

DETERMINANTS OF RELIANCE ON INNOVATION APPROACH OR OTHERWISE BY SMES IN DEVELOPING NATIONS AND PROFFERED POLICY

James Onuche Ayegba 

School of Management Sciences and Engineering, Jiangsu University, Jiangsu, China
jamesonche@yahoo.com

Zhou Lu Lin

School of Management Sciences and Engineering, Jiangsu University, Jiangsu, China

Peace Maina Ayegba

Department of Accounting, Nasarawa State University, Keffi, Nasarawa State, Nigeria

Benjamin Bernard Uzoejinwa

School of Management Sciences and Engineering, Jiangsu University, Jiangsu, China
Department of Agricultural and Bio resources Engineering,
University of Nigeria, Nsukka, Enugu State, Nigeria

Henry Asante Antwi

School of Management Sciences and Engineering, Jiangsu University, Jiangsu, China

Abstract

SMEs (small medium-sized enterprises) play a very vital operations in the globalized economic and market. Competing in international market is dynamics and diverse in nature. Similarly, the entrepreneurs are influenced by either internal or externals factors. There are some entrepreneurial, external and internal factors behind the success of SMEs through the globalization process. Those factors attribute tremendously to the successes of SMEs. One of the aims of this paper is to discover the major factors linking SMEs to international success in Nigerian SMEs. Similarly, the analysis was done according to a well-structured survey carried

out in a sample related to SMEs that were duly registered and nominated to recipients of export awards by the Manufacturers Association of Nigeria (M.A.N) Secondly, We also analysed factors preventing the adoption of open innovation approach by SMEs operating in developing countries, and to proffered policy requirements and actions need to be taken to ease the creation of an open innovation ecosystems that support SMEs. Incentive to stimulate SME-university and SME-LE collaboration, creating innovation centres to enhanced networking ability of SMEs, free IP consulting, conducting external sourcing on behalf of SMEs are some of the solutions proffered in this study.

Keywords: Key success factors, Global SMEs, Open Innovatio, Developing Nations, Innovation in SMEs

INTRODUCTION

With the high level of complexity and societal differences it is almost impossible for a single industry to be developed all the innovations and inventions in this modern age; because of the complexity involved here are major reasons why a single industry cannot. The complexity in services and products in this complex age made it difficult for a single company to achieve sustainable high innovation internally or in-house, collaborations with researchers and various other companies and diverse disciplines is the only way out (Howells et al., 2003). With the new concept of Openness Innovation, scholars are interested in finding out from companies some key information to sharpen the ideas on SMEs and promote research in that direction. Because of the urgency to delivered excellent results speedily by consumers, industries find themselves compelled to perform greater tasks within a shortest time possible, so they are often frustrated. As defined by Oslo Manual, invention is "the implementation of a new or significantly improved product (good and/or service), or process (manufacturing and supply methods), a new marketing method (packing, sales or distribution methods), or a new organisational method in business practice, workplace organisation or external relations" (OECD, 2005, p. 46). Invention at the basic or small level is highly necessary to give a medium industry an advantage or an edge to survived and continue in business (Maier et al., 2014). High standard of living is key in any given society therefore to facilitate that the small industry must be involve economically to delivered great benefits to the society; based on the testimony of the U.S. department of commerce at least 75% of the GDP alongside with most of the inventions and technological advancement recorded in the United States since the termination of the 2nd world war came from micro industries (SMEs). Over the years before now, most of the innovations and

technological breakthroughs were handled by the bigger companies or corporations through monopoly and non-commercialization of innovations; they constantly held back even after delivering the products to consumers. Back then, most of innovations accomplished were done by outsiders on behalf of the big companies not internally generated. As time progress, low quality products which have a short life's span were produced within a region or locality, there was little innovations and barely non-existence globalization. Situation quickly transformed but gradually. Innovations came in as a result of industrial revolution in Britain which force companies in Europe searched to for industrial raw materials in faraway Africa and elsewhere. International business was birth. Innovation begun as a mean of tackling the shortcomings regional companies could not have resolved. Big international industries brought lot of innovations that gradually jeopardized the existence of regional companies. However, the intensity in innovations and competition suddenly became too fierce and expensive too for most companies since it has moved from regional to international level. Resolving the issues therefore need rapid innovation process to keep up with high demands on the side of the customers while the need to have an edge over rival's company is also important, meanwhile the need to cut down running costs and optimised profitability requires a new approach known as Open Innovation. In his seminar book, titled Open Innovation Henry Chesbrough conceptualized the idea of Open Innovation. The whole idea behind the Open Innovation is the purposive inflows of knowledge to accelerate internal innovation, and expand the markets for external used of innovation, respectively" (Chesbrough and Crowther, 2006). High level multi-national corporations such P&G, IBM, Intel and even Lucent are the pioneer's industries that took advantage of this new concept and made the most out it, they quickly realised the merits of openness and capitalised on the innovation. The initial focused of the research's priority was firstly on Large Enterprise (LE) while majoring on the open innovation practices among Large Enterprise. SMEs have some disadvantages over LEs in terms of innovation. Frankly speaking, SMEs no doubt is the under-dog, it has some demerits when compares with LEs in as regards to innovation generally. Although a large numbers of SMEs have the potential to be better-off in technological innovation they are majorly crippled by out rightly or inadequacy in industrial facilities, manufacturing plants distribution links, global connections. All the aforementioned will generally aid in rapidly spreading any available innovation or invention to the universal market through those medium (Narula, 2004). Lack of facilities is a major setback to successfully commercialized and distribute or market a commodity (Teece, 1992), Because SMEs is basically small size in business enterprise the absence of major business amenities such inadequate funds, inability to hire experts in manufacturing and technical skills, nonexistence of human resources, commercial experts, copying invention or innovation and lack of intellectual

property (IP). To be able to remain relevance and gradually integrate into the mainstream business large firms, SMEs generally need to change its approach by collaborating with others firms in tends of knowledge while opening up its boundary to tap more resources and increase its assets, doing all these will lead to greater commercialization while marketing their inventions. In short, to be able to defeat the obstacles and hindrances facing the advancement of SMEs, open innovation approach is inevitable to attain greater height in innovation. There are great benefits when analysed academically on the general outcomes on application of open innovation approach in SMEs. Spithoven et al. (2013) discovered that just like the large enterprises. SMEs need to also adopt the open innovation to fast track its chances of producing new products, this dream can be achieved with new approach such as increase innovative performance, collaborations with various partners as well. Rothwell (1991) suggested that no advancement can take place in isolation, he therefore, opined that part of the innovation include collaboration with other players to form a team which will positively impact SMEs. Some European's countries have conducted a major study and concluded that open innovation practices enhanced the company's performance greatly (Ebersberger et al., 2010); a more recent study by, Vahter et al. (2014) discovered that openness is directly more significant to innovation in micro plants or industries (Spithoven et al., 2013). Open innovation have variety and the SMEs need more of the LE, the large enterprises have a particular open innovation practised for each worker while SMEs have various other kinds of open innovations recently Vahter et al (2014). It was discovered that larger enterprises are more transparent in disclosing their partners and external connections than the micro enterprises who hide theirs. A lot of conflicting discoveries was noted when it comes to the level of openness practices by the SMEs. van de Vrande et al. (2009) Study revealed that only just ratio 5-20% of SMEs openness was analysed by OECD; furthermore, stating that SMEs are utilising open innovation, however, the report contradicted the earlier claimed that SMEs is more open and that SMEs are actively using open innovation (OECD, 2008). Theyel (2013), found out that above 50% of US SMEs are involved to greater extend majorly when the utilising a particular technique or getting started with product development and marketing. Ebersberger et al. (2010) in his comparison of SMEs with LE realised that SMEs operated more in secrecy when it comes to it openness in innovation unlike its counterpart readiness to applying it. Similarly, Idrissia et al (2012) debated that environmental factors and economic reality influenced the level of involvement. They further opined that all SMEs are involved in open innovation either one way or the other. The easy access to SMEs and its importance in providing immediate means of livelihood to millions of households. It is estimated that almost 99% of all enterprises in all developing nations of the world constitute SMEs businesses. Due to its important role it constantly playing, there is the

