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FACULTY OF BUSINESS ECONOMICS  
*Master of Management*

Master's thesis  
Role of Entrepreneurs in Managing Open Innovation in SMEs

Supervisor :  
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Co-supervisor :  
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Sehrish Karamat  
*Thesis presented in fulfillment of the requirements for the degree of Master of  
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Sehrish Karamat  
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## **Abstract**

It is nowadays quite logical for Small and Medium Enterprises (SMEs) to engage in open innovation activities to combat the internal and external challenges they are facing such as fewer sources for R&D, limited financial resources and technical capabilities, lack of production facilities and distribution channels etc. Studies show that open innovation experienced a rapid increase in recent years. Recently researchers have also shown keen interest in research on SMEs whereas previously only the large companies remained focus of the academicians. The objective of the thesis is to highlight how SMEs overcome their scarcity of resources by engaging into open innovation activities. The study analyses the crucial role of the SME entrepreneur in successfully organizing and managing open innovation activities. Two SMEs from different regions, namely Pakistan and the United Kingdom, were selected as research cases for the investigation. Interviews have been used as a primary means of data collection. Irrespective of certain research limitations, the investigation was successfully concluded with noteworthy findings related to the implications and practices of open innovation used by SMEs. Our findings indicate that entrepreneurs based on their individual traits recognized the value of the opportunity and articulate the idea into a successful product. Their most important entrepreneurial characteristics are rapid decision making, risk taking capability and creativity in finding solutions to problems. Both entrepreneurs were successful in organizing and managing the open innovation process and overcame the liabilities of being small. In both of our cases, the entrepreneurs brought in external resources to fulfil the lack of their internal resources by means of a technology exploration innovation strategy and through building and managing their innovation network. The outcome of this research shows that the success of how an entrepreneur manages the business is not just based on his skills and capabilities, but it also depends on the type of innovative processes he incorporates within the organization. While organizing and managing the open innovation process there were various challenges that both the entrepreneurs had to face in order to make their SMEs successful. A geographical comparative analysis has been carried out to analyse the challenges faced by these two SMEs. Some but not many differences emerge when the CEO's adopted open innovation activities.

**Keywords:** *SMEs, Open Innovation, Open Innovation activities, Open Business Model, Role of entrepreneur, Entrepreneurial skills and capabilities.*



## **Chapter 1: Introduction**

### **1.1 Background**

Entrepreneurs are playing an important role in the contemporary society and their impact on personal, social, economic and strategic levels is vital. There are certain individual traits that make him stand out from the conventional manager or the individual. An entrepreneur is always seeking for change, responds to it quickly by taking risk and mobilizes numerous internal and external resources in an untraditional way. In short we can refer to an entrepreneur as an innovator, risk-taker, action oriented, expert decision maker and a proactive network builder. Numerous scholars have explained why some entrepreneurs exploit the opportunities, and have revealed the fact that the opportunities are there while some entrepreneurs are more insightful and believe that these opportunities are their source of economic profits, fame and fortune (Alvarez & Barney, 2007). Assuming the fact, that opportunities are just waiting to be discovered, there are strong implications associated with the actions of an entrepreneur. Besides the existence of opportunities, the core objective of an entrepreneur is to discover them, no matter whatever strategies and models are required to exploit them, and if they are not able to discover any opportunity then an entrepreneur tries to create them.

Therefore, the actions of an entrepreneur are intensively interlinked with the success and exploration of the opportunity, because discovering the opportunity may have strong implications in the context of entrepreneurial decisions. However, searching for a clear opportunity to explore might engage entrepreneurs in an iterative learning process, which helps them in making the most appropriate decision for their benefit. In the context of discovering and exploiting opportunities, there is an intensive need of open innovation processes for small companies. It is suggested that the modern time of globalization and fierce market competition has shortened the product life cycle, and increased research and development costs for small companies (Chesbrough, Vanhaverbeke, & West, 2006, 2014). Due to this reason, small companies need a new revenue source through which they can share costs and work for the future of the company.

Chesbrough has defined the term open innovation as the process of locating a new source of revenue is usually described as Open Innovation which includes the input of information and ideas from external sources within the environment of small organizations (Chesbrough, 2003). Therefore, in order to compete and survive in the market, small organizations can achieve a faster way of introducing new products by collaborating with

external sources such as consumers, universities, suppliers, and distributors (Alvarez & Barney, 2007). Although implications and complexities are always associated with implementation of new innovative process in the SMEs business environment, the role and decision making of an entrepreneur is quite vital for the sake of organisational success (Huston & Sakkab, 2006).

Entrepreneurship includes actions of organizational formation, innovation, or regeneration that take happen outside or within an organization (Sharma & Chrisman, 1999). On the other hand, Josef Schumpeter, who is mainly regarded as the first significant source of advanced innovation theory, emphasized that the role of an entrepreneur in an organization significantly contributes towards the process of economic development (Schumpeter, 1934). Generally, innovation denotes the progressive introduction of newness. The word “innovation” originates from the Latin word “innovare” that means “renewal”. Therefore, innovation indicates the capacity to build something new. It is normal to separate the output of innovation and the act of innovation. It is also normal to make a distinction between innovations and inventions. An innovation is an act of putting an invention into practice and an invention is the primary happening of an idea for a new process or product (Fagerberg, Mowery, & Nelson, 2005).

The transformation of changing from closed innovation to open innovation in large companies has been studied by numerous researchers. This phenomenon of transformation is still ambiguous within the SMEs, and it is still unclear how an entrepreneur influences the process of innovation within the organization. As a result, the intention of the current research is to focus on how an entrepreneur influences the change through his business model and which motivations incite external resources to opt for enhancing his business performance. Furthermore, this research will also focus on how entrepreneurial capabilities and life experiences contribute to the allocation and utilization of internal and external resources, to enhance the innovation process within the entrepreneur’s organization.

## **1.2 Problem Statement**

In order to compete in a highly competitive market and to develop new revenue sources, open innovation processes have been anticipated as the new paradigm for organisations and management of innovation (Chesbrough, 2003; Enkel et al., 2009; Gassmann, 2006). Furthermore, the rapid changes in the world economies have pushed companies not only to introduce new and better products, but also to increase the speed of introducing them on the market.

Suggestions by researchers for improved management of companies recommend that they should expand their business models by maximizing on technological changes and collaborating with other external resources to seek new ideas. The analysis of existing literature reflects that most of the researchers have focused on larger organisations with open innovation process for their business environment. Keeping in mind the importance of SME's from a social and economic perspective, it is quite surprising that very few researchers have taken an interest in revealing the benefits of open innovation, and explaining how the role of entrepreneurial capabilities and skills can enhance the innovation process in the context of SME's. The concept of the role of an entrepreneur in managing Open Innovation in SME's has not been fully researched and developed.

### **1.3 Purpose of the Study**

In today's competitive business environment, SMEs experience a lot of challenges to survive in the market. The models and practices of conducting business have changed over time in order to satisfy the needs of the global market. SMEs, with their limited resources, budget, and closed innovation models, were facing a lot of difficulties to fulfil the increasing demand of advanced technologies. Therefore old and new researchers in the field of business (Chesbrough, Vanhaverbeke, & West, 2006; Vanhaverbeke, 2012), suggest the introduction of an open innovation model to mitigate these business challenges. For SMEs with limited resources it is not always easy to shift business models from a closed to an open innovation system. In this regard, the present research has been conducted in order to examine the strategies adopted by different organisations and to balance recommended theories within the area of open innovation. In addition, this study will also analyse the role of an entrepreneur who affects the innovation process within an organization.

### **1.4 Research Questions**

Based on the background and problem area covered in this thesis, we will focus on the following research questions. In order to analyse our research questions we have also defined a number of objectives.

- ***How do SMEs manage open innovation activities?***
  - *What are the main factors for success of open innovation in SMEs?*
  - *How can SMEs benefit from open innovation?*

- ***What role do entrepreneurs play in influencing and managing open innovation activities in SMEs?***
  - *How do an entrepreneur's skills, capabilities, and experiences stimulate/affect the open innovation activities, especially the openness of the business model and the creation of networks?*
  - *Which opportunities and challenges does the entrepreneur face in adopting open innovation processes in the organization?*
  - *In analysing the role of entrepreneurs from different geographical regions, can we observe any differences or similarities and which are they?*

### **1.5 Significance of this Research**

Considering the importance of socio-economic growth, the SMEs sector plays a vital role in enhancing the economic prosperity within a region. However, a particular focus is needed in this sector. Due to their limited size and lack of resources, SMEs are left with the option to collaborate with external resources to keep up with the technological advancements. In this context, this subjective research will throw light on the benefits of open innovation for high-tech SMEs with the regard of the growth in their market. In addition, this research will also cover the driving forces that compel entrepreneurs to change business models from closed to open innovation. Two SMEs have been included as case studies in order to analyse how these entrepreneurs brought the open innovation practices to their business models. These case studies and the findings of our research can be helpful to those who have an entrepreneurial spirit and desire to start and lead their own small company.

### **1.6 Research Methodology**

This is an exploratory study using qualitative research methodology. In principle, qualitative design is open, both in regard to the selection of participants-acting in the production of situational context, and with regard to the interpretation and analysis, i.e. the articulation of the situational contexts and that both analysis and interpretation are combined in the research (as a subject of research). Thus it takes into account who integrates what is said and who says it (Gutierrez, 1995).

In order to accomplish the objectives of this research multiple interviews were conducted with the CEOs of the mentioned two SMEs to get in-depth information about the company's strategies and operations. The interviews served as the primary source of

information. However websites, brochures and company's various reports were extensively analysed to extract more information.

Following two high-tech SMEs are analysed for the research:

- i. ConTra International Pvt Ltd, Pakistan*
- ii. VelocityRDT Ltd, United Kingdom*

These two companies are from different geographical regions. This is important to be able to analyse the challenges, benefits, similarities, and differences of introducing open innovation processes in each region.

The information obtained through interviews and other sources was analysed from research objectives perspective and is presented in the following chapters.

This chapter has been presented to highlight the basic concepts of the open innovation process and the initiatives taken by the entrepreneurs. In chapter 2, existing literature is reviewed and discussed in detail. Afterwards in chapter 3, we have presented a detailed analysis of our two selected cases. Finally in chapter 4, the conclusion is presented along with a number of limitations encountered during this research.





