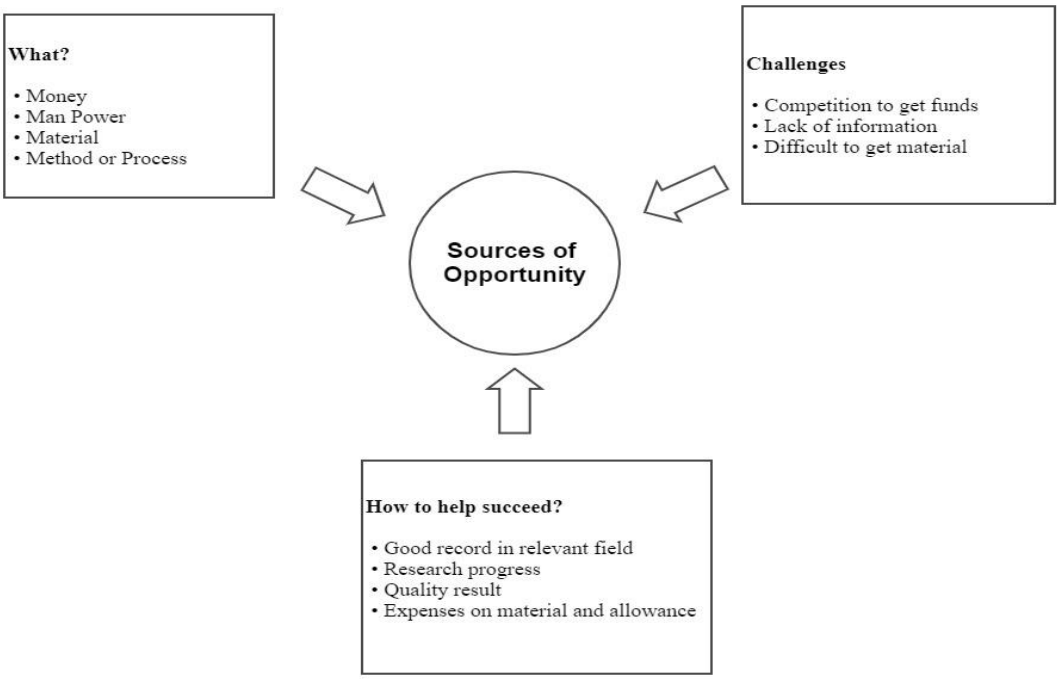

Fig. 4 - Sources of opportunity creation

Table 4 - The perceived as the sources of networking and business opportunity

Respondents	Policy/government intervention	Social Events During Seminar	Conferences
Respondent 1	X	X	X
Respondent 2	-	X	X
Respondent 3	-	X	X
Respondent 4	X	X	X
Respondent 5	X	X	-
Respondent 6	X	-	X

Among the six respondents, four of them chose policy or government intervention as a platform for them to build the business relationship or to succeed in their research. For the government regulatory, it can be a source of new product ideas in two ways: firstly, the patent office files contain numerous product possibilities that can assist entrepreneurs in obtaining specific product information, and secondly, the response to government regulations can come in the form of new product ideas (Katiyar, 2005). The government can play a key role in assisting young businesses both directly and indirectly. Based on the environmental factors, technology researchers have a wider chance through demand, skills, social values, capital financial, technology, information or knowledge, resources, and infrastructure. Other than government policy and regulations, most of the respondents chose conference as the platform to get opportunity recognition and other resources.

4.3 Opportunity Exploitation

Table 5 below shows how researchers tap into a small idea and transform it into a bigger or wider scope, leading to the business opportunities. Respondent 2 stated during the interview session that, "Researchers should meet more often with companies because they know the real business and what is currently required. Otherwise, we must give new researchers or students a chance to let them join in any expo or to present a paper and to support them by paying the fees for them." As illustrated in Figure 5, there are different opportunities in action.

Table 5 - Tapping into small ideas and transform into wider scope

Respondents	Description
Respondent 1	• Work as a team • Through reading • Participating in forum
Respondent 2	• Meet more often with companies • Participate in activities
Respondent 3	• Networking with industries • Involves in events
Respondent 4	• Expand with marketing principle • Joint a competition
Respondent 5	• Working with the industry
Respondent 6	• Networking events

Fig. 5 - Opportunity in action during uncertainty

Respondent 6 actively conducts programmes such as writing business plans, research workshops, student exchange programs, and innovation competition to give new researchers and students the skills in conducting research. Respondent 3 said that researchers have to share success stories from the sources that are close to them. He said, "When a respondent shares their success stories with outsiders, it will entice them to see deeply the success of the person and create huge opportunities in the field of business and commercialisation."

