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Intelligence Creation and Born-Global Patterns of Small Engineering Firms in Emerging Markets

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Introduction

In the process of firm internationalization, intelligence on foreign markets is required. Intelligence can be illustrated as '*individuals' abilities to understand complex ideas, to adapt effectively to the world around them, to learn from experience, to engage in various forms of reasoning and to overcome a wide range of obstacles*' (Baron and Shane 2008, p. 80). Regarding the internationalization process of small and medium-sized firms, one

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study described the internationalization intelligence process as *how* information and knowledge on international opportunities is identified, gathered, organized, and assessed (Che Senik and Md Sham 2011). Thus, in this chapter, we define internationalization intelligence as relevant cross-border information gathered by firms in support of their internationalization process.

Extant literature has indicated that reliable intelligence on targeted foreign markets enable the small high-tech firms to (among others things) recognize more international opportunities and be proactive toward international operations, as well as to accelerate their internationalization process. Viitanen and Pirttimäki (2006) suggested that relevant intelligence, for example on business, technology, product, social, and markets can substantially assist firms to strategize their international ventures by speeding up the process of product development, internationalization, and firm growth. Their study is supported by Amabile et al. (2013). All these facets of intelligence are consistent with the criteria of small high-tech firms, the knowledge-based firms in their creative pursuit of discovering and exploiting opportunities in foreign markets from inception (Bell et al. 2001; Knight and Cavusgil 2005; Madsen and Servais 1997; Prashantham and Berry 2004).

A review of the literature on internationalization reveals that diverse issues on internationalization have been discussed (i.e. Mejri and Umemoto 2010; Zahra et al. 2005). However, the subject of the internationalization process and intelligence creation within the born-global small high-tech firms in emerging economies remains unexplored. In fact, the empirical findings, which mainly involve larger firms in more advanced countries, are still fragmented (Ambos and Ambos 2009; Birkinshaw et al. 2006). This situation may impede the growth of the firms and industry in emerging economies, thus delaying their progression toward enhancing their expansion development. This in turn puts the firms located in emerging economies particularly at a disadvantage in comparison to their counterparts in the more developed economies.

In this study, we take the context of small high-tech firms in one emerging economy, Malaysia. The country, located in Southeast Asia, is in the process of transforming into a high-income and knowledge-based

country by the year 2020. For this purpose, it needs to develop the capacity of its small and medium-sized enterprises (SMEs) to become the key sector. SME is defined as '*an enterprise with full-time employees not exceeding 150 or with annual sales turnover not exceeding RM25 million*' (NSDC 2011, p. 5–6). An OECD report in 2013 shows that the SMEs sector in Malaysia represents 99 % of total business establishments. The sector contributes 32 % of the country's GDP, provides 59 % of employment, and constitutes 19 % of the nation's exports (OECD 2013). Meanwhile, SME Corp (2014) categorized the SME sector into four main areas of business: services (90 %), manufacturing (6 %), construction (3 %), and agriculture and mining (1 %). The SMEs in the high-tech industry, which is the focus of this study, are firms operating within manufacturing and services areas, which comprised the most significant number of firms.

In tandem as an emerging economy, Malaysia is leveraging on high-tech industries (Bernama 2013) in its plan to serve as a centre for the global outsourcing in the high-tech manufacturing industries (MIDA 2012). Thus, the National Economic Advisory Council Malaysia (NEAC) suggested the SME entrepreneurs in Malaysia, especially engineer-entrepreneurs, should promote products on technical/knowledge-based industries as they are equipped with technical knowledge, as well as business knowledge due to their engagement with industries in their past working experience (NEAC 2010). This knowledge base enables them to acquire intelligence on business and product opportunities, as well as technological advances. It also prepares them to be innovative and creative in building their capabilities through product and technology developments, permitting them faster entry into international operations by becoming born-global firms.

