Role of Technopreneurs in Malaysian Economic

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ABSTRACT

This new Flagship Application bears vital importance to the growth and development of entrepreneurs in the knowledge-based economy. New structures and strategies are being explored and formulated to help technology-based small and medium-sized enterprises (SMEs) grow and to offer a promising future within the global marketplace. Flagship Application aims at the creation of technopreneurs, information and communication technology (ICT) SMEs as well as start-up companies around the country and acts as focal point in clustering the technopreneurs. Technopreneurs play important role in economic by carry heavier burden as they employ technology in creating and improving the products, services, and production process.

INTRODUCTION

In this world of accelerating economic globalization, advances in science and technology continue in the blink of an eye, and knowledge is recognized as a core competence in accumulating wealth (Lalkaka, 2002). From a business perspective, the shift toward increasingly automated business process and communication based on for instance the transfer of electronic data is designed to achieve greater efficiency and effectiveness in business processing (Hall, 2001). Around the world, we can see that nations have embraced information and communication technology (ICT) as a means to enrich public and private sector processes, while providing citizens with easier access to these services (Fang, 2002). The emphasis on ICT has also boosted Internet penetration and literacy rates as well as investments in research and developments. The emergence of technological innovations has opened up to new opportunities and challenges to a nation’s economic development (Yunos, 2002). It is worth to mention that information technology has becoming an important fact to the business community as it helps improve the business processes.

In Malaysian perspective, the term “technopreneurs” means technology entrepreneurs, which are represented by ICT and multimedia SMEs, seed level ICT and multimedia companies and start-ups ICT and multimedia companies. Hence, the introduction of Technopreneur Development as the new Flagship Application has demonstrated that the government has extended the opportunity especially among SMEs to participate in the local ICT market. By focusing on the technology-based SMEs, technological adoption and ICT advancement will act as channels to expand and accelerate the business as well as the people. This new Flagship Application bears vital importance to the growth and development of entrepreneurs in the knowledge-based economy. Besides, new structures and strategies are being explored and formulated to help technology-based SMEs grow and to offer a promising future within the global marketplace. In this case, SMEs will be able to expand themselves to compete in this borderless world, at the same time create, and add value to their business in order to achieve sustainability.

LITERATURE REVIEW

The emphasis on information and communication technology (ICT) has boosted investments in research and developments as well as Internet penetration and literacy rates. The emergence of technological innovations has opened up to new opportunities and challenges to businesses. Lalkaka (2002) defined technological innovation as the process that drives a concept towards a marketable product or service. This holds true as it contributes towards raising productivity and competitiveness (Lalkaka, 2002). In this regard, technological adoption and advancement act as channel to expand and accelerate the businesses as well as the people. Businesses will be able to expand themselves to
compete in this borderless world, at the same time create, and add value to their business in order to achieve sustainability.

The rapid advancement of technology has encouraged small and medium-sized businesses (SMEs) to utilize the opportunity to establish, expand, as well as prosper their businesses. Extensive involvement of SMEs in generating revenue to the nations have shown that they are capable of generating employment opportunities, mobilizing the local resources, creating a balanced and affluent society and playing a significant complementary role to large firms and eventually strengthening the economic development of the nation as a whole (APEC, 2001). However, the brisk movement of technology has not always been good for some. This is because those who are already strong are prospering and others falling behind. As such, it is important for SMEs to plan their business carefully so that the changes in the technology and environment will always bring in positive returns.

McConnel and Brue (1999) defined entrepreneurial ability as the human resources that combine the other resources such as land, labour and capital to produce a product, make non-routine decisions, innovative and bear risks. Entrepreneurship is a field studied by economist, psychologists, and sociologists whose paths rarely cross (Leibenstein, 1987 in Michail, 2000). Stevenson et al. (1994) in Suzuki et al (2002) defined entrepreneurship as the pursuit of opportunity with regard to resources currently controlled. Drucker (1985), a management theorist in Yarzebinski (1992) notes that entrepreneurs see change as the norm and as healthy and they always search for change, respond to it and exploit it as an opportunity. In simple term, Drucker, (1985) believed that entrepreneurs act as agents of change and defined entrepreneurs as individuals that create a new market with a new customer.

