

SMEs wealth creation model: a conceptual framework

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Abstract

Given the high failure rate of small and medium enterprises (SMEs) globally, this study aimed to identify domains of SME wealth creation. The study used a developmental configuration approach with a derived mathematical model, which are powerful tools for building and relating detailed models consisting of several variables and domains, illustrating complicated and inter-related relationships between several variables. The basis for the developmental configuration applied in the present study was an in-depth review of academic literature on wealth creation. The paper concludes with the presentation of a theoretical conceptual model of wealth creation. The six major domains included in this model are human resources, technology, innovation and creativity, unit cost economies, organizational infrastructure and strategy. The new conceptual model provides an entirely new premise for viewing wealth creation at the firm level, particularly for SMEs. The study also provides different indicators for the identified domains.

Keywords: small and medium enterprises, wealth creation, innovation, performance, growth



Source: becomingfinanciallysavvy.com

Introduction

Small and medium enterprises (SMEs) are considered to be the backbone of many economies and contribute greatly to a country's wealth (Lazányi 2014). Indeed, these enterprises represent an essential source of economic growth and development in advanced industrialized countries, just as they do in emergent economies (Robu 2013). From a quantitative perspective, the Organization for Economic Cooperation and Development (OECD) claims that SMEs account for over 99% of all enterprises in the European Union and, globally, this sector represents between 60 and 70% of employment (OECD 2009a). Accordingly, SMEs worldwide are important to help meet economic, social and environmental challenges through the creation of wealth (Martins 2012). However, according to a Bloomberg study cited by Forbes Magazine, eight out of ten entrepreneurs who start businesses fail within the first 18 months (Wagner 2013). Some may argue that this statistic is an exaggeration, but there is little denial of the vulnerability of this sector, as data from OECD estimate that less than one-half of start-ups survive for more than five years, and only a fraction develop into high-growth firms (OECD 2009b). The ability of SMEs to create wealth and become sustainable thus warrants further investigation.

Wilkerson and Williams (2011) assert that the creation of wealth requires savings, investments and a willingness to forgo consumption in the present for the sake of increased wellbeing in the future. It is also argued that there is a need for identification, finance and implementation of socially profitable investments through a continuous learning process. At the firm level, wealth creation is seen as a product of technology and innovation (Pitelis and Vasilaros 2009). Therefore, organizations that have the capacity to create and grow wealth are those that consistently innovate, invest wisely and adapt quickly to the ever-

changing macro environment affecting their industry (Pitelis and Vasilaros 2009), whereas firms that fail to keep up do not always survive. Successful firms, in turn, provide superior returns for their investors, better jobs for their employees and the best value for their customers. Pender, Alexander and Reede (2012) assert that wealth generates income and income contributes to increased wealth over time. Hence SMEs, like all other firms, can create wealth. Nevertheless the dynamic environment in which they operate has made wealth creation a Herculean task (Horth and Buchner 2009).

As a result of the high SME failure rate, different scholars have proposed various drivers of performance. These drivers can be classified into four major dimensions of SMEs' operations, namely (1) the personal characteristics and competencies of entrepreneurs/owner-managers; (2) access to capital and other market resources; (3) organizational development and learning; and (4) micro- and macroeconomic issues (Berryman 1983; Guthrie, Spell and Nyamori 2002; Agarwala 2003; Hornsby and Kuratko 2003; Muller and Gangl 2003; Dess and Lumpkin 2005; OECD 2009b; Chiang and Hung 2010; Franco and Haase 2010; Lee, Park, Yoon and Park 2010; Filippetti 2011; Huang 2011; Rosli and Mahmood 2013). In light of this background, this study presents a conceptual model of wealth creation as a basis for research on how SME operators could manage their enterprises for optimum results. In the sections to follow, a sound theoretical foundation is established to identify the domains associated with wealth creation. The paper is concluded with a presentation of an integrated conceptual model of wealth creation.

Theoretical Foundation

This section covers literature and theories that shaped the development of the conceptual model of SME wealth creation presented in the next section. Theories

considered were informed by literature relating to dimensions associated with SME performance. To create an appropriate broader theoretical framework to explain wealth creation, the authors considered theories associated with the creation of competitive advantage, the contextual culture required to create an entrepreneurial orientation, as well as theories explaining how SMEs could adapt to the ever-changing micro and macro environments in which they operate.

