

Opportunity Recognition Framework: Exploring the Technology Entrepreneurs

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Abstract Entrepreneurship plays an important role in fostering economic growth, job creation and innovation to a nation. Therefore, governments and researchers alike have concentrated their effort in pursue of increasing entrepreneurial activities within the community. Despite such efforts, entrepreneurship research is still evolving at its infancy stage. For entrepreneurship to happen, opportunity recognition must first happen. In an effort to take better sense of the factors shaping the entrepreneurial opportunity recognition, this study aims to examine the potential effect of entrepreneurial alertness, prior knowledge and social network on opportunity recognition and ultimately reaping the rewards of superior business performance. The goal of this study is to propose a model of the opportunity recognition model. Careful examination of past literature and theories produced several research hypotheses.

Keywords Entrepreneurship, Entrepreneurial Opportunity, Opportunity Recognition, Alertness, Technology

1. Introduction

The field of entrepreneurship is fast gaining attention and interest in the research domain as well as a central focus for government and policy makers. It is hardly surprising as the activities of entrepreneurship have been associated with growing economic development, wealth generation, job creation for the nation and increased level of innovation [1].

In the Malaysian scene, entrepreneurship has taken the central stage playing an important role as a vital economic contributor to the Malaysian economy and moving the economy towards the higher value chain. According to the latest report released by Small and Medium Enterprise Corporation Malaysia [2] in 2013, the small and medium enterprises (SMEs) in Malaysia represent 97.3% of the total establishment. In total, these SMEs contribute to about 32.7% of the total Malaysia Gross Domestic Product (GDP) which amounts to RM709.3bil [3]. In the latest 10th Malaysia plan unveiled by the Prime Minister, the government has recognised SME as an endogenous source of growth towards the aim as high income nation and has rolled out several policies in supporting the goal [4]. However, in the recently Global Entrepreneurship Monitor (GEM) Report in 2012, it was found that Malaysia was ranked at the lower end of the scale in early stage entrepreneurial activity (TEA) when compared to other countries within the same sub-group.

Within the efficiency-driven economic cluster, Malaysia achieved a 7% TEA rate compared to China's 14.4% [5].

It is imperative for Malaysian government and policy makers to further develop and encourage new venture creation.

Before we are able to delve deeper into the issues of entrepreneurship, we first need to define entrepreneurship. Baron [6] proposes that entrepreneurship is a process model describing entrepreneurs on "create and operate viable new companies through vigorous application of their ideas, skills, knowledge and talent." Central to the research on entrepreneurship is the question of "How do entrepreneurs see opportunities?" Before a business venture can be launched, the entrepreneur would first need to spot, evaluate and act on an opportunity which he/she thinks is a viable business opportunity. Hence, According to Shane and Venkataraman [7], entrepreneurship is the study of 'by whom', 'how' and 'what affects opportunities to create future goods and services are discovered, evaluation and exploited'. Hence, the importance of opportunity recognition cannot be underestimated where goods and services including the unique organizing methods are introduced and later to be sold at a profit [7]. It is imperative to an entrepreneur's skill in being able to recognise and select the right opportunities for new businesses. Recognizing high potential opportunities can often lead to substantial gains in profit, growth and competitive positioning. Resulting from this, the concept of opportunity recognition became central to entrepreneurship research [7-9].

This study aims to examine impact of opportunity recognition on business performance from the perspective

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of the entrepreneur's social network and human capital.

Building from existing theoretical and empirical studies in the area of opportunity recognition, the study aims to increase our understanding and to explore in particular, the effects of social network, entrepreneurial alertness together with the unique stock of the entrepreneur's human capital in opportunity recognition.

2. Opportunity Recognition

The central question in entrepreneurship is the issue of why some entrepreneurs fail while others succeed? Numerous studies have approached this issue by looking from the perspectives of entrepreneurial traits, entrepreneurial competencies, motivation and environment of the business venture [10, 11]. More importantly, this has lead researchers to question and debate where opportunities came from? Despite such prolific studies being carried out, the processes by which the opportunities are formed and how they are exploited received relatively less attention [12]. One of the issues facing research on opportunity recognition is the conceptual ambiguity and methodological challenges.

To begin with, entrepreneurial opportunity is difficult to define as it can mean different things to different people. Various researchers have attempted to define the meaning in various ways [13, 14, 6]. Though they all differ is their definition, there share a common theme in defining opportunity recognition. In essence, it is a discovery of an idea to create new businesses and the search of information regarding market and technological possibilities [15].