This motion is supported by Schumpeter (1947), an economist in Miller and Garnsey (2000) that “…the entrepreneur and his function are not conceptualize: the defining characteristic is simply the doing new things or doing of things that are already being done in new way (innovation)…” These innovations can be in the forms of new products, new production methods, new markets or new forms of organization. Innovation is the tool all entrepreneurs utilize across their environments and exploitation of change is firmly rooted in innovation (Yarzebinski, 1992). Quite often, entrepreneurs form small new companies called start-ups: firms focused on creating and introducing a particular new product or employing a specific new production or distribution technique (McConnel and Brue, 1999). By adopting new technologies in an inherent organized, purposeful, systematic manner, the entrepreneur innovates (Yarzebinski, 1992).

By looking at the various definitions of entrepreneurs, it can be said that entrepreneurism is well documented in the literature but less for technical entrepreneurs (Foo and Foo, 2000). The issues of entrepreneurship are receiving the attention of government especially in Asia. In fact, entrepreneurship in parts of South and South East Asia has recently undergone rapid revitalization (Burnett, 2000). For instance, the government of Singapore has fostered technology-based entrepreneurs or popularly referred to as “technopreneurs” (Foo and Foo, 2000). The term technopreneur arose from within Singapore culture to describe entrepreneurs who combine entrepreneurial skills with technology (Yarzebinski, 1992).

Various literatures use the term “technology-based entrepreneurs”, “technical entrepreneurs”, “high technology entrepreneurs” or even “high tech new ventures” to describe new business that combine entrepreneurial skills and technology (Florida and Kenney, 1988; Dahlstrand and Lindholm, 1999; Renko, Autio and Tontti, 2002; Oakey, 2003; Kakati, 2003). For instance, the United States emphasizes labels like high tech small firm or new technology-based firm for venture business while Japan legally recognizes new ventures as a firm that invest more than 3% of total sales in R&D (Sung et al. 2003). Other example includes technical entrepreneur, who originally trained as professional engineers but instinctively taught him or her to become expert business managers (Oakey, 2003). Technology-based entrepreneur is a process and formation of a new business that involves technology and these “technopreneurs” use technological innovations and translate such technology into successful products or services. Based on this perspective, the culture of innovation as discussed in the earlier section was nurtured but in this case, it is more focused on technological innovation.

The social context in which the entrepreneur operates also plays an important role in nurturing the culture of entrepreneurship. One of the ways is through embeddedness, where entrepreneurs are being embedded within the social structure of the area they operate. According to Jack and Anderson (2002), being embedded within the area provided the entrepreneurs with intimate knowledge, contacts, sources of advice, resources, information, and support. By being
embedded, it was easier to recognize and understand what was required and available. Hence, Jack and Anderson (2002) believed that being embedded in the social structure creates opportunity and improves performance of entrepreneurs because embeddedness enabled the entrepreneurs to use the specifics of the environment.

To make the creation process of technology-based entrepreneurs successful, a right and favourable environment is needed. For instance, to encourage the formation of technology-based entrepreneurs, business incubators are needed to act as the catalyst (Sung et al. 2003). Services offered by incubators such as office space and technical expertise are said as a means to promote the formation of new technology-based small business (Yunos, 2002). Other instance includes Silicon Valley that has become a role model for many countries as a successful entrepreneurial habitat for a New Economy (Suzuki et al. 2002). As such, entrepreneurs play a vital role in realizing the benefits of the activities or processes such as incubated business, new technologies transferred and new manufacturing lines. The talent that entrepreneurs have to innovate makes them important in making the activities a success. Thus, entrepreneurs can innovate provided the correct environment exists (Yarzebinski, 1992).

GLOBAL EXPERIENCES

Entrepreneurship in the United States works because it has the prevailing culture of risk-taking, competitiveness, technical infrastructures, and venture capital (Lalkaka, 2002). In this case, the ultimate business cluster phenomenon is Silicon Valley. To further foster the development of entrepreneurs especially technology-based, the presence of business incubators is also important especially to act as an economic development tool. A study conducted by Suzuki et al. (2002) compared entrepreneurship in Japan and Silicon Valley and they found out that Japanese entrepreneur and Silicon Valley entrepreneurs are different in four dimensions; which are motivation, risk and obstacles, growth factors and infrastructures.