need to devised laws especially by developing countries' governments to further protect SMEs activities. Pro-SMEs policies should be enacted into law and implemented to further enhance its relevance, expand its frontier and eliminate all barriers to enable SMEs become much effective and efficient. In addition, new ideas will continue to be welcome. The need for policymakers to continue to up-date laws while monitoring the progress of laws and policies enacted if it actually performing as expecting any kind of modification having monitor it progress over time. Similarly, if this pro- active approach is fully apply as stated above, it will enhance the mode of operations of SMEs which will go a long way in eliminating all stumbling blocks and optimises SMEs adoption of open innovation in developing countries without hindrances.

This paper therefore contributed just a token to further elevate the status of open innovation knowledge of SMEs in developing economies. Lastly, adoption of the open innovation knowledge as being analysed has limitations. As we all know, knowledge is inexhaustible, however, further research can be done in the future to contribute to the wealth of knowledge in the study of SMEs generally.

OBSTACLES

Contextual settings of SMEs in developing countries provide insights to the nature of elements and factors that interplay to influence and affect positive environmental behaviour between micro firms and their larger counter-part. Bigger companies tend to maximised more advantages as compares to their counterpart in the micro-industries (Lee et al, 2010). Due to the large resources require to deal the external factors which will required human resources and other useful information which are some expensive, micro companies becomes handicapped financially. Their barely surviving and can easily go out of business. On the contrary their counter-part are larger and can do business at ease thereby getting more benefits and advantages. (van de Vrande et al. 2009; Chesbrough, 2011). Furthermore, the whole idea behind open innovation is the capacity to maximise profit, hence the need for internally generated knowledge to be merge with externally gained knowledge in order to produce a marketable product which was possible through integration fused ideas internally and externally. In the same vein, every progressive industry should learn how to capitalises on profitable ideas through imitations by quickly tapping into new concepts and then move on to apply that externally gain knowledge in a practical way through integrating the learned ideas or concepts into a finish product(s) which is the end-result production. Furthermore, the limited resources in the disposal of SMEs place it in a difficult condition to meet up with challenges of ability to combine both internal and external assimilation of basic skilled needed. (Vossen, 1998). Spithoven et al. (2013) debated that unlike the benefits enjoyed by bigger companies he argued

that smaller companies do not tends to gain much in the whole open innovation practices after all. This attributed to the fact that they lack what it takes to fully benefit from external factors collaboration which can lead to ability to discover, absorb and mingle internal and external knowledge. Likewise, Chesbrough (2010) also felt that SMEs lack capacities therefore not capable enough to search and absorb internal and external innovative concepts just like the large enterprises always do. Most knowledge impacted at developing nations' universities is high enough. The same goes with research institutes across the developing nations of the world too. However, Knowledge is one thing pragmatically implementing or applying the gained knowledge is another thing entirely, this is where SMEs is lacking to transform scientific knowledge into real life development (Spithoven et al., 2013). A lot of SMEs employees lack the scientific knowledge to be able to absorb; assimilate and exploit scientific knowledge produced at the various universities. These lapses continue to incapacitate SMEs for advancing and becoming successful. The lack the ability to defined information, recognised the value of new ideas, assimilate it, and turn out commercial products at the end. (Cohen and Levinthal, 1990).

Establishing a cordial relationship with external partners which enhanced a detecting of vitally important information, improvement in application of state-of -art technology for better products or services output, hence, the need for the companies to set-up a monitoring unit to maintain and constant collaboration; it will help to enhance professionalism and broader access to wider market coverage via constant innovation (Parida et al., 2012; van de Vrande et al., 2009). Another setback that crippled micro-firms is limited resources to tap technological breakthrough from external partners which is the edge larger enterprises enjoy frequently (Narula, 2004). Following these major barriers, the SMEs ended up in weak allies with other establishments (Dodourova and Bevis, 2014) thereby forcing the external collaborators not to be motivated as well, either opting out or just barely in partnership with zero impact. Every organisation need to be properly managed to ensure maximum profitability capacity which can be made possible through open innovation approach. Brunswicker and Ehrenmann (2013) argued by saying that the open innovation generally made it possible for managerial enhancement to be possible through the integrated managerial system which stemmed out of the open innovation too. (Rahman and Ramos, 2010). Unlimited possibilities are attainable through broader collaboration with vital firms, however Theyel (2013) noted that even though is possible but yet open innovation to a greater extend is determine by choice of partnership. Another area SMEs is lacking majorly is the aspect of managerial capability, therefore, the need to outsource for relevance partner(s) or firms specialised in that area to help in enhancing their managerial skill. To quickly wrap up the factors or the key variables that prevent or stood as stumbling blocks for the full acceptance or adoption of open innovation by SMEs, there the need to take a critical

look at Wynarczyk (2013), pointed out that most SMEs are prevented from fully adopting the open innovation due to the fact that a lot of wrangling usually occurred both within and outside the firms, he further argues that inability to come up with enhanced managerial skill, inability to acquire the specific technological know-how, limited fund and lack of external assistance are the bane for their woes, therefore the need to tackle the internal ones first will propel them deal effectively with the external factors as well.

