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Full Length Research Paper

Entrepreneurial orientation of small and medium enterprises (SMEs) in Malaysian information communication technology (ICT) sector

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This paper describes the unique entrepreneurial orientation of Malaysian entrepreneurs in the information communication technology (ICT) industry as they led companies in an environment that reflected entrepreneurial diversity, complicated markets and a surviving economy. The empirical work combined survey and case studies of 24 small and medium enterprises (SME), some of which have steered their organizations from humble start-ups to professional ventures. Results show that the successful entrepreneurs committed their strategic intentions to become global archetypal capitalists while simultaneously co-exist (despite their heterogeneous backgrounds) to serve the needs of an emerging economy. Practically, they reflect eight entrepreneurial orientations, clustered into three distinct competencies: Self-intangible, operational and global.

Key words: Small and medium enterprises (SMEs), information communication technology (ICT), entrepreneurial orientation.

INTRODUCTION

Entrepreneurial orientation (EO) is a concept that has evolved over the years, recently maturing into a well-developed theory. Understanding of EO generates practical implications to policy establishment at the national and regional levels in various parts of the world. Much of the EO researches however focused on western, well-developed economies, namely Europe and North America. In order to discover the crux of the issues involved in EO, further enrichment of the research is demanded, particularly among emerging economies.

Despite the plethora of studies within rich thread of discussions on small and medium enterprises (SMEs) and EO (Covin et al., 1990; Lumpkin and Dess, 2001; Swiercz and Lydon, 2002, Walter et al., 2006; Pla-Barber and Alegre, 2007), similar research commitment in emerging economies is still at its infancy (Bruton et al., 2008). In the interest of heightening the struggle towards establishing a common body of knowledge for EO (Rausch et al., 2009), doors should still be open for further understanding and encapsulation of EO heterogeneity in emerging economies. As entrepreneurs in many emerging economies learn to come out from small, protected territories, much has yet to be discovered in terms of their survival and contributions to the global economy.

Within the emerging economies, the research appears to center on certain countries, namely China (Liu et al., 2011; Haiyang et al., 2000; Tang et al., 2008), Korea (Yoo, 2001) or Eastern Europe (Manolova et al., 2008), due to their importance to the world economy. Nonetheless, other countries also merit investigation as they

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Abbreviations: ICT, Information communication technology; **SME,** small and medium enterprises; **EO,** entrepreneurial orientation; **GDP,** gross domestic growth; **FSI,** financial services industry; **MDeC,** Malaysian Development Corporation; **CEO,** chief executive officer; **IT,** information technology; **R and D,** research and development.

too generate cross-border investment, competition and collaborations. Some of these emerging but little researched economies reflect unique worldviews of entrepreneurial champions. There should be a diversity of countries, business models, industries, political styles, technological frameworks, economic models and socio-cultural parameters.

What underpins this paper is the intention to uncover Malaysian EO in becoming global archetypal capitalists in the midst of a complex socio-political, history and economic background. The impact of culture on entrepreneurship is profound, especially in the body of EO knowledge (Chelariu et al., 2008; Man and Lau, 2005; Saffu, 2002). Yet et al. (2008) contend that there are other contextual variables that shape values, motivations and actions of entrepreneurs in emerging economies such as Malaysia.

This paper maintains focus on the information, computer and telecommunication industry as it has substantial growth opportunities and a dynamic intellectual property position. In Malaysia, the recent government agenda is to implement measures to ensure Malaysia rise to become a high income nation by the year 2020. The ICT industry stands as a choice destination for ICT-based investment (Yapp, 2008) as well as one of the twelve new key economic critical areas. ICT SMEs are equipped with innovation capabilities, incentives, subsidies and training to become parts of the global supply chain.

Borrowing from the success story of Silicon Valley, the Malaysian government has built the city of Cyberjaya in order to stimulate transnational economic alliances and foster entrepreneurial governance of the local ICT-based industry. Cyberjaya is a new planned township with a science park as the core that forms a key part of the Multimedia Super Corridor in Malaysia. It is located in the district of Sepang, Selangor and is situated about 50 km south of Kuala Lumpur, the capital of Malaysia. Against this background, though, debates still ensue on whether or not Malaysian SME's entrepreneurs can become archetypal capitalists who will spur innovation and backbone their economy. How has the new generation of Malaysian entrepreneurs managed to champion the economy and foster entrepreneurial munificence in their business landscape?

This paper explores the issue by reviewing the EO of Malaysian ICT SMEs. Subsequently, the methodology of the study summarized and the findings discussed.

Finally, we address the major implications of the findings in our conclusion and offer recommendations for future possible research endeavors.

LITERATURE REVIEW

In its essence, Malaysian ICT entrepreneurs are in the midst of various challenges. Aside from those challenges specific to the industry such as issues of rapid technological and business cycle, innovation factors such as spending on research and development (R and D), skills and productivity, like their national counterparts in other sectors, little is known about Malaysian ICT SMEs contribution to gross domestic growth (GDP) and their entrepreneurial orientation. These limitations become a major economic concern for Malaysia due to two pivotal reasons: 1) SMEs are sources of innovation and seedbed for entrepreneurship, 2) SMEs are the backbone of the economy because they account for 99 percent of 519,000 total business establishments in Malaysia (United Nations Development Program, 2007). The same report by the UNDP (2007) also conclusively suggests that policy reactions for SMEs to some extent lack coherence which then leads to duplications among agencies and shortcomings in the delivery systems. This paper on the other hand, posits that the underlying reason for the incoherence and shortcomings may be also due to the eclipse in the body of information concerning SMEs. Researches that provide data for assessing development needs, targeted programs, success stories and conclusive identification of SMEs especially in the Malaysian ICT sector are still scarce.