Creating a competitive advantage

Considering the foundation of the resource-based view (RBV) theory, it is widely accepted that organizational growth, competitive advantage and sustainability are concomitant with distinguishable sets of productive resources and capabilities (Chiang and Yan, 2011). It is furthermore accepted that not all resources contribute to competitiveness. Rather, advantage is created if resources are valuable, scarce, imitable and non-substitutable (Grant 1996; Shane and Venkataraman 2000). According to Shane and Venkataraman (2000), entrepreneurial opportunities exist because different agents have different beliefs about the relative value of resources when they are converted from inputs to outputs. However, SMEs are not necessarily endowed with tangible assets. In turn, it is held that SMEs have more intangible assets, such as knowledge, social ties and external networks, managerial behavior and entrepreneurial orientation (Chetty and Wilson 2003; Keupp and Gassmann 2009). Accordingly, Gassmann and Keupp (2007) affirm that SMEs mostly achieve competitive advantage through experimental knowledge, in line with the knowledge-based view, which is an outgrowth of the RBV (Gray and Gray 2012). This view advocates that knowledge can be used to identify entrepreneurial opportunities and develop creative or novel internal solutions or external offerings. Grant (1996) advises that the analysis of organizational knowledge gives insight into the relationship

between organizational capability and competitive advantage, and he sees organizational capability as the outcome of knowledge integration. So the knowledge-based view theory provides a good conceptual analytical framework for SMEs. This framework can be extended by considering the contextual culture required to create an entrepreneurial orientation.

The contextual culture required to create an entrepreneurial orientation

Entrepreneurs are not seen to be isolated; rather, they are seen as economic actors having social relationships with a broader network (Granovetter 1985; Gulati, Nohria, and Zaheer 2000; Eyaa, Ntayi and Namagembe 2010; Lai 2012). Such a social network provides access to power, information and capital (Elfring and Hulsink 2003; Mohebifar, Sobhiyah, and Haghbin 2013). Through these relationships, entrepreneurs could gain opportunities and use resources to build new capabilities for competitive advantage (Hite and Hesterly 2001; Gassmann and Keupp 2007; Macke, Vallejos and Toss 2010).

Internally, strategy-making processes should also support entrepreneurial decisions and actions, creating an entrepreneurial orientation (Wiklund and Shepherd 2005; Chiang and Yan 2011). Here, three major dimensions are important, namely (1) innovativeness (measured by innovation in product or process), (2) proactiveness (ability to anticipate and pursue business opportunities), and (3) risk-taking (measured by the willingness to commit more resources to projects with uncertain returns) (Covin and Stevin 1991; Lumpkin and Dess 1996). To improve performance, this culture values learning.

The learning theory suggests that an organization learns when its routines, systems and policies assimilate activities and experiences (Njanja, Ogutu, and Pellissier 2012). Sapienza, De Clercq, & Sandberg (2005) assert that the greater an

organization's attention to developing new knowledge and exploiting existing knowledge, the greater its learning will be. This theory is complemented by the absorptive capability perspective. Cohen and Levinthal (1990:128) define absorptive capacity as 'the ability to recognize external information, assimilate this information and apply it for commercial use'. At the firm level, the absorptive capacity of a firm is the collective absorptive capacity of the workers. The entrepreneur's expanding knowledge base and absorptive capacity often contributes to its competitive advantage. Such learning often results in organizational adaption.

Organizational adaption

In order to survive in the contemporary operating environment, organizations are required to adapt structures, internal processes and behaviors to the contingencies they face. The contingency theory proposes that organizations adopt structure and strategy that fit the environment in which they operate to improve performance (Mintzberg 1984; Garengo and Bititci 2007; Njanja et al. 2012). Several entrepreneurship researchers stress the relevance of viewing entrepreneurship behavior-performance in a contingency framework (Lumpkin and Dess 2001; Marques and Ferreira 2009; Mooney and Sixsmoth 2013; Rahman and Ramos 2013). Environmental factors or the structural and managerial characteristics of a firm influence how an entrepreneurial orientation will be configured to achieve high performance (Mintzberg 1984; Lumpkin and Dess 1996; Covin, Green and Slevin 2006; Marques and Ferreira 2009; Pitelis and Vasilaros 2009; Bloom and Reenen 2010; Mboyane and Ladzani 2011; Bengesi and Le Roux 2014). Njanja et al. (2012), however, stress that business performance should not be measured only in terms of organizational attributes; rather, it results from the fit of these variables within a specific environment.

To summarize, factors associated with wealth creation should not be considered in isolation as creating wealth is the outcome of a combination of factors that contribute to SMEs performance. Leading theories reviewed in this section will facilitate the identification of relevant domains associated in the literature with SME wealth creation to provide an integrative and comprehensive view.