FACILITATORS

To be able to effectively and efficiently deal with all the complexity arising from science will need all the field of sciences holistically in order to succeed in meaningful innovation at the end. Similarly, to be able to attained self-reliance will take a lot of years and knowledge as well as technical know-how while greatly investing in R&D to achieve this so called in-house (Wynarczyk, 2013). While most SMEs are locked-up at a more disadvantageous position generally, majorly due to their financial handicapped there is the urgent need for them to hastily adopt the open innovation to be able to make up for their numerous lapses; such as limited R&D, limited funds, limited access to vital information and managerial incapacity. Majority of SMEs operating in the developing nations find innovation as unnecessary due to their financial status which is barely enough, meanwhile as earlier established in the beginning of this paper, environmental changes created as a result of the low quality products produced by regional firms, which eventually paved the way for innovation thereby making bigger enterprises penetrate beyond their region and boundary. However, innovation comes with heavy financial and human investment hence, the need to cut down cost while maximizing profit, to facilitate this objective, collaboration becomes vital and inevitable for firms to survived and expand their market opportunities. According to Abouzeedan et al. (2013), The bulk of SMEs bane can be summed up as follow, there a huge shortage of resources, another lapses is the technicality aspects of science and technology which require training and expertise with regular updating to keep with space of the development which is constantly in progression. SMEs is intensively involved in implementing open innovation in spite of all the shortcomings which tend to subvert it goals and objectives while thriving hard to adopt open innovation. (Pullen et al., 2012) just recently, the need for adoption of open innovation and all the laudable benefits to be acquire or profited when applied was further buttressed by results presented from an intensive and rigorous scientific study conducted on open innovation for SMEs. For instance, Gassmann at al. (2010) argued that for them to triumph over all stumbling blocks and maximised greater increase of opportunities and profit, the way to go therefore is by SMEs adopting the open innovation whole-heartily and Colombo et al. (2014) claimed that SMEs can strategically be well

position to achieved greater height in business unlike the ones who maintained closed innovation approach or in-house approach. However, according to Petersen et al. (2002), the impact of open innovation will no doubt shoot the micro-firms into a greater advantage of profitability even though they are small in sizes and appeared to be in bad-shape. Modern SMEs with knowledge of open innovation are more likely to collaborate with other organisations to further advanced in business (Hemert et al., 2013) thereby fully accepting with confidence the approach of open innovation. Various advantages made available by open innovation can make a giant of even the micro-firms; this is because greater merits exist in open innovation such as technologies access, greater potential to technical information, managerial and marketing of products as well. Generally speaking, ideas and concepts to invent and re-invent are inherently endowed upon SMEs but are lacking in resources to commercialize those fundamental principles (Lee et al., 2010). Thus, with the advent of technological breakthrough in all the facets of human existence, the world has gradually metamorphosed into a global village thereby creating a great tensioned for micro businesses across the globe, for instance the low cost of production witnessed in the far eastern Asia where cheap laboured is prevalence placed other regional micro-businesses in jeopardy of going extinct, this is as a result of open innovation that extend beyond boundary and is rapidly spreading, to survive in this competitive global environment developing countries need to form alliance which will rapidly lead to innovation and technological capabilities as well. To be able to advance rapidly in technological know-how, it cost a lot of resources. However, most firms improved by simply strategizing through partnership with external actors of other industries through collaborations and corporation instead in-house efforts. Spithoven et al. (2013) noted that SMEs through positive collaboration and partnership can produce new product(s) to add up to several chains products in the market this is a key in open innovation approach. Similarly, it has been empirically established by research that SMEs tend to flourish more effectively at marketing aspect much more than it does at the innovation aspect. (van de Vrande et al. 2009; Hemert et al. 2013). Furthermore, due to complexity of the entire process of innovation, SMEs due to its micro-nature lack the internal capability to resourceful manage the entire innovation therefore need to collaborate with other firms externally (Edwards et al., 2005). Every employee thus has a tendency to exhibit peculiar characters, which may be in consonance or dissonance in ensuring attainment corporate goals of the enterprise and thus, constitute a strong influence and predictor of behaviour.

METHODOLOGY

Objective of the Study and Model

This study analysed the main factors that were discussed as the factors that enable success of International business in small and medium-sized enterprises (SMEs) in Nigeria when applying open innovation approach. as reviewed in the proceeding literatures entrepreneurship success can be attributed to the proper co-ordinator of both internal and external factors. the internal factor comprises of managerial skill, improvement in product quality, while external factors, include technological collaboration, technical assistant human capital development factors to mentioned but a few.

Data Collection and Cases

Due to the problematic of carrying out research generally, case study and qualitative is considered justified method to comprehend detailed analysis. Nigeria was singled out being the most populous African nation. However, the cases were taken from list of nationally nominees of entrepreneurship award of the Best Exporters Category Award given by Manufacturers Association of Nigeria (M.A.N) 50% and above of annual profit qualify an entrepreneur who annual net worth profit is derived from exports. A total of 20 firms met the requirements of the list nominees in both groups of Nigerian SMEs in the years 2014 and 2016 in addition, 5 industries attained the list and awarded by M.A.N. However out of the 25 internationally successful SMEs that were most successful, agreed to Entertained questions that will ask, hence we analysed these companies in accordance with their performance and also in direction of the research questions.

The survey was structured in a carefully composed data gathering technique of study. Five difference sections were selected. First and foremost, we inquired by asking the entrepreneurs the typology of his or her in details. Dunkelberg and Cooper's (1982) Therefore the typologies were effected to group their identification; Export Oriented, inward Oriented, Rapid Increase Orient. According to these grouping; investor stories of the companies and the responses were actually their bio-data such as level of education, background, risk and future agenda, behaviours and they assist us to classified their types of entrepreneurship.

Second question asked was about how they understand the composition and structure of their company's business environment of competition in the industry as Dawar & Frost (1999) argued about the benefits of international collaborations which come with great advantages, more so the level of ability to shared corporative action, background, risk and future agenda, behaviour. In the same vein, they assist us to classified their types of entrepreneurship. Furthermore, the adopted questions asked, was adapted from this section were from the studies

of Liang (2013). The level set are from 1 (Very low) to 5 (very high) and complexity of the business environment were asked. Lastly, well formulated questions were used to asked the interviewees.

The organisational strategic orientation was in the third section, to further certified the questionnaires used Peek(1994, 731). SMEs under international setting requires a great deal of corporation or partnership worldwide to enhance greater gains and strategy execution (Knight, 2000), From the viewed point of Transactions or business success or strategy typology. Miles and Snow's (1978) From the viewed point of Transactions or business success or strategy typology. **Adventurers** are high risk takers and operate more in risky economic environment where economic reality is uncertain and unstable ye the keep looking for opportunities to invest. these organisations are agent for change and are proactive forcing business rivals to react. however, the reactions from competitors is what drives the market to the next level via product research and development. Adventurers tend to have a wider market reach or coverage, majoring on innovation change, flexible and usually led by young digital managers; ironically, the preservers and the adventurers are opposing each other ends of a continuum of game plan in business. **Preservers** are satisfied with the familiar trend of stable but narrow normal product-market environment it commonly managed by middle aged or old managers or executives. Even though their market domain is grossly limited populated area they are efficient and moderately improving at a very low space of their operational capacities. **Moderators** are situated right in the middle by observing the activities of adventurers and capitalised on the advantages they adoption of new ideas like open innovation can provide but ensure it is profitable before adopting. they are efficient in research and product management skills. **Absorbers** are basically being the receiving ends of the economic activities; they are lag-reactors meaning their own actions is in response to happening around them. The aggressive economic activities of Adventurers motivate them to act in reactions conceptual thrust and is the least non-effective among the four strategies. It is safe to said, they lack their own initiatives. For easy identification and strategic positioning of each firm, the companies are identified as A, B, C, D basically as archetypical representation of each strategy discussed briefly as observed by Zodiac and Short ell (1989). Additionally, their strategy informant was requiring to choose the most closely related hypothetical company observed.