Since the subject of the small, high-tech, born-global firms' internationalization process is still an understudied phenomenon in emerging economies, coupled with a lack of empirical evidence and complexity of the issue, this study utilized multiple-case study methodology (Yin 2003). The main source of data was gathered through in-depth interviews with engineer-entrepreneurs of three Malaysian small engineering born-global firms. The purpose of this study is to seek a deeper understanding of the

intelligence creation in the internationalization process of small engineering born-global firms. The objectives are threefold: (1) to identify the characteristics and dimensions of the internationalization of small engineering born-global firms in an emerging economy; (2) to classify the types of internationalization intelligence; and (3) to understand how patterns of born-global influence the process of intelligence creation among small engineering born-global firms.

Literature Review

The Internationalization of Small High-Tech Firms

The internationalization of a firm is a complex process. Although there have been several theories and models of internationalization, there is none yet that can adequately describe the phenomenon (Etemad and Wright 1999): thus the insights must be drawn from several perspectives (Mejri and Umemoto 2010). In understanding the internationalization of small high-tech born-global firms, previous literature has emphasized four main approaches: international entrepreneurship (IE), international new ventures (INV) or born-global, the network approach, and the knowledge-based models (Che Senik 2010).

International entrepreneurship as defined by Zahra and George (2002) as '*the process of creatively discovering and exploiting opportunities that lie outside a firm's domestic markets in the pursuit of competitive advantage*'. This is an emerging field of enquiry that has created a lot of interest from scholars worldwide. Building upon the theories of entrepreneurship, the field of international entrepreneurship highlights internationalization as the process of recognition and exploitation of opportunity into a business that occurs cross-border (Shane and Venkataraman 2000). Further, McDougall and Oviatt (2000) describe that the international entrepreneurship domains may include co-operative alliances, corporate entrepreneurship, and independent entrepreneurship through exporting or other market entry modes, creation of new ventures, and venture financing. Based on these characteristics, Dimitratos and Jones (2005) described small businesses, which internationalized at a faster pace, as INVs, also known as born-global firms.

Born-Global Patterns

Oviatt and McDougall (1994) defined born-global firms as those which '*from inception, seek to derive significant competitive advantage from the use of the resources and the sale of outputs to multiple countries*' (p. 49). Born-global carries other names such as 'international new ventures', 'committed internationalists', and 'knowledge-intensive firms, which are internationally focused' (see Bell 1995; Jones 1999). According to Luostarinen and Gabrielsson (2004), born-globals are firms that begin their globalization efforts immediately after their establishment, without any domestic or local operations. Or these firms pursue internationalization simultaneously while establishing strong foothold in their local markets. Or they are already well established in the domestic markets, but move toward a rapid and a more committed internationalization because of certain circumstances (Bell et al. 2001). Several authors suggest a time frame of born-global patterns, which can occur within three years of establishment (Knight and Cavusgil 2004), within six years (Oviatt and McDougall 1994), or extended to seven years (Jolly et al. 1992), and eight years (McDougall et al. 1994). Regardless of any description given, one distinguishing attribute of born-globals is a strong business network at both domestic and international levels (Oviatt and McDougall 1995).

Bell (1995) argues that the concept of born-global emerged due to some evidence of many firms entering into the international markets more rapidly, with some firms internationalizing right from the start. These firms avoid incremental patterns toward internationalization. Knowledge of the products and markets acquired from the internet (Gabrielsson 2005), as well as the change in mindset of entrepreneurs by becoming more entrepreneurial in their behaviuor through being innovative, proactive, and risk-seeking (Lumpkin and Dess 1996), would eventually shape the pattern of their internationalization (Luostarinen and Gabrielsson 2004). The network approach emphasizes the firms' strategic links with others (Johnsen and Johnsen 1999), while international new ventures involves firms that internationalize from inception or at a faster speed by building competitive advantages (Oviatt and McDougall 1994).

Previous studies have related firm internationalization mainly to the multinational corporations and their process of internationalization, yet it is argued that internationalization can be the strategic actions of small businesses avoiding incremental process and penetrating into international markets at a faster rate (Mejri and Umemoto 2010). For the small businesses targeting high-tech and knowledge-based products, the internationalization arrangement is always the key goal of the firms because they usually engage in serving a niche market demanded by exclusive clients/customers, thus eventually they would internationalize from inception (Litvak 1990).