Currently, there is a total of 1,274 active ICT companies in Malaysia (Kaur et al., 2008). The types of businesses range from Internet-based business solutions and services providers to software application and services providers. In some of the sectors, Malaysian ICT companies have provided world-class applications including financial services industry (FSI), telecommunications (Telco) and e-Government services. The Multimedia Super Corridor Malaysia, through its industry development programs has produced globally competitive ICT companies delivering award winning solutions and world class service. These leading companies, which mostly start as SMEs, have successes in their deliveries across continents covering Asia, Europe, US, Africa and the Middle East. Some of the businesses include providing mobile trading technology for the financial services industry in over five continents, offering world class software testing solutions and services, generating advanced non-coding software development tools and services, and developing a total airport management system and services to more than 20 international airports (www.ameinfo.com, 2008).

From the basis of EO, this discussion views that there may be similarities and dissimilarities of behaviors, values and strategies which Malaysian ICT entrepreneurs practice in order to survive their businesses into long-term growth. In terms of this, entrepreneurs are basically differentiated from others by their risk taking, proactiveness and innovation (Covin et al., 1990), competitive aggressiveness (Covin and Covin, 1990; Lumpkin and Dess, 2001), and autonomy (George et al., 2001). This study replicates the dimensions of previous studies within the boundary of Malaysian ICT SMEs to generally theorizing the concept of EO. By exploring unique characters

of this group of entrepreneurs, the kaleidoscopic view of EO matures across different settings.

METHODOLOGY

This study applied a mixed method of inquiry consisted of two concurrent phases, namely 1) quantitative and 2) qualitative. Practically, this effort would ensure that the findings engender valid and reliable contents, while encompassing the idiosyncrasies of SMEs in Malaysian ICT sector. This combined inductive and deductive approach hopefully could probe the issue, challenges and strategic development of SMEs with non-overlapping weaknesses, in addition to their complementary strengths.

Based on the literature survey on EO, we developed a questionnaire based on a preliminary framework of seven dimensions. When designing this questionnaire, ideas were sought from small and medium enterprises corporation (SME Corp), a government agency which is responsible in sustaining development of Malaysian SMEs in all sectors. Well-established dimensions of EO studies earlier mentioned in the literature review were adopted in addition to few new dimensions that looked into the entrepreneurs' leadership and operational skills specific to Malaysia. The respondents to the survey were owner-managers of the business. We systematically selected at random 380 respondents, using a list of SMEs in a directory compiled by Malaysian Development Corporation (MDeC).

The qualitative phase expanded the understanding of in-depth problems, issues, challenges as well as practices and culture of the SMEs in the ICT sector, tracing their phenomenal experiences and life that cannot be captured through statistics. We adopted a case study approach in which one-to-one open-ended interviews with 24 SMEs' owner-managers already involved in the survey were carried out. The companies represented a broad spectrum of demographics, namely in terms of geographical locations, shareholders and ownerships, companies' age as well as sales turnover. Almost equal number of either mix or totally-owned non-Malay (Chinese, Indians and foreigners) and wholly-owned Malay companies were selected for the qualitative study. Sixty four percent of the companies were classified as young and growing (one to three years in operation). Two-third of the companies were selected from the Klang Valley while the rest from either the north or south of the Peninsular. The 24 respondents were divided into three groups, based on their financial performance: 1) Successful (sales turnover: >3 million ringgit; 2) surviving (sales turnover: < 3 million to 50 thousand ringgit; 3) hardly survive/failure (sales turnover: < 50 thousand ringgit).

We transcribed the discussion particularly to determine themes that illustrated important issues and problems pertaining to the SMEs. There were searches for patterns that could help explain the resemblance of structure of the SMEs in the ICT sector to draw meaningful implications.

FINDINGS AND DISCUSSION

The final number of completed questionnaire was 141 respondents. 70% of the respondents were involved in offering ICT products and services while 18% in ICT products, services as well as training. A few of the respondents (five percent) just offered trainings to their clients while 8% of the respondents provided other information technology (IT) businesses such as providing dedicated network solutions for critical industries, particularly oil and gas. As for the 70% of the first group, their businesses ranged from 1) creative multimedia, 2) software development, 3) hardware designs, 4) internet based businesses and 5) shared services and outsourcing.

Both quantitative and qualitative results supported eight EO constructs that built the entrepreneurial orientation of ICT SMEs in Malaysia. Based on 43 perceptual questions in the questionnaire, each grouping of the EO constructs were explored using factor analysis, the result of which is depicted in Table 1.