## **Chapter 2: Literature Review**

### **2.1 Closed and Open Innovation**

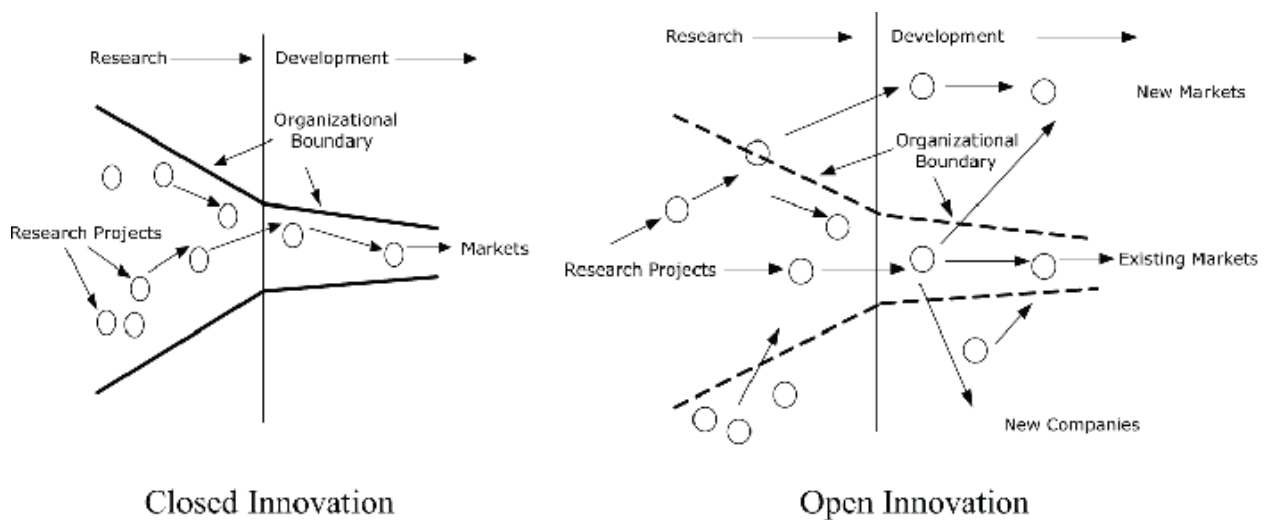
Before the adaptation of advanced business trends in the 21<sup>st</sup> century, companies relied on different approaches. These companies mainly relied on their internal research and development departments rather than exploiting external resources. The traditional model they used was known as the “Closed Innovation Model”. Various studies have proven that most businesses have practiced the closed innovation model for the past many years (Chesbrough, 2003; Esseiva, 2013; Gassmann, Enkel, & Chesbrough, 2010). The closed innovation model is based on numerous assumptions like fixed structure and cultures, IP rights, efficiency, and tight controls. All these have been modified in the current marketplace. This fact leads to the idea that internal resources are most trustworthy and reliable at warding off the competition. Closed innovation processes are carried out within the boundaries of the company and there are no exit mechanisms for ideas, knowledge, and development processes. Likewise, no ideas from other firms are allowed to enter the company’s R&D processes (Esseiva, 2013).

Although companies were thus initially based on closed innovation systems, the revolutionary technological changes brought a transformation to an open innovation system within the business environment (Van de Vrande et al, 2009). Big companies like for instance Xerox and IBM which in the 1970s and 1980s were associated with the closed innovation model (Chesbrough, 2003; Esseiva, 2013), were compelled to quit their conventional way of developing innovation due to changes in the economic conditions of the business world. Companies were not obtaining the ultimate results from their operations. However, they were investing considerable resources to bring out change in the business environment (Van de Vrande et al, 2009).

The term “Open Innovation” is suggested for companies to respond to the changing environment of business. It is argued that companies should introduce external knowledge and ideas. The suggested open innovative paradigm covers the ways through which SMEs can get benefits through collaborating with external resources and embracing technological changes. The open innovative paradigm deals with the integration of external and internal resources to ensure maximum outcomes (Chesbrough, Vanhaverbeke, & West, 2006, 2014). Using the model of open innovation, companies can invite partners, customers, and other shareholders to contribute to the process of innovation. In addition, companies can take advantage of the benefits of the affluence of knowledge that exists outside the company.

Disseminating their knowledge does not put them at risk in the competitive market. Open innovation employs crowd sourcing, where huge numbers of people are invited to share their ideas about an innovative objective.

To summarise the concepts of closed innovation and open innovation, the diagram below is shown. It clearly indicates that closed innovation has too narrow a scope of resources and largely depends on the internal resources, whereas open innovation on the other hand is free from these limitations and carries a wider scope of internal as well as external resources.



**Figure 1: Closed vs. Open Innovation (Chesbrough, 2003).**

There are numerous motives that encourage open innovation practices among large and small firms ranging from idea generation to distribution. Identified motives that encourage open innovation practices from various scholars are summarized (Table-1) below in Table 1. They are taken from Steninger’s (2014) research.

**Table 1 - Motives of Open Innovation in Companies (Steniger, 2014).**

<p><b>Strategic motives</b></p> <ul style="list-style-type: none"> <li>• Reducing time to market</li> <li>• Monitoring “potentially disruptive technologies”</li> <li>• Access improved product features</li> <li>• Improve the internal innovativeness by leveraging external resources</li> </ul>
<p><b>Financial motives</b></p> <ul style="list-style-type: none"> <li>• Access to new geographical markets</li> <li>• Improve product margins and reduce risk in technology development</li> </ul>
<p><b>Technological motives</b></p> <ul style="list-style-type: none"> <li>• Fill the development pipeline and access new ideas</li> <li>• Allow a variety in product development</li> <li>• Access new or supplementary product or process technologies</li> </ul>
<p><b>Operational motives</b></p> <ul style="list-style-type: none"> <li>• Earlier identification of technical problems</li> <li>• Fewer engineering change orders and the possibility to access prototypes</li> </ul>

## 2.2 Open Innovation in SMEs

The size of firms might also influence the implementation of open innovation (Chesbrough & Crowther, 2006). The results of the survey show that both small and medium-sized enterprises are getting benefits from the model of open innovation. It has been observed that the processes of innovation of larger companies are characteristically more professionalized and structured. Large firms have fewer challenges in the business arena compared to SMEs. Large firms usually have enhanced R&D procedures which are adopted and taken from external resources. Small companies on the other hand have different organisational structures which are totally dependent on external sources. With the advancements in business technology, SMEs are now progressively applying more formal structures, rules, and procedures introducing managerial layers.

Open Innovation however carries a lot of importance for SMEs (Chesbrough, Vanhaverbeke, West, 2006). It is a new innovation strategy under which companies go beyond the internal limits of their organisation and where cooperation with external professionals provides mutual benefits. Research (Trott, 2012) demonstrates that open development in small organisations has received little or no consideration, in spite of the fact that the research demonstrates that small and medium sized enterprises can be extremely

effective in utilizing and incorporating information from outside sources to make new items or strengthen the administration.

Open development in SMEs has been inspected in a couple of organisations in light of extensive quantitative databases (Van de Vrande et al., 2009). This spearheading article has investigated why SMEs take part in open development exercises, what the real hindrances are to changing to open innovation and how overseeing and sorting out open development in SMEs is unique compared to large corporations. The lessons gained from extensive open innovation in large firms are moreover not promptly transferable to the setting of SMEs. Collecting data from the SMEs in the Netherlands, the researchers have explored the apparent trend and change in inclination towards open innovation. According to the findings, SMEs tend to implement open innovation in order to be on track with technology and innovation. They are involved in adopting advanced open innovation practices in order to achieve market related goals like remaining on par with competitors and meeting customer expectations and demands (Van de Vrande et al., 2009).

### **2.3 Motives and Opportunities of Open Innovation for SMEs**

Sometimes, it becomes difficult for the large companies to manage financing, servicing, distribution, marketing, and production at the same time. Thus, they move towards open innovation. Just like larger companies, medium and small sized firms have been increasingly attracted to the open innovation system (Huggins & Johnston, 2009)

Since most research emphasizes the use of the open innovation system in large companies, it has been observed that there is a need to fill the research gap concerning how the change from closed to open innovation is being implemented in small and medium enterprises (Luo et al., 2013). There are various motives for small and medium enterprises to implement an open innovation system. These Chinese researchers have conducted semi-structured interviews to get their findings. According to their findings, motives for engaging in open innovation include the fact that it includes cooperation with the stakeholders to improve innovation processes. By importing the latest technologies, by motivating and driving innovation processes and by establishing innovation networks, these SME companies are thriving.

It has been generally seen that an open innovation system opens the doors to opportunities for the SMEs because it allows them to easily create development action plans without having any issues (Chandler et al., 2009). In this regard, SMEs can be influenced by outside sources and get help in setting up a system with external supporters that have the

required skills or advantages for creating and popularizing another company, such as sharing advertising.

It has been found that globalization creates new market opportunities which require new advanced systems. The implementation of new advanced systems can be further expanded with innovative advancement and worldwide exchange including worldwide value chains, while also speeding up the internationalization of R&D and globalization (Chiaroni et al., 2010).

For open innovation, worldwide perspectives are created from inner R&D process and outer sources. Outside R&D can bring noteworthy quality, while inward R&D is expected to assert some bit of that esteem (Chesbrough, 2006). The development abilities of SMEs are generally restricted by interior assets and obsolete innovations. The process of open development causes SMEs to discover another approach to enhance their development capacities: one relinquished thought may indeed be valuable for another undertaking (Chesbrough, 2006). Producing SMEs have more intentions to combine various types of innovations and information to enhance their own particular skills (Kuhakarn, 2012). The study highlights the opportunities open innovation presents to SMEs. The author mentions that SMEs are responsible for a large proportion of the economy and show a growing trend towards open innovation technology. SMEs are expected to integrate inventions quickly due to their flexible business characteristics.

## **2.4 Challenges and Barriers**

SMEs have the ability to cater to the immediate requests of the changing business environment. Their interior communication systems are proficient. However, when intending to make progress in applying open innovation, SMEs may meet numerous challenges and barriers. Researchers state that SMEs have few favourable circumstances compared to the more substantial and multinational endeavours of large corporations (Rothwell & Zegveld, 1985).

Discussing the main challenges faced by the SMEs while incorporating the open innovation into their existing business environment, researchers are of the view that lack of collaboration along with less trust in open innovation are important next to restrictions to sorting out the disputes related to intellectual property, lack of communication with the government and inefficacy to transform the external information into internal information. All these are noticeable challenges (Luo et al., 2009). Hence, it is considered important for

the SMEs to associate with each other and create worldwide development networks and systems.