In Korea and China, entrepreneurial activity is also enhanced by the emergence of science parks and incubators, which mostly linked to universities (Lalkaka, 2002). A study by Sung et al. (2003) revealed that entrepreneurs in Korea have insightful evaluations about their resources and capacities as well as expectations with regard to functions and features of science parks and incubators. However, the functions and features of science parks and incubators were generally neither considered a critical influence on start-ups nor on the growth of new business. In contrast to Korea, Chinese incubators had helped bridge the gap between government research and the marketplace and had fostered entrepreneurial attitudes. Besides, the incubation programs had been effective in promoting continuous interaction and opportunities among the managers (Lalkaka, 2002).

Other examples of success stories are Italy and Israel. A study conducted by Colombo and Delmastro (2002) shown that Italian parks managed to attract entrepreneurs with better human capital and entrepreneurs who undergone incubation programs performed better in terms of adoption of advanced technologies and establishment of collaborative arrangements with universities. Hence, it is evidenced in Italy that the government is successful in fostering the growth of new technology-based firms. As for Israel, an innovation-based nation is created through the relationship between incubators and affiliated research institutions and this relationship has created synergy towards the success of entrepreneurial activity (Rothschild and Darr, 2003).

As for South East Asia countries, several initiatives have been undertaken by various governments to nurture the development of entrepreneurs. Singapore for instance has cultivated technopreneurism as a social movement that implies a fundamental shift in orientations: for example more innovations (Foo and Foo, 2000). In addition, the government has created favourable conditions to help technopreneurship to blossom such as providing strong education system, infrastructure, and Internet access (Burnett, 2000). Besides Singapore, Malaysia has also shown progress in entrepreneurship by having technology parks, Multimedia Super Corridor (MSC) and incubators to nurture start-ups companies. Another example include SIRIM Malaysia incubator hub at Sepang that carries objectives of among others helping entrepreneurs develop innovative concepts, upgrade skills and enhance the knowledge (Yunos, 2002).

Other parts of the world that shown the emergence of business incubators to nurture new business include Brazil and India, which create sound entrepreneurs and bring positive impact on the nation’s development as a whole (Burnett, 2000; Lalkaka, 2002).
In addition to business incubators, it is also worth to mention that various studies have shown that venture capital also play an important role in shaping and nurturing technology entrepreneurs through their supply of funds to keep the business running (Timmons and Bygrave, 1986; Sapienza, 1992; Landskroner and Paroush, 1995; Amit et al. 1998 and Cumming and MacIntosh, 2001). However, there are certain complex situations such as technology-oriented complexes, finance-oriented complexes and hybrid complexes, where venture capital does not contribute directly to innovation and entrepreneurship (Florida and Kenney, 1988).

**ISSUES RELATING TO TEHNOPRENEURSHIP**

The creation and progress of technopreneurs are subject to various issues. One of the controversies is relating to their behaviour. Among others is entrepreneurial motivation, which is an output of a variety of environmental factors as well as the founder’s individual characteristics (Suzuki et al. 2002). Oakey (2003) further elaborated that motivation shapes the attitude of the entrepreneur towards his chosen mix of business management skills, the amount of external resources accessed and the level of personal control that he or she exercises on running the business. Abetti (1992) detailed key social factors that affect entrepreneurial behaviour: family and social support system, financing sources, employees, customers, suppliers, cultural, political as well as economic environment.

Besides motivation, risks and obstacles are other factors that need proper attention. Kazanjian (1988) outlined difficulties that have to be mitigated for the success of entrepreneurs such as market development, financial resources acquisition, and product design and market creation.