Before competitive capabilities of the company which was discussed in the fourth section, internal success factors achieve and their sustainable competitive advantage which could be done by creating capability configurations that is through "a cohesive combination of resources and capabilities that is hard to imitate" (Miller, Eisenstat and Foote, 2002, The last segment consist of the basic data including the demographic regarding the business entity.

ANALYSIS AND FINDINGS

Internationally successful SMEs drawn from various kinds of industries are observed in this study. Here is a brief hierarchical arrangement and profile of some of the companies: -

Firm A was incorporated in 2004. To be able to attain the capacity as the biggest Dunlop Elite company, in Nigeria, the company upgraded in 2008 to become the best truck-allure wheel factory in the whole of west African region by adding new products of different brand of truck's wheels and different shapes, designed and sizes only for host country Nigeria but from neighbouring west African state and beyond not only host country, Nigeria but from neighbouring west African state and beyond new customers to its portfolio regularly. It has numerous branches across Nigeria with one in Lagos's workshop with 12 presses and 12 employees in Ilupeju Industrial layout. The industry capacity has surged to 2,000,000 pcs from 1,000,000 improvement in technology through innovation saw a great Industry A recruits 250 personnel while exporting allure-wheels to over 85 countries for all such as privately own vehicle, to commercial, trucks, buses, trailers and so on which sells 90% of its products are exported overseas while 10% to local market.

Firm B, is situated in Ilorin/Nigeria manufacture high quality allure wheels too for big trailers and min-trucks as well. even though it has been in the market long (Jun.2008). The industry is determining to increase its target sale and want all its employees to meet target in the best shortest time. the work force is about 160 personnel of young and enthusiastic in their daily tasks. The company exports its products big corporations across the globe, about 10,000m² occupied landscape, 700,000pcs. net manufactured in 201. High interest and investment to Research & Development makes a continuous rise in innovations. The company exports its own brand products and Private Label for Multinational Brands almost to all around the world by 10,000 m² Covered Area, 700,000 pcs. production in 2013.

Firm C was established in 2011. The industry majorly produced furniture with the aim of supplying portable and durable pieces of furniture to households, corporate organisations therefore the customers varies and their need for high quality furniture are satisfied by high utilisation of the company aims to care about sustaining customer satisfaction by keeping the request of customers at the forefront technology and good craftsmanship in producing variety of designs and accessories. the industry works as a team combining professional architects while recreating and restructuring quality furniture's been internationally recognised and honoured "LetCo furniture" is outstanding in the industry.

Firm D Incorporated 1986 the circular knitwear firm geared 100% exportation strategy as its major goal. by 1989 the industry established another branch in Ikoyi and quickly repositioned itself into premium quality fashioner designer and producer. Integrate woven commenced in

2004.along with knitwear. the company expanded to European market and well north America's country, U.S.A with all kinds of modern fashion collections. Firm D got a national recognition and was award a national honoured a ceremony graced by Minister of Commerce in 2012. The firm is still rising with a work-force of 59 employees in 2014.

Firm E Was incorporated in Lagos Nigeria in 1976. it has gradually turned into a giant in aquatic industry over the last four decade of existence. The firm is among the forerunner in term of designing production and installation of amusement park, water parks etc. Clients satisfactions is the major objective, also, research and development strategy was adopted as well opening up to all kind of innovations. Company E is loaded with 300 people and it's export profit is running into 50 million USD by selling products to at least 82 countries from all over the world in 2013. globally in 2013. The firm is predicted to be among the first 100 fastest growing industries in Nigeria in 2013 and was the best SMEs company same year, 2013.

Firm F was established. The Firm F is a major producer of stationary products across the which has become a household's name in term of vast range of high quality books and accessories of all types it exports index has continued to increase tremendously reaching a whopping 30 various count tries internationally. It comprises of 24 employees. Firm F got a national award in Nigeria because of its impact and positive influenced. It also gains enormous recognition along the west African region as well.

Firm G established 2003. The Firm G is leading manufacturer of electrical home appliances for households and corporate customers, over the years Industry G have built a reliable and good reputation across the country and beyond. Industry G is fully dedicated to excellent household quality products for all its customers and have a lot patronage too, the industry employees are 43 situated in Lagos while it exports its products to over 60 countries worldwide. It has received numerous excellence award both internationally and locally in 2010.

Analysis of Enterprises of Typologies

Some personal information of entrepreneurs of the companies such as age, education and experience were asked during the survey. Table1 summarizes brief identifier information about entrepreneurs. A brief question about personal bio-data such age, level of education, work experience that was put across to the various companies' entrepreneurs. Based on the results collected, an error of double characteristics was discovered. Entrepreneurs can be under either dominant or recessive at all time; dominant refers to the entrepreneurs characterises are within the majority, while recessive to the minority characteristics (Dinner at all, 2011, 205). Based on the results most entrepreneurs were increased-oriented entrepreneurs except one Handiwork-man-oriented with numerous years of experiences, however, other were well educated.

Dominant characteristic indicated “***” sign, while, recessive characteristic indicated “**” sign in table.

Table 1. Features and the Highlights of Investors Typologies based to Interviewees

	Age	Gender	Level of Education	Employee Experience	Working Experience	Type
Firm A	68	Male	Tertiary Education	-	31	Increased Oriented
Firm B	38	Male	College Degree	3	-	Increased Oriented**
Firm C	39	Male	Polytechnic Degree	10	11	Handiwork-man** Self-reliance*
Firm D	54	Female	College Degree	3	7	Increased Oriented**
Firm E	43	Male	Polytechnic Degree			Increased Oriented**
Firm F	32	Male	Master Degree	-	8	Increased Oriented**
Firm G	62	Male	College Degree	-	34	Increased Oriented**

Determinants for analysing Successful Achievements

There are various success determinants put together holistically under the SMEs general network like the Man et al (2002, 131). However, this paper highlighted the data in Table 2, that vividly talked about international successes in SMEs viewing the success from an open innovation approach in Nigeria. It can go a long way to fostered external factors (international competitive pressure or excessive demand from industrial structure) a very solid or strong internal factors can be a major source of motivation while dealing in the international market, the kind investors or entrepreneur and the manner by which it can be carry out was analysed in Figure 1.

Similarly, Miles and Snow's (1978) strategized the concept distributions of various factors that will determine success. They argued that even the absorbers as weak as they are, can still attain success, only if they have the right distributed strategies in place. Based on the external factors that determined and orchestrated by external happenings informed by international competition. Majority of investors focused more on increased and rapid development of their businesses, best known as increased-oriented, adventurer's strategy and

the other one is preservers strategy. Due to unpredictable nature of international business violability couple with competitiveness and highly dynamic economic system for success, adventurers are concern with research and development to further explored any given prospect that will create set of products and customers by definition, these companies try to maintain product, service quality, improve logistic and competitive price structure.