Other researchers have also highlighted some of the challenges and barriers. It has been determined that innovation driven methodologies are productive for small firms under a few conditions, which are usually considered challenges (Gans & Stern, 2003). First of all, small firms benefit from the experiences learned from various business sectors that are too small in order to intrigue or attract the attention of vast organisations. Second, mechanical administration disintegrates after some time when imitators introduce comparable yet less costly items on the market. Mechanical administration is, in this manner, a moving focus that requires the small firm to move ahead starting with one innovative open door. Third, when new innovative advancements drive rivalry, small firms can thrive when they work together with a small specialized scope of creative individuals, who individually do not have the required in-house innovation and budgetary assets to add to the innovation on their own. Thus, there is a need to focus on every aspect while moving ahead on the track to open innovation.

In addition, other research states that small firms, in any case, confront impressive difficulties while sourcing outside innovation. They frequently do not have the capacities to distinguish, exchange and assimilate outer thoughts and advancements adequately into their organisations (Yin, 2013). They need to utilize staff with the required exploratory foundation to comprehend, assimilate and absorb the experimental revelations and advances created in colleges, research labs, or vast organisations. At last, small firms are also required to settle on decisions about the way they will benefit from their innovation. This is all about how to market and offer the innovation.

When implementing open innovation systems, SMEs need to capitalize on their intentions and defeat the obstructions mentioned before to enhance their success. Research has told SMEs to build up coordinated associations with the stakeholders and outside collaborators as a coordinated effort is most practical because it can lead to open development while supporting the external communication (Vanhaverbeke & Cloudt, 2006). SMEs producing tangible products can get assets and innovations from outside sources. A well-coordinated effort will be a win-win circumstance for all involved.

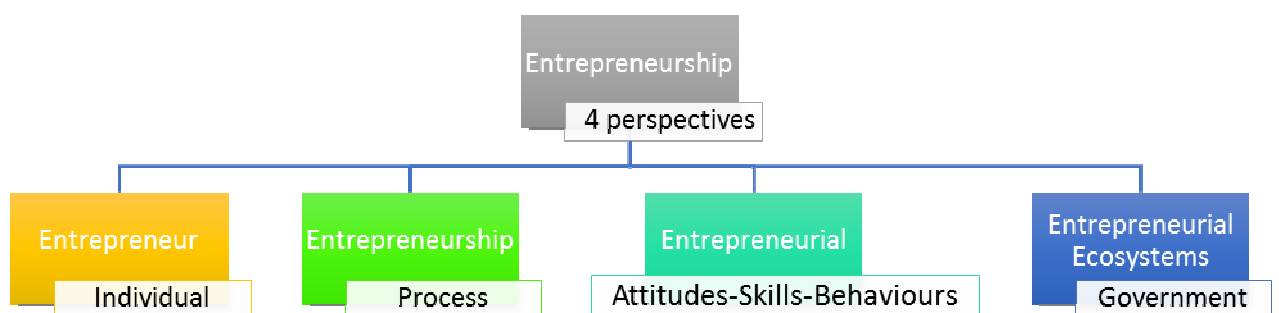
In addition to highlighting the barriers to open innovation faced by a SME, some researchers feel that the small enterprises have to tackle challenges when there are quick or unusual movements within the business sector (Vanhaverbeke, 2012). Therefore, SMEs need

to continue with development. They need to subject themselves to the routines for openness, participation, and dynamic incorporation.

## 2.5 Entrepreneur and Entrepreneurship: *What is an Entrepreneur?*

The biggest managerial challenge faced by entrepreneurs is striking the right balance between change through innovation and stability through efficiency. Entrepreneurial management by definition is opportunity driven without regards of resource availability and potential obstacles, which requires a great level of propensity to change (Hortovanyi, 2009). The question here arises of how these individuals create and manage successful organizations. In order to answer this question we need to distinguish the characteristics of an entrepreneurial manager from those of a conventional manager.

An **Entrepreneur** is an individual who creates a new organisation or who can stimulate innovation in an existing organisation, whereas **Entrepreneurship** is an act carried out by the entrepreneur for organisational creation and innovation inside or outside the organisation (Sharma & Chrismans, 1999; Nybakk, 2009). Entrepreneurship is the individual’s ability to turn ideas into actions, bring creativity and innovation and take calculated risks. It also signifies his ability to plan and manage the projects to achieve his goals (Marques, 2010). The word entrepreneurship can be looked at from various contexts.



*Figure 2: Different perspectives for Entrepreneurship Conception (World Economic Forum, 2009: 14)*



I will elaborate on these four perspectives in detail to understand: “*Which person an Entrepreneur is and What an Entrepreneur does?*” or in other words understand “*How an Entrepreneur organizes and manages open innovation in his organization?*” This will help in understanding one of the research objective of the research and in analysing the cases more in detail.

1. The Entrepreneur as an individual: The key difference between an Entrepreneur and other individuals in society is that an Entrepreneur recognizes his skills and abilities, desires to start his own company, identifies opportunities, innovates, is an expert in decision making, assembles resources and takes risks accordingly (Casson, 1990; Gaspar, 2009; Knight, 1921). During the nineteenth century, also known as the industrial era, Schumpeter developed a corporate entrepreneurial theory with three important merits (Hortovanyi, 2009).
  - I. An Entrepreneur is a visionary change management agent (Sandberg, 1992) who extracts an *idea* from the information he has and transforms it into the economic knowledge.
  - II. Entrepreneurship is not a profession, but it is a capability of linking a market problem to innovation. An Entrepreneur loses his entrepreneurial character if he alters his thinking from generating new ideas to normal business activities again (Schumpeter, 1980).
  - III. An Entrepreneur brings about a *change* by breaking down the traditional practices and takes the market forward (Mintzberg et al., 1998). He has the capability of carrying out new combinations such as new products, production techniques, markets, resources, organizational style, new business models, and etc. (Schumpeter, 1934; Nybakk, 2009). Researchers also believe that entrepreneurs create economic development in the sense that they abolish the existing economy to create something new and innovative. In addition, entrepreneurs are able to create social entities (Aldrich & Ruef, 2006; Nybakk, 2009).
2. Entrepreneurship (Process): Entrepreneurship refers to the ownership of idiosyncratic knowledge and competitive behavior that introduces a new economic activity leading to change. (Kirzner, 1973; Davidsson, 2003). Entrepreneurship is an act that can be opportunity based or necessity based (Busenitz et al., 2003). The phenomenon of entrepreneurship process starts from opportunity exploration and go up to opportunity

exploitation that leads to value creation. “*Opportunities exist independently of particular actors*” and due to this varying nature it are the entrepreneur’s unique insight, knowledge, skills, motivations and the way he organizes the activities that make the startup successful (Davidsson, 2003). In other words we can say that the economy is heterogeneous and that therefore individuals, companies and geographical regions vary in terms of opportunity exploitation and exploration context (Hortovanyi, 2010). Researchers have identified various motives that drive an entrepreneur towards his own startup such as: independence, personal development and constant learning (Birley & Westhead, 1990). These motives are linked to cultural characteristics with the satisfaction of certain needs (Hofstede, 1980; Maslow, 1954).

3. Entrepreneurial Traits (Skills-Attitudes-Behaviors): There are certain traits associated to an entrepreneur which depict the effectiveness of his entrepreneurial behavior (Gartner et al., 2006) and the success of his SME in the economically challenging world. Many SMEs end up failing due to various reasons such as entrepreneurial opportunity miscalculation, unforeseen threats, lack of knowledge, information and funds, lack of owners input, and lack of business skills (Afolabi & Macheke, 2012; Chimucheka & Rungani, 2011; Monk, 2000; Smith & Perks, 2006). There is a vast amount of research (Collins & Moore, 1970; Timmons, 1994) depicting various characteristics of entrepreneurs. They are described as being practical, logical people with independence and achievement needs. They are tough, self-confident and have trust, commitment and determination. They show leadership. They are opportunity finders with high tolerance for risk, ambiguity and uncertainty. They possess creativity, self – reliance, a high adaptation ability and motivation to excel etc. Some researchers argue that it is essential to possess oral presentation, interpersonal relationships and business planning capabilities for entrepreneurial success (Hood & Young, 1993).

Let us now look at some key entrepreneurial traits.

- I. *Risk taking ability*: In his revolutionary work “The Achieving Society” McClland points out some psychological traits of an entrepreneur such as need and desire for achievement, accepting responsibility in complex situations and willingness to accept risks which are all of dynamic importance to the development of the society (Midgley & Dowling, 1978).

- II. *Decision making capability*: The traditional entrepreneurship viewpoint was shifted from *What is an Entrepreneur?* towards a new focus, namely *What the entrepreneur does?*. This illustrates the cognitive or behavioural aspect of entrepreneurs such as perception, memory, level of education, professional experiences, time spent in market and judgements (Gartner, 1988). These cognitive characteristics lead to future thinking and decision making. They visualize entrepreneurial thinking and how an entrepreneur carries out the entrepreneurial processes. The entrepreneurial behaviour is affected by ability, need and opportunity depending on demographic, cultural or employment alternatives (Davidsson, Delmar, Wiklund, 2006). Decision-making is a key entrepreneurial skill that allows an Entrepreneur to take risks and fight competition (Mintzberg, 1973). Making the right decisions at the right time about an idea, products, and partners determines the success of the organization. Newly established SMEs require a lot of time and effort in order to carry out their business activities. Therefore rapid decision-making is a key entrepreneurial skill.
- III. *Management capability*: An Entrepreneurial management mode is always proactive, opportunity driven, and action oriented. The Entrepreneur's management style can be seen in the firm's strategic choices and functional management policies. With his management skills, he effectively and efficiently merges the company's internal and external resources to its innovation activities (Brazeal, 1999; Hortovanyi, 2009; Shane & Venkataraman, 2000; Venkataraman, 1997). Another researcher argues that the overall performance of a SME would decrease if the entrepreneur lacks motivation, experiences a failure to gather effective resources, lacks financial and human resource management capabilities or lacks marketing and technical skills (Botha, 2006).
- IV. *Learning capability*: Another researcher states that entrepreneurs are exceptional learners who not only learn from their past education, knowledge, and experience but also keep on learning from their networking partners such as customers, suppliers, distributors, competitors, employees, associates, and most of all from other entrepreneurs as well (Smilor, 1997). They learn from experiences and by trying to do new things. They learn from what works and what does not work. New SMEs are usually small and their chances of survival are usually less than for larger companies but one strategy of survival for SMEs can be their continuous learning and adaptation (Audretsch & Acs, 1990).

