

SMALL AND MEDIUM ENTERPRISE'S GROWTH AND NEW TECHNOLOGIES IMPLEMENTATION

Marius-Dan Dalotă*

Abstract

If managers of many SME do not clearly assume the necessity to modernize their organizations, they will not be able to take advantage of all its resources' potentialities, not only the technological resources, but also of the capacities and qualifications of the human resources. This article looks at how new technologies and their inherent risks have to be considered to achieve performance, to enhance productivity, and to strengthen competitiveness. The solution demands the understanding of the capacities of technologies, the possibility of exploring their benefits and the effort of acquiring an improving the management performance.

Keywords: Innovation management, Change management, SME's growth, Performance management

JEL Classification: L20, L26, M15

1. Introduction

A major issue for all SMEs is how to survive by maintaining or increasing market share through innovation. The relative advantages or disadvantages to a manufacturing company of focusing on single or tightly-related portfolio of products or, of diversifying is well known. For small to medium-sized enterprises (SMEs), there is often little choice. Many will have entered the market as single product or technology-led companies without the finance to broaden their product range even if this were considered strategically desirable[1]. This paper explores the characteristics of innovative SMMEs.

The comprehension of new technologies and all its potential abilities can actually become a source of weakness, because managers cannot use them against competitors or to profit from the opportunities that these technologies can offer [2]. The solution of this situation demands that one understand the capacities of these technologies, their adequacy to each business, the possibility of exploring their benefits and the effort of acquiring a new management mentality. At the same time, it is vital to understand how the new technologies are closely linked to the information systems and how their security guarantees business continuity.

Sustainable growth and profitability require technological innovation and attentive control perspectives. Innovation through new products and technologies has a tremendous impact on organizations' growth. Growth plans rely on more than new products. They include innovation management and adequate management mentalities to adopt new technologies within several processes [3].

*Marius-Dan Dalotă is professor at the Romanian-American University, Bucharest. E-mail: marius_dalota@yahoo.com

2. Factors contributing to SME's innovation

The conceptual relationship between entrepreneurship and innovation is related on factors affecting their development [4]:

- *Innovation and entrepreneurship are complementary* because innovation is the source of entrepreneurship and entrepreneurship allows innovation to flourish and helps to realize its economic value.
- *Entrepreneurship uses innovation to expand business scope and boost growth.* Therefore, entrepreneurship and innovation are dynamic and holistic processes that are not confined to the initial stage of a new venture.
- *The development of entrepreneurship and innovation, and interaction between them for the successful commercialization of innovation, require an organizational culture and a management style that are innovation-focused and supportive.*

Organisations engaged in entrepreneurship and innovation face implementation problems that are as follows:

- *As a result of some technological innovations, SMEs are restructured*, and this has led to a significant loss of jobs, lower staff morale, and problems caused by understaffing.
- *Funding can be a problem.* It is very hard for a small company to be innovative in product development because it is hard to find the funds required to promote that product.
- *Managers do not like to lose control* and they can feel “a bit of a threat if someone becomes too creative”, and this can hinder the development of innovation.
- *Time, persistence, and risk taking are required* to get a new product accepted by markets.
- *The systems of innovation and entrepreneurship are very informal in many SMEs.*
- *It is most situations is impossible to measure the outcomes of SMEs innovation and entrepreneurship* because it is very difficult to separate them from the overall business of organisations.
- *Recruitment of staff and good people management are key issues* facing innovative and entrepreneurial organisations. It is difficult to acquire people who are able to bring “new blood, new ideas, new thinking and new horizons to the organisation”. And retaining them is even more difficult.

Regarding process innovation, current literature suggested innovation was part of a long-term organisational evolution, customer relationships were important to long-term sourcing both financial and knowledge terms, and human resources [1]. Past literature identified several aspects of what was considered as critical success factors for innovative strategy in SMEs and effective strategic formulation in successful small hi-tech firms development, promoting a corporate culture, creating structure reflecting in the effective use of systems and technology and investors in people (currently known as process innovation), analysing competitors, developing co-operations and partnerships. We should add other important factors like

flexibility, short communication lines, close relations with customers, motivation of management and labour force, less bureaucracy, little filtering of proposals with strong interest in product development and technological change as part of the characteristics and strengths of an innovative culture.