In terms of the qualitative inquiry, Table 2 depicts the summary of the qualitative respondents' demographics in terms of the company's ownership, age, location and sales turnover. The eight EO constructs constitute the following:

Entrepreneurial leadership

The first EO construct as entrepreneurial leadership. This reflects the entrepreneurs' ability to connect with both the internal and external environment. The internal environment here, concerns the entrepreneurs' leadership style in empowering their staff to make routine/daily decision making processes. Such autonomy is controlled by the entrepreneurs' ability to set specific mission, vision and goals for each staff to pursue achievement and success. Meanwhile, on the external outlook, a successful entrepreneur in this study reflected high alertness towards new opportunities in his/ her environment. Such an entrepreneur also maintain strategic alliances with partners, while taking after sales services as priority as a way to sustain customers' loyalty.

From the qualitative probe, 100% of owner-managers interviewed showed drive through their experience in setting up their businesses, venturing into series of events and ideas that were uncertain and continuously persevere for achievement. "I keep getting up every time I fall. I will never say die. During the Asian Financial Crisis of 1997, I even have failed to pay salaries of my staff. But, I informed them from time to time of the company's development…and things get better... next year we aim to earn four million in profit…" (A successful Malay firm in Klang Valley).

Leadership style also concerns the entrepreneurs' ability to mentor and guide their staff in a participative manner. The respondent from a surviving Malay company stated that "my ability as a chief executive officer (CEO) to project a 'fatherly' figure and takes a 'teacher' kind of approach makes every staff feel welcome to voice their opinions and committed to give their best efforts". An owner-manager from a surviving non-Bumiputera company explained the importance of inculcating the culture of confidence and positive attitude in him and his staff.

The owner-manager expressed "I always make my staff believe that they can be successful and be somebody. Only then they can convince the clients and in the

Table 1. Exploration of EO constructs of Malaysian ICT SMEs entrepreneurs**.**

Questionnaire items	Factor							
	I	II	III	IV	V	VI	VII	VIII
I am driven by achievements and success	0.796							
I make sure that my company achieves its goals	0.711							
I take risks for the benefits of my company	0.700							
I control the internal affairs of my company	0.689							
I always find new opportunities and ways of doing things	0.646							
The company's direction is aligned to our vision and mission	0.586							
Our management maintain strategic alliance with our partners	0.505							
Our management empowers employees in doing daily jobs	0.425							
Our company pays attention to after-sales service seriously	0.418							
This company constantly looks for ways to create its own brands		0.677						
This company is good at identifying markets for its products		0.676						
This company is clear of its strengths over its competitors		0.665						
Ensuring process control in our company is important		0.660						
Our company practices continuous improvements all the time		0.599						
We are always aware of our competitors' strategies		0.576						
The company rewards good workers		0.569						
Our company has our own business operating system		0.565						
We are good at maintaining customer relationships		0.506						
Company has been involved with new processes			0.803					
Company has been involved with new products			0.780					
Company has been able to create new markets			0.710					
Company has been able to establish new sources of supply			0.643					
Company has been successful in producing world class products			0.604					
Our employees have the right skills to manage quality				0.766				
Our employees have the right skills to manage our business				0.735				
Our employees have the right skills to manage production, service and capacity				0.696				
Our company has employees with the right skills to manage methods of production, technology and services				0.658				
Our company has employees with the right skills to manage inventories, products and services				0.632				
Our management solves problems decisively				0.579				
Our management makes decision with confidence				0.534				
Our management continuously acquires information				0.431				
Our company practice: "produce/buy first, and then try to find a market that needs our products later"					- 0.620			
This company is managed through a formalized structure					0.552			

Table 1. Contd.

This company conducts market research from time to time					0.495			
Setting the right prices for our products is always a problem at this company						0.701		
Our management has no problem securing cooperation from all parties						0.506		
Setting the right prices for our products is always a problem at this company						0.701		
Our management has no problem securing cooperation from all parties						0.506		
Company's cash flow can support its repayment for the next 6 months							0.740	
This company always have positive cash balance							0.667	
The company maintains its sales report on a daily basis							0.599	
This company never fails in any loan application							0.522	
Having some form of certification is important because it shows to our clients that we have strong quality system								0.737
Company has an up-to-date inventory records								0.521
Eigenvalues	12.72	3.26	2.54	1.95	1.78	1.58	1.45	1.38
% of variance explained	29.6	7.58	5.93	4.54	4.14	3.68	3.38	3.21
Cumulative variance explained	29.59	37.14	43.11	47.57	51.71	55.39	58.76	61.97

end, the clients trust them. It is a day-to- day process of winning the hearts of our employees first, then our clients".

Dynamic management

Within this paper, dynamic management is characterized by vigorous and effective actions in terms of planning, organizing, leading and controlling all business functions. In terms of planning, the successful entrepreneurs constantly drew roadmaps in creating new brands and offerings based on market intelligence. In terms of organizing and structuring, they developed their own internal operational systems, process control and strived for continuous improvements. They rewarded excellent employees. They were aware of competitors' strategies and strength, while maintaining strong customer relationships. The findings of the qualitative interviews converged with the survey results. All the 24 entrepreneurs interviewed reflected high managerial drive. They showed strong passion toward planning, sustaining and controlling the overall operations of their businesses. All respondents viewed core managerial concerns such as finance, marketing, human resource and R and D as important and they strategically control all these areas.