- V. *Networking capability*: An Entrepreneur's subjective and former knowledge is important in judging the value of an opportunity. This is a simple task but articulating this idea to others might be a difficult task. Once the opportunity is identified, the entrepreneur needs to decide and spend time in finding, building, negotiating and maintaining the relationships and networks created. As the startup is established and is on its way towards progress, the entrepreneur must reach beyond his individual social network towards outside strategic partners (Hortovanyi, 2010). Social competence or relationship skills are an important entrepreneurial capability in knowledge creation and value (Dayan, Zacca, & Di Benedetto, 2013). Networking capability, also known as knowledge creation, is defined as the organization's ability to develop and maintain internal and external organizational relationships. Another group of researchers argues that having strong relationships with networks helps entrepreneurs in gathering helpful market information and ideas for problem solving, enhancing learning capabilities, and gaining moral, and technical support (Messersmith & Wales, 2013). Entrepreneurs can increase their internal capabilities and access to external resources by bridging gaps between unconnected groups (Flyod & Wooldridge, 1999). Another researcher argues that entrepreneurs can enrich the development of their venture idea by proactively managing their networks (Hite, 2005).
- VI. *Communication capability*: One of the key entrepreneurial skills which is at the heart of the business is communication. Business success depends on the quality of relationships that the entrepreneur creates and manages during his entire career. The ability to transmit the company idea and goals to your innovative partners, clients, and employees is crucial for expanding the business and creating an air of trust and understanding (Charles, 1998).
4. Entrepreneurial ecosystems: Entrepreneurial ecosystem involve governments, venture capital industry, financial sectors and society that influence the new start-ups directly or indirectly by factors like rules and regulations, loans, and competition.

External factors such as the structure of the industry and the economy, social, political, regulatory, legal and technological changes and the venture strategy adopted by the entrepreneur play major role in the SME success (Hortovanyi, 2010).

Research during 1980s and 1990s on socio-cultural backgrounds of entrepreneurs was conducted. It has been observed that an entrepreneur is more likely to be successful if he/she is the child of a self-employed parent, being fired twice from the job, being an immigrant or having an immigrant parent, has worked in a large firm managing more than 100 people, being the oldest child or a college graduate. The Global Entrepreneurship Monitor (GEM, 2007) research report carried out among 43 countries across the globe aims to apprehend the entrepreneurial background by examining the entrepreneurial activities at various phases of the entrepreneurial process and by reviewing various factors that characterize entrepreneurs and their businesses of the different contributing countries. The GEM report tends to monitor entrepreneurial attributes and activities on both individual and global level. It explains the patterns and trends that prevail in different geographic regions. Lot of research has been carried out in past that identifies entrepreneurial profiles and activities from various geographical regions both empirically and theoretically but up to my knowledge almost no research has been carried out in a developing country like Pakistan. In order to fill this gap theoretically, in our thesis we will examine the entrepreneurial traits and activities carried out by an Entrepreneur in Pakistan. Furthermore we will then compare the traits and activities of one of the Pakistani entrepreneur to an entrepreneur from the UK to examine the possible similarities or differences based on the geographical regions.

Enterprises are intended to maintain global economic development, competitive power, standard of living, and employment. This is what entrepreneurship is about (Kjeldsen & Neilsen, 2000). Entrepreneurship is also the need to interconnect development administration, business processes and procedures. These three control elements are mostly autonomous but their interconnection has been growing in importance and are essential to comprehend the extravagance of the open innovation cases. When an entrepreneur starts a company he can act on two kinds of attributes, i.e. he can take a risk by initiating a new activity (Knight, 1921; Nybakk, 2009) or he can recognize a new opportunity (Schumpeter, 1934). One of the researchers referred to an entrepreneur as a champion whose greatest attribute is taking risks by actively promoting the development and implementation of innovation processes inside his organization through external resource acquisition (Jenssen, 2004). Higher levels of innovation can be seen when entrepreneurial companies are compared to other firms (Jennings & Lumpkin, 1989). In explaining the role of the Entrepreneur in SMEs, some researchers include various theories in their research, such as the risk theory (Hawley, 1907; Onakoya & Abosede, 2013). According to this theoretical approach, a good entrepreneur can efficiently generate profits through innovation. Managers become

entrepreneurs when they understand the ownership risk. However, as a leader, the entrepreneur is responsible for the composition of the organisation but he might be absent from the conventional theory of the organisation. In addition, this dynamic theory illustrates that the function of an entrepreneur is to establish new ideas and convert them into desired outcomes (Hayek, 1937).

A researcher states that every entrepreneur must create open innovation exercises that are applicable inside the structure of the organisational procedures (Dalton, 2013). The advantages of open innovation are in this manner responsible for the vital position of every firm. The regard for open innovation situations where SMEs just offer or permit innovation cannot be limited. In this context, it is the entrepreneur who always focuses on the latest trends and strategies in order to improve the business performance and productivity.

One aspect of the role of entrepreneurship is promoting a dynamic approach like open innovations in SMEs. A recent research study investigated the influence of the open innovation approach on the export performance and innovation capability of UK SMEs (Wynarczyk, 2013). The findings include that the global competitiveness of small and medium enterprises relies upon the interconnection and cumulative effects of internal components such as entrepreneurial capabilities, managerial structure and R&D capacity and competencies. It shows that open innovation techniques make a firm capable enough to attract the government funds for technological expansion and R&D.

The same research states that if the organisation intends to implement the contemporary business strategies, the desired results are associated with the effective entrepreneurship and more specifically the role of entrepreneur, just like Schumpeter (1934) previously stated. The entrepreneur should be capable enough to introduce new strategies, introduce new goods and methods, explore new things and identify new sources. Besides, the concept of open innovation seems to be tied to the growing trend of globalization. According to the same author, an entrepreneur should have imitating skills as well. It is no longer a secret that the competitive business environment becomes more competitive when one organisation imitates the other organisation in order to win the race within the business industry. It can only be done when the manager and entrepreneur have the ability to imitate other entrepreneurs working in globally known organisations. For instance, it is good for the economy of developing countries to have entrepreneurs who can imitate well the innovation techniques implemented in developed countries. An entrepreneur should perform a variety of activities such as discerning market opportunities, introducing new products and production strategies and managing and combining factors of innovation techniques (Knight, 2000). In

this regard, it can be said that an entrepreneur is responsible for implementing the latest combinations to realise the perceived opportunities.

Because the intention is to begin and organise a profit based business unit, an entrepreneur is responsible for taking a series of interrelated decisions related to a group or an individual (Knight, 2000). Thus, the entrepreneur plays an important role related creating new innovations and opportunities in SMEs, including the courage to handle the risk of ambiguities and to give rise to new amalgamation of required skills.

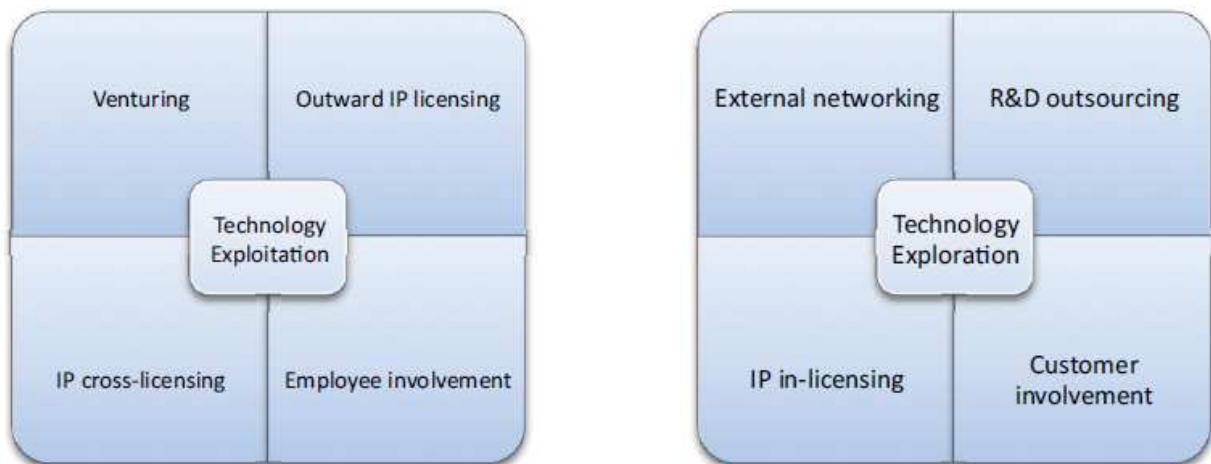
## **2.6 The Role of an Entrepreneur in SMEs: *What Does an Entrepreneur Do?***

***Innovation Activities:*** Bringing about change is an essential aspect of entrepreneurship, but organizing market related activities is the main source resulting in entrepreneurship (Davidsson, 2003). Entrepreneurship occurs only if value is created which can be measured by evaluating the type of innovation activity brought about by the entrepreneur (Davidsson, Delmar, & Wiklund, 2006). One of the key features of new start-ups or SMEs is that they opt to move away from existing products and markets to something new or unknown. The role of an Entrepreneur thus encompasses varying attitudes and behaviours towards an opportunity. *Opportunity Recognition* is at the heart of entrepreneurship and entrepreneurial activities. *Creation of a new organization* marks the shift from what entrepreneur “is” to what an entrepreneur “does”. Entrepreneurship researchers should shift their focus from only studying the psychological state and personality traits of a person, towards the behaviour and activities of people who start new organizations and create change (Gartner, 1988; Nybakk, 2009; Shane & Venkataraman, 2000). SMEs claim to attract people with an entrepreneurial focus because they have a strong market and product orientation and they encourage experimenting with alternative and new business models (Ahlstedt & Linde, 2011). Another group of researchers argues that SMEs enjoy some advantages over the large firms such as their small size, flexibility and adaptability towards new ideas and inventions. The authors also pretend that more focused and specialized offerings and having entrepreneurial personnel increase their R&D productivity (Chesbrough, 2010; Laursen & Salter, 2006). At the same time, due to limited financial resources and capabilities, SMEs need to innovate in order to grow and stay competitive. But practically it is not possible for the SMEs to innovate on their own, therefore they can benefit more if they understand and effectively implement open innovation in their business model. Businesses that are categorised as technology intensive, knowledge leveraged and that practice new business models are more likely to engage in open innovation (Gassmann, 2006). Bringing innovation into a company’s business model is an

entrepreneurial act. An entrepreneur carries out the activities such as efficient and effective use of internal and external resources, creating new customer segments, new products and services, new ways of production, and delivery etc. He reveals to the market the availability of options that it did not recognize before (Ahlstedt & Linde, 2011; Markides, 1997; Van de Vrande et al., 2009).