In the paradigm of mainstream economics, the neoclassical school has no place for an entrepreneur. The neoclassical economist proposes the equilibrium theories which suggest that the markets are composed of maximizing agents of those whose collective decisions about prices clear markets. Hence, no one is able to discover any misalignment within the market that can be exploited as profit. This is due to the fact that at any point in time, the market assumes that anyone can recognize opportunities and that they have been recognised and transactions have been coordinated [16]. This approach suggest that opportunity is a public knowledge and that it is equally obvious to everyone.

The German-Austrian paradigm associated with the work of Schumpeter defined entrepreneurship as "the carrying out of new combinations we call "enterprise"; the individuals whose function is to carry them out we call "entrepreneurs" [15]. Schumpeter viewed the role of an entrepreneur as a radical market innovator and is being the investigator of "creative destruction" through innovation. By acting as the innovator, the entrepreneur transforms existing demand and supply through creation of new products and services which replace outdated product/services.

The Austrian school of thoughts defined entrepreneurship based on the asymmetry of information.

Here, the Austrian economist differed from the traditional neoclassical school by assuming that the market exist with imperfect information [13].

This suggests that information gap exist and that anyone can be an entrepreneur if they are alert in identifying and exploiting the market opportunities. Kirzner [13] claims that possession of information will allow the individual to discover opportunities because any given individual cannot possibly identify all opportunities.

The Austrian school stresses on the important of market arbitrage in indentifying opportunities and claims that market inefficiencies create disequilibrium profit opportunities [16]. It is proposed by the Austrian school of thought that entrepreneurs through learning and having knowledge of market gaps which other do not have, exploit opportunities that arises from it. Opportunity recognition arises without active search or plan. Focusing on the role of an individual in the opportunity recognition process, the economic discipline views such opportunities as a market imperfection or economic disequilibrium which can be exploited by the discerning individual [13]. Kirzner further argued that opportunities exists because of the ignorance of the original market participants and entrepreneurs are those rare individuals who take advantage of these market inefficiencies by knowing or recognising things that others do not. This is to imply that opportunities exists around us but only those special individuals with what Kirzner calls "alertness" have the ability to recognise opportunity for what it is.

There are two opposing views regarding opportunities. One view argues that opportunities are discovered while the other view argues that they are created [18]. These two main perspectives differ on how opportunities are discovered or created. The first perspective is the positivist that who assumes that reality has an objective existence independent of an individual's perception. It is proposed that opportunities are formed by exogenous shocks to existing markets and it is there ready for entrepreneur to discover them [16]. The second perspective comes of the constructionists whom argued that reality is a social product that is a result of social interaction of individuals. Its existence is dependent on the individual's perception [19]. In this perspective, it is suggested that opportunities are formed endogenously by the entrepreneurs themselves [20].

It is argues that entrepreneurial opportunity recognition is a cognitive process as it relies on the individual. Shane and Venkataraman [21] found that entrepreneurs use cognitive insights and spend more time compared to non-entrepreneurs in searching for information which will lead to new business opportunities [17]. Following the study, researchers have further suggested that prior knowledge adds significant insights to the recognition of opportunity. Shane [16] proposes that prior knowledge in a particular industry provides entrepreneur the capacity to better recognise opportunities.

While the macro environmental forces such as technological, social-culture, economic and political changes are important source of opportunity, these forces are insufficient in explaining the entrepreneurial process.

Ultimately, it is a question of if the individual is able to

recognise particular opportunities amidst these contextual changes. In a given same set of circumstances and situation, not all people can recognise a given entrepreneurial opportunity. Some would be able to identify it while others have overlooked it. Why do some people see it while others don't? Past studies have lend support to the suggestion that possession and wider exposure to prior and new information [16], [17] and superior cognitive capabilities help formulate a conjecture towards opportunities. As Shane & Venkataraman [7] observe, the empirical studies can be grouped under two broad categories. That is, information corridors and cognitive properties. In 2003, Shane further identified some individual factors influencing opportunity recognition. It was noted that some individuals are able to spot opportunities while others do not due to two major reasons. Firstly, the individuals have better access to information about the existence of the opportunities through prior knowledge, social network structure and information search. Secondly, they are able to more easily identify the opportunities given the same amount of information though their cognitive properties.

Building upon past theoretical and empirical studies, and Ardichvili & Cardozo [22] propose a comprehensive framework illustrating the opportunity recognition process. Entrepreneur must first be equipped with a level of education and experience. Together with other critical factors such as the entrepreneurial alertness and the entrepreneurial network, the combination will enable the entrepreneur who has the ability to recognise meaningful business opportunity and who are able to strategically position the business be able to successfully complete the development process and launch the new venture. As suggested, the opportunity recognition is a process with a number of steps and not simply rather a coming flash of sudden insights.