Intelligence Creation for Internationalization

In general, intelligence includes information on everyday activities, personal, applied, and public information (Choo 1998). When we relate internationalization, intelligence, and entrepreneurship in the context of small high-tech born-global firms, it means how information and knowledge is acquired (such as identified, gathered, organized, and assessed) in order to pursue entrepreneurial international opportunities (Che Senik and Md Sham 2011). Hagen and Zucchella (2014) found that openness of the team in the born-global firms to learn from their colleagues and from their networks, as well as information available about the potential international markets accelerate their internationalization process.

The internationalization process of small and medium-sized engineering firms (SMEFs) has becoming an important issue for academic researchers (Bell et al. 2004; Shrader 2001; Zucchella et al. 2007). Robertson and Hammersley (2000) distinguish the SMEFs as firms that are equipped with an intellectual nature, employ mainly well-qualified human resources, and adopt advanced technology. Within these SMEFs, knowledge is the key asset that serves as a competitive advantage. The sales partners have the market knowledge and customer contacts, and they may be the only feasible way to get access to many markets. Thus, contacts with the customers are necessary for the company to gain knowledge about customer needs and preferences (Liisa-Maija Sainio et al. 2011). In acquiring business and technology intelligence to support this type of operation, entrepreneurs

of SMEFs need to understand the technological and market factors in the international environment. Liisa-Maija Sainio et al. (2011) also suggest that the companies can create value through technology capabilities, industry knowledge and the flexibility of the organization, thus they can accelerate the internationalization process.

Business intelligence, however, is still an infant concept, argued to be a poorly defined term, and the definitions have not yet reached consensus (Popovič et al. 2010). Based on Williams and Williams' (2007) definition, this study applies the concept of business intelligence as a set of information and analyses related to business operations that serve as the base for managerial decisions and actions. Regarding SME internationalization, we refer to business intelligence process as techniques or tools to get information about business opportunities that enable efficient and effective decision making (Hannula and Pirttimäki 2003; Viitanen and Pirttimäki 2006; Zucchella et al. 2007). It relates to acquiring information on what, who, when, where, and how, comprising of a variety of types of intelligence, including customer, competitor, market, technology, product, and environment (Tyson 1986).

The business intelligence process aims to: (1) produce general information or knowledge; (2) create organization-specific intelligence solutions to allow for a more efficient information utilization and to enhance intelligence on a firm's business environment; and (3) support understanding of an organization's strengths and weaknesses in their competitive situation (Pollard 1999). The advantages of having access to relevant business intelligence are that an SME is better able to manage its competitive situation, defend its competitive position (Thomas 2001), and eventually improve its performance by leveraging information assets within its key business processes (Williams and Williams 2007). The technology intelligence process, on the other hand, is a method of gathering information relevant to product development, innovation, and technological trends that most likely involves research and development (R&D) activities (Liao 2005; Lichtenthaler 2003).

However, English (2005) argues that in acquiring business and technology intelligence, people tend to deduce the information by their own free will, and subsequently act accordingly. We support this

notion; thus we propose that the engineer-entrepreneurs must seek business and technology intelligence activities to enable them to speed up the internationalization process. We also argue that the process of acquiring, gathering, and analysing information involves understanding the external environment as well as the internal situation of the company itself. Evidently, the existence of business and technology intelligence has significantly contributed to speeding up the process of internationalization of small knowledge-intensive firms (Bell et al. 2004).

The above review of literature highlights the importance of integrating business and technology intelligence dimensions in getting insights into the entrepreneurial activities of the born-global engineering firms in an emerging economy.

Methodology

According to Thomas (2004), the selection of a relevant method is determined by the research problems and research questions. In understanding how intelligence is created in the internationalization process of small high-tech born-global firms, a qualitative research methodology was selected. This is because the subject is understudied (Laanti et al. 2007), it lacks empirical evidence (Andersen and Skaates 2004; Welch and Welch 2004), and the issue is complex (Coviello McAuley 1999; Zalan and Lewis 2004). In gathering data, we adhered to the guidelines suggested by Eisenhardt (1989) and Yin (2003), employing multiple-case study methodology based on in-depth interviews with three Malaysian small engineering born-global firms. Qualitative data allow researchers to gain richer explanations through a deep understanding into a phenomenon (Miles and Huberman 1984).