Focussing on new product development suggest that product innovation activities are the cornerstone of better-performed companies. Manufacturing SMEs by repeatedly introducing innovative new products opens up new market niches, which is essential to their survival. Innovation literature also places great importance on company learning, benchmarking, training and networking. Size, age and flatter hierarchies were found in literature to have effects on company innovativeness.

Company culture and ways of working is consistent with literature which suggests SMEs' main impetus for innovation came from board level, with a spread of participation. A good level of training is found in more innovative companies.

3. Market-orientation, learning-orientation and continuous improvements in SMS's innovation

There exists both empirical and theoretical studies investigating the linear or causal relationships among the market-orientation, learning-orientation, innovativeness, and, thereby, their combined impact on firm performance. Most of the empirical studies focused on the large-scale organizations in western/developed countries, while ignoring the SMEs in general and SMEs in developing countries in particular. Specifically, studying the SMEs in developing countries contributes to the literature for three reasons:

- The majority of the market-orientation and learning-orientation studies were conducted in developed western countries, e.g. USA, UK, using the measure scales of Narver and Slater (1990), Kohli *et al.* (1993), Ruekert (1992), Calantone *et al.* (2002), and others. However, replication of the market-orientation, learning-orientation, and innovativeness studies is warranted, because if these constructs are reliable and valid, they should also be applicable in different environments and economies, such as Turkey.

- Market- and learning-orientation studies mostly investigated large firms having 250 or more employees. However, the applicability of market-orientation, learning-orientation, and innovativeness measures, and their research models, which were developed for large-scale firms, may have different meanings in a SME context. For instance, SMEs face particular problems in the formulation of their innovation strategies due to:

- their deficiencies arising from their limited resources and range of technological competencies;
- influence of their owners/managers on the decision-making;
- dependence on small numbers of customers and suppliers;
- focus on the efficiency of current operations.

- Empirical studies on market-orientation, learning-orientation, and innovativeness in SMEs are fragmented or incomplete. For instance, studies exist that investigate relationships between:
 - *market-orientation and overall firm performance;*
 - *export performance and financial performance;*
 - *learning-orientation and firm growth and innovativeness and firm performance;*
 - *firm's innovativeness and performance.*

Yet there remains a gap in empirical research investigating the relations among the market-orientation, learning-orientation, firm innovativeness, and firm performance as an integrated model in SMEs.

The term “market-orientation” found a broad appeal in the marketing literature. The literature describes market-orientation as a set of behaviors and processes, or an aspect of culture to create a superior customer value. By using a cultural framework, the boundary of the market-orientation concept is extended by incorporating the development of information about competitors, and interfunctional collaboration. The cultural framework of marketing, adopting a strategic view, identified three components of market-orientation:

- a) obtaining and using customer information;
- b) developing a strategic plan based on such information;
- c) implementing the plan to respond to customer needs.

Market-orientation is a cognitive, behavioral, and cultural aspect of a firm's marketing concept that puts the customer at the center of the organization and its development. Empirical studies on the effect of market-orientation on superior performance revealed inconsistent results for a model of market-orientation, learning-orientation, innovativeness, and firm performance in an SME context.

A market-oriented firm, which has excellent market information gathering and processing abilities, is able to predict the requirements and changes in markets accurately and quickly, allowing them to respond quickly and appropriately. Thereby, they enhance their competitive advantage. In this regard, it has been asserted in the SME literature that market-orientation provides small firms with a potential competitive advantage over large firms, because SMEs:

- *are closer to customers and able to exploit their needs and wants quickly and more flexibly;*
- *are able to transfer customer intelligence quickly, with less deterioration, due to their reduced organizational layers and bureaucracy;*
- *can implement the marketing plan fast, because it is less formal.*

Considering that SMEs may lack a long-range focus and strategic orientation that their customer orientation in general and market-orientation in particular are critical determinants of performance and consistent with SME literature, it is hypothesized that:

A.- Market-Orientation will positively lead to firm performance in SMEs.