Another significant issue is regarding the growth of the entrepreneurial firms (Miller and Garnsey, 2000; Suzuki et al. 2000; Oakey, 2003). Oakey (2003) stressed two important skills needed to ensure success, which are technical management skills and business management skills. In this case, technical management skills concern with technical skills in developing new products or services whereas business management skills concern with entrepreneur’s responsibility regarding finance, marketing and personnel areas (Oakey, 2003). However, Suzuki et al. (2002) outlined different growth factors for the success of entrepreneurs that are resources and the environment, which indicates that the most important success factors are the strategic actions and decisions made by entrepreneurs in response to the changing environments. Miller and Garnsey (2000) further contended that successful entrepreneurs are those that have the capacity to identify opportunities and mobilize resources that will eventually generate growth in sales and expansion of operation.

The final issue to be addressed in the current study concerns the infrastructure for the entrepreneurial process. To help entrepreneurs take advantage of new business opportunities, the infrastructure needs to be constructed in such a way to strengthen the capability of new businesses. Abetti (1992) proposed some key elements that must be present to help entrepreneurs such as sources of technical expertise, availability of human resources and a variety of financing sources. In this case, the most versatile resources are financial resources and can be considered indispensable to the new business (Miller and Garnsey, 2000). To a certain extent, different entrepreneurs will have different capacities to affect the flows of finances to their business and for some it can hinder the development of the new business.

**ENTREPRENEURS VERSUS TECHNOPRENEURS**

By looking at the economic theory, entrepreneurial activity concerns with the combination of factors of production such as land, labour, and capital to produce goods or services and entrepreneurs are the agents who combine the other resources with a mission to create a successful business venture. They are also the risk-bearer as the business venture has no guarantee of profit. Various literatures have indicated that entrepreneurs posses the characteristics such as innovative and imaginative. In Malaysia, the term technopreneurs refer to the technical entrepreneurs or technology-based entrepreneurs who combine the factors of production and their entrepreneurial skills with technology to set up new business. By looking at the objectives of the new Flagship Application as a whole, the main targets are the technology-based entrepreneurs, ICT SMEs as well as start up companies. These communities will be able to help build a critical mass of feasible ideas and business plans in order to develop a number of excellent companies. In this regard,
it is worth to mention that Malaysian technopreneurs are the entrepreneurs who engage in the ICT, multimedia, biotechnologies, bioinformatics, and other high tech industries. In addition to that, Malaysian technopreneurs are also engage in wireless and mobility solutions as well as advanced software businesses.

The technology adoption in various areas mentioned above is addressed to not only entrepreneurs within the MSC but also those outside the MSC. This is done because this Flagship Application aims at the creation of technopreneurs, ICT SMEs as well as start-up companies around the country and not just in the MSC. It is just that the Flagship Application acts as focal point in clustering the technopreneurs. By having these technology-based entrepreneurs scattered around the country, it will lead to the formation of competitive clusters. The technopreneurs who are outside the MSC will still seek advice and receive equal assistance from the MSC just like companies within the MSC. These companies will have attributes such as innovative product and process, possess high growth innovative technologies and high market growth rate and must be export-driven in major market. By having these attributes, only then the companies will be able to become a role model to other start-up companies.

It is important to note that besides Malaysia only Singapore uses the term “technopreneur” to describe the technology entrepreneur. Other developed nations use the term technology-based enterprise to represent the technopreneurs community (Foo and Foo, 2002). However, these entrepreneurs possess the same characteristics as Malaysian technopreneurs and engage in the technology business. Besides, as technology is becoming a buzzword, this Flagship Application tries to make full use of it by combining the term technology with entrepreneur to become technopreneur.

The word technopreneur is significant and appropriate as it represents the right community of entrepreneur who involves in technology businesses. Besides, it not uncommon for Malaysian to create confidence through use of specific words such as “Malaysia Boleh”. In this case, the use of word “technopreneur” put Malaysia in its own place as it represents the confidence of the nation to carry the word as what it is. In this case, the term technopreneur itself implies the entrepreneur who employs technology in the business ventures and carries equal importance as of other entrepreneurs in the economic activities.