The qualitative probe also found that the entrepreneurs had vision and future planning that spanned beyond five to ten years. They had dreams and strategic insights to create home-grown technology, strengthen their brand, becoming billion dollars companies, explore partnerships with global ICT companies and buy other companies. One out of the 24 entrepreneurs (successful Malay SME in Klang Valley) as at 2008 had already bought its partner which was a company based in Sydney, Australia while opening a branch in Georgia, USA. The company is currently in the process of negotiation with the government of Zambia to provide accounting solutions and systems.

In terms of making strategic and confident decision, an entrepreneur (a successful Malay SMEs in Klang Valley) indicated: "One of the things any business owner must learn is to divorce ties that are no longer working…we have to be practical ... like a romance gone sour, we had to look deep within us to see where we had gone wrong and then parted…" The entrepreneur ended the contract with a global company dealing with search engines although, that 'partner' was the reason which made his company came into being. The entrepreneur added: "After three years that company we partnered became a passé. Many faster and accurate search engines had emerged. We have to move on to another track of business. After that we became one of the early

Table 2. Summary of the SMEs and demographic factors- ownership, company's age, geographical location and performance.

SME/ Interviewers	Ownership		Company's age			Geographical location			Performance		
	Mix/Totally non-Malays	Malays	Young (1-3 years)	Growing (3-7 years)	Matured (> 7 years)	Klang Valley	North	South	Successful *sales turnover > 3 million*	Surviving -*sales turnover: <3 m- 50 k*	Hardly Survive *sales turnover< 50 k*
E1	_/			_/		_/				_/	
E2		_/			_/	_/			_/		
E3	_/		_/			_/			_/		
E4	_/			_/		_/				_/	
E5		_/			_/	_/				_/	
E6		_/			_/	_/					_/
E7		_/		_/		_/					_/
E8		_/		_/			_/				_/
E9		_/			_/	_/			_/		
E10	_/				_/	_/				_/	
E11		_/	_/					_/			_/
E12		_/	_/			_/					_/
E13		_/	_/			_/					_/
E14		_/	_/			_/					_/
E15	_/				_/	_/			_/		
E16		_/			_/	_/				_/	
E17	_/		_/				_/			_/	
E18	_/		_/				_/				
E19	_/				_/	_/			_/		
E20		_/		_/		_/		_/		_/	_/
E21	_/		_/				_/			_/	
E22	_/		_/					_/			_/
E23	_/				_/	_/			_/		
E24		_/		_/		_/				_/	
Summary statistics (%)	46	54	37	26	37	75	17	8	26	37	37

adopters of open source in Malaysia".

Innovativeness

The factor analysis pooled together aspects of continuous involvement in new processes, new product development, and creation of new markets and establishment of new sources of supply. The qualitative interviews further revealed that there were recurrent patterns of creativity or in other words identification of new ways of 1) doing business, 2) capitalizing opportunities as well as 3) achieving goals, 4) venturing uncertain territories. For instance, among the owner-manager interviewed, there was non-Malay and successful entrepreneur displayed such abilities of creating new businesses. This Chinese entrepreneur was the first to create prepaid card business for mobile phone in the 1990s for Malaysia. Today, he wanted to repeat history in being the first, as he came up with the idea of ICT kiosks, based on a franchising concept. The entrepreneur said: "This is a new way of doing business. We want to generate a pool of young technopreneurs out of those so many fresh unemployed graduates by being our ICT kiosk franchisees".

The entrepreneurs demonstrated a sense of creativity and innovation when they shared dreams with us in developing a home-grown technology and branding. A non-Malay and surviving entrepreneur saw this opportunity in mobile technology and keen to look for partners who could cross technologies.

Furthermore, the qualitative probe showed that innovation could also be traced from the SMEs' dynamism in charting new business models and expansion approaches.

To illustrate, most of the Malay ICT SMEs admitted that in the beginning of their businesses, they relied on government tenders alone. They said this did not work anymore because currently the trends of large government tenders demanded comprehensive packages. They would face difficulties in winning because it was difficult to be 'jack-of all trades' in the ICT industry. To encounter this, they built strategic alliances with either non- Malay companies or foreign ICT firms. Depending on the expertise, they formulated coalition and entered the contract under one company name. Once they gained and signed the contract, they divided work and income accordingly. This has been repeatedly mentioned in separate sessions of interviews with entrepreneurs from the northern, southern and Klang Valley areas. They said by focusing on one's expertise while letting other jobs within the same contracts be done by other experts, cost and time can be at the base, whereas quality of work would be at its apex.

Technical excellence

This orientation encapsulates two dimensions namely: 1) The ability to perform; 2) the need for the right information to perform. While the entrepreneurs need to equip themselves with knowledge about the industry, they also need to provide staff with the right abilities and skills to perform the whole business processes. In this case, training and development in production, quality management, service and capacity, methods of production, technology as well as services differentiate the hardly surviving, surviving and successful groups of entrepreneurs. The successful entrepreneur's provides staff with autonomy to perform and solve problems efficiently and effectively. Evidently, these learning practices are executed when the entrepreneurs continuously encouraged their employees to acquire recent and relevant information with regard to the ICT industry. Then, they also disseminate information back to the staff every time they scan the industry environment. To them, information is critical and thus the staff requires continuous flow of information that can be gained through training, electronic forums and IT workshops. Most of the entrepreneurs interviewed put high importance on training new staff. They also reward employees.