To identify the small high-tech born-global firms, the Federation of Malaysian Manufacturers (FMM) directories as well as the companies' websites were reviewed. The selected companies were chosen based on these characteristics:

1. They hired less than 300 employees with paid-up capital of more than RM49 million which is equivalent to USD$17 million (Hashim and Wafa 2002).
2. They were owned by the Malaysian entrepreneurs.
3. They were committed to outward operations.

4. They produced high-tech manufacturing products in Malaysia.
5. They entered foreign markets in the early years of firm establishment.
6. They were located in the Small Medium Industry (SMI) zones.

Guided by these the characteristics, three SMEFs were selected, and they are disguised as *SwitchCo, SuperEnergy,* and *TeleTech*. The owners and managers of these three firms were asked if they would participate in the study and they agreed to be interviewed. The interviews were conducted at their firms, and their involvement in the study was kept confidential from the others. The interview protocols covered issues about:

1. the firms' internationalization process (i.e. first-time involvement, entry mode, market selection and coverage);
2. how the firm obtains intelligence on internationalization (i.e. sources, informants);
3. what kind of intelligence the firm needs to strategize its international operations; and
4. the impact that the sources of intelligence make on the firm's internationalization process.

All the interviews were recorded digitally and transcribed prior to the case analysis. After the analysis, case summaries were sent to the respective respondents for confirmation. These procedures are strongly recommended in the qualitative research to warrant research validity and reliability (e.g. Merriam 2002; Miles and Huberman 1994; Silverman 2010). The analysis was conducted specifically to identify patterns of internationalization, sources and types of internationalization intelligence, and its impact on the firms' internationalization.

Results

Firm Characteristics

The characteristics of the three small engineering born-global firms as well as their founders, disguised as *SwitchCo, SuperEnergy,* and *TeleTech*, are presented in Table 10.1.

Table 10.1 Characteristics of the firms and their founders

Characteristics	SwitchCo	SuperEnergy	TeleTech
Year of establishment	1978	1992	1996
Ownership	Family-owned company (100 % Malaysian ownership)	International partnership – Malaysia (70 %), India (30 %)	International partnership – Malaysia (80 %), others (20 %)
Location, size and annual sale	Located in a designated industrial area in Kinrara, Malaysia Employees: 80 workers Annual sale: US$2–5 million	Located in a designated industrial area in Shah Alam, Malaysia Employees: 60 workers Annual sale: US$3–7 million	Located in a designated industrial area in Puchong, Malaysia Employees: 30 workers Annual sale: US$8–10 million
Type of manufactured product	Switch gear and switch box	Cable joints, Power cable, and telecommunication accessories	Electrical energy products & services, and medium voltage switchgears
Founder's academic	Electrical engineering	Mechanical Engineering Masters in Engineering	Mechanical Engineering
Qualification	Local graduate	Overseas graduate	Overseas graduate
Founder's working experience	Has work experience in a multinational firm About 40 years of working experience	Has work experience in a state power company About 40 years of working experience	Has work experience in a multinational firm About 35 years of working experience
Founder's age[a]	Early 60s	Early 60s	Late 50s

Note: [a]The founder at the time of interview

As shown in Table 10.1, two companies were set up in the 1990s, except for *SwitchCo*, that was established in the late 1970s. *TeleTech* and *SuperEnergy* were owned by the Malaysian and international partners,

while *SwitchCo* was a Malaysian family-owned firm. All three were located in different designated areas for small and medium industry (SMI). *TeleTech* had 30 employees and annual sales of US$8–10 million; *SuperEnergy* employed 60 workers and had annual sales of US$3–7 million; and *SwitchCo* had 80 employees with annual sales of US$2–5 million. Both the founders of *TeleTech* and *SuperEnergy* graduated in Mechanical Engineering from overseas, while the founder of *SwitchCo* was an electrical engineer who had graduated from a local university. With their ages ranging from late 50s to early 60s, they had a broad working experience as well as networks with people at domestic and international levels.

Process of Internationalization Intelligence Creation

This section provides a brief description of the process of internationalization intelligence creation for each case company.