Another well-known factor that impacts firm performance is firm innovativeness. The positive role of firm innovativeness on firm performance has been supported by many theoretical and empirical studies of new product

developments, technology adoption and diffusion, process improvement, and innovation. Of particular importance to an SME's innovativeness is the reflection of the environmental uncertainty and the lack of technology competencies for new product development, cost effectiveness, operational efficiency, emerging market niches, and process innovation. The studies note that SMEs should be innovative to get a competitive advantage due to their limited resources, vulnerability to uncertainty, turbulence in business environments, and the extensive powers of customers and suppliers.

SMEs that follow a proactive business strategy foster innovativeness as a central part of corporate culture. SMEs can achieve leadership positions by applying aggressive innovation strategies in niche industries. High-tech SMEs, e.g. electronics, software, and biotechnology, for instance, demonstrate improved performance by generating new markets and industries due to their innovativeness. Because innovativeness has long been associated with entrepreneurial behavior, and theoretically linked to a high tolerance for ambiguity, taking risk, and evaluating uncertain situations more favorably, it is therefore hypothesized that:

B.- Firm innovativeness will positively lead to firm performance in SMEs.

Noting the importance of innovativeness for firm performance, it is also important to mention the mechanisms that promote the firm innovativeness in order to investigate the relations in a holistic way. According to recent studies, learning orientation influences firm innovativeness in three ways:

1.- since learning occurs through organizational observation and interaction with their environments, it is more likely to be committed to innovation;

2.- since learning organizations are linked with their environment, it has the knowledge and ability to understand and anticipate customer needs and emerging markets; and

3.- since organizations closely monitor the competitors' actions in the market, their strengths and weaknesses, and successes and failures, that environmental scanning contributes to firm innovativeness.

A lot of the theory on learning-orientation and firm innovativeness is based on empirical studies completed on large-based firms rather than SMEs. In this sense, there is a gap in the empirical investigation of learning-orientation and firm innovativeness in SME literature.

Organizational learning studies in SMEs note that learning in small firms is context sensitive, firm-specific, and work-based, which is, by nature, reactive and produces operational efficiency in the short-run - indicating adaptive rather than innovative behavior. Exploitation of each bit of information and then utilizing such information in the workplace to advance new operational practices, in essence, develops new schemata or thinking ways, and knowledge for employees. The people become more adaptive to different views, procedures, and ideas, and become proactive to enhance the quality of workplace and the operations of firms and customer satisfaction. Therefore, it is hypothesized that:

C.- Learning-Orientation will positively lead to firm innovativeness in SMEs.

Even though market-orientation and learning-orientation are antecedents of innovation, the effect of market-orientation on firm innovativeness is mediated by learning-orientation. The market-orientation fosters a knowledge-producing behavior - providing a source of ideas for change and improvement by market information processing and marketing strategies. The knowledge generated by market-orientation has little benefit if not appreciated and implemented for firm innovation.

D.- Market-Orientation will positively lead to firm innovativeness via Learning-Orientation (Learning-Orientation will mediate the relationship between Market-Orientation and firm innovativeness) in SMEs.

Even if there is a common agreement about the relationship among learning-orientation, market-orientation, and innovativeness, there is no clear agreement about the direction of the relationship between learning-orientation and market-orientation. The studies promoting the relationship of learning-orientation — market-orientation, essentially investigated the *market information processing* rather than market-orientation. In fact, Farrell and Oczkowski (2002) found that by investigating 340 organizations, market-orientation is able to encompass learning-orientation, but learning-orientation is not able to encompass market-orientation. Market-orientation firms are effective in producing knowledge and this culture of knowledge production, inevitably leads to knowledge-questioning values. In conclusion, organizations that are able to appreciate the value of timely and relevant information (market-orientation), will also be intelligent enough to challenge existing assumptions about the way the market operates (learning-orientation).

E.- Market-orientation will positively lead to learning-orientation in SMEs.