Identification of Domains of SMEs Wealth Creation Model

Methodology

The methodology adopted in this study was the developmental configuration approach. The developmental configuration approach is a tool for identifying, understanding and composing complicated and interrelated relationships between large numbers of variables (Murgler 2004; Harms, Kraus and Schwarz 2009; Kraus, Kauranen and Reschke (2011). Advantages of this approach include analyzing relationships of several domains simultaneously, capturing interrelatedness of different variables and thus building new conceptual models consisting of more than one domain (Harms et al. 2009; Kraus et al. 2011). Developmental configurations can be derived empirically via quantitative and qualitative methods (Scherer and Beyer 1998), such as clustering (Murgler 2004; Harms et al. 2009), or through theoretical reasoning (Burges and Wake 2012; Kraus et al. 2011; Miles and Snow 1978).

Additionally, the theoretical reasoning approach was used and empirical findings were utilized indirectly by including empirical evidence from previous research studies. The process involved a comprehensive review of literature in the area of study to identify relevant reasoning, concepts and theories. Deliberate efforts were made to identify the major variables or domains of the study and the interrelationships between them (Murgler 2004; Harms et al. 2009; Kraus et al. 2011). For this study, a keyword

search of “wealth creation” was conducted. The electronic databases EBSCO (Business Source Premier) and ABI/Inform/ProQuest were used for this purpose. As a result, 324 articles were identified. All of these articles are from the twenty-first century, and more than 50% of them were published between 2005 and 2014. The pyramid scheme method was also used, in which the references of all the articles were studied leading to additional literature sources totaling 56 articles. The sources were used as the first stream of literature in building the conceptual model for this paper through content analysis. Although the previous research studies mainly attempted to combine conceptual models that originally emerged independently in the various research fields, limited work was found on SMEs wealth creation (see McGrath. 2006). After in-depth analysis of the relevant literature we were able to identify some major components relating to SMEs wealth creation, based on our theoretical foundations, so we propose the following six domains: human resources; technology; innovation and creativity; unit cost economies; organizational infrastructure; and strategy. All possible articles in the research fields of SMEs relating to the identified domains were then searched and subjected to a theoretical statistical deterministic process to evaluate the emerged model and to establish the current position of knowledge in these areas, as well as the interrelationships between the variables.

The domain of human resources

Essentially, human resources represent the human component of an organization and include staff's skills, knowledge, abilities, experience and initiatives to help an organization to achieve its goals (Hepeng 2014). This resource plays a decisive role in the allocation and use of other resources that will provide enterprise production and business operation (Hornsby and Kuratko 2003; Storey 2004). As such, several studies have established a positive relationship between human resource

components of SMEs and performance, success, value creation and competitive advantage (Pfeffer 1994; Hsu, Roberts and Eesley 2007; Pinho and Martins 2010; Filippetti 2011). Indeed, various scholars claim that human resources are more important to the achievement of competitive advantage than tangible or financial resources, because they provide a rare and incomparable source of competitive advantage. This resource is furthermore vital to the identification and exploitation of business opportunities, innovativeness and firm's competitiveness (Guthrie et al. 2002; Agarwala 2003; Dess and Lumpkin 2005).

The human capital theory asserts that investments in knowledge, skills and competencies would enhance the productivity of employees (Becker 1964). Later studies established that human resources are critical for organizational technological advancement and creativity. A positive relationship was also established between education and experience of entrepreneurs/managers and enterprise performance (Bharadwan and Menon 2000; Tihanyi, Ellstrand, Daily and Dalton 2000; Muller and Gangl 2003; Piva and Vivarelli 2009). Filippetti (2011) asserts that firms seeking innovative actions need creative and skillful employees who are flexible and can tolerate uncertainty and ambiguity. Schuler and Jackson (1987) add that such employees must have risk- and responsibility-taking behavior, competence, as well as a cooperative and interdependent way of carrying out duties. Rosli and Mahmood (2013) substantiate this by stating that the skills of the owner/manager of SMEs actually determine the degree of innovation and performance, which emphasizes that human resources are the major instrument for organizational learning and are vital for value creation and innovation infrastructure. Zahra and George (2002) corroborate this by establishing that prior knowledge of personnel tends to contribute to the absorptive capacity because it helps employees to assimilate, transform and imbibe new knowledge.