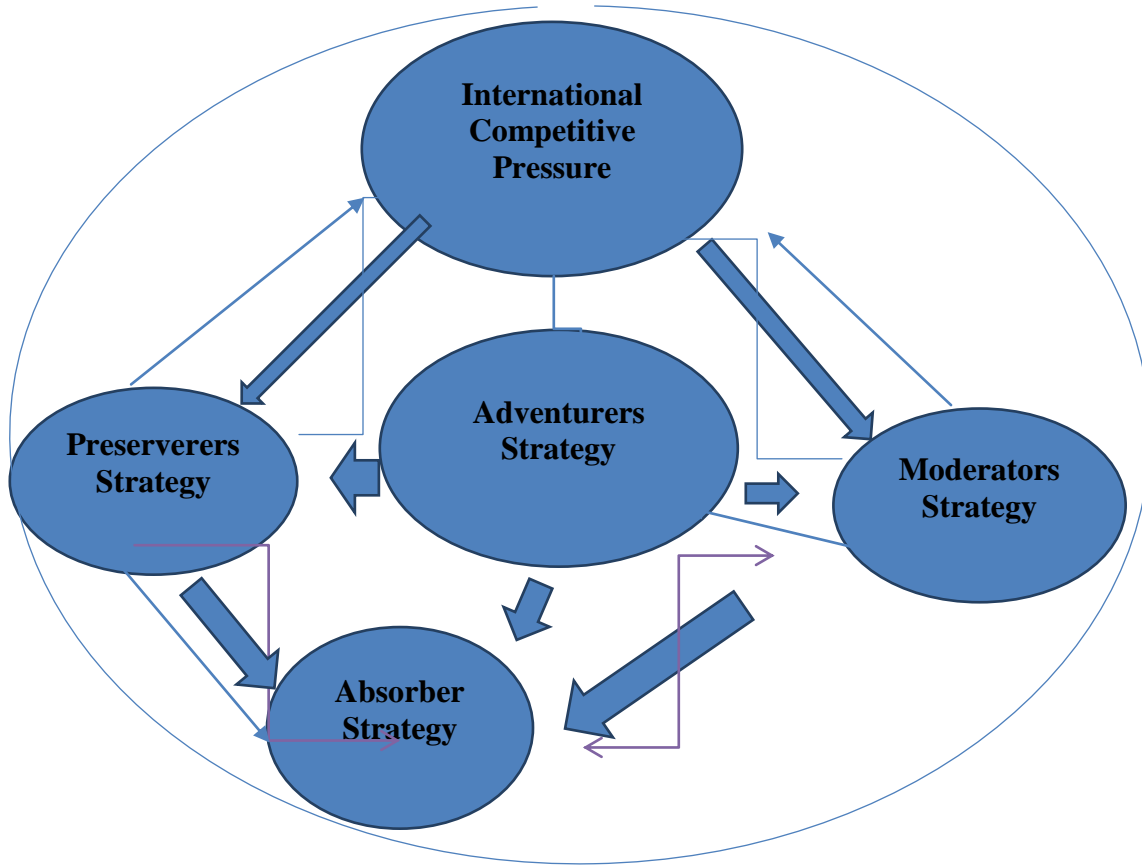
Table 2. Highlights of Determinants of Success

Organisation								Competitive Strategy Approach
Companies	Business Environment			International Competitive Pressure	Pre- Competitive Capabilities Approaches			
	Observed Organisational Structure	Market Domain			A	B	C	
Firm A	Vehicle Plant	Unstable	Overseas	4	Investment	R&D	Commerce/ Advert	Adventurer
Firm B	Vehicle Plant	Unstable	Domestic	5	Commodity/ Service Quality	Transport	Price	Preservers
Firm C	Furniture	Unstable	Domestic	2	Commodity Improvement	Pricing	Commerce/ Adverts	Moderators
Firm D	Fashion	Unstable	Domestic	4	Human-Capital Human	R&D		Adventurers
Firm E	Fashion	Stable	Overseas		Product Development	Technological Innovations	Price	Adventurers
Firm F	Fishery	Stable	Overseas	4	Product/ Service Quality	Price	Commodity Estimate	Preservers
Firm G	Electrical Gadgets	Stable	Oversea	4	Product/ Service Quality	Human Capital Management	Investors	Preserver

Figure 1 below is not only a summary of general characteristics of globally successful SMEs in terms of competitive Capabilities, strategies, types of entrepreneurs and external factors (international competitive Pressure and Industry Structure), but also offers an integrated model for the entrepreneurs of SMEs, that wants to play in global arena successfully. Additionally,

Competitive capabilities must be developed, while strategies of implementing external factors must be in place.

Figure 1. The concept of entrepreneurship as a factor(s) for success



OPEN INNOVATION ECOSYSTEM CUSTOMISED FOR DEVELOPING COUNTRIES, POLICIES AND ACTIONS

Firstly, there is the need to take into consideration the SMEs especially those in the third world nations are in need of dare helps from their constituted authorities, that is the government of their various domains of operations. However, some vital actions must have adopted by every responsible government. To start-up the process, here are fundamental lines of actions; a thorough and well documented periodic reports originating from various levels such as regional, sectoral or global is crucial to have periodic update and assessment of progress in SMEs world. The need to carry out intensive search about open innovation and intermediaries thereby keeping abreast of the up-to-date information which could be share by firms, this will ensure partnership and corporation with external actors in the industry; furthermore, since language is a

powerful tool of communication, the need to translate related posts into local dialect or language will facilitate sharing of vital SMEs related operations in specific area. A large scale economic gain can be achieving on a long term basic if appropriate pro-governmental policies and schemes are implemented, monitored on regular basic and sustained while at the same time outsourcing for a broader and transparent innovation in terms of the ecosystem generally. Kamp and Bevis (2012) further argued that a great deal of success can be attained if collaboration on open innovation is merged with governmental or public schemes on joint-partnership basis. Vega et al. (2012) Found that over the years little has be done to revived the obsolete schemes which has lost touch with recent advancements in order to attain greatness in open innovation, there is the need to revitalise and accelerate public policies rapidly to significantly achieve the desire results. Similarly, our position therefore still remains that open innovation in the ecosystem remain the way forward out of the woods for SMEs. However, we reiterate our utmost faith by urging the lawmakers especially in the developing poor economies countries to whole-heartily without delay legalise the open innovation approach to compel SMEs to fully adopt it for their betterment and indeed the betterment of the whole populace which in one way of the other are influenced by the activities of SMEs. In order to keep up with the corporation through partnership with SMEs open innovation, most developed countries established universities and encouraged Industry-university joint collaboration this however constitute new action in the open innovation which is capable of triggering all kinds of long term industrial breakthrough and should be transfer to developing nations as well. Considering the limited internal capacity for SMEs to adequately cater for it needs especially assimilating external knowledge and integrating its own in-house knowledge is barely enough to trigger the expected outcomes, the need to allow public research institutions which is funded by government including public universities to jointly come together and constitute a research and development R&D team or partners is vitally crucial for SMEs. For instance, Leeds University in collaboration with poster boy of open innovation, P&G are carrying out 20 joint projects simultaneously. In advanced countries the higher institutions such as the universities are considered to be the centres of invention and new discoveries, therefore firms and enterprises needed to drive innovation thereby establishing R&D to that effect (Huggins et al., 2008). According to Kaufmann and Todtling (2002), due shortage of staff on their pay roll; those SMEs few staff can take the role of nodes thereby constituting and maintain communication to networks of related innovation. Vrgovic et al. (2012) is of the view that, government agency for instance ministry of Trade and Commerce can link all SMEs in a particular developing nation to establish communication with independent innovators or inventors worldwide or other related groups to suddenly kick-off innovation culture. We are of the view that, the time is right for developing