2.1. Entrepreneurial Alertness

Kirzner was the first to use the term "alertness" in explaining the entrepreneurial process of opportunity recognition [23]. Alertness is defined as a process and perspective that helps some individuals to be more aware of changes, shifts, opportunities and overlooked possibilities [13]. In taking the economics perspective, Kirzner [24] further elaborated alertness as the ability to notice, without search, opportunities that have been overlooked. More recent scholars have built and advanced our understanding of alertness involving a practice stance based on a number of cognitive capacities and processes such as prior knowledge and experiences, pattern recognition, information processing skills and social interactions [25].

In a recent study by Tang et al., [25], alertness is conceptualized as three complementary dimensions: alert scanning and search, alert association and connections, and evaluation and judgements.

Extending alertness as part of the cognitive process, the alert scanning and search dimension involves prior knowledge, preparedness and sensitivity to new

opportunities. Alert scanning and search will enable the entrepreneur to examine new ideas in an unconventional manner as in the process, they increase the entrepreneur's domain-relevant information [26]. The second dimension of alert association and connection involves putting together disparate pieces of information and reassembling them into coherent alternatives. This dimension focuses on the availability of new information, creativity and making extensions in logic. Information are gathered and creatively applied. Such skills in association, allows the entrepreneur to consider various options and possibilities in making unique connections. The individual connects the multiple pieces of information to a big picture so that connections previously undiscovered can be made [25]. The last dimension of evaluation and judgement is an extension from the work of Haynie, Shepherd & McMullen, [12]. This dimension refers to the evaluations and judgements made by the entrepreneur on new changes of information and to decide on its effect on the business opportunity and profit potential [25]. Opportunity that arises with the existence of new information will be assessed and evaluated.

Entrepreneurs are successful because of their alertness to information on the market condition and opportunity movements. Gaglio and Katz [27] argue that some people are better than others at seeing relationships and patterns in information. They integrate the information and create new causal links which all facilitates recognizing opportunities. It is hypothesized that individuals with such a schema will be more likely to notice industry/ market changes. Previous studies such as Kaish and Gilad [17] and Busenitz [28] have found mixed findings. However, the theoretical support for the link between alertness and opportunity recognition is strong and consistence.

Hypothesis 1: Alert individuals are more sensitive to opportunity recognition.

2.2. Prior Knowledge

Prior knowledge refers to an individual's distinctive information about a particular subject matter which may be a result of work experience [29], education or other means [16]. With the stock of information and knowledge gained through life experiences, certain people are able to make the connection to recognize the opportunity as it is related to their available information. Past research have shown a strong suggestion that increased knowledge in a particular field award individuals with an added advantage. The increase of likelihood of opportunity recognition is attributed to: (1) prior knowledge provides an absorptive ability which facilitates the gaining of additional information about markets, production processes and technologies which triggers an entrepreneurial conjecture and;

(2) people's existing stock of information influences their abilities to see solutions when encountering problems [30]. With increased knowledge, they individuals become increasingly more efficient in their task and to also appear

to be more intuitive in thinking during the decision process.

Each person's idiosyncratic prior knowledge creates a 'knowledge corridor' that allows the entrepreneur to recognise certain opportunities but not others [31]. The knowledge corridor principle explains that once entrepreneurs found their companies, they set off on a journey down a corridor through which windows of opportunities opens around them. If they had not entered the corridor they would not be able to see the opportunity. Previous research in cognition suggests that increased prior knowledge in a particular field will provide an individual with certain advantages in decision making. In a study by Busenitz and Barney [32], they found that entrepreneurs relied heavily on heuristics to speed up the decision making process when compared to managers. Without such mechanism, they would lose the window of opportunity that would close before it can be identified. Based on the previous literature about prior knowledge and applying it to opportunity identification, this study expects individuals with prior knowledge are more likely to be alert to information available and to process it more efficiently leading to high number and quality of opportunities identified.

Hypothesis 2: Higher levels of prior knowledge are associated with higher opportunity recognition

Knowledge can be in the form of tacit knowledge and explicit knowledge. Tacit knowledge refers to the knowledge that is gained from experiences while explicit knowledge are those gained through formal education. It could also be argued that opportunity is recognised by some individuals and not others due to the differences in their ability and access to resources. In addition, it is reasoned that individual's education can help improve the skills of opportunity recognition by tapping on the individual's knowledge.

It is also reasoned that higher level of education increases an individual's knowledge base which leads to increase in skills to recognise opportunities and such knowledge is utilise to form a framework from which new information can be recognised and processed [7].