Open innovation comprises two dimensions to innovation and information flows (as shown in Figure-2). They are:

- I. *Technology Exploitation (Outbound OI activities)*: Innovation activities carried out to leverage existing technologies and capabilities outside the organizational boundaries, such as venturing, outward licensing of IP, IP cross-licensing and external non R&D worker involvement.
- II. *Technology Exploration (Inbound OI activities)*: Innovation activities that are carried out to capture and benefit from the knowledge and technology of external sources outside the organization such as customer involvement, external networking, external participation, outsourcing R&D and inward licensing of IP.



**Figure 3: Most common technology exploitation and exploration practices in SMEs (Van de Vrande et al., 2009).**

Our research will focus on the technology exploration activities that the entrepreneur brings to his open business model. SMEs can achieve competitive advantage when they implement both the inbound and outbound open innovation activities (Chesbrough, Vanhaverbeke, & West, 2006). But researchers have found that external networking, R&D outsourcing, customer involvement, and IP in-licensing, which are the most commonly used technology exploration practices used in SMEs, save them much human and financial effort (Van de Vrande et al., 2009; Kuhakarn, 2012).



We explain each one of them in more detail.

**External Networking:** Social theory and network analysis (Powell & Grodal, 2005; Nybakk, 2009) emphasize the importance of networking among heterogeneous groups. External networking is comprised of practices that not only acquire but also preserve connections and relationships with external sources which include both individuals and organizations (Van de Vrande et al., 2009). A social network is a specific set of linkages among people which gives social or human capital to the entrepreneur related to education, intelligence, experience, and so on (Coleman, 1988; Burt, 1997). These formal and informal relationships created with suppliers, distributors, universities and sometimes competitors can provide numerous benefits to the entrepreneur. Researchers enumerate for instance sharing human capital, sharing knowledge, sharing financial resources, reducing risks, saving time and money, facilitating the creation of joint ventures and partnerships, creating specialized teams for niche markets, modifying products according to customer needs, creating alliances, sharing R&D and developing competitive advantages (Nybakk, 2009). External sources established by means of networking may include universities, suppliers, distributors, manufacturers, research institutes, external firms and so on.

Next to all the benefits, networking can also be risky. Risks involve factors such as information leakage, loss of control or ownership, loss of mutual trust, misunderstanding in communication about aims and activities, and IP rights (Littler, 1993; Nybakk, 2009). Researchers suggest that culture, economy, industry, and social factors must also be considered while creating networks as these factors can be a mismatch in terms of product, market, and technology fit in different countries (Lin & Zhang, 2005; Tidd & Bessant, 2009; Kuhakarn, 2012).

**Outsourcing R&D:** If any company wants to maximize its innovation performance, reduce its cost and risk and exchange external knowledge, it must outsource its R&D. Outsourcing R&D activities usually involves collaboration or partnerships with supplier companies (large or small), universities, research organizations, and so on. At the same time it must be avoided if the internal gains are less than what is given to the external party (Kuhakarn, 2012).

**Customer involvement:** It is a way of utilizing ideas in order to build innovations related to the customers' recommendations. It is not denying the fact that customers' satisfaction and suggestions are of utmost importance. On the contrary it is making modifications to innovative products in an efficient and effective manner with their help. However, in order to implement the changes customers' feedback indicates as essential, it is

also required that the organisation have enough resources, which can only be achieved if the organisation has an external network.

**IP inward licensing:** The SMEs can also take advantage of the IPs of their external partners such as patents, trademarks, and copyrights when it can use its own business model to commercialize its partner's product (Chesbrough, 2006; Ahlstedt & Linde, 2011).

Summarizing the discussion, it can be said that all the technology exploration activities are associated with one another and thus play an important role if implemented well and understood in an appropriate way. This in turn completely depends upon the approach selected by the entrepreneur and is based on his skills and capabilities. It has also been said that the entrepreneur should take great care of these above mentioned factors in order to achieve the desired outcomes. For instance, acquiring IP rights, networking with partners, and timely organising conferences are some of the factors that should be considered by the entrepreneur for successful open innovation in SMEs. Starting from recognising the opportunities to organising the start-up, the entrepreneur should engage in networking in order to be aware of the latest trends and opportunities and to meet the customers' expectations.

## **2.7 Influence of Entrepreneur as a CEO and Manager of Small Companies**

Research states that SMEs attract more people and managers with entrepreneurial spirits because of their attributes like flexibility, speed, risk handling, and opportunity recognition capabilities. It is believed that when entrepreneurs manage a small company they can easily convey their goals efficiently and quickly due to less informal communication channels and bureaucracy in SMEs (Bommer & Jalajas, 2004).

It is important for an entrepreneur to be a manager, whether managing a large firm or a small to medium enterprise, in order to understand the concept and broad meaning of 'management'. But management can be defined in various ways. Although there are some variations in the ways in which companies deal with their issues, the process of management always communicates the mission of the organisation. Keeping this aspect in mind, a manager can take important business strategies and operations into account (Onakoya & Abosede, 2013)

Managers should perform corporate activities that include sending representatives to work inside new businesses and permitting representatives to put their resources into new businesses being started inside of the network or association (Mintzberg & Van der Heyden,

1999). It can create a more successful and grounded “enterprise endeavour” by implanting “start-up DNA” into the network or association (Morschett, Schramm-Klein, & Zentes, 2015).

Entrepreneurial operations should be managed in an effective way because business success depends upon the way entrepreneurs implement action plans and management techniques. The challenge for the entrepreneur in an SME is to establish and sustain his professional approach (Georgellis, Joyce, & Woods, 2000). It is important to consider effective management practices which will help ensure that the business grows. The strength and success of interpersonal ties and networking with partners depends on various factors such as the amount of time given, the emotional intensity, trust, mutual confidence and reciprocal services (Granovetter, 1973).

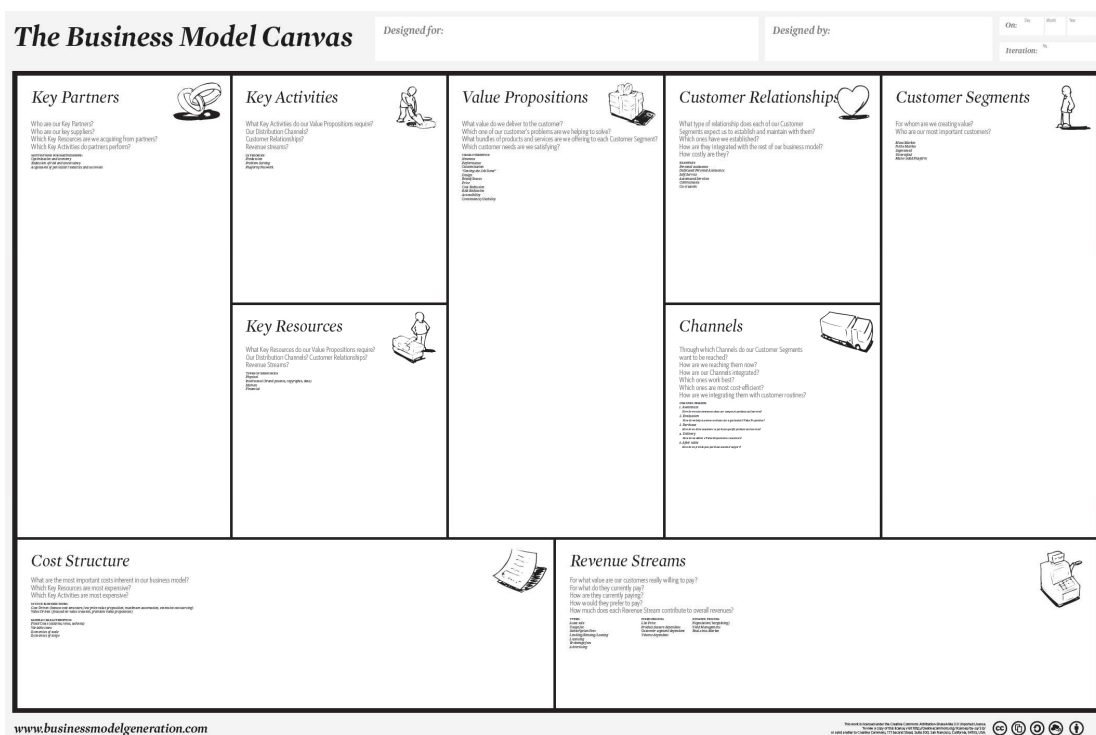
From a different perspective, it was observed by some that founders of SMEs over time become less systematic and analytical in their approach compared to professional managers. Managerial inefficiency and vulnerabilities as well as special personal and financial constraints are some of the issues a manager of an SME has to deal with (Longenecker et al., 2011). This is the reason why this study took the personal experience of an entrepreneur managing a small firm into account. Results show that the business operations of small firms are not always disorganised, but that the owners of small business are required to have professional managers in order to handle changes in management and leadership processes (Longenecker et al., 2013). In addition, the same belief has been described in another study (Brock, 2013). The entrepreneur as manager of the small company should incorporate organisational and managerial roles of professionals in order to achieve the desired outcomes. Contacts with his networking partners will help considerably in doing so.

## **2.8 Business Model Development**

A business model is the architecture of organisational and financial structures of a business (Chesbrough & Rosenbloom, 2002) or a story that explains how enterprises work (Magretta, 2002). An entrepreneur starts his company with a vision that explains its mission and goals. In order to give his vision life, he formulates a strategy. All large firms and SMEs have some kind of a Business Model which represents the strategy of the firm. A business model not only explains how it creates value for its customers, but also explains how it will create value for the company. A business model should have six types of attributes: value proposition, market segment, value chain, cost structure & profit potential, firm position in

the value network, and competitive strategy to transform the technical inputs into economic inputs (Chesbrough & Rosenbloom, 2002). For all large companies and SMEs, these attributes can be similar, but what differentiates one company from another is the competitive strategy it will extract out of these attributes and use in its Business Model. Technology is dormant and has no particular economic value until and it is commercialized innovatively through a specific business model by companies, or in other words “*A mediocre technology pursued within a great business model may be more valuable than a great technology exploited via a mediocre business model*” (Chesbrough & Rosenbloom, 2002).

For effective business growth, the SMEs depend upon innovation through development and management of knowledge based strategies (Gray & Colin, 2006).



**Figure 4: The 9 building blocks for a business model (Osterwalder & Pigneur, 2010).**

Due to rapidly changing technologies and business environments, entrepreneurs are forced to shift their minds from old, traditional, long, and boring business plans made up of figures towards a much simpler, more realistic, and innovative style of business model representation.

Research has defined the core concept of business models (as shown in Figure-4) in an efficient manner, according to which, a business model is composed of nine building blocks including value propositions, customer segments, channels, revenue streams, key activities, key resources, customer relationships, cost structure, and key partnerships (Osterwalder & Pigneur, 2010).