nation worldwide to set-up open innovation out-let or units in their various university or polytechnics. Chesbrough et al. (2006) argued that unofficial friendship or association that goes on between employees with other employees from various other firms is very vital and can translate into dissemination of information via informal means that will casually enlighten but powerful in influencing and creating new product(s) and marketing. Thus, so long a company adopts the open innovation principles, it becomes vital to maintain collaboration by stimulating or encouraging workers to fully interact with workers of other establishments, this will lead to sharing of vital information that could impact the company positively if assimilated and apply. We are of the view that broader networking in tend of attaining international conferences, acquiring business degrees, relevance workshops, in-service training and inter-establishments networking are all contagious and can influenced positively in innovation ideas. In the same vein, the lack of sufficient funds by SMEs to invest heavily in human resources can be supplemented by the governments of developing nations to fast track advancement of the sector by educating the employees that are ready to attain graduate studies and contribute tremendously to SMEs with their advanced knowledge gain. Moreover, to expand the efficiency and effectiveness of staff training a multi-disciplinary approach should be adopted by diversifying the field of studies having drawn different backgrounds, with several courses from multiple disciplines which will be offered to both undergraduates and post-graduates at the universities. However, open innovation tends to be more dynamic in nature when compare to internal R&D section in an organisation. Open innovation become very complex and diverse in tend of activities of it operations such as managerial skills, information detecting competencies and lot more. (van de Vrande et al., 2009), But the core interest of open innovation seeks to successfully implement open innovation practices much more that investing in human capital or acquiring research skill as less important (Wynarczyk, 2013). Scholars have got a task of researching further which will help to fill up the vacuum created, the need for academic researchers to develop theories and concepts particularly in open innovation which will constitute a yard-stick or benchmark that SMEs managers will rely in application. Similarly, in continual joint collaboration between the industry and university, there is the need to create course curriculum that will specifically offered open innovation at tertiary level. Public universities should also be directed to offer graduate programs which should specifically focus on open innovation. Because diversity is key, there is the need to for outsourcing of brilliant concepts and ideas outwardly which is vital to ensure innovative continuity, similarly, the knowledge acquire from skilful individuals is crucial too, when it comes to innovation variety of inputs is key. Companies should rigorously channel their energies toward public contests to source for talented individuals whose ideas can be vital in innovation and re-positioning of

company's status positively especially, when it affect their product's commercialization and marketing. Famous firms are majorly involved in dissemination of publicly announcement on various electronic airwaves and via the internet to source for contributions through these contests which in turn pour in thousands to tenth of thousands of overwhelming inputs from the general public; but less famous smaller firms lack the capabilities to pull-off such a huge contest because of the enormous cost involve and the coverage which could be global. In addition, apart from innovation aspect which is basic, most companies involved in this kind of contests to encourage contestants to create electronic software and other technological accessories. This is usually done in contest for open source for software (Henkel, 2004; Hienerth, 2006). Lately, this kind of contest have shifted more on automobile industry especially in car design majorly (Fiat Mio), children toys (Lego) sporting equipment or facilities or electronic games. the bulk of this innovative practices are carried out through a joint partnership agreement, however, Narula (2004) argued that although this massive outsourcing have it advantages no doubt but, he warned of the need for SMEs to move further by having enough technological assets and expertise. It also important to focus more on technological partners such as the university and public research institutes as well Chesbrough (2010). Similarly, he pointed out, discrimination may likely occur between the large firms which may find smaller company unworthy to partner with. However smaller firms may retaliate by trying to maintain in-house, which can adversely subvert the needed collaboration. To encouraged corporation and skills acquisitions the university might be compelling by law to get into partnership with an estimated numbers of SMEs, furthermore this policy should be extended to the public research institutes as well, more resources especially adequate financing should have made mandatory by law to ensured unhindered progression in empowering SMEs constantly; and lastly, the need to aid SMEs which lack human resources management. Gone are the days when human capital used to be a luxury. Every large corporation budget huge resources to the HR department because of its importance, the SMEs should not be an exception, another setback for SMEs is lack of IP this is vitally important too. A cost free consultancy services from bigger enterprises should be made by law to have at least some partnership with SMEs to render consultancy services to SMEs, same should apply to public research institutes and public universities or polytechnics as well.

CONCLUSION

In conclusion, with a great deal of studies already conducted about open innovation ironically not much has been done to get a deeper understand on the issue of SMEs in developing economies. However, this paper dived into the issue a bit farther to pave way for more academic study in this direction. The reasons for usage and non-usage of new inventory ideas

such as open innovation was summarised buttressing its benefits if utilised by SMEs in developing world. Factors encouraging utilisation of open innovation are bureaucracy, the size-related, merits of SMEs over the bigger enterprises, lack of open innovation, insufficient funding thereby causing it to collaborate with external actors, ability to fit into fast changing environment. From the other perspective, the study pointed out reasons why the adoption was turned down in term of utilising open innovation by SMEs, the quest for external partnership, the ability to detect credible ideas, technological know-how, and the concept of managerial collaborations as well. A lot setback is associated with SMEs in developing nations these challenges including nonprofessional employees, inability to detect, assimilate and adaptively applied vital technological information in real life situations and manage external technologies. This study does not only provide new insights for implementing open innovation, but also look at the best effective ways of managing open innovation. it also suggests important managerial implications. The facilitator and obstacles proposed here will definitely assist managers to have a deeper understanding of open innovation approach. Additionally, we pointed out that challenges experienced by SMEs can be converted into major advantages in the sense that open innovation tend to resolve the problems and create opportunity if well inform, will no doubt enhanced SMEs dividends to investors. Similarly, we strongly believed that our detailed analysis carried out in this paper will go a long way in assisting SMEs managers through by understanding of the internal strengths and the external factors in the environment through open innovation approach adoption. This analysis will enhance a high corporation among SMEs which is part of the objective of writing this paper too. No doubt, this paper will add to already wealth of knowledge as regards to the knowledge on open innovation in SMEs in developing nations. Features like human behaviour, environmental problems and behaviour are dynamics and various contexts of SMEs. The monumental problems and their contextual dimension require new studies to focus on understanding open innovation pro- open innovation approach in micro or macro business enterprises.