Another non-Malay entrepreneur who is classified as only surviving claimed: "I always make my staff believe that they can be successful and can be somebody. Only then, they can convince the clients, and in the end, the clients trust them". Issue of competent employees was the most salient theme in this qualitative inquiry. All 24 entrepreneurs voiced their concerns on the future potential of ICT workforce in Malaysia. They repeatedly mentioned that the fresh IT graduates required high-leverage training on creativity, IT skills and knowledge, positive attitude and willingness to learn, and English proficiency. They viewed their concerns on both Malay and non-Malay fresh graduates.

A successful, mix non-Malay and foreign SME that has branches in Klang Valley, London and Bangladesh clearly noted: "Maybe the culture of being subservient made the employees tend to only follow their bosses. They just do the necessary, whereas employees in UK and America question every detail of what the clients want before they start designing our custom-made software. They go beyond what the boss required. Now is the era where we want our programmers to have that skills before they start designing". The entrepreneur further added: "In terms of IT infrastructure, Malaysia won over many other places in the world, but the difficulties of getting good people made it a challenge".

Marketing excellence

The quantitative analysis justified that a successful SME is good at identifying markets' needs and demands first, and once information were tightly gained, production begins. A successful company in the ICT industry conducted research and developed its market intelligence from time to time. As such, the company is operated and managed through formalized structure. Successful SMEs always start with the market needs before producing any product. They did not believe in build or buy first and then try to find the market that needs the product later. The principle of market first as advocated here embraced the notion of good modern business practice which denotes market-led orientation. Being market-led is much so crucial in the ICT business where competition and product proliferation is quite widespread. Successful SMEs in this study demonstrated how they had carefully studied the needs of the market before designing ICT products, regardless if the product is simple or complicated.

All 24 entrepreneurs in the qualitative study admitted that they themselves went out to do marketing and searched for clients. Non-Malay SME in Klang Valley concentrates on being a solution provider for the banking and financial sector shared: "I want to be different from foreign IT companies that pushed their standardized products to our local banks. I go the other way round. I ask what their needs, design the solutions, train their staff on how to use and be there for them whenever they need after-sales services. It's really customization that I promote to my clients".

Creative marketing approach was most helpful to SME entrepreneurs to survive. An entrepreneur in this study explained how he first entered the government market. In 2003, after three years of conducting R and D, he succeeded in coming up with a new product which was basically a data center. High amount of money had been spent for R and D, and yet there was no buyer. He then approached one of the main government departments and requested a place to 'pre-test' his product. He shared his experience: "I have a new data center type of

application, which was much cheaper than western products and I need a place to pre-test. I told them I could not do the pre-test at my company because we were too small.

They bought my idea. During the six months pre-test, there were so many 'bugs' and complaints. We attended to all their complaints without asking for a single cent. Right after six months, after a lot of discussion, I knew they were interested, and later on they become our client. Then this spilled-over to other departments" (Successful, Malay, Klang Valley).

Critical to marketing excellence is the organization of the SMEs which must be formally structured (not ad-hoc). This lent to systematic flows of work. Informal structure opens up to unsystematic authority and chain of commands in the company, which might lead to haphazard decision making.

The entrepreneurs also realized that formal structure was crucial in order to grow big. In terms of this, a successful Malay entrepreneur mentioned: "In the long run, I want to see my company runs smooth, has a much formal structure so that things continue to happen, even though I am traveling abroad to find new markets or convince global partners".

Stakeholders networking

Both the quantitative and qualitative approaches confirmed it that ICT SMEs relied heavily on solid networking with all stakeholders. The quantitative results demonstrated that successful companies in the ICT industry have no problems in securing cooperation from all parties/stakeholders. This includes the government intermediaries, partners, information providers such as research companies, suppliers, vendors, and special interest groups such as the media. This aspect aids them in solving problems concerning on how to effectively approach the markets, such as in terms of setting prices, as well as providing the right products and services. From the qualitative aspect, all 24 entrepreneurs expressed time and again that networking is "king" to succeed in this industry. Networking was deemed important at times when they need to 1) ally and win large government and commercial projects; 2) capture new markets overseas; 3) gain, disseminate information regarding the industry development.

Networking for the successful entrepreneurs means multitudes of opportunities. For instance, when they decided to start businesses and left their previous jobs, they actually have already set the tracks for strong networks of secured potential clients. A non-Malay entrepreneur from the north (Penang) had just started business two years ago after leaving his job in Singapore. In just two years he had already earned profit close to RM2 million. The entrepreneur said: "I contacted clients, government officials and suppliers whom I've known for years while working with the Singapore-based company".

Several non-Malay and Malay SMEs in separate interview sessions openly indicated: "Doing business in Malaysia is about whom knows who. It is a matter of 'skin' and 'kin'. You cannot walk into a project on your own. When you compete for projects, you must know who would be the decision makers. Yes, quality work and previous portfolios are important, but at the same time, you must take leverage of your partners in the gang, who are at most close (in terms of 'skin' and 'kin') to the decision makers to do presentation and negotiation".