Storey (2004), however, warns that SMEs are often over reliant, on nonprofessionals, making operations less productive and efficient. Undoubtedly, the lack of qualified personnel has been the major barrier to SMEs' expansion (De Kok and Uhlner 2001; Tesfom and Luts 2006; Pinho and Martins 2010). We thus identify the major indicators of human resources as a variable of wealth creation in SMEs, as level of relevant education, experience, cognitive abilities, and skills.

The domain of technology

A firm's technological capability is the ability to exploit modern technology. This includes the required skills such as technical, managerial and/or organizational skills, which enable firms to use equipment and information efficiently (Pietrobelli 2006). Technology is thus a collection of equipment, skills, knowledge, aptitudes and attitudes that confer the ability to operate, understand, change and create production processes and products (Marcelle 2013). Technology therefor encapsulates three subgroups, namely physical investment (including information, equipment and infrastructure); human capital (including skills, knowledge, aptitudes and attitudes) and technological efforts (including production capabilities, linkage/collaborative capabilities and learning mechanisms) (Pietrobelli 2006; Oluwale, Ilori and Oyebisi 2013). However, it is important to note that technology may not be sufficient to sustain competitive advantage; as competitors becomes knowledgeable about the technology, the initial advantage of the firm evens out (Bakos 1991). Rather, the key asset is the technological skills possessed by the managers and their ability to see information as the asset that can create a competitive advantage (Rayport and Sviokla 1990). This is corroborated by Prahalad and Hamel (1990), who suggest that emphasis should be placed on the importance of a firm's competences over its physical assets and tangible resources to achieve the required level of innovativeness that can position the firm in the marketplace. Thus

we could distill three indicators from this domain, namely information acquisition, information use and personnel capabilities (included in the human resources domain).

The domain of innovation and creativity

The literature often combines technology and innovation. For example, Rahman and Ramos (2013) see innovation as the application of an idea or invention, technology or process to produce a product or service that satisfies a specific need and that can be reproduced at a reduced cost. Through the creation and introduction of new services, products and technologies, innovative firms can develop a market niche, differentiate them and/or substitutes incumbents with better quality and price, which customers value (Najib and Kiminami 2011; Martins 2012). So while technology is a new way of doing things, innovation and creativity are the processes of discovering and forming it. We consider these concepts to be different, distinct and important processes that must be separated. Innovation and creativity play an important role in growth and social wellbeing, as they address global economic pressure, unstable economic markets, accelerated exponential growth of scientific knowledge, technological complexity, new consumers' needs and new market expectations (Covin and Slevin 1991; Wiklund 1998; Nangoli, Basalirwa, Kituyi and Kusemererwa, 2013). Researchers have also pointed out that a firm can be better than its competitors only if it does things differently (Porter 1996; Newbert 2007; Chang, Chen, Lin and Gao 2012). Innovativeness increases the likelihood that a firm will identify first-mover advantages and capitalize on emerging market opportunities (Wiklund 1999; Martins 2012; Wingwom 2012). Innovativeness has been found to relate positively to firm performance (Lumpkin and Dess 1996; Casillas and Moreno, 2009; Chiang et al. 2011).

Organizations now try to improve their innovation and creativity through collaboration across industry networks and partnerships, opening up their innovation

process in line with the open innovation framework (Chesbrough, 2003; 2006; Thaennin, Visuthismajam and Sutheravut, 2012). Open innovation facilitates internal and external pathways to exploit technologies and scout different external sources of technology that can accelerate a firm's innovation process, whereas closed innovation is when firms discover, develop and commercialize technologies internally (Chesbrough, 2003). Indicators of open innovation include venturing, licensing intellectual property (IP), customer and/or employee involvement, networking and other collaboration initiatives (Gales and Mansour-Cole 1995; Von Hippel 2005; Chesbrough 2006; Lettl, Herstatt and Genuenden 2006; Zhu, Wittmann and Peng 2011; Rahmah and Ramos, 2013). We therefore identify the variables of innovation and creativity relevant to wealth creation as being the abovementioned indicators.

The domain of unit cost economies

Unit cost economies are economies of scale and economies of scope. Economies of scale results when an increase in output leads to a reduction in average cost (Tovar and Wall 2012). Nooteboom (2007) defines effect of scale as the effect on efficiency measured as average cost per unit of production. Economies of scope may arise from either cost complementary, which may be guaranteed between different output categories, or the spreading of common costs over an expanded product mix (Tovar and Wall 2012).