SwitchCo was a pioneer in selling and assembling switches for the gear and box industry, operating for more than three decades. At the time of its conception in 1978, the company was co-owned by two local partners, but they pulled out, leaving the electrical-engineer founder to manage the family business by himself. Back then, there were only two local players in the Malaysian market, although more competitors emerged later. Since its inception, the company had attempted to enter into international markets. However, lack of resources and expertise, especially in technology, was the main reason why the firm delayed going international. Since *SwitchCo* was unable to internationalize its products at the earlier stage, it strengthened its domestic position by setting a low pricing strategy enabling the firm to monopolize the local industry. *SwitchCo* began to internationalize after the economic downturn that affected Southeast Asia in the late 1990s. As a result of this crisis, many of *SwitchCo*'s business partners collapsed, pushing the company to venture out to survive. The internationalization process started through exporting, by being a supplier to some international contractors from Japan, introduced to *SwitchCo* through its business associates. By the late 1990s, *SwitchCo* had built up good image and reputation with these

customers, resulting in many enquiries about its products from foreign customers and other business associates. These customers preferred to purchase *SwitchCo*'s products, (compared to Japanese products) because of their cheaper prices. In early 2000s, the company began to manufacture its own products through a licensing agreement with one multinational company. This product development strategy provides a broader opportunity for the company to penetrate into overseas markets, as well as promotes its brand for the global markets.

SuperEnergy began its business in trading mode in 1992 by supplying electrical equipment to Tenaga National Berhad (TNB), the state power provider in Malaysia. The founder was formerly an executive at TNB and had worked previously as an engineer in an electrical multinational corporation (MNC) based in Zurich. At the beginning of its operation, the company used the TNB branding, technologies, and support. After a year of its operation, in 1993, *SuperEnergy* began to venture internationally. *SuperEnergy* first built its international relations with a manufacturer in Singapore. This happened when the founder's former colleague from his previous workplace allowed him to utilize their technology. In the mid-1990s, *SuperEnergy* then began fabricating its products using technology from Europe enabling the firm to penetrate into the European market. In the late 1990s, *SuperEnergy* co-partnered with a Sudanese business associate. The company utilized the new partner's technology to expand into the South African market. By 2005, due to the founder's connection with many MNCs, *SuperEnergy* was able to link to 150 companies all over the world. By 2009, with its technical expertise as well as managerial strengths, *SuperEnergy* has leveraged its global partnership, networking and collaboration with big construction companies in Malaysia, the Middle East, Europe, and Africa. These internationalization strategies have become the base of developing its core competencies, in preparation for *SuperEnergy* to establish its own global brand.

TeleTech started its business in 1996 as a vendor to Tenaga National Berhad (TNB), the state power provider for Malaysia. *TeleTech* produced electrical energy products and services as well as medium voltage switchgears. The owner became interested in producing the products due to his previous work experience, where he dealt with many engineering suppliers, both local and international. In late 1990s, which was about three years after the firm's establishment, *TeleTech* started venturing out

into international markets. From the founder's extensive travelling, participating in exhibitions, and attending workshops and seminars, he has created a wide network, enabling him to know more about other types of engineering products. *TeleTech* manufactured plastic-based products, utilizing a reverse cycle process, an advanced manufacturing technique, which was a cross-linked between a chemical bonding process and a radiation method process. This unique manufacturing technology was developed by a US company, with which its Indian partner was working. Through this partner, *TeleTech* became the first firm to bring the process to Malaysia. However, some of the products that *TeleTech* manufactured could not use the chemical process; in these cases, radiation has to be applied. For this purpose, *TeleTech* had to send those products to be manufactured in the Netherland. By 2010, the company began collaborating with the Malaysia Institute of Nuclear Technology (MINT) to conduct the radiation process for its products, resulting in the company being able to support radiation-based processes on its own. By the end of 2012, *TeleTech* had received the Certificate of Acceptance by the Malaysian National Electricity Board as well as by other international bodies permitting it to sell its products to local as well as many foreign markets.