**ROLES OF TECHNOPRENEURS AS DISEQUILIBRATOR AND EQUILIBRATOR**

In Malaysian economy, technopreneurs play role just like the entrepreneurs. In fact, technopreneurs carry heavier burden as they employ technology in creating and improving the products, services, and production process. Recall that entrepreneur is an initiator, innovator, and risk-bearer who combine land, labour, and capital resources in unique ways to produce new products and services. As for technology-based business in Malaysia, technological advancement is fostered by technopreneurs and supported by scientific research from institutions of higher learning and government-sponsored laboratories. This technological advancement helps technopreneurs to seek and exploit new profit opportunities or to expand new profit opportunities. In Malaysian perspective, roles played by technopreneurs, could contribute substantially to the economic growth such as new wealth and job opportunities.

Figure 1 illustrates the key roles of technopreneurs as outlined by the Technopreneur Development Division. From the figure, it can be seen that the key roles of Malaysian technopreneurs are as disequilibrator (DQ) and as equilibrator (EQ). When technopreneur innovates, they successfully introduce and commercialize a new product or a process in the local market. With their innovations and new combinations, they act as disequilibrator as they force the destruction of an equilibrium state. In fact, the creative destruction by the technopreneurs has destroyed certain monopoly market positions of firms as they sometimes introduced superior product than the existing firms. In Malaysian case, when technopreneurs introduce new product or process, they have turned the market equilibrium into disequilibrium state, other things equal, where there is new supply in the market and demand is constant.

However, as technopreneurs discover new niches that have not been created, they will make the situation back to the state of equilibrium. For instance, when technopreneurs discover what Malaysian market wants and provide the products to fulfil the demand, market will turn back to the equilibrium state, as demand is equal to supply, other things equal. In relation to this, as technopreneurs come out with new products, new processes, new markets, new business models, and new enterprises they are able to keep the local economy moving and growing.
These roles especially in creating new combinations are considered important as Malaysian market is fast approaching the equilibrium state. Besides, the competition nowadays is based on reinvention and the responsibility to innovate has been placed in private companies and institutions of higher learning (IHLs). Hence, by having creative and innovative technopreneurs, the economy will keep moving and growing. In addition, the start-ups and local companies will create high value jobs, improve export activity, and at the same time accelerate value for new local ICT business. This is because new ICT ventures are capable of producing new jobs, new knowledge, and improving productivity and at the same time enlarging and sustaining Malaysian entrepreneurial base. With these potentials, the desired output such as to improve national productivity and competitiveness will be achieved, thus secure the success of MSC for its long sustenance.

By looking at the roles played by the Malaysian technopreneurs, it is clear that the new Flagship Application was formulated to fully utilize the roles played by the technopreneurs. This is because one needs to fully understand what technopreneurs do or can do before coming out with various plans to develop them. In Malaysian case, the government is aware of the roles and importance of the technopreneurs to society and that could be the reason why the government introduced Technopreneur Development Flagship Application. Recall that this Flagship Application is aimed at developing technopreneurs around the country in more concentrated manner. The next section discusses the objectives and programs offered by the Technopreneur Development Division to develop technopreneurs in Malaysia.

CONCLUSION

Under the Eighth Malaysia Plan, the government has decided to boost the growth of SMEs in information and communication technology industry through its various assistance programs. Besides, the findings demonstrated that the
government has placed equal opportunities for technology-based entrepreneurs and ICT SMEs to participate in the local ICT market as the government realized the importance of SMEs in growing the nation. In addition to that, it is evidenced by the commitment put by the government to support entrepreneurial activity around the country by having various “farming” programs such as incubation programs and communication programs for technopreneurs to grow. Launched in 2001, there was still lack of information and insufficient knowledge about the opportunities, issues, and challenges underlying this new initiative as the information were kept private, limited, and confidential. Future research could comprehensively examine the effectiveness of the development process by comparing the technopreneurs who undergone the process until graduation with the technopreneurs who do not go through the process. With this comparison, it is easier to evaluate the progress and effectiveness of the programs such as incubation system and funding to start-ups companies. In fact, the extended research could examine the influencing or contributing factors to assess the effectiveness of the programs by developing reliable and valid measures of the dependent variables in order to devise and empirically test measures of venture success.

REFERENCES