Bailey and Friedlaender (1982) suggest that a shared-inputs source of economies of scope allows multi-product firms to enjoy lower relative cost levels. So economies of scope denotes that cost saving may be possible by producing several outputs in one firm, as opposed to each output being produced by separate firms. Nooteboom (2007) defines the effect of scope as the effect on efficiency of the range of different activities of the firm. He affirms that economies of scale and scope are due to the presence of some fixed threshold costs,

which implies that productive capacity is not feasible or viable below some minimum set-up costs of the facility for production, stocking, research or service. While SMEs may not be able to take advantage of economies of scope immediately, they may be able to take advantage of economies of scale, depending on the magnitude of their target customers. This study therefore considers the number of total products/services, degree of product-relatedness, relative market share to the immediate industry and unit cost of product or service compared with the industry's average.

The domain of organizational infrastructure

Formal organizations are systems of coordinated and controlled activities where work is embedded in complex networks of technical relations and boundary-spanning exchanges (Hornsby and Kuratko 2003). These structures are created to coordinate and control organizational activities. The literature notes the difference between formal and informal organizations (Kraus et al. 2011). The formality of structures depends on relational or institutional demands, which are determined by the tightness of alignments between the structures and activities. For example, organizations that are built around efficiency require close alignments between structures and activities. These formal structures enforce conformity through inspection, monitoring of output quality, the evaluation of various units' efficiency and the unification and coordination of goals. More informal structures allow organizations to decouple elements of structure from activities and from each other. Decoupling enables the organization to maintain standardized, legitimate formal structures while their activities vary in response to practical considerations. Generally, organizational structure is a basis for effective implementation of strategy as it enables opportunity exploration and exploitation apart from assisting in allocating work, resources and administrative mechanisms. Lynch (1997) opines that

changes in structure of a firm are necessary when strategies change. In assessing the determinants for choice of an organizational structure, Kraus et al. (2011) affirm that the size of the firm often influences the choice of its organizational structure.

SMEs are typically characterized by simple or functional structures of wide spans of control with authority centralized in the owner/manager and little formalization (Kraus et al. 2011). Cassell, Nadin, Gray and Clegg (2002) assert that the simple structures and low level of departmentalization account for the agility and flexibility of SMEs. However, Hornsby and Kuratko (2003) warn that simplicity of form and functions also carry the risks of information overload at the top of the organization as well as overdependence on the owner/manager. Thus the multitask responsibilities placed on the owner/manager often lead to ineffective time management. So, the major indicators of effective organizational structure for SMEs are span of control, level of hierarchy and spread of activities.

Structures are supported by processes, systems and routines. Burns and Scapens (2000) separate standard operating procedures (processes and systems) from routines in use. They see rules as the formalized statement of procedures, and routines as the procedure in use. Organizational processes, systems and routines are costly to imitate, facilitate product innovations, generate operational flexibility and respond to evolving market needs (Makadok 2001). Clark (1996) insists that firms achieve competitive advantage in operations by executing routines in a manner that will enable them to meet their production and service targets quicker than competitors at a lower cost. In assessing business processes, Shang and Marlow (2005) and Ding et al. (2012) establish that firms with excellent business processes and operational procedures monitor costs and service quality, which can facilitate decision-making processes and promote

coordination across different functions. In this study, indicators of effective organizational processes and routine include flexibility, agility and degree of integration.

The domain of strategy

The literature reveals that four major strategies are linked with SMEs, namely product differentiation (Barney and Hesterley 2006; Minarik 2007; Kraus et al. 2011); strategic entrepreneurship (Wickham 2006; Ireland and Webb 2007; Kuratko and Audretsch 2009; Hitt, Ireland, Sirmon and Trahms 2011; Luke, Kearins and Verreyne 2011); niche strategy (Bamford, Dean and McDougall 1997; Lee, Lim, Tan, and Wee 2001; Cassell et al. 2002); and cost parity (Nooteboom 2007; Garfamy 2012).

According to Barney and Hesterley (2006), a differentiation strategy depends on the firm's ability to be creative in finding new ways to differentiate its products and/or services. On the basis of the work of Minarik (2007) and Kraus et al. (2011), we have used major skills required for differentiation as indicators in this study. These indicators include level of creativity; basic research skills; a firm's product features relative to industry; timing; location; reputation; distribution channels; service and support; product customization; product complexity; and consumer marketing.