In addition, all entrepreneurs across locations, ownership, companies' age and performance viewed networking as crucial in surviving. As the 21st century is known to be a 'connected economy', the entrepreneurs continuously sought networking among partners, government officials and large players within and beyond the industry. In fact, in certain business circumstances, they even collaborated with competitors. To them, to be technically competent, cooperation across ethnicity and backgrounds was essential. They benefited on each others' strengths. To them, ICT industry is different from other sectors, as they stated: "One firm just cannot eat the whole pie itself".

Financially independent

ICT SMEs in Malaysia started their businesses via parsimonious planning and zero loan or bootstrapping, as postulated by Bhide (1994). Out of the 24 entrepreneurs interviewed, 23 of them used their savings, identified and focused on one major area of ICT when they started their businesses. Only when they had gone through three to four years of operations, that they tended to re-create new areas of business as well as find ways to get loans in order to expand their businesses. This was the time when they began to seek funding from governments, financially strong venture capitals or partners.

There was even a classic case whereby a successful Malay entrepreneur did not even have savings in the beginning. What prompt him to start a business was merely passion and ideas. At the age of 25, the entrepreneur left his job to start an ICT company. For six months the entrepreneur stayed in one corner of his friend's office, borrowed a personal computer and started building networks. After six months, "he started getting sales for the hard wares, repaid his friend, as if he was renting the office". A successful Chinese entrepreneur mentioned: "Idea is more important than money. Build on that idea, and then share it with people who have money. The next thing you know, you will have the capital".

Positive cash balance is most important in characterizing financially able SMEs in the ICT industry. Positive cash flow is vital to pay recurring monthly expenses, the most important being salary, rent and amenities. The successful group of SMEs has cash flows that can

support their loan repayment for the next six months. A formalized financial system is crucial item in ensuring financial competencies. This concerns the SMEs' ability in maintaining continuous updated reports on revenues and sales. In addition, a financially strong company in this sector should never fail in any loan applications.

From the qualitative probe, we found that maintaining cash flow is also very crucial for the SMEs. What more when they viewed that seeking funds from governments or financial institutions required time and collateral. A Malay entrepreneur, who was in the "successful" category, maintained record profit from its first year operation to its 12th year in 2008. There were times where profit decreased (especially during the economic and financial crises), yet it had never touched zero. In the current year (June, 2008), it has managed to reach its target net profit of RM12 million. The secret to maintaining positive cash flow and lean expenditure was through the strategy of cost cutting. This entrepreneur said: "When we want to sell our software to overseas clients, usually we conduct meetings and presentations using video conferencing first. Only there is development, we fly and meet them. We always take economy seat when flying… now; we travel by Air Asia (Malaysian low-cost airline). As of now, we never apply any funding. It takes time to apply loans or funds. We rather use that time to find new business". In another part of the interview, the same entrepreneur talked about his new office in Petaling Jaya, which then reflected his strategic financial management: "At the moment, we are renting. We don't want to buy now, because it is expensive. We'll see how the property market goes… then we decide". The entrepreneur showed prudence and sensibility in staying cost-effective as he realized the industry he engaged in requires constant cash flows to focus on basic investment of R and D, staff training as well as marketing purposes.

In another round of interview, a surviving Malay entrepreneur, who was once a CEO of two multinationals based in Malaysia explained: "Different scenes require different mode of operations and structure. We have to consider the spending carefully. When the economy is gloomy like now (January 2009), we cut down our structure to the most cores. This is an emergency mode. It is different from the normal and expansion mode where you operate with more people, more departments".

World class quality focus

World class quality focus is characterized by goods, services, and processes that are ranked by customers and industry-experts to be among the best of the best. This designation denotes standard-setting excellence in terms of quality 1) design, 2) performance, 3) customer satisfaction, 4) inventory records, systems and 5) value when compared with all similar items from anywhere in the world. Therefore, certification on quality is important for ICT business. The market places a lot more confidence on the product when it has been certified by the authority such as government ministries and international authorized bodies. This is particularly so when there are proliferation of ICT products offered by both local production houses and foreign ones. To local production houses, especially those whose brands are not well established and are new in the market, product authentication will translate into product acceptance.

The factor analysis identified this construct as ability to work hard to attain various certifications such as those concerning quality and especially intellectual property rights. The successful ones were unlike some various other entrepreneurs in the 'surviving' and 'failure' categories who claimed that working towards authentication and certification would only add cost to the end-product which finally their clients would have to bear.

During the qualitative probe, we observed that successful companies took great concern on quality have systematic, practical, prudent and professional office operations, while keeping long-term goals intact. Their office interiors were simply furnished, yet employees were well-informed in their tasks. They operated like strategic corporations, except that the layers of management were more horizontal and thin. This led them to be more nimble and fast in making quality decisions and act upon those decisions quickly.

A Malay entrepreneur resided in the successful group talked about how his company was awarded as top performance 300 ICT SMEs in the Asia Pacific by Deloitte and Touché for the year 2007. His company ranked at number 270 out of 500,000 other companies across Asia Pacific. To him, having such certification and acknowledgement was important as it reflected his company's strong focus on quality systems and performance. He said that it added to his company's branding, especially when he tried to capture overseas markets.