FUTURE DIRECTION

Limitations associated with this study of SMEs generally in developing nations of the world has been noted and highlighted in the conclusion. However, further research on the emerging social media-marketing concept as one of the numerous factors relevance to adoption of open innovation require future works to elaborate more. In the same vein, academic research into social media and its marketing commutations role, as part of internal factors of a firm or industry is rapidly expanding. Additionally, IT is inevitable in this 21st century. Nowadays the advancement of business is literally requiring link to IT. However, Implementing IT into SMEs

operations are quite expensive and complex to install and keep the software(s) up and running constantly via the internet. Further study in this direction is relevance and should be encouraged to help proffer more solutions in that area. It will guide policymakers and SMEs managers with the wisdoms require to formulate and broaden knowledge optimally (Chong et al., 2012; Pires and Aisbett, 2001). Insufficient access to specific relevance up-to-date technology's adoption mitigates the products and commercialization of the product maximally. More so the firm's inability to capitalised on greater external opportunities to enhance business performance. For instance, in Malaysia, the challenges faced by SMEs are the insufficient of sales and marketing in the usage of obsolete technology in their operations (Hashim, 2007). SMEs has peculiar kinds of limited resources, such as funding man-made technologies to mentioned but a few (Davis and Vladica, 2006). The need for SMEs to fully embraced technology is a major factor that has been researched into but still yearning for more future researches in this direction. (Morgan et al., 2006; Riemen schneider et al., 2003). Finally, managerial skill and organizational various internals and externals factors, are constantly increasing on both sides of a firm's in-house factors and externally factors thus, requiring them to be thoroughly across the board. Intensive research's light ought to be beam on fundamental factors. Similarly, those factors constitute some major factors for businesses environment to flourish effectively and efficiently. Lastly Improved technological advancement and dynamism in scientific applications globally, regularly influenced the determinant factors in the business environment which to evolved hence, researching relevance areas in the future research direction cannot be over emphasized.

REFERENCES

- Ahmad, N. H., and Seet, P. S. (2009). Dissecting behaviours associated with business failure: a qualitative study of SME owners in Malaysia and Australia. *Asian Social Science*, 5(9), 98.
- Al-Mahrouq, M. (2010). Success Factors of Small and Medium Enterprises: The Case of Jordan. *Zagreb International Review of Economics and Business*, 13(2), 89-106.
- April, W.I. (2005). Critical factors that influence the success and failure of SMEs in Namibia in the homes, Region Doctoral dissertation, Stellenbosch: University of Stellenbosch.
- Benzing, C., Chu, H.M., and Kara, O. (2009). Entrepreneurs in Turkey: a factor analysis of motivations, success factors, and problems. *Journal of Small Business Management*, 47 (1), 58-91.
- Bracker, J. S., Keats, B. W., & Pearson, J. N. (1988). Planning and financial performance among small firms in a growth industry. *Strategic Management Journal*, 9, 591-603.
- Cansiz, M., (2008), Türkiye'de KOBİ'ler ve KOSGEB, Ankara, DPT. Uzmanlık Tezi.
- Chak, C. M. (1998). Strategic management for small and medium enterprises. Unpublished Thesis of Doctor of Philosophy, St Clements University, USA.
- Chittithaworn, C., Islam, M. A., Keawchana, T., and Yusuf, D. H. M. (2011). Factors affecting business success of small & medium enterprises (SMEs) in Thailand. *Asian Social Science*, 7(5), 180.
- Dawar, N., and Frost, T. (1999). Competing Giants Survival Strategies for Local Companies in Emerging Markets. *Harvard Business Review*. 77 (2), 119-129.

- De Chiara, A., and Minguzzi, A. (2002). Success factors in SMEs' internationalization processes: an Italian investigation. *Journal of Small Business Management*, 40 (2), 144-153.
- DeHayes DW, Haeberle WL. University Alumni Small Business Research Program: A Study of Emerging Businesses. Bloomington: Centre for Entrepreneurship and Innovation, Indiana University, 1990.
- European Union (2013). SME Performance Review.
- Feindt, S., Jeffcoate, J., and Chappell, C. (2002). Identifying success factors for rapid growth in SME e-commerce. *Small Business Economics*, 19(1), 51-62.
- Fernandez, Z., and Nieto, M.J. (2005). Internationalization Strategy of Small and Medium -Sized Family Businesses: Some Influential Factors. *Family Business Review*, 18.1, 77-89.
- Franco, M., and Haase, H. (2010). Failure factors in small and medium-sized enterprises: qualitative study from an attributional perspective, Ghosh, B. C., Liang, T. W., Meng, T. T., & Chan, B. (2001). The Key Success Factors, Distinctive Capabilities, and Strategic Thrusts of top SMEs in Singapore. *Journal of Business Research*, 51(3), 209-221.
- Gonzalez, J. H. S. (2009). Assessing Exporting Culture in Colombian SMEs: A Look at The Export Promotion Program. *CuadAdm Bogota*, 22 (39), 99-134.
- Graves, C., and Thomas, J. (2006). Internationalization of Australian family businesses: A managerial capabilities perspective. *Family Business Review*, 19.3, 207-224.
- Hoffmann, W.H., and Schlosser, R. (2001). Success factors of strategic alliances in small and medium-sized enterprises—An empirical survey. *Long range planning*, 34 (3), 357-381.
- Ihua, U. B. (2009). SMEs key failure-factors: a comparison between the United Kingdom and Nigeria. *Journal of Social Sciences*, 18(3), 199-207.
- Islam, M. A., Khan, M. A., Obaidullah, A. Z. M., and Alam, M. S. (2011). Effect of entrepreneur and firm characteristics on the business success of small and medium enterprises (SMEs) in Bangladesh. *International Journal of Business and Management*, 6(3), 289.
- Knight, G. (2000). Entrepreneurship and Marketing Strategy: The SME Under Globalization. *Journal of International Marketing*. 8 (2), 12-32.
- Larimo, Jorma. (2001). Internationalization of SMEs—two case studies of Finnish born global firms. CIMaR Annual Conference, Australia, Sydney.
- Man, T, T. Lau and Chan. K.F. (2002). The Competitiveness of Small and Medium Enterprises. A Conceptualization with Focus on Entrepreneurial Competencies. *Journal of Business Venturing*. 17 (2), 123-142.
- Miles, R. E., and C. C. Snow (1978). *Organizational Strategy, Structure, and Process*. New York: McGraw-Hill.
- Miller, D., Eisenstat, R. and Foote, N. (2002). Strategy from the inside out: Building capability creating organizations, *California Management Review*, 44(3), 37 -54.
- Mundim, A. P. F., Alessandro, R., & Stochetti, A. (2000). SMEs in global market: challenges, opportunities and threats. *Brazilian Electronic Journal of Economics*, 3(1), 9-20.
- Pasanen, M. (2003). Multiple entrepreneurship among successful SMEs in peripheral locations. *Journal of Small Business and Enterprise Development*, 10 I (4), .418 - 425
- Porter, M. (1991). Towards A Dynamic Theory of Strategy. *Strategic Management Journal*. Winter 1991; 12, Special Issue. 95
- Raymond, L and Pierre, J. (2010). Strategic Capabilities for the Internationalization of Manufacturing SMEs: A Configurational Approach. *Entrepreneurial Practice Review*. 1(2).13-35.
- Reuber, R., and Eileen Fischer (1997). The Influence of the Management Team's International Experience on the Internationalization Behaviors of SMEs. *Journal of International Business Studies*, Vol 28, No. 4, 807-825.