The second strategy considered is strategic entrepreneurship. Strategic entrepreneurship is a combination of entrepreneurship and strategic management geared towards positioning firms in their competitive environment (Venkataraman and Sarasvathy 2001; Kuratko and Audretsch 2009). Ireland, Hitt, Camp and Sexton (2003) posit that a firm operates strategically and entrepreneurially when it employs an entrepreneurial mindset to identify opportunities, when it manages resources strategically to tackle opportunities, and when it applies creativity and innovation and thus generates a competitive advantage. Ireland and Webb

(2007) affirm that it is a combination of opportunity-seeking (exploration) and advantage-seeking (exploitation) behaviors. Hence, in this study we consider opportunity and advantage-seeking ability, risk acceptance, growth orientation and vision to be major indicators for measuring strategic entrepreneurship.

Lee et al. (2001) and Bamford et al. (1997) recommend that SMEs follow niche strategies. Such strategies target a special, narrow market segment that is neglected by the larger competitors. Cassell et al. (2002) argue that this is an appropriate strategy for SMEs as initial resource poverty and the size of SMEs limit their scale and scope of operations. The use of niche strategies by SMEs not only protects them from frontal attacks from larger competitors, but also facilitates optimum resource allocation and the establishment of a market position (Bello and Ivanov 2014).

The degree of the SME's niche marketing strategy is measured by product/service features relative to industry leaders and relative percentage of market share to large firms. With reference to the concept of resource poverty, Kraus et al. (2011) assert that SMEs hardly achieve cost advantages because they lack economies of scale. So cost parity is suggested for SMEs, and the major components are the transaction and production costs (Garfamy 2012). We have identified the indicators of the cost parity in SMEs as percentage of total assets ownership; rate of re-occurrence of transaction; the environmental, political, social or economic risk it entails; and the level of the transferability of assets.

Conceptual SME Wealth Creation Model

The SMEs wealth creation model comprises human resources (x_1), technology (x_2), innovation and creativity (x_3), unit cost economy (x_4), organizational infrastructural

(x_5) and strategy (x_6) as illustrated in Figure 1.

So:

$$Y = f(X) \text{ and } X = f(x_1, x_2, x_3, x_4, x_5, x_6)$$

$$Y = \text{wealth created } f(x_1, x_2, x_3, x_4, x_5, x_6)$$

$$x_1 = f(x_{11} = \text{level of relevant education,}$$

$$x_{12} = \text{experience, } x_{13} = \text{cognate ability,}$$

$$x_{14} = \text{special skills).}$$

$$x_2 = f(x_{21} = \text{information acquisition, } x_{22} = \text{information use})$$

$$x_3 = f(x_{31} = \text{Venturing, } x_{32} = \text{degree of customers involvement, } x_{33} = \text{degree of employees involvement, } x_{34} =$$

$$\text{network and collaboration, } x_{35} = \text{licensed intellectual property).}$$

$$x_4 = f(x_{41} = \text{number of total product and or services, } x_{42} = \text{degree of product-relatedness, } x_{43} = \text{unit cost of product or service compared with industry average, } x_{44} = \text{relative market share to the industry average).}$$

$$x_5 = f(x_{51} = \text{span of control, } x_{52} = \text{level of hierarchy, } x_{53} = \text{spread of activities, } x_{54} = \text{flexibility, } x_{55} = \text{agility, } x_{56} = \text{degree of integration})$$

$$x_6 = f(x_{61} = \text{marketing mix difference, } x_{62} = \text{timing, } x_{63} = \text{basic research knowledge, } x_{64} = \text{consumer marketing, } x_{65} =$$

$$\text{opportunity – seeking ability, } x_{66} = \text{degree of advantage seeking) } (x_{67} = \text{risk acceptance, } x_{68} = \text{growth}$$

$$\text{orientation) } (x_{69} = \text{overall vision,}$$

$$x_{610} = \text{product service to industry leader,}$$

$$x_{611} = \text{market share to large}$$

$$\text{firm, } x_{612} = \text{\% asset ownership of total,}$$

$$x_{613} = \text{rate of occurrence of transaction,}$$

$$x_{614} = \text{degree of environmental risk,}$$

$$x_{615} = \text{level of transferability of asset) The$$

variables used depends on the strategy adopted by the SMEs.