5. Analysis and Discussion

Opportunity creation among technology researchers or entrepreneurship views involves the process of discovery, evaluation and exploitation of opportunity or can be considered as opportunity recognition (Stokes et. all, 2010). It is known that opportunity is a time or set of circumstances that makes it possible to do something (MacMillan Dictionary, 2009). The ventures examined ranged from rudimentary opportunities to "full-blown" opportunities, but most initial perceptions of opportunity are limited and in need of further development (Stefan, 2006). Looking at the data analysis mentioned above, ventures ideas can correspond with the opportunity when a particular idea is linked to the individual articulating it and the individual can be linked to many different possible ideas. Based on the information gathered, two main research questions were asked by the researcher namely (1) Why does a particular individual come up with a venture idea (out of many possible ideas?) and (2) Why are some individuals more likely to come up with venture ideas (any ideas, not particular ideas?).

For the first question, the discussion is related to achieving the objectives to investigate whether the researchers come up with a particular venture idea from many possible ideas. This invites a rich account of actions, events and circumstances that precede the intuition and articulation of a venture idea (Mueller, 2011). In addition, researchers should embrace chance, acknowledge the ubiquitous presence of fortuitous developments, and be more concerned with the process and less concerned with causality (Gorling & Rehn, 2008; Manis & Meltzer, 1994). Based on the findings in Figure 4, the researcher can describe an individual who comes up with a venture idea as influencing the pull factor, which is a demand characteristic on the current issues or problems to be solved by the technology researchers. Furthermore, the nature of potential customers is that they have a strong bearing on what businesses would sprout because they are the ones who will buy the product and support the business (Clydesdale. G, 2010). Several studies have highlighted the

possibilities that the push and pull factors are simultaneously present when an individual decides to start a business (Giacomin et al., 2007; Block and Sandner, 2009).

Through demand, the opportunity is open to organisations and industries to come up with something that requires the services of researchers to collectively produce something useful that can be commercialised to the public. More opportunities are created for entrepreneurs who can respond rapidly to the changes when the characteristics of the demand for change are higher (Clydesdale, 2010). Even though you may be passionate about a particular idea or it may be an ideal fit with your interests and skills, it still has to be an idea that people need and are willing to buy (Barringer, 2009). Secondly, the objective to investigate whether there are individuals who are more likely to come up with venture ideas (any ideas, not particular ideas) offer a medium to create variance explanation of the emergence of venture ideas (Mueller, 2011). Researchers have focused on the number of identified ideas (Corbett, 2007; Shepherd & DeTienne, 2005), the intention to pursue generated ideas (Dimov, 2007a), the nature of belief that underlie venture ideas (Gregoire, Shepherd, & Lambert, 2010), and the cognitive process through which ideas emerge (Gregoire, Barr, et al., 2010; Baron & Ensley, 2006). This study is influenced by the push factor whereby individuals put forward their own ideas to produce something. This is because some individuals will challenge and want the creation to be different from others to achieve satisfaction and not just for business opportunity only.

Successful entrepreneurs see themselves as being alert to entrepreneurial opportunities (Cylesdale, 2010). When they are alert in the environment, they can grasp many opportunities, but they will also need to have the resources to achieve it. The challenges of identifying the sources of opportunity are one of the objectives in this research because resources influence both the emergence and development of opportunities (Stefan, 2006). Some entrepreneurs ruthlessly change their resource base and adapt opportunistically (Bhide´, 2000). Entrepreneurs go through many challenges in every task, especially when it comes to securing the resources to launch their work. In addition, the decline in available venture capital has caused problems for many entrepreneurs including apparently viable opportunities. While some researchers have argued that the lack of existing resources makes new firms poor innovators, others have reasoned that the very presence of resources constrains innovation, making new firms more innovative than established firms (Katila & Shane, 2005).

Opportunity exploitation refers to the activities conducted in order to gain economic returns from the discovery of a potential entrepreneurial opportunity (Wiklund, 2011). The consequences of entrepreneurial opportunity exploitation results in future opportunity. The framework and the emphasis on the actions of individuals to discover, evaluate, and exploit an opportunity creation gives the notion that entrepreneurial process leads to the emergence of new entrepreneurial opportunities (Holcombe, 2003). Holcombe (2003) mentioned that once an opportunity is discovered and exploited by a given entrepreneur, it is no longer available to others to pursue even if they too recognise the opportunity as such. The "successful" exploitation of a given opportunity depends not only on environmental conditions but also on the chosen entrepreneurial strategy (Plummer et al., 2007).