Two entrepreneurs stated in the interview that world-class quality was related to offerings competencies of the designers/programmers. One of them said: "I've worked with German programmers and I could see that their mentality towards quality is different from ours. It has to be perfect from the first time. Like when making a program, they ensure everything is proper. It is first time right. That is why they can complete a project within three months. Our local programmers need to improve on that: bother about the roof or wall leaking, so that we do not have to take three years to keep repairing the software." In a nutshell, the entrepreneurs realized the importance for Malaysia to prepare competent employees for the industry. Abundance of competent talents supports the entrepreneurs in designing world class products that meticulously look into every detail aspect that fulfill clients' expectations.

THEORETICAL IMPLICATIONS

The availability of empirical investigations on EO in

high-tech sectors of emerging economies is still limited. This paper unveils the methods, practices, motivation, decision making style and strategies of entrepreneurs in ICT SMEs in Malaysia. Tracing the findings in terms of EO, we understand that there are three levels of competencies that the entrepreneurs have as they survive their high-tech ventures from being micro start-ups to formally-structured SMEs.

The first level of competency includes the self-intangible traits discovered within the individual owner-managers. In particular to this research, we define it as 'entrepreneurial leadership'. Beyond the traditional traits of risk-taking, achievement-oriented and proactiveness, entrepreneurs must also have the quality to mentor their staff and influence change processes within the organization. A sense of backpack mentality among the surviving entrepreneurs, based on their independence from government support explains the self-efficacy and resilience to prudently manage their businesses and demonstrate such exemplary behaviors toward their employees. Having a backpack mentality is pivotal because Malaysian ICT entrepreneurs, unlike their counterparts in matured economies has less support from substantial private venture capitalists, partners among large businesses, non-governmental institutions as well as grassroots communities. They also faced challenges in securing loans from financial institutions that require sound collateral. Yet, there is a group of thriving entrepreneurs who maneuver such an eco-system that has weaker numbers of role models and high-skilled human capitals. Their creativity lies on strategically adapting to the environment as they confront institutional procedures, competitive pressures and scarce resources. The affirmative action, in provision to more opportunities given to the Malays/Malay has positively encouraged the non-Malays (Chinese and Indians) to continuously grow and contribute to the industry. In the case illustrated, the Chinese entrepreneur who developed a franchise ICT kiosks helped fresh graduates of IT involved in business, and this project was opened for all ethnicities. In the long run, sustainability of such an entrepreneur may positively influence the institutional environment of Malaysian ICT industry, in terms of growing social entrepreneurship.

In essence, 'entrepreneurial leadership' can be a dominant EO factor that could be transformed into nurturing potential entrepreneurs. Our concern is that SMEs are the seedbed of entrepreneurships for most emerging economies. An SME should breed multiple other SMEs. An entrepreneur should be able to grow, mentor and develop another set of entrepreneurs. This process, if turn into a culture, could generate and sustain a healthy eco-system within an emerging economy. The findings indicate an idea of how current entrepreneurs should act as role-models who mold their employees to first be intrapreneurs within the firms. Later on, these employees may set their own trail in venturing into their own businesses. The boundary of this empirical study precipitates a hypothesis that Malaysian SMEs do consist of surviving entrepreneurs who have acquired certain level of entrepreneurial leadership and alertness thatmay contribute towards sustainability.

The second level of competency concerns the functional competencies across all areas of business operations. In this research, we discovered that all the ICT SMEs involved in the research have sustained business for more than five years and were led by the founders. Over time, the founders developed their experience to effectively manage growth in their businesses. Professionally, they translate the mission and vision of their firms into operational task, and in this conclusion, such a level of competency consists of six elements: 1) Innovativeness, 2) human capital excellence, 3) marketing excellence, 4) dynamic management, 5) financially independent, 6) world-class quality focus. Each of these six elements interweaves and dynamically forms the day-to-day routine of the entrepreneurs.

In terms of 'innovativeness', we see that the entrepreneurs must have the alertness to pursue R and D and constantly drive their people to generate newness in terms of new processes, products, markets, sources of supply and business models. The pursuance toward a better, improved systems and processes are crucial for the ICT SMEs to gain an overall quality practices which could then help them to be accepted worldwide. This is the priority of most of the ICT SMEs in Malaysia as they build their branding and marketing competencies. This is on top of identifying markets' demands, competitors' strengths and maintaining customer relationships. This study confirms that the success at the initial stage is dependent on how well the entrepreneurs market their products and services and subsequently achieved competitive advantage for their business. This may help them achieve the world-class quality standards. There is a need to learn the technique of marketing and branding their products and services for both survival and expansion.

In terms of financial independence, there is a tendency of entrepreneurs among the matured ICT SMEs to prudently manage their cash flows. Simultaneously, they also acquire new capital resources via partners who have lucrative sources of funds. Some of the growing entrepreneurs who successfully passed through the birth period were Malays. Yet, they opted for independently raise their own capital rather than seeking government funds or even secure bank loans. They claimed the process of gaining such funds took time and involved bureaucratic procedures.