One of the most studied factors, which has synergy with market-orientation, is learning-orientation. Many researchers argued that market-orientation only enhances performance when it is combined with a learning-orientation. Since market-oriented firms focus on customers and their feedback in the established markets, they ignore the emerging markets, technologies, and competitors. Learning-orientation, embracing the commitment to learning, shared vision, open-mindedness and interorganizational knowledge sharing, fosters a set of knowledge-questioning and knowledge-enhancing values that leverage the adaptive behaviors provided by market-orientation to a higher-order learning that leads to the development of breakthrough products, services, and technologies, and the exploration of new markets.

In addition, to learning-orientation, another mechanism emphasized by the management and marketing scholars is firm innovativeness, which refers to that portion of a firm's culture that promotes and supports novel ideas, experimentation, and openness to new ideas.

Continuous Improvement Management has eight major characteristics:

- 1.- *CI requires a long-term commitment.*
- 2.- *A change is needed in the organization culture.*
- 3.- *Staff participation in the quality improvement process is vital.*
- 4.- *CI organizations put their customers and clients above all other considerations.*
- 5.- *The quality chain needs to be in place.*
- 6.- *Teamwork is an essential part of CI.*
- 7.- *CI means continuous quality improvement.*
- 8.- *CI is management led and driven.*

Continuous Improvement Management is perceived by specialists as an evolutionary process which leads to a better way to compete, a process that adds value to existing processes and that encompasses the whole organization.

There is a substantial range of opinions and ideas about what constitutes innovation as following:

- “*what makes innovation challenging is the fact that it is very difficult to agree on a common definition, and also to decide which firms are the most innovative and how to quantify innovation activity*”;
- “*innovative companies are especially adroit at continually responding to change of any sort in their environments and are characterized by creative people developing new products and services*”;
- “*technological innovation is the process by which industry generates new and improved products and production processes*”;
- “*innovation is the creation of any product, service or process which is new to a business unit*”;
- “*innovation is about doing things differently or better across products, processes or procedures for added value and/ or performance*”;
- Peter Drucker defines innovation as “*the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth*”.

Both of these definitions make reference to the terms change and creativity - they imply that innovation is the harnessing of creative ability within individuals and the workforce in response to change.

A distinction between “radical and incremental” innovation also exists in the literature.

- “*Radical innovations refer to products and processes that result from advances in knowledge whereas incremental innovation refers to the continual process of improvement of techniques*”;
- “*Innovation is the process of taking new ideas effectively and profitably through to satisfied customers*”. It is a process of continuous renewal involving the whole company and is an essential part of business strategy and every day practice.

Reflecting the above discussion, effective business innovation will be defined as “*the harnessing of creative ability within individuals and the workforce in response to change, by doing things differently or better across products, processes or procedures through the continual process of improvement of techniques and the successful production, assimilation and exploitation of novelty*”.

Is it possible for organizations to progress from CI to effective business innovation as defined? To answer this, separate but related underlying questions need to be addressed.

- *Why would SMEs want to become more innovative?*
- *How can SMEs progress from CI to effective business innovation?*
- *Why would SMEs want to become more innovative?*

The idea that companies need to innovate to help maintain the correct strategic direction has been further developed. The innovation can help companies maintain or increase competitive advantage.

Brown (1994) believes that companies must innovate for three main reasons:

- *they may seek to gain advantage by taking an offensive stance and an industry lead in the use of new techniques;*
- *they may have to innovate in response to innovation by competition;*
- *they may innovate to forestall or pre-empt innovation by others that would harm their own business.*

A stronger competitive position cost, and quality are linked to an SME's approach to innovation. Can SMEs progress from CI to effective business innovation?

There are six main categories of innovation: *product, process, application, system, core competence and horizontal transfer*. The linkage between innovation and CI can be seen where each type of innovation goes through the CI process for successful innovation. Successful innovation depends on the CI process, the Continuous Improvement strategy of CI and innovation will enable SMEs to develop their management understanding for future growth and competitiveness.

4. Information technology as an innovation

It is well known that processes and technology improvements can contribute to meet quality and process-performance objectives. The identification of innovative improvements, that could increase the organization's quality levels, is a decisive process to change the process performance. Strategically, the success of most management innovation processes also depends on a competitive effort, which may include a deep knowledge of technological advances and an adequate analysis of networks' benefits. To prevent obsolescence and death, many small and medium sized enterprises (SMEs) are economically obliged to adopt new technologies [2].