In fact, as shown in Figure 4.4 from the data analysis, the way to exploit opportunity is by tapping into small ideas and transforming it into a wider scope. It can be proven that the respondents can exploit the decisions if they are confronted by using these platforms in the future. The conditions that underlie the opportunity through uncertainty shape the entrepreneurial actions, and the researcher relates this objective with the challenges to get the resources. It is the reason why people fear to take an action from an opportunity. This is manifested as a relational uncertainty and resource uncertainty which shapes the entrepreneurial action that underlie the creation of opportunity (Robert et al., 2012). What is derived in this argument is that work experience shapes the opportunities that individuals are likely to consider when taking entrepreneurial action (Shane, 2000). Furthermore, the knowledge, skills and confidence gained from working experience strongly shape the entrepreneurial opportunity that individuals pursue and the manner by which they take action on the opportunity (Shane, 2008; Seibert & Lumpkin, 2010).

Expectations about the commitment of academics in entrepreneurial endeavours, as well as in teaching and research, have expanded in recent years (Davey et al., 2016). Nevertheless, literature has affirmed a set of causes affecting the level of academic entrepreneurship. Lately, several studies (Davey et al., 2016; Wright et al., 2006) have attracted the dimensions of the environment in which academic entrepreneurship exists, which are the organizational context, financial or political institutions, regional strategies or structural mechanisms (Klofsten and Jones-Evans, 2000), culture (Kenney and Goe, 2004) and high-level commitment (Galvão et al., 2017). These studies corresponded with an evident rise in the entrepreneurial behaviour of academics (Davey et al., 2016; D'Este and Perkmann, 2011). This puts further strain on universities to grasp these opportunities in their environment, spanning the gap between industry and universities (Mowery and Shane, 2002) and to achieve further commercial returns (Shane and Stuart, 2002).

Currently, the empirical evidences from Spanish universities suggest that the ideal approach for university administrators to shape an entrepreneurial university is to devise the circumstances that breed the entrepreneurial characters of their academics (Miranda et al., 2017). Specifically, the department effort viewed from the case suggests self-efficacy and risk taking to be further promoted among academics who are moving from research to venture (Ferrero and Bessière, 2016). Hence, to advance in academic entrepreneurship, the Mexican model even asserts the doctoral student as an entrepreneur at the bottom of the innovation ecosystem (Cantu-Ortiz et al., 2017). The growth of academic entrepreneurship favours the young skilled scientist to not only initiate a business, but also to acquire entrepreneurial spirit and competence (Paço et al., 2017).

Entrepreneurial start-ups and companies face internal and external challenges utilizing social media technologies to commercialize their business ideas. In a study identified that business-to-customer relations, brand, reputation, competition and cultural and language influence digital technologies entrepreneurship (Oppong, Singh & Kujur, 2020). This demonstrates that digital technologies enhances entrepreneurial startups among academics. Furthermore, Neves and Brito (2020) confirmed that the creation of spin-offs, patents and collaboration with industry are a consequence of scholars' engagement who, in turn, are influenced by the organisational and institutional structure. These findings posit that the university partially controls its outcomes. Nsereko (2020) also shows that conditional resources (social status and social support) are associated with social entrepreneurial intent. This underscores the ability of important people in the community to mobilize resources from family, friends, neighbors or businesses which, in turn, prepares them to think about identifying and exploiting social needs (Nsereko, 2020; Lanivich, 2015). A growing literature also identifies individual's creativity and prosocial motivation as important antecedents of social entrepreneurial intentions (Yu et al., 2020). However, in a recent study, found a positive and significant relation between social support and social entrepreneurial intentions (Seyoum, Chinta and Mujtaba, 2021).

6. Conclusion

From the findings, networking to get the resources and opportunities begins from the policy or government intervention and events such as seminars and conferences. Most of the respondents say that events are great opportunities to connect with the industry and external parties. Not only that, they can gain experience and opinions from those in the same or different fields. Through extensive networking, technology researchers can build various programs for new researchers to realize the importance of opportunities, especially in the field of technology as it is now booming. This study of the opportunity creation among technology researchers in the case of the selected university has provided evidence that leads to an evident rise in the entrepreneurial behaviour of academics. The researchers are able to identify the challenges to get the sources of opportunity from the respondents' experiences and the solution to handle these challenges. From this study, the TVET community secures valuable knowledge about the consequences of entrepreneurial opportunity exploitation in future opportunities and the conditions of uncertainty that shape the entrepreneurial action underlying opportunity creation in the case of the selected university. The lessons learned from the case imply a critical research gap between emerging fields of academic entrepreneurship and contemporary studies on an individual's entrepreneurial decision (Sooampon, 2018). For future studies, the researcher suggests the need to obtain better understanding of conditions of uncertainty that shape opportunity creation, and the scope of the research must be extended to other aspects. Future research should also include other institutions involving researchers' technologies to see clearly the role of opportunity creation and the challenges faced by them. Additionally, the researchers need to expand the number of informants or respondents to a larger scale so that it could further strengthen the reliability of the research.

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