- Rockart, J. F. (1978). Chief executives define their own data needs. *Harvard business review*, 57(2), 81-93.
- Rose, R. C., Kumar, N., & Yen, L. L. (2006). The dynamics of entrepreneurs' success factors in influencing venture growth. *Journal of Asia Entrepreneurship and Sustainability*, 2(2), 1-22.
- Rose, R Kumar, N. and Yen, L., (2006). Entrepreneurs Success Factors and Escalation of Small and Medium-Sized Enterprises in Malaysia. *Journal of Social Sciences*, 2 (3), 74-80.
- Sanchez, A.A. and Marin G.S. (2005). Strategic Orientation, Management Characteristics, and Performance: A Study of Spanish SMEs. *Journal of Small Business Management*. 43(3), 287-308.
- Shah, Tasweer Hussain, Saman Javed, and Sadia Syed. Internationalization of SMES in Pakistan: A Brief Theoretical Overview of Controlling Factors. *Journal of Managerial Sciences*, 7 (2), 214-230.
- Slater, S.F. and Mohr, J.J. (2006). Successful Development and Commercialization of Technological Innovation: Insights Based on Strategy Type. *The Journal of Product Innovation Management*. (23). 26-33.
- Smith, N. (1967). The entrepreneur and his firm: The relationship between type of man and type of company. *Occasional Papers*. Bureau of Business and Economic Research, Michigan State University, 109.
- Suh, Y., and Moon-Soo, K. (2014). Internationally leading SMEs vs. internationalized SMEs: Evidence of success factors from South Korea. *International Business Review*, 23(1) 115-129.
- Chesbrough, H., & Vanhaverbeke, W. (2011). Open innovation and public policy in Europe.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, 35(1), 128-152.
- Colombo, MG, Piva, E, and Rossi-Lamastra, C. (2014). Open innovation and within-industry diversification in small and medium enterprises: The case of open source software firms. *Research Policy*, 43(5), 891-902.
- Dodourova, M, and Bevis, K. (2014). Networking innovation in the European car industry: Does the Open Innovation model fit? *Transportation Research Part A: Policy and Practice*, 69, 252-271.
- Ebersberger B., Marsili O., Reichstein T. and Salter A. (2010). Into thin air: using a quantile regression approach to explore the relationship between R&D and innovation, *International Review of Applied Economics*, 24 (1), 95-102.
- Gassmann, O., Enkel, E. and Chesbrough, H. (2010). The future of open innovation. *R&D Management*, 40(3), 213-221.
- Hemert, P., Nijkamp, P. And Masurel, E. (2013). From innovation to commercialization through networks and agglomerations: analysis of sources of innovation, innovation capabilities and performance of Dutch SMEs. *The Annals of Regional Science*, 50(2), 425-452.
- Henkel, J., (2004). Open source software from commercial firms - tools, complements, and collective invention. *ZfB-Erganzungsheft*.
- Hienerth, C., (2006). The commercialization of user innovations: the development of the rodeo kayak industry. *R&D Management* 36, 273-294.
- Howells, J., James, A., & Malik, K. (2003). The sourcing of technological knowledge: distributed innovation processes and dynamic change. *R&D Management*, 33(4), 395-409.
- Huggins, R., Johnston, A., Steffenson, R. (2008). Universities, knowledge networks and regional policy. *Cambridge Journal of Regions, Economy and Society* 1 (2), 321-340.
- Idrissia, M., Amaraa, N., Landrya, R. (2012). SMEs' degree of openness: the case of manufacturing industries. *Journal of Technology Management & Innovation*, 7(1), 186-210.
- Kamp, B. And Bevis, K. (2012). Knowledge transfer initiatives as a doorstep formula to open innovation. *International Journal of Automotive Technology Management*, 52(3), 236-256. Kaufmann, A. & Todtling, F.

- (2002). How effective is innovation support for SMEs? An analysis of the region of Upper Austria, *Technovation*, 22(3), pp. 147-159.
- Lee, S., Park, G., Yoon, B., Park, J. (2010). Open Innovation in SMEs - An intermediated network model. *Research Policy*, 39(2), 290-300.
- Maier, A., Keppler, T., & Maier, D. (2014). Innovation the new trend in today's challenging economy. In *The Bucharest University of Economic Studies, The 13th International Conference on Informatics in Economy, Education, Research & Business Technologies*. Bucharest, Romania (pp.15-18).
- Narula, R. (2004). R&D collaboration by SMEs: new opportunities and limitations in the face of globalisation. *Technovation* 25, 153-161.
- Organisation for Economic Co-operation and Development (OECD). (2005). Oslo manual. Guidelines for collecting and interpreting innovation data. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). (2008). Globalisation and open innovation. Paris: OECD.
- Parida, V., Westerberg, M. And Frishammar, J. (2012). Inbound Open Innovation Activities in High-Tech SMEs: The Impact on Innovation Performance. *Journal of Small Business Management*, 50(2), 283-309.
- Petersen, B., Welch, L.S. & Liesch, P.W. (2002). The Internet and foreign market expansion by firms, *MIR: Management International Review*, 42 (2), pp. 207-221.
- Pullen, A.J., Weerd-Nederhof, P.C., Groen, A.J. and Fisscher, O.A. (2012). Open innovation in practice: goal complementarity and closed NPD networks to explain differences in innovation performance for SMEs in the medical devices sector. *Journal of Product Innovation Management*, 29(6), 17-934.
- Rahman, H., & Ramos, I. (2010). Open Innovation in SMEs: From closed boundaries to networked paradigm. *Issues in Informing Science and Information Technology*, 7, 471-487.
- Rothwell, R. (1991). External networking and innovation in small and medium-sized manufacturing firms in Europe. *Technovation*, 11(2), 93-112.
- Spithoven, A., Vanhaverbeke, W., & Roijakkers, N. (2013). Open innovation practices in SMEs and large enterprises. *Small Business Economics*, 41(3), 537-562.
- Teece, D. J. (1992). Competition, cooperation, and innovation: Organizational arrangements for regimes of rapid technological progress. *Journal of Economic Behaviour & Organization*, 18(1), 1-25.
- Theyel, N. (2013). Extending open innovation throughout the value chain by small and medium sized manufacturers. *International Small Business Journal*, 31(3), 256-274.
- Vahter, P., Love, J. H., & Roper, S. (2014). Openness and innovation performance: are small firms different?. *Industry and Innovation*, 21(7-8), 553-573.
- Van de Vrande, V., De Jong, J., Vanhaverbeke, W., and De Rochemont, M. (2009). Open Innovation in SMEs: trends, motives and management challenges. *Technovation*, 29(6-7), 423-437.
- Vega, A., Brown, D. And Chiasson, M. (2012). Open innovation and SMEs Exploring policy and the scope for improvements in university-based public programmes through a multidisciplinary lens. *International Journal of Entrepreneurial Behaviour and Research*, 18(4), 457-476.
- Vossen, R.W. (1998). Research Note-Relative strengths and weaknesses of small firms in innovation. *International Small Business Journal*, 16(3), 88-94.
- Vrgovic, P., Vidicki, P., Glassman, B. and Walton, A. (2012). Open innovation for SMEs in developing countries-An intermediated communication network model for collaboration beyond obstacles. *Innovation: Management, Policy and Practice*, 14(3), 290-302.
- Wynarczyk, P. (2013). Open innovation in SMEs: A dynamic approach to modern entrepreneurship in the twenty-first characteristics, network openness and network information. *International Journal of Technology Management*, 62 (2), 223-250.