Moreover, through this research we found entrepreneurs took time to generate strengths of their human capital. The entrepreneurs conduct on-the-job training to their employees, particularly the local ICT fresh graduates. They realized that there were critical needs to develop integrated skills in creativity, critical thinking, confidence, leadership and communication. These sets of

aptitudes are additional to mastery of the IT knowledge. The entrepreneurs motivate their employees to have a sense of kaleidoscopic thinking (Kanter, 2001). Hence, the multi-tasking activities, empowerment and coaching the young fresh IT graduates complement the formal university education which they claimed as more toward rote-learning and exam-orientation.

The element, 'dynamic management' coins the formal processes and systems that embed in the management of the ICT SMEs. From our observation, we found that the physical infrastructure of the SMEs were simple. Yet, they were structured in terms of the operational methodology, discipline the employees, clarify the roles and responsibility as well as document their activities.

Finally, the third level of competency is termed as 'global competency'. This concerns the ability of such entrepreneurs to create strategic collaborations with partners and competitors and contribute to the dynamism of the industry either at the national or global level. In this research, the construct 'stakeholders networking' highlights this competency.

There is inter-ethnic collaboration between the Malays, Chinese, Indians as well as foreign nationals. We reconfirm the contemporary notion by Ferguson (2009) that Malaysian Chinese entrepreneurs' sustenance is due to their kaleidoscopic mentality to involve in inter-ethnic coalition.

When challenged with multiple dimensions of uncertainty, bureaucratic procedures and scarce resources, the entrepreneurs exploit their culture of collectivism. They exploit each others' strength either in political, social or technical expertise to create a sense of complement in their entrepreneurial strengths.

The challenging circumstances in the environment push the entrepreneurs to become flexibly adaptive in synergizing, cooperating and trusting others of different backgrounds. This evolving practice of networking beyond intra-ethnic collaboration, would spur diversity in organizations, shift traditional value chains, and might also project change in the institutional environments. By having this competency to create relationships based on trust, skills and cooperation, Malaysian ICT SMEs may have more opportunities to become partners for global ICT players. Against the theory of "competitive exclusion", Malaysian SMEs which consists of multiple races and ethnicities bound to collaborate and network together in order to achieve a certain level of entrepreneurial ventures.

The findings indicate that the spectrum of coalition vary from generating ideas, business proposals and accomplishing a whole cycle of business contracts. In this case, heterogeneity of the nation is not seen as severe limitations to grow entrepreneurships.

PRACTICAL IMPLICATIONS

Thriving in the global ICT industry is challenging for entrepreneurs in an emerging economies like Malaysia. Currently, these entrepreneurs face issues of sustainability and growth as they compete with other small domestic players, born global SMEs, as well as giant ICT corporations of matured economies that have set operations in multiple territories. To continuously grow and sustain, they merit training that encapsulate crucial areas concerning leadership, marketing, systematic management and business processes. They need exposure in advanced R and D. Any sort of continuous platforms that could congregate them together with world-class ICT providers as well as business consultants in their specific areas are needed. From this, they could learn how to further hone their capability to innovate and create based on specific target markets.

This study depicts capabilities of certain number of SMEs that could still thrive and succeed despite numerous obstacles. If proper clusters are projected across all players in the industry, then there would be clear demarcation and specific strategies to enhance capabilities of the SMEs at all tiers of development. In other words, a one size-fits-all model of development for all ICT SMEs may not be appropriate. For instance, the first tier ICT companies could be encouraged to continuously develop breakthrough innovations that could be offered worldwide. The local 'economic pie' could be concentrated for lower performing clusters. Let the second and third tier clusters (that consists of surviving and hardly surviving ones) to polish their expertise first, in the local markets.

In the long-run, with proper guiding and mentoring projects by the first-tier SMEs, hopefully these groups could also lever themselves to expand into global markets. When this occurs, we may see a constant flourish of entrepreneurs who could leap Malaysian economy towards sustainable development. It is timely that financial sectors and venture capitalists in matured economies see this as opportunities for investments. Hopefully, this study contributes to practitioners, namely venture capitalists from matured economies and born global ICT firms to develop more informed choices and in establishing support for entrepreneurs at this side of the world. It should also provide aspiring entrepreneurs with an insight of competency requirements to survive in a multicultural setting of emerging economies.

LIMITATIONS AND CONCLUSIONS

Our case studies based on 24 SMEs hopefully complement the limited 141 response from the survey. The findings may not be generalize to the population of SMEs in the Malaysian ICT sector, more so all the SMEs in emerging economies. Still, this attempt could be a good start to determine an entrepreneurial approach that contribute to defining critical success factors, as well as behaviors of ICT SMEs for long-term development in the industry. An extension of this research could be made.

For instance, future studies could examine relationships between the EO constructs identified with business performance. Future researchers can also further probe success stories as well as develop comparison studies of ICT SMEs in Malaysia and those in Asia Pacific region. There needs to be investigations on institutional and cultural implications toward growth of entrepreneurship clusters in the ICT industry.

The issues of 'what', 'why' and 'how' to stimulate and sustain creativity and innovation in this industry may differ due to context, which then lead to new theories and constructs within the realm of EO and SMEs' behaviors. Longitudinal researches, as well as in-depth qualitative studies are crucial in identifying means of how to include citizens-entrepreneurs in this region to really join and contribute impact to global ICT growth. Frontiers of entrepreneurship in the 21st century have begun to study entrepreneurship as a group rather than individuals. Researches on EO could also pave toward this arena.

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