A business model canvas is a popular strategic management and entrepreneurial tool for organizations in order to design, challenge, invent, and pivot their existing and new business plans in an effective way (Osterwalder, 2004).

## **2.9 Open Business Model**

Adding to the concept of business models has introduced a new term, which is open business model; where 'open' refers to several different concepts such as open data, open business, open source, open standards, open accessibility, and open transparency (Chesbrough, 2013). These concepts can be understood with respect to varying value propositions towards developers, partners, and users. The open business model is also referred to as a collaborative business model, which is associated with the boundaries of the organisations, and its interaction with the internal and external sectors. According to the definition of an open business model, business models are open to some extent. They vary from completely integrated firms having interaction with customers only, to firms that increasingly depend upon external proficiencies and assets in order to capture and create value (Chesbrough, 2013). Thus, the open business model complements internal activities, capabilities and ownership of assets with access to required processes and resources from the outside for core innovations.

Flanders DC report on Open Innovation in SMEs (Vanhaverbeke, 2012) shows that SME managers of low and medium tech industries like DevanChemicals, and CURANA-Quilts of Denmark believe that their strategically designed business models play a primary role and not the technology itself alone. They kept their Business Model open in order to collaborate with partners for various resources which they lacked.

## **2.10 Summary**

The open innovative paradigm deals with the integration of external as well as internal resources to maximize the output of a company. Using the model of open innovation, companies can invite partners, customers, and other shareholders to contribute to the process of innovation. In addition, companies can take advantage of the benefits of the affluence of knowledge that exists outside the company. These steps are normally being implemented by an entrepreneur of a company.

Entrepreneurship is a phenomenon that nowadays is the key to personal and economic growth. Both the terms entrepreneurship and economic growth of a country are linked to each other. An entrepreneur is someone who turns ideas into action through opportunity, self-

confidence, trust, innovation, creativity, taking calculated risks and expert decision making capabilities. Since start-ups may lack many internal resources, an entrepreneur will adopt and organize many open innovation activities based on his entrepreneurial skills and capabilities. In order to establish and grow his venture successfully the entrepreneur must possess some individual capabilities such as decision making, risk taking, learning, managing, communication, networking, skills and so on. Establishing and managing these networks and activities is an important skill of an entrepreneur.

Open innovation is in this way, a sensible stride to take for the SMEs regardless of their activities or region of operation. The type of an open innovation activity adopted by the entrepreneur depends on his business and lack of the internal resources in his company. An entrepreneur can successfully find, establish and organize external resources such as R&D, suppliers, producers, manufacturers, distributors etc. Furthermore, the role of an entrepreneur is important to organize and manage the open innovation activities in an effective manner. It has been analysed that the entrepreneurs need to understand the need to use open innovation activities within their organizations. This phenomenon is somewhat easier to be adopted within a large organization in comparison to a smaller organization due to the available resources and links with many external entities. If an entrepreneur has ample experience, the right skills set and the vision to grow then success can be guaranteed in a smaller organization by establishing new external partnerships and by fusion of technologies.

In a nutshell, the current literature lacks critical information on how SMEs manage the open innovation process and what is the role of an entrepreneur in making it possible. Therefore, this thesis focuses on addressing these important points with the help of two cases discussed in the upcoming chapters.



## Chapter 3: Cases

### 3.1 Introduction

In order to further explore the concept of open innovation, two case studies are taken into account. The first case is an SME called *ConTra International Pvt Ltd Pakistan* (ConTra International) and the second case analyses a British SME known as *VelocityRDT Ltd UK* (VelocityRDT). Although the SMEs selected as cases belong to two different geographical regions namely South Asia and Europe, there is a strong correlation in their business focus. Therefore, it is interesting to study the similarities of the open innovation approaches they use, and the differences in outcomes based on geographical regions.

These case studies are helpful to identify the processes essential to explain the steps required for an entrepreneur to start an SME based on a new idea influenced by the principles of open innovation. Furthermore, the chapter will analyse both these cases to determine how an entrepreneur brings-in, organizes, and manages the whole open innovation process with the help of different aspects associated with these companies. The chapter also highlights the challenges faced by the entrepreneurs and how they overcame these challenges by using the open innovation approach.

### 3.2 Company Case 1: ConTra International Pvt Ltd Pakistan



#### 3.2.1 Background:

The CEO of the ConTra International, Mr. Anwar, is a Civil Engineer by profession and served in the Ministry of Defense in Pakistan for an extensive period of 30+ years starting 1978. During his tenure, he travelled all over the country and served in various managerial roles. At the end of his career, Anwar was looking for some new challenge after his retirement. Anwar's experience was mostly related to the government sector, therefore he decided to take up some professional oriented management course to get acquainted with the latest techniques of conducting a business in the increasingly competitive and global business environment. In 2009 during his MBA studies

*“By use of modern ICT solutions, ConTra’s mission is to deal with a broad range of challenges like design & implementations of road management schemes, feasibility and design of new road segments, renovating old road segments, mobility management and road safety”*



in Sweden, Anwar met the CEO of ST Software, the Netherlands in an informal gathering. During this informal meeting both of them shared their experiences and knowledge. At that time, ST Software was a new company established on the Dutch market, focusing on using high-tech solutions to tackle traffic safety problems. Anwar instantly realized the potential of having such solutions deployed in an under-developed market such as Pakistan. In Pakistan, traffic management and road safety problems are real issues that need serious attention. The number of road traffic accidents and the costs associated with them in Pakistan are way above the international average. On one hand, the government was spending large sums on urban planning and infrastructure expansions in order to tackle this problem. On the other hand, the developed part of the world is using controlled simulated environments to properly analyse this problem and propose countermeasures.

In the end, this informal discussion between Anwar and the CEO of ST Software, the Netherlands led to the creation of a new partnership resulting into the establishment of a new venture in Pakistan right after Anwar retired from his 30+ year government career. His background and vast experience pursued and encourage him to take up this challenge and to be an entrepreneur. The new challenge was named as ConTra International.

ConTra International was established in 2013 in Pakistan. It is one of the first companies in Pakistan that offers traffic management solutions, road safety simulators. It offers innovative products and services related to the intelligent transport system solutions to the various customer segments. The ConTra International is emerging as the fastest growing consultancy services company in the transportation sector using high-tech driving simulators. In addition, the company develops partnerships in the sphere of deploying these sophisticated technology systems mentioned above.

ConTra International currently has a small team of seven full-time employees. Out of these, there are four software developers with expertise in C++ / Java and various scripting languages, and 1 full-time QA & testing engineer to enable the customization of the simulators in Pakistan. The remaining 2 staff members are carrying out support and operational duties at the company. The company also has a qualified board of advisors, which is helping the company to align its focus and market segments. The board of advisors is consisted of the founders of the company, a representative from its partner network, and a representative of the Ministry of Planning and Transport.



***“We are more than just a Traffic Management Company, CEO ConTra International”***

### 3.2.2 Organizing and Managing the Open Innovation Processes

#### (a) Strategy Formulation and Network Management:

The product introduced by the company was new in the business environment in Pakistan and as a result the company experienced a lot of challenges. In this context, the CEO decided to use the open innovation strategy to bring in and build external networks. Both the challenges and the countermeasures are explained in the previous section. This was achieved by collaborating with a network of partners including ST Software in the Netherlands, the Transportation Informatics lab at the State University of New York (SUNY) USA, and a local manufacturing partner in Pakistan.

#### 1. International supplier partner – ST Software the Netherlands

The most important element for the ConTra International business model was its partner company – ST Software – in the Netherlands who provides the complete driving simulator software solutions. The selection of ST Software as a key partner was a natural outcome of an informal history based on mutual trust. This informal link eventually became a long-term and formal relationship. The company is following the below mentioned steps to manage this relationship:

- In order to keep this **business relationship** thriving, ConTra International's key R&D team keeps in close contact with their Dutch counterparts, with the help of regular video conferences. These meetings help in fixing software bugs faced by the clients and aligning the future upgrades to their requirements. Frequent software upgrades, bug fixes, and upgrading the hardware designs helps both companies stay ahead in the market with innovative ideas. Apart from these regular meetings, ST Software is also a part of the board of advisors of ConTra International.
- The protection of technologies through **IPs, Patents, and Licenses** is always a top priority of any company. Likewise, the ConTra International has taken all the possible measures to secure and protect its intellectual knowledge. ConTra International is using the concept of inward IP licensing. As technology is acquired externally, the entire core IP lies with the ST Software the Netherlands. The ConTra International has acquired the exclusive license of the technology for the South Asian region. The IP generated due to the

customization of the driving simulator's software and hardware to meet the local needs of ConTra International, is jointly owned by the two parties with shared revenues.

## 2. **Research & Development partner – Transportation Informatics Lab USA**

Another key partner of ConTra International as its international R&D team located at the Transportation Informatics lab in SUNY USA. This international R&D team trained the local R&D team in Pakistan whose job was to customize the Dutch driving simulator's software and the hardware to the local needs. The ConTra International follows the below mentioned steps to manage this relationship:

- This is a short-term collaborative **business relationship** between ConTra International and Transportation Informatics Lab, SUNY, USA. The relevant staff from the company gets 2 to 3 week trainings for the lab in order to learn about the customization parameters for both the software and the hardware. Apart from the in-person trainings, the business unit of the company holds 2 monthly video meetings in order to discuss the future technological trends. Apart from these meetings, the lab is also part of the board of advisors.
- The **IP protection** is done using a water-tight non-disclosure agreement between the three partners including ConTra International, ST Software and Transportation Informatics Lab.

## 3. **Local manufacturing partner:**

Exporting the hardware from the Netherlands was too costly for the small company due to Governmental regulations, therefore the CEO continued with his open innovation strategy of partnering with a local manufacturing company within Pakistan. They would build the customized hardware (driving platform) of the simulator according to the design requirements set by ST Software in the Netherlands with the customizations for the local needs. He adopted this strategy because of three reasons;

- (i) *Cheap production,*
- (ii) *Capacity building based on local market knowledge and*
- (iii) *To maintain quality control.*

Following steps are being followed by the ConTra International to manage this relationship.

- A long-term **formal agreement** is signed between ConTra International and the local manufacturing company. The design team of ConTra International collaborates closely with the local manufacturing company in order to produce requirement specific hardware. Both parties hold regular meetings at ConTra International's office premises. The local manufacturing partner is also part of the board of advisors.
- The **IP protection** is done using a water-tight non-disclosure agreement between the ConTra International and the local manufacturing company.
- The **financial relationship** is maintained with a service agreement for the manufacturing of the hardware.