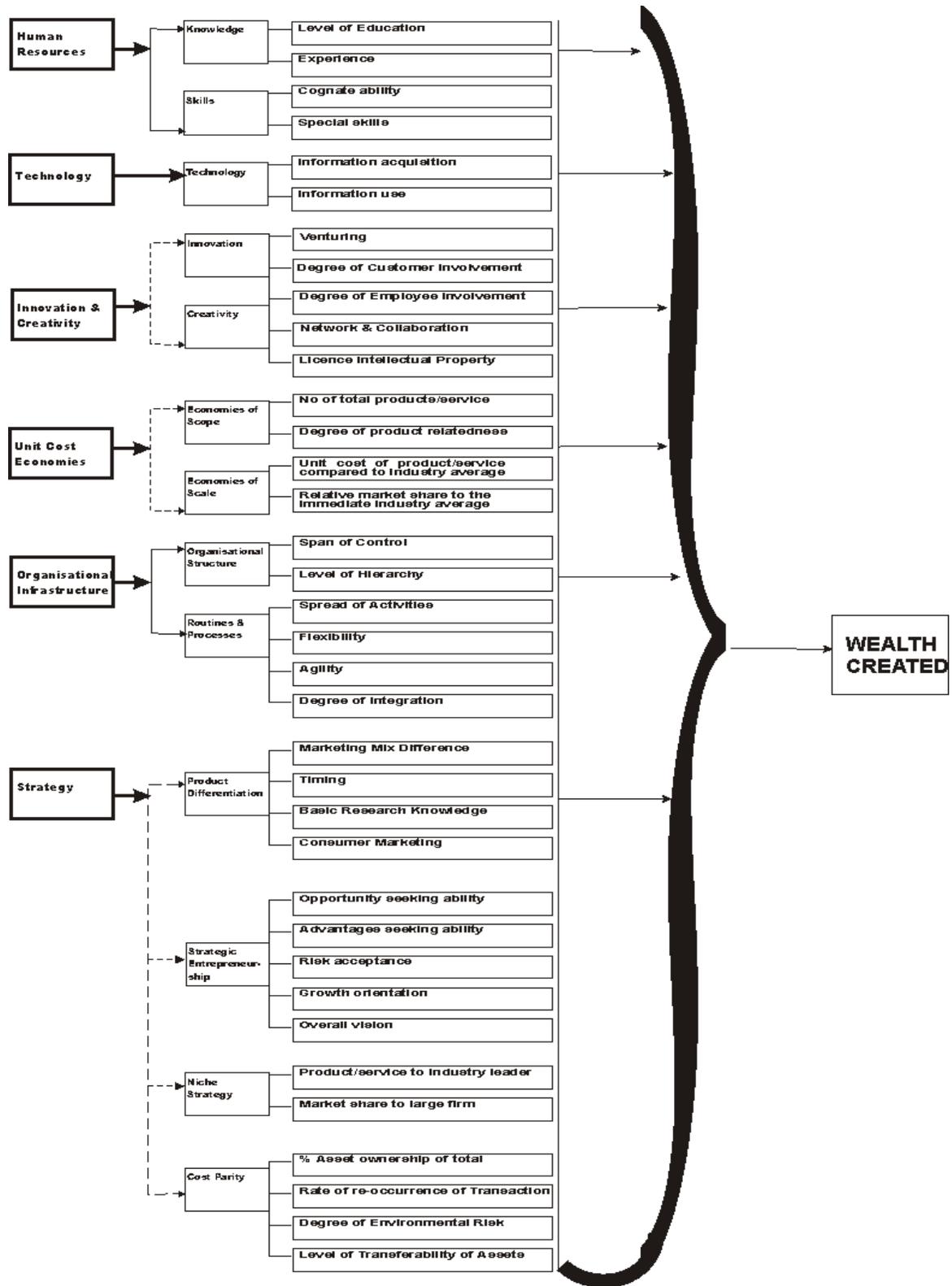


Figure 1: SMEs Wealth Creation Model

In analyzing the model, X is the aggregate variable for all the independent variables on

which wealth creation depends: $x_i, i = 1 \dots n$ are the observed values of a

potential factor X , and $[Y_i^m]$, $m = 1 \dots \dots \dots, ni$ are the values of Y associated with each xi , (where each $ni \geq 1$ may differ for different i)

The resulting collection, $Q = (xi, Y^m / i = 1 \dots \dots \dots n, j = 1, \dots \dots \dots ni)$ consisting of $A = \sum_{ij} Y_j^i$ the values are important for testing the significance of the influence of X on the observed variation in Y .

The changes in wealth created (Y) may evolve from two sources. First, there may be an inherent fluctuations in Y not dependent of the value of X , which could be explained by external interventions in the operations of SMEs, such as government support. It could be captured as:

$G = (d) = -\sum_{i=1}^n d \log d_i$ of the frequencies.

$d = (d_i)$ of the values Y_i^j distributed over each xi .

The quantity $G(d) \in [0, \log n]$: a value of $G(d)$ near 0 indicates that the parameter frequency distribution d is associated to a predictable magnitude of X .