Hypothesis 3: Higher levels of education are associated with higher opportunity recognition.

2.3. Social Network

Over the decades, social networks have been included in the entrepreneurship studies as one of the key antecedents to opportunity recognition. The entrepreneurial activities do not exist in a state of vacuum but rather it is embedded in cultural and social context [33].

Hence, it can be said that entrepreneurship is embedded in social networks which facilitates the entrepreneurial process by linkages among entrepreneurs, resources and opportunities.

Social network is a resource and a potential capital while social capital is a network which is used to engage in productive economic activities [34]. Social network theory

suggests that individuals are interconnected through their social networks. Through social network, the entrepreneur gains access to support, information and assistance while revealing how individuals are connected to each other [15]. Social network theory studies the connections between people and provides insights with regards to information flow and social mobility and how individuals interact and disseminate information. The combination of social capital and networks creates a favourable condition for information exchange and creation of new knowledge [35]. It is argued that an entrepreneur's social network is their most important source of knowledge and new ideas. The differences in network characteristics help explain the extent to which knowledge transfers and provide the opportunity for new knowledge generation [36]. Studies have shown that networks are associated with the number of new opportunities an entrepreneur perceives [37] and depending on the network which they are embedded in, different individuals may be more likely to spot and recognise opportunities than others [38].

According to past studies, the quantity and the nature of the social ties are the major source of information and ideas [39], [33]. Based on the strength and closeness of relations involved, social network can be classified as strong and weak ties [39]. Strong ties are the ties that require substantial interaction between people such as family members, relatives and close friends. Weak ties on the other hand are ties with casual acquaintance within the social network such as customers, supplier and strangers. The two different set of ties offers an entrepreneur with information of different nature.

Strong ties are more likely to offer information which are trustworthy in respect to opportunity recognition [16], [33] while weak ties act as a source of non-redundant information. Non-redundancy of ties within the network increases the possibilities of entrepreneur gaining the right complement of information necessary for opportunity recognition. One of the most published work on social network theory is Granovetter's [39] study on the strength of weak ties. The theory describes the differences between individuals in the way they interact and share information among each other. The social relationships are described in terms of nodes and ties and the social network is like a map depicting the relationships or connections between the nodes. The literature on network views the flow of information being affected by the nature of the network. Granovetter argued through casual acquaintances, the entrepreneur would be able to glean new information easily. These are known as weak-ties when compared to close personal friends which are known as strong-tie.

Granovetter further argues that given the high maintenance cost associated with close relationship, there is an opportunity cost involved in maintaining the strong-ties. Hence, there is only a limited number of strong-ties which an individual can maintain. In addition, as individual do not regularly maintain their relations and interact with weak-ties, the relationship would be better able to provide insights to

unique and useful information when compared to strong-ties [38].

In the opportunity recognition process, social capital plays a role in assisting the entrepreneur in exposing them to new and different ideas about the business venture. Frequently, we would find entrepreneurs making decisions as a result of association based on advice or friendship [40], and this is often originate from social capital of weak-tie relationships. Strong-tie relationship on the other hand would play a more prominent role in assisting during the discovery process.

Weak ties existence is temporary in nature. It refers to relationships between parties that do not invest time and effort in maintaining these ties. However, weak ties are able to offer entrepreneurs links to various actors who move in different circles other than the main circle which an entrepreneur belongs to. As a result, the entrepreneur will be able to gather novel information from different levels of society. As proposed by Granovetter [41], weak ties can be seen as a bridge linking to new and different information which give entrepreneurs a better chance of recognizing opportunities.

Hypothesis 4: The stronger the weak-ties the entrepreneur possess are associated with higher opportunity recognition

In a strong tie network where it is rich with structural holes, entrepreneurs receive not only information but also control more rewarding opportunities [42]. The entrepreneur is able to span and bridge these structural holes gaining valuable resources in doing so. From these strong ties, the entrepreneur is able to gain benefits such as trust [43] and fine-tuned information [44].

Hypothesis 5: The stronger the strong-ties of the entrepreneur possess are associated with higher successful opportunity exploited.

2.4. Business Performance

In entrepreneurship studies, an important aspect of outcome is the effect on performance. Entrepreneurial opportunity recognition scholars have examined and investigated the relationship between opportunity recognition and firm performance [45], [46]. In this study, it is attempted to examine the impact of prior knowledge, entrepreneurial alertness, social network and opportunity recognition skills on business performance. The field of entrepreneurship is about the importance of recognizing and acting upon opportunities and hence is a key step in the entrepreneurial process. At the end of the entrepreneurial process lies the end result of superior business performance.