Types of Internationalization Intelligence

Based on the analysis of the internationalization intelligence creation of each firm, we found that the intelligence created by the firms can be divided into two types: business intelligence and technical intelligence. The analysis of *business intelligence* revealed several emergent themes; product, markets, competitors, customers, and business environment, which support previous literature (Tyson 1986). The study also identified some new findings regarding the business intelligence constructs which are *opportunities, pricing, local and international clients and suppliers, policy, rules and regulations,* and *international relations*.

All firms share six common factors of what they sought for in business intelligence such as opportunities, products, local and international markets, competitors, customer, and environmental. These factors are

crucial business intelligence for the internationalization of the three small engineering born-global firms. Meanwhile, both *SuperEnergy* and *TeleTech* agree that obtaining relevant information about local and international suppliers adds value to their business intelligence. On the other hand, *SuperEnergy* and *SwitchCo* agree that creating international relations supports gathering of business intelligence. The findings also reveal that although *SwitchCo* was operating at an international level much later than the other two firms, it emphasized getting information on pricing as its key business intelligence. As mentioned by the CEO of *SwitchCo*:

'[…] At that time, since we were unable to internationalize the products, we learned how the competitors set up their prices. Based on that, we decided to set a low pricing strategy, so that we could monopolize the local industry.'

A unique factor that enables *TeleTech* to go international at a faster rate is its knowledge of the policies, rules, and regulations of the countries, as mentioned by its founder:

'*I believe that the information on the policies, rules, and regulations of the countries is very important. As for me I gain this information from my links with others* [pause] *for example my Indian partner who introduced me to the US company has all the information regarding the policies and regulations on foreign operations.'*

Meanwhile, the analysis of *technical intelligence* also revealed several emergent themes. The themes found in this study are technological, product development, innovation, and R&D, supporting the previous literature (Liao 2005; Lichtenthaler 2003). The study also identified some new findings regarding the technical intelligence constructs including *international certification, brand, latest trend,* and *technical pioneer*. All firms believe that technological and product developments are among the 'must have' factors in order to go international. But what speeds up the pace of the firm in going international is keeping up with the latest trends and becoming a pioneer in the technology. This is supported by *TeleTech:*

'In the high-tech industry, to penetrate oversea markets, we have to make a difference; we have to adopt the latest trend in technology. In my case, I

managed to utilize the reverse cycle process, which is the first technology being applied in Malaysia.'

The analysis of the types of intelligence created for the internationalization process of each firm is presented in Table 10.2.

Born-Global Patterns of Internationalization

Regardless of the year of firm establishment, all the three firms first entered international markets almost at the same time, between 1996 and 1997. In identifying the type of born-global pattern of each firm, several dimensions of internationalization were considered, as summarized in Table 10.3. The findings of the dimensions then enable us to ascertain the type of born-global patterns for each firm.

Table 10.2 Types of intelligence in the internationalization process

Types of internationalization intelligence created	Firm		
	SwitchCo	SuperEnergy	TeleTech
A. Business intelligence			
1. Opportunities	√	√	√
2. Products	√	√	√
3. Local and international markets	√	√	√
4. Competitors	√	√	√
5. Clients/customer	√	√	√
6. International relations	√	√	√
7. Business environment	√	√	√
8. Pricing	√		
9. Local and international suppliers		√	√
10. Policies, rules and regulations			√
B. Technical intelligence			
1. Technological	√	√	√
2. Product development	√	√	√
3. Brand	√	√	√
4. Innovation		√	√
5. R&D		√	√
6. International certification		√	√
7. Latest trends			√
8. Technical pioneer			√

Table 10.3 Dimensions of internationalization

Dimensions	SwitchCo	SuperEnergy	TeleTech
Year of establishment	1978	1992	1996
Foreign entry timing	First time: 1996	First time: 1997	First time: 1996
[a]*Pace of internationalization*	About 18 years	Less than a year	About 3 years
Degree of internationalization (*measured by level of global sales commitment*)	23 %	56 %	40 %
International markets	Japan; Sri Lanka; Pakistan; Dubai; China; African countries; Sudan; Vietnam	Sudan; Cambodia; Indonesia; China; Singapore; Middle-eastern countries	India, ASEAN Countries; Bangladesh; Middle Eastern countries
[b]*Pattern*	Born-global again	Inception born-global	Rapid born-global

Note: [a]The year of firm establishment minus the first time of foreign entry.
[b]Type of internationalization.