Many sectors such as financial services, information technology (IT), manufacturing, transport, central government, consultancy, computer manufacturing, retail/wholesaling, and publishing are related to operational use evaluation of IT because they already depend on all the capacities of IT. The evaluation of these abilities and their respective benefits that may be exploited by enterprises is a complex process. There is no agreement on an ideal way to evaluate or how to make the evaluation process better. To make best use of management resources, the

diffusion and adoption of new technologies should be linked to evidence their managerial and cost effectiveness.

The innovators can be inventors if they are able to manage research and development function. Knowledge workers (human capital) can deal with what target market accepts or expects as value, and are able to defend their organizations against the aggressive movements of their competitors. Knowledge management (KM) focuses on the people involved in creating, sharing, and leveraging knowledge among functional areas. This involvement is the basis of an organizational culture, which regards highly learning, teamwork, knowledge sharing, and innovation.

Many SMEs are not able to adopt rapidly new technologies and this difficulty should be understood. Some factors are still hindering the adoption of some new technologies:

- *Resistance to change.* Despite of the dissemination speed of information and communication technology (ICT), we still have to face a situation of some employees who do not wish to modify their personal ways of executing their ordinary tasks.
- *The use of new technologies limited to some functional areas.* This limitation can be faced as a preventing force that hinders the use of new technologies within an integrated perception of an enterprise performance.
- *Owners' mentality.* Employees do not think like owners and owners' relationship to the business is fundamentally different from theirs. Many owners are managing their own business according to their traditional visions and they are interested neither on innovativeness nor on modern processes.
- *Organizations dimensions.* To some SMEs, it is quite enough to keep using the commercialization processes that have been used until now and the information about clients (needs, purchase behaviors, and satisfaction levels) is based on personal relationships.
- *Some users present a significant lack of technical qualification.* This problem may lead to a deficient use of equipments and applications and it is not possible to use every potential capacities coming from IT.

- *The fear of facing new technologies as a source of organizations' insecurity.* When data are processed according to traditional techniques, the information obtained is tangible, it does not disappear, it cannot be destroyed, and robbery is much more difficult.

If managers of many SMEs do not clearly assume the necessity to modernize their organizations, they will not be able to take advantage of all its resources' potentialities.

5. Dimensions of SMEs growth through innovation

Three main sources of growth can be determined [3]:

- a) *Technological improvement* – It is well known that processes and technology improvements can contribute to meeting quality and process - performance objectives.

b) *An increase in the quantity of capital* – Very often, technology is deeply linked to investment because it is embodied in new machinery and better equipment.

c) *An increase in the number of workers, their skills and educational levels.*

Industry growth depends on several internal and external factors, such as physical assets, technologies all along the chain value, human resources in general and qualification levels in particular and also organizational capabilities. In general, the firms are more likely to reap profits and social benefits when they are in high-growth industries.

SMEs can increase their activities and businesses in some ways and grow in some dimensions. The following dimensions can be identified:

a) *Raise the level of integration of the technologies* – The management of technologies and the exploitation of all their potential is strictly linked to the possibility of integrate their synergies.

b) *Intensify innovative technology processes* – This direction of innovation is a decisive contribution for the modernization of businesses and the implementation of competitive strategies.

c) *Increase the number of markets where the company operates* – Internationalization and globalization are direct consequences of this decision.

d) *Increase businesses' portfolios* – The company that today is involved in a given industry can tomorrow widen its investment to other industries;

e) *Increase the number of operational uses of technologies* – Many technologies can have applications in operations of a different nature.

To position strongly for future growth in the global marketplace, an organization has to make some effort to increase its investments in R&D and to focus on the implementation of advanced production innovations and practices.

The growth of an organization, the technologies that are being used along all its activities, and business strategies that have been formulated are strictly related. Even organizational culture deals with technologies and growth[3].