The entrepreneurship studies suffers from difficulties is correctly assessing the success or failure of a business venture. Issues such as reliability of data, difficulty is accessing the data as well as comparability issues are present. By studying the past literature on business performance, it is shown that performances are measured in terms of growth, profitability and survival. In most studies, growth and profitability are frequently used performance dimensions

[47].

Some researchers have proposed that personality of the entrepreneur affects performance through other factors while Baum, Locke and Smith [48] argues that personal qualities worked to impact performance though opportunity recognition skills. Ardichvili et al. [49] further supported the argument that prior knowledge of market and customers lead to successful opportunity recognition and eventually leading to successful ventures.

Hypothesis 6: Stronger the opportunity recognition skills are positively associated with better business performance.

There are three antecedents of opportunity recognition skills proposed that are alertness, prior knowledge and social network. Entrepreneurial alertness is dependent on the cognitive skills and intelligence of the individuals. Coupled with prior knowledge, enterprising entrepreneurs are able to produce innovative solutions in addressing customer's problems. Through offerings of innovative solutions to customers, there is an increase of customer satisfaction leading to high sales and finally better business performance. In a study by Kickul and Walters [50], the results supported the role of opportunity recognition as a mediator between strategic orientation and innovativeness in technology companies. For this study, it is proposed to further the studies by examining the opportunity recognition that mediates between alertness, prior knowledge, social network and business performance.

Hypothesis 7: The opportunity recognition skills act as a mediator between alertness, prior knowledge, social network and business performance.

Putting all hypothesis presented thus far in this paper, an initial framework emerges as shown below.

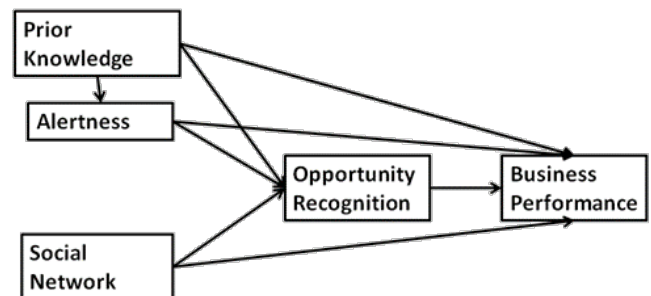


Figure 1. Proposed framework of opportunity recognition

According to the framework, opportunities that emerge from the market are picked up by alert entrepreneurs.

These alert entrepreneurs recognise the opportunities through a cognitive process based on their stock of information from prior experiences and knowledge gained which are tacit and explicit.

Entrepreneurs who possesses an extended network of personal and professional relationships increases their ability to recognise opportunities. From casual acquaintances that are more likely to provide unique information to close friends and family who provided the support needed,

entrepreneurs identify significantly more opportunities than those without network support. With stronger opportunity recognition skills, entrepreneurs are able to provide innovative and value added solutions to need the market needs. This in turn, is translated to higher customer satisfaction, higher sales, venture profit and growth.

3. Contributions of Framework to Entrepreneurship

Many studies have been conducted on the processes as well as the antecedents related to opportunity recognition. Though the literature on entrepreneurship has given much prominence on opportunity recognition, there is still much to learn about how entrepreneurs actually recognise opportunities leading to greater business performance. From both the conceptual and practical viewpoint, empirical studies investigating the opportunity recognition is necessary as its implications affects the outcome of advising prospective entrepreneurs, development of theory, policy making and entrepreneurial practices. Hence, this study aims to further understand the relationship of human capital and social network in their role of opportunity recognition process. Its objective hopes to contribute new insights into the process of opportunity recognition with were previously unexplored and the findings and implications can be promising and invaluable to the field of entrepreneurship. The existence of the opportunity recognition skill plays a vital link to the performance of a firm. Previous scholars have concentrated mainly on a few specific resources to understand the differences of firm performance but few have attempted to examine the role of opportunity recognition as a mediator to business performance.

The approach taken emphasises the influence of individuals particularly on their cognitive abilities, schemas and social network to interpret information transforming opportunities to better business performance.

An empirical confirmation of the mediating effects of the opportunity recognition will also advance our understanding of the entrepreneurial process.

4. Conclusions

This study aims to develop a comprehensive model through exploring the individual's cognitive capabilities in alertness, prior knowledge and social network maintained as antecedents to opportunity recognition.

Most entrepreneurial opportunity recognition researches have concentrated on the role of the individual like the entrepreneurial traits, competencies of entrepreneurs and his motivations. It is hoped that this study through comprehensive study by simultaneously test the inter-relationships between the factors, will be able to help build a model in explaining the opportunity recognition.

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