SwitchCo began its first international activities after 18 years of establishment. This firm took a long time to internationalize due to both internal and external factors. Although it had made an effort to penetrate into overseas markets, the process was delayed because *SwitchCo,* being a family business firm (100 % Malaysian ownership), lacked the resources and expertise, especially on technology, preventing the firm from moving at a faster rate of internationalization. Moreover, the company also faced conflicts with founding partners, forcing the remaining founder to reorganize the firm. All these resulted in *SwitchCo* focusing on creating a strong domestic market foundation. However, once it began its international operations, *SwitchCo* was able to penetrate into big markets, such as Japan and China. Based on these findings, *SwitchCo* represented a traditional firm exhibiting a gradual pattern of internationalization by taking an extended period (18 years) to begin its first international activities. Its breadth of internationalization (10 countries) and depth (23 % of degree of internationalization) characterized the *born-again global pattern* as described by Bell et al. (2001). This pattern of internationalization is further explained by Gabrielsson et al. (2008, p. 47) as firms 'who attempt

to internationalize, then turn to building up domestic support and later return to internationalization with great leaps, and a global vision'.

SuperEnergy started its foreign entry in the same year of the firm's establishment. The founder, who owns 80 % of the firm's share (refer to Table 10.1), took advantage of his acquaintance with international buyers and suppliers, as well as competitors and friends, while working with a multinational firm. Due to the firm's global strategy as well as the founder's international networks and collaborations from inception, *SuperEnergy* penetrated close and distant markets almost simultaneously after creation (within a year), and with a high degree of internationalization (56 %). The speed of *SuperEnergy*'s internationalization shortly after its establishment as a result of a high commitment to internationalize in both near and distant markets represents the theoretical definitions of a *born-global pattern* (Knight and Cavusgil 1996; Luostarinen and Gabrielsson 2004; Oviatt and McDougall 1997).

TeleTech was pulled into a number of international markets within four years of the firm's establishment with the collaboration of its Indian partner. *TeleTech* penetrated into ASEAN (Association of Southeast Asian Nations) countries such as Thailand, Brunei, Indonesia, and Vietnam. Apart from the ASEAN countries, *TeleTech* also entered Bangladesh and Middle-Eastern countries including Qatar and Kuwait. Due to its depth of internationalization (40 %), breadth as represented by the number of countries (seven) all over the world, and speed (within three years), these indicators are similar to the characteristics of the *rapid born-global pattern* as suggested by Knight and Cavusgil (2004).

Discussions and Conclusions

Our findings yield important insights into how SMEFs from an emerging market create intelligence in venturing out at faster pace via the born-global patterns. From the findings of the three firms, we learn that the SMEFs need to acquire, manage, evaluate, and exploit internationalization intelligence to penetrate into foreign markets, supporting the earlier findings by Che Senik and Md Sham (2011). Figure 10.1 illustrates