Technological progress driven by a decision to enhance productivity and profitability often fosters growth. The competitive success of most enterprises is strongly related to decisions such as:

- *producing products and services according to high quality standards;*
- *quantifying production in the correct manner;*
- *anticipating and responding to changing consumer needs;*
- *reducing production costs in order to enhance profitability.*

The success of SMEs depends on:

- *using advanced technologies in an integrated manner;*
- *being aware of changing clients's needs, producing quality goods and services,*
- *enhancing profits by reducing costs,*
- *reaching new markets within a competitive perspective,*
- *wide-open mentality.*

The growth effort has to include:

- *New technologies for manufacturing with ecological safety.*
- *Designing and modelling of secure facilities.*
- *Adopting zero-waste procedures in manufacturing and processing.*
- *Upgrading of existing installations.*
- *Developing new organizational tools and methodologies.*
- *Reducing resource consumption in order to reach competitive production costs.*

Many SME's are not able to envisage growth as a competitive need and this difficult mentality and/or reluctance should be understood.

The identification of innovative improvements that could enhance organizations' movements for growth is a decisive process to reach growth objectives. Innovation in production, distribution, and communication processes serve as a vital source of productivity growth and other competitive advantages. The success of most management innovation processes is also a function of competitive efforts.

The managerial decision regarding obtaining growth results has to take into account what is needed to reach a rapid modification in the professional qualification levels of workers and managers. It is indispensable that a strict and dedicated cooperation exists among governmental entities, industries and educational sectors. When an entrepreneur does not have experience and technical knowledge in the financial domain he may have a distorted perception of the reality, because an increase in sales does not necessarily correspond to an increase in profitability and, therefore, does not open the possibility of self-financing. It is well known that some entrepreneurs prefer self-financing because it provides them with more control. It is required to create new higher education models in the domain of entrepreneurship. We agree that a new higher education models will require the commitment of governments, universities, and associations.

6. Conclusions

Entrepreneurship and innovation should be regarded as ongoing, everyday practice in organisations. If managers of many SME do not clearly assume the necessity to modernize their organizations, they will not be able to take advantage of all its resources' potentialities, not only the technological resources, but also of the capacities and qualifications of the human resources.

Advanced manufacturing technologies, information and communication technologies and new services lead to the increases in productivity that is essential to any country's economic growth under a perspective of competitive advantages. Successful organizations will be technological advances to create an appropriate organizational arrangement to support competitive growth.

References

[1]Laforet Sylvie; Tann Jennifer – “Innovative characteristics of small manufacturing firms”, *Journal of Small Business and Enterprise Development*, Vol.13, No.3, 2006, pp. 363-380.

[2]Carneiro Alberto - “Adopting new technologies”, *Handbook of business strategy*, 2006, Emerald Group Publishing Limited, ISSN 0894-4318, pp. 307-312.

[3]Carneiro Alberto - “What is required for growth?”, *Business Strategy Series*, Vol.8, No.1 2007, pp. 51-57.

[4]Zhao Fang - “Exploring the synergy between entrepreneurship and innovation”, *International Journal of Entrepreneurial Behaviour & Research*, Vol.11, No.1, 2005, pp. 25-41.

[5]Darroch Jenny - “Knowledge management, innovation and firm performance”, *Journal of Knowledge Management*, Vol.9, No.3, 2005, pp. 101-115.

[6]Dalotă Marius-Dan - “Innovative change management in SME's”, *Conferința cu participare internațională, “Inovare, Competitivitate și etică în afaceri”*, Universitatea Româno-Americană, noiembrie 2008.

[7]Collins, “Approaches to quality”, *Total Quality Management Magazine*, (1994), Vol 6 No. 3, pp.39-43

[8]Mudrak Tomas; Andreas van Wagenberg; Emiel Wubben “Innovation process and innovativeness of facility management organizations”, *Facilities* Vol. 23 No. 3/4, 2005 pp. 103-118

[9]Keskin Halit - “Market orientation, learning orientation, and innovation capabilities in SMEs An extended model”, *European Journal of Innovation Management*, Vol. 9 No. 4, 2006, pp. 396-417

[10]Laura Pana - “Intellectics and inventics”, *Kybernetes*, Vol. 35 No. 7/8, 2006, pp. 1147-1164