**(b) Commercialization:**

1. **Initial Sales Plan:**

ConTra International Pvt Ltd identified a niche market consisting of various governmental agencies as its main clients due to the nature of the solution being offered. The CEO decided to go for a one-off payment strategy, but soon he realized that this strategy is not paying off mainly because the market was not ready to accept these new technological solutions, the lack of bulk payment capability and the unavailability of proven results in Pakistan. Anwar, decided to revise the sales strategy in 2014 where a leasing model was introduced to the clients. In this model the clients were able to rent but not own the driving simulator, and the payment was done periodically for the rendered services. The company desired to not to reveal details of this leasing plan.

2. **Sub-licensing opportunities:**

Anwar, due to extensive managerial experience, was able to negotiate a much favorable agreement with ST Software, the Netherlands. He also managed to get a sub-licensing clause from ST Software along with the licensing of the software which means ConTra International got the authority to sub-license the technology in a few

other markets as well. ConTra International pays a royalty to the Dutch company for each sale made.

The Dutch company has given ConTra International Pvt Ltd the exclusivity to cover the big South Asia and Middle Eastern markets because of its vast experience in the field of engineering, somewhat similar problems, the language similarity and a common culture. Recently ConTra International participated in a trade fair in Muscat where the CEO met few Omani companies and shared his ideas of expanding the business.

ConTra International is now in the process of establishing partnership with a local technology company in Muscat, Oman. ConTra International intend to sub-license its technology to the company in Muscat. The company could then replicate the business model of ConTra International with required modifications. The royalty fees earned by ConTra International will be shared with ST Software in lieu of the parent license.

### **(c) Possible Competition:**

Due to the unique nature of the business, so far the company has not faced any competition. At the moment in Pakistan, all transportation-consulting companies are focused on providing infrastructural solutions. Whereas, ConTra International decided to opt for a new high-tech solution resulting in a lock-in strategy. The threat of instant competition at the moment does not exist due to the company's exclusive licensing, locally trained expertise, and unique partner networks.

### **3.2.3 Challenges & Countermeasures**

The idea generation behind this new venture was not the whole job. The actual challenge lied in transforming this idea into a real company. Some of the major challenges faced by the entrepreneur and the solutions adopted included;

- *Limited financial resources:* The foremost challenge for the Anwar was to gather the finances to support the venture. Due to complex bank loan processes and high interest rates in Pakistan, Anwar was not motivated to use loans as part of financing. However, due to his resilient efforts, he was able to secure financial support from National ICT R&D Fund, Pakistan to initiate an international partnership for capacity building. He also invested some of his

own capital to get the business through to the early stages until the sales picked up.

- *Few human resources:* Along with the funding issues, finding the right people for the job was also a difficult task due to the uniqueness of the idea. Anwar realized that it would be very difficult to find the people with the required skills and knowledge and that recruiting people from developed countries with the right know-how would cost much. He decided to hire the people having as much relevant knowledge as possible and then provide them with the required trainings. He entered into contracts with partner companies in the network for the necessary trainings of the human resources.
- *Governmental regulations:* The tough import laws in Pakistan made acquiring the complete and ready for sale solution a cumbersome and expensive process. After analyzing the situation in detail and consulting various import/export expert organizations, Anwar decided to only license the software from ST Software, the Netherlands, which was tax-free, and manufacture the hardware locally.
- *Finding the right partners:* The partnership with ST Software, the Netherlands was an easy task due to the past informal relationship between the CEOs. The bigger challenge was to be able to get the local staff trained for software customization and get the hardware manufactured locally. The CEO attended a US based transportation conference in 2013, where he found out that the Transportation Informatics lab, State University of New York, USA has extensive R&D knowledge on studying the key factors required for the software and hardware customization in developing countries. Furthermore, the Transportation Informatics lab also had a working relationship with some of the local Pakistani universities. The CEO initiated a short-term formal collaboration with the lab for training new staff and for some R&D projects. Apart from the international R&D partner, a local manufacturer was taken onboard from the CEO's network created during his past career working for the government.
- *Commercialization:* Generally, developing countries in the world are not among the early technology adopters. Similarly, the idea of using driving simulators to tackle the traffic safety and management problem was a big

challenge for the company. However, CEO extensive personal network from his previous career helped a lot in overcoming this challenge. He was able to approach the right people at the right organizations who could be potential first customers.

- *Time constraint to make it all happen:* Overcoming the many hurdles from financing to finding the right partners took almost 2 years of focused efforts by the founding partners of the company.

One of the biggest lessons learned by the CEO of ConTra International was that Mr. Anwar had to go for an open innovation strategy to make his business a success. The details of the open innovation model and processes are explained in the following section.

### **3.2.4 Entrepreneur's Role in Organizing & Managing the Open Innovation Processes**

The role of an entrepreneur has a significant impact on organizing and managing the open innovation process. In this section, some of the key points related to this role are explained in detail.

1. The CEO, ConTra International, with his **entrepreneurial vision**, was able to see the gap in the market and brought a new concept into the country. His **opportunity recognition** and **risk taking** ability mainly became his strong points, which drove his new venture towards success.
2. The seamless **entrepreneurial skills and capabilities** helped the CEO in organizing and managing the complete open innovation process. The skills set include:
  - a. *Knowledge:* The CEO's domain knowledge helped him in understanding the potential of the new and diverse technology.
  - b. *Experience:* The past job experience of over 30 years helped him in understanding the business and work around the problems smoothly. The experience also helped him in getting easy access to the potential market and in minimizing the risks associated with the new business.
  - c. *Networking Skills:* Anwar's experience helped him greatly in building and managing a network of suitable partners and clients. This could have been difficult, if he didn't have worked in various managerial capacities.
  - d. *Management Skills:* The CEO's managerial skills helped him with the operational aspects of the company and of the partner networks, especially while negotiating with other partners.

- e. *Communication Skills*: The CEO's strong communication skills were vital to share his ideas with the partners and the clients. Pakistan is a country with several regional languages. The CEO's ability to communicate in various languages helped him grow his business within different regional bodies in Pakistan.
3. The company does not provide a daily commodity product, therefore the CEO of ConTra International utilized his personal network to establish links with various governmental organizations which can be its biggest customer segment, as well as a partner channel to sell these products to other private and public sectors in the future. This will not only save marketing costs for the company but also help in expanding quickly.

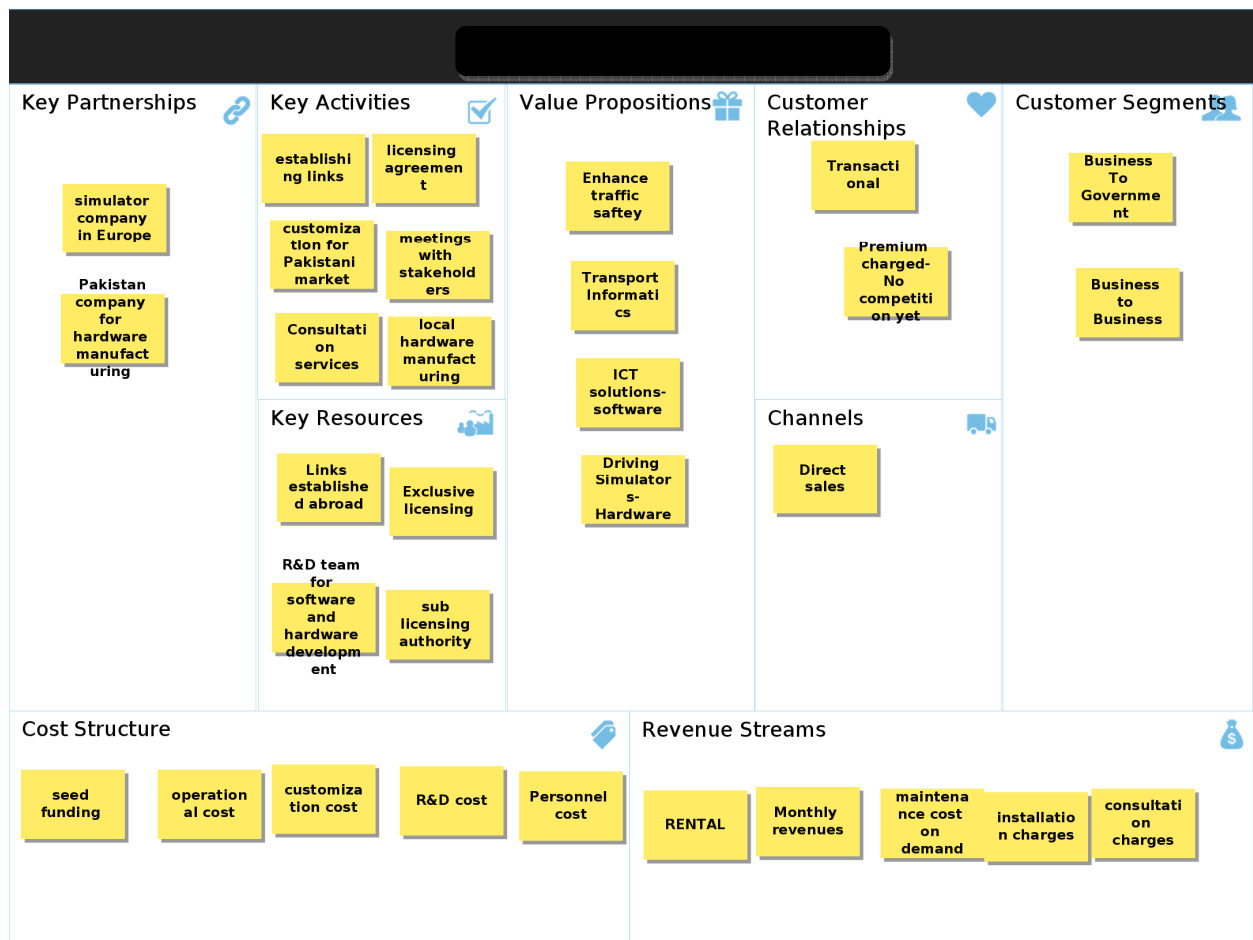
### **3.2.5 Business Model Canvas for ConTra International Pvt Ltd Pakistan**

Below the Business Model Canvas for the ConTra International. This business model canvas helps in visualizing all the open innovation activities that the entrepreneur has undertaken. It contains 9 building blocks.