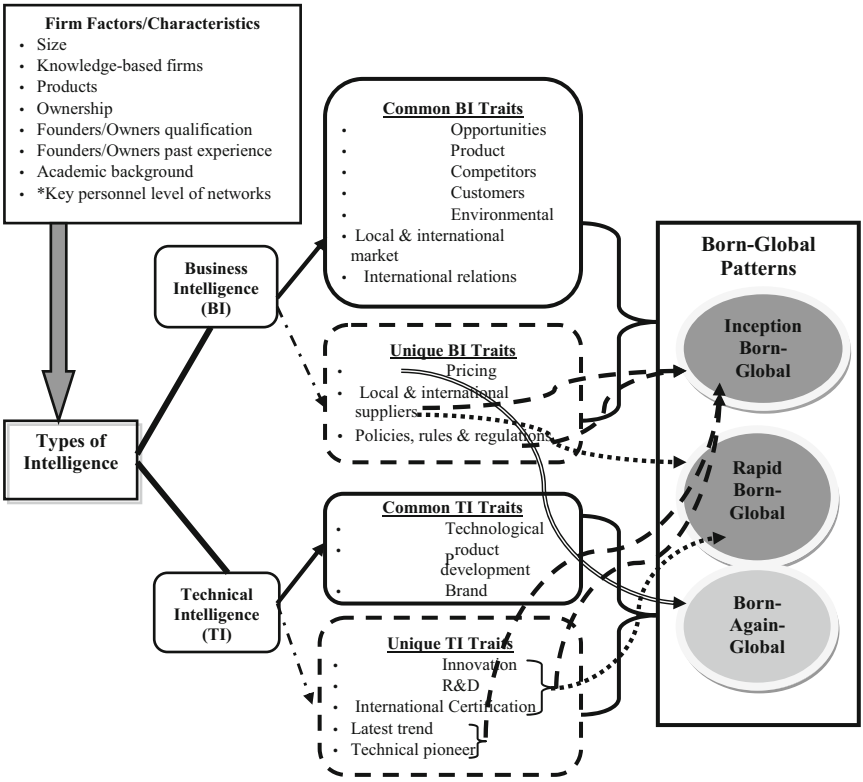

Fig. 10.1 Internationalization creation of small engineering born-global firms (*Note*: The different dash lines indicate the unique traits specifying the different types of born-global patterns)

the intelligence creation of the internationalization of born-global firms based on the study of three Malaysian SMEFs.

The process of internationalizing the SMEFs through the born-global patterns requires intelligence (business and technical) that constitutes a number of internal and external factors. However, the types of intelligence created during the process of internationalization rely on the characteristics of the firms (i.e. ownership, founder's qualification, types of products, academic background).

This study found that apart from the products that are high-tech based, an imperative factor is the exploitation of a wide-range of networks by

the founders/owners or CEO/key personnel, especially in building international relations. This is in line with previous studies that network relationships are significant to speed up the internationalization (Coviello and Munro 1997; Ellis and Pecotich 2001; Johanson and Mattsson 1988). In addition, these factors can create values which in turn provide competitive advantage for SMEs from emerging markets, which also support Liisa-Maija Sainio et al. (2011) that technology and know-how activities are the mechanisms for value creation.

Having technical knowledge, such as information relevant to product development, innovation, and technological trends, is one of the essential traits that accelerate the process of internationalization (Liao 2005). These findings support the earlier study that suggests that firms need to integrate both business intelligence and knowledge to help in making decisions, to gain competitive advantages, and to increase the firm's performance (Herschel and Jones 2005). This study also found that both business and technical intelligence are crucial in determining the born-global patterns for the small high-tech firms from emerging markets, especially regarding the speed, breadth, and depth of internationalization (Zahra 2005; Zahra et al. 2000). In sum, the characteristics of the firms differentiate the types of intelligence created during the process of internationalization, which in turn determines the patterns of born-global such as *born-global, rapid born-global, and born-global again* (Gabrielsson et al. 2008).

The findings obtained from the Malaysian small engineering born-global firms provide new insights on internationalization via a born-global pattern. In theory, this study contributes to the born-global approach through the discovery of the important traits of business and technical intelligence. Moreover, this study details the process of intelligence creation and matches it with the characteristics of the firms. This enables a prediction of the type of born-global pattern (such as *born-global, rapid born-global,* and *born-global again*) that suits the small high-tech firms from emerging markets.

In practice, the SMEFs have the capabilities to realize the born-global pattern of internationalization because of the nature of their products. Due to their dynamic environment and technological advancement, small high-tech firms should take advantage of the new technology,

advance the trends, and become pioneers in the market. In addition, small high-tech firms should equip themselves with new knowledge and become fast learners to adapt to the current demand and new situations. In terms of building international relations, the owners or founders of the small high-tech firms must make sure that they maintain their relationships with customers, suppliers, previous employers, etc.

Although this study is confined to three small high-tech firms, it makes a contribution to the knowledge of intelligence creation and the born-global pattern of small high-tech firms in an emerging market. Because of the nature of today's business and the importance of emerging markets to the world's economy, many firms are eyeing international ventures. Thus, future research should pursue more studies on intelligence creation in the context of the born-global, which should include other industries as they might contribute to a different perspective in understanding intelligence creation in the born-global internationalization process.

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