The second source is when the variation in wealth created (Y) results from the variations in $X (xi \dots \dots \dots x_{615})$. To prove this, there is a need to disprove the contrary statement (i.e. the null hypothesis, H_0). The probability of observing the parameter frequency distribution γ , on the assumption that H_0 is true, is given by the multinomial likelihood (Jordan and Brannon 2006; Iftime 2011).

$B(d; C_0) = f \prod_{i=1}^n (C_{0i})^{d_i}$ of d module C_0 .1. The C_0 denotes the distribution of values of Y that would occur at each xi under H_0 only and

$$f := \frac{A!}{\prod_{i=1}^n d_i!}$$

which is the multiplicity of $d = [d_i]$ which is the number of combinations that gives rise to the observed distribution (d).

The broken line connecting the independent variables ($xi \dots \dots \dots x_{615}$) in figure 1 shows that the relationship between the independent variables and wealth creation may not necessarily be linear. In the light of this, the positive unknown quantity that could measure the degree of deviation from the null hypothesis is

$$\alpha^2 = A \sqrt{B(d; C_0)} \quad \alpha^2 \in [0,1]$$

[0,1]: A value of α^2 near 1

indicates that d is close to C_0 , whereas a value of α^2 near (0) indicates that d diverges from C_0 .

To be able to decide whether to reject H_0 or not, an estimate of the distribution C_0 of the values of Y that would occur at each x , with an equal frequency must be established. However, the closest uniform probability distribution that has the expected mean value equals the empirical average:

$$\sum_{i=1}^n xi C_{0i} = \sum_{i=1}^n xi di$$

Where \widehat{C}_0 given by $\widehat{C}_0(xi) = \widehat{C}_{0i} = ke^{\Omega xi}$ and where k is constant and Ω is Lagrange multiplier for the maximum value of C_0 (Dehaene, Spelke, Pinel, Stanescu and Tsirkin 1999; Iftime 2011);

To obtain the difference between the observed and theoretical (null-hypothetical) probability distributions of Y at different values of X , we apply natural log and using Stirling's formula we obtain:

In the limit $A \rightarrow \infty$:

$$\log \alpha^2 (d; \widehat{C}_0) \approx \gamma_{gL} (c // \widehat{C}_0)$$

$$\text{Where } \gamma_{gL} (c // \widehat{C}_0) = \sum_{i=1}^n Ci \log \frac{Ci}{C_0} = \log n - Gmax$$

Which is the Kullback- Lieber information of \widehat{C}_0 from the empirical probability distribution C defined by $C_1 = \text{limit } A \rightarrow \infty: di \text{ for } i = 1 \dots \dots \dots n$

To compute the test statistics:
|TESTA| := $A \log \alpha^2 (d; \widehat{C}_0)$.

To check the validity of the null hypothesis; the value of TESTA is compared with χ^2 distribution with $(n - 2)$ degree of freedom.

H_0 is thus rejected if the p – value = $2 \text{ prob} [\chi^2_{n-2} \geq |TESTA|]$ and is smaller than or equal to the desired level of significance.

Conclusion and Future Research Direction

The study was conducted with the aim of identifying the domains of SMEs wealth creation. The intention was to build a model by identifying the integral domains of the concept and establishing an understanding of these domains and their interactions. Six major domains were identified: human resource; technology; innovation and creativity; unit cost economies; organizational infrastructure; and strategy.

The study used a developmental configuration approach with a derived mathematical model. The basis for the developmental configuration applied in the present study was an in-depth review of academic literature on wealth creation at firm level. Apart from identifying of the domains of wealth creation of SMEs, the study also analyzed numerous variables simultaneously to develop an understanding of their interrelatedness. It also, identified the indicators of these variables and the statistical testing process of the model. The new conceptual model provides an entirely new premise for looking at wealth creation at the firm level, particularly in SMEs. To our knowledge, no studies have dealt comprehensively with this topic before.

Future research could empirically verify our model, drawing data from the interrelatedness of the identified variables and their overall relationship with wealth creation. The inherent assumption for the statistical testing and the model building could also be investigated. Moreover, the variables that contribute to wealth creation in large firms could be investigated and the identified domains in this study could be

used for the large firms to see whether the same result would be obtained.

The wealth creation model could help SMEs to survive the dynamics and unpredictability of the environment, thus reducing their failure rate. It could also solve the problem of resource poverty among new small firms, helping them to identify the best way to enter the industry of their choice, taking cognizance of the relevant variables that can facilitate creation of wealth.

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