1. *Value proposition*: Traffic safety solution that includes both hardware and software
2. *Customer segment*: Business-to-Business and Business-to-Government
3. *Customer Relationship*: The relationship is transactional and customers have to pay a premium price decided by the entrepreneur. The company has the benefit of charging the premium price because for now they have no competitors in the market.
4. *Channels*: The entrepreneur has to arrange personal meetings to sell this product.
5. *Key activities*: Research & Development, customization, establishing and finding links, and training sales people.
6. *Key Resources*: R&D team-links-work experience- and licensing
7. *Key partners*: The company in Europe for software and one local company in Pakistan for customizing the hardware
8. *Revenues*: One time sale and rental
9. *Cost*: Customization cost-personnel cost-company operational costs etc.

The Figure-5 canvas shows the new sales strategy adopted by the company's CEO based on a leasing option. The new sales strategy helped in the growth of the business and was more aligned with the local (developing) country specific needs.





*Figure 5: Business Model Canvas 2- Driving Simulator Solution (Leasing).*

### 3.3 Company Case 2: VelocityRDT Ltd UK



***We listen, we disrupt, we enjoy***

#### 3.3.1 Background

Products and Vision: The VelocityRDT is a technology driven solution focused British SME established in 2011 by Mr. Simon Poyser. VelocityRDT contributes across numerous technology markets and products to improve the efficiency of citizens, buildings, and cities. Their product range includes smart sensors and intelligent lightning technology, wearable camcorders, smart mobile apps, smart electric vehicles, and augmented reality solutions. VelocityRDT Ltd is an innovative global technology driven solution company that sells across EMEA (Europe, Middle East, and Africa) and APAC (Asia Pacific) regions. VelocityRDT contributes across various product domain markets such as healthcare, technology and telecom market, transportation, and aviation industries. The entrepreneur's vision for the VelocityRDT is completely based on the concept of disruptive and open innovation.

***“Our philosophy is to combine the most innovative creative ground breaking market ready technologies and push them collaboratively into the market creating faster, more effective and highly scalable solutions blended with world class expertise” CEO Simon Poyser VelocityRDT***

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***“Combine the new, most creative, and innovative ground breaking market ready technologies and push them collaboratively into the market”***

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The CEO believes that he cannot achieve everything alone, therefore his philosophy is to look ahead and collaborate with various partners to give life to ideas. The strategy of the CEO is to carry out these open innovation activities globally with the help of his team of

experts belonging to multiple nationalities, cultures, and ages. The CEO's strategy is to listen to customers and bring disruptive technologies into the Business Model.



**Figure 6: Products offered by VelocityRDT UK.**

(Source: <http://www.velocityrdt.com>)

**Transition from a Manager to an Entrepreneur:** Prior to establishing VelocityRDT Ltd, the CEO and co-founder of the company, Simon, had worked in the high-tech industry for over 20 years. He first started off his tech career in a managerial role at iLOG - a division of IBM USA. He specialized in the telecom sector and his company worked on artificial intelligence, business rules and visualization technologies across multiple markets in northern Europe. Some of his previous company's clients were big telecom operators and big system integration companies such as Ericsson. Prior to iLOG, the CEO has also worked in various organizations like the French telecom operator – Orange - where he ran the global business division. His direct client-base included companies such as Experian, Skype, and UK's labour party (political party). All of these endeavours helped him gain experience on how these enterprises efficiently carry out their business tasks. This eventually turned out to be a good foundation for starting his future company. When iLOG moved out of the UK and established a new base elsewhere, it led Simon to think about a new future. He used ideas from components based technologies, his domain knowledge and his vast experience to start-up his own new venture, known as VelocityRDT Ltd UK.

The main reason behind the CEO's initiative of launching the company, VelocityRDT, was to tap on opportunities available in the European market and to integrate all his knowledge, skills, and experiences on a single platform. The business environment at that time was very competitive, but the company captured its place in the market with the strategy of customization of technologies according to the needs and demands of the market. Currently, VelocityRDT has 15 employees mainly working on business and product development, marketing and sales.

### 3.3.2 Organizing and Managing the Open Innovation Business Model

#### (a) Strategy Formulation:

Simon had a very interesting philosophy about his company's products. He believed in analysing and identifying the market trends in the coming 5 to 10 years and introducing the products to the market. His idea is to combine the most innovative, creative, and ground breaking market ready technologies and bring them to the market before his competitors do. He believed that instead of making a product from scratch, his company could create new, modified, and customized innovative products with the help of his partners and bring them to the market as quickly as possible. This was his preferred business model. In this case study we will look at two of his key products and analyse the entire open innovation process he followed.

The first product of VelocityRDT was a *bluetooth based wearable camcorder*. Simon carried out the following development and open innovation activities:

- **Network Development:** VelocityRDT Ltd has links with various companies, most of the links are with the large companies in the Silicon Valley. These links are broadly based on the CEO's entrepreneurial qualities, such as expertise in the high-tech industry, knowledge of the European market and a business focus. The major challenge for the VelocityRDT was to use that network for making and introducing its product into the market. In view of the fact that they mostly have collaborated with external resources, the differences in management styles and size of organizations is a key barrier which required cautious examination for the purpose of developing a result oriented working relationship. Looking at the challenges, the CEO adopted the policy of selecting highly qualified and skilled professionals from various countries and fields of study in order to develop and strengthen the collaborations with the external resources. In addition, the CEO integrated the internal as well as external resources to develop a strong network.
- **Partnerships and Collaborations:** The CEO's key asset was his network of professional links that he established while working with different companies. VelocityRDT, along with his key product development partner in the Silicon Valley, realized that existing wearable Bluetooth camcorder in the market lack certain features and that a product catering to these innovative features can gain substantially from this. VelocityRDT along with its partner in Silicon Valley, developed the technology and launched the first Bluetooth wearable camcorder with unique specialized features unavailable from his competitors. Its unique features that made it distinguishable from the competitors were

connectivity to smart phones, automatic sharing to social networking, live video streaming, light weight, longer recording time, and the use of eco-friendly materials. The R&D team of both companies worked collaboratively on the entire process of product development i.e. from idea generation to prototyping to product development. The development costs and the associated risks of a potential market failure were shared. It is an entrepreneurial attribute to estimate and take risks correctly. They product eventually launched the in 2012. The production cost seemed too high if product is made in Europe or USA so they *outsourced* the production to an Asian company having comparatively cheaper labor market, after a rigorous process of identifying suitable manufacturer. The product was one of the pioneers in the wearable technology sector.

- **Commercialization:** The partner company in the Silicon Valley had an agreement that they would cover the US market and VelocityRDT would be sublicensed to cover the markets of Europe-Asia-Middle-East-Africa. Simon was able to assure a large area for commercialization of product due to his entrepreneurial skills, including his business links and over 20 years of high-tech experience in the global market.

The Velocity RDT Ltd adopted the business model of channel partnership. This channel partnership model is based on the integration of partner identification criteria, program development, implementation and management, market dynamics review, investment strategy focus, and distribution and licensing strategies. Through this business model the company opened the routes necessary for entering into the new markets and regions. The collaboration network was established and strengthened in order to expand the business of the company in many countries within Europe.

The CEO's strategy was to sell the wearable camcorder in a Business-to-Business approach. In order to execute his strategy he established partnerships with distributors and retailers who could also sub-license the product from VelocityRDT. The CEO used various communication channels such as personal meetings, attending expos, and email correspondence to establish and maintain these partnerships. The support from these partners not only opened routes to markets, but also conducted a mature business activity and identified gaps in the market.

This product was at its peak in the year 2014 and close to the end of its life-cycle. Both partner companies decided to change their business model, and were eventually offered a complete buy-out option by a tech-giant. They opted for this option and their partnership came to an end with a profitable outcome, even bigger than they initially expected.

- **Protection of IP rights:** VelocityRDT protects its technologies through strict vigilance and registration of their intellectual property. However, due to the lack of funds and predefined arrangements, the majority of the IP rights were kept by the larger company of Silicon Valley.
- **Market Competition:** VelocityRDT and its partner company in the US knew about the availability of 3 other competitive products identified via detailed market research. This market research helped both companies to analyse the customer needs and the technological enhancements. Based on this market insight, they developed the product with improved design, better look'n'feel, advanced technology, and enhanced features. All these upgrades helped them differentiate from the competition, and they could charge a premium price for their product.

The second product is a *Smart Sensors – Intelligent Lighting System*. The CEO carried out the following development and open innovation activities.

- **Networking Development:** Based on prior product's experience, the CEO wanted to try to enter a new market with long-term benefits, because as an entrepreneur he was always motivated to carry out and test new ideas. Due to experience from a past job, Simon had worked extensively with various big tech companies in the Silicon Valley, which eventually become a destination to find his future business partners. The second product idea came into existence after meeting the CEO of another big company of Silicon Valley at a networking event in the US. The Silicon Valley company was focused on providing in-building smart lighting solutions to the fortune 500 companies. During this meeting, the CEO of VelocityRDT came up with an idea to use their in-house analytics and optimization engine in combination with the smart lighting solution to develop a new and unique Smart Sensors-Intelligent Lightening system. From this initial meeting, it took both the companies about one and half year, and a series of in-person and virtual meetings to put this idea into action.
- **Commercialization:** The customer segment for this product was Business-to-Business. This consumer segment only consists of the fortune 500 companies with businesses all around the world. Initially the CEO's idea was that the fortune 500 companies have ample finances to pay all the costs of putting in the solution. After a few failures and no successful sales, the CEO changed his sales strategy from a pre-paid solution to a

completely free solution. The CEO came to this new sales strategy after a thorough discussion with his partner in the US along with some external financial collaborators.

All of the involved parties identified that the costs could be covered and the profits could be made from the energy saving on the client's side. So the offer was that the client pays nothing to install the solution, but would keep paying their average energy bill with some discounts to VelocityRDT Ltd for the next 5 years. The savings would start at 20% and increase exponentially every year. To cover the initial setup costs, a financial third-party agreed to pre-finance VelocityRDT and its counterpart in the US and get their return from the estimated savings each year.

The distribution strategy is a personalized one where the CEO has to arrange a high-level meeting using his network and past entrepreneurial experience. Furthermore, using his seamless communication skills, the CEO has to convince the other companies of the potential of his solution.

- **IP Issues:** The IP for the Smart Sensor-Intelligent Lighting system is jointly owned by VelocityRDT and their counterparts in the Silicon Valley. VelocityRDT Ltd protects its technologies through strict vigilance and registration of their intellectual property.
- **Market Competition:** Smart Sensors-Intelligent Lighting system, is a non-competitive product. Even large companies such as Philips or General Electric do not offer an alternative, because the product possesses a unique technology (both hardware and software) that cannot be copied easily. Its business model has given the product the opportunity to apply the lock-in strategy. So far only VelocityRDT in Europe and also in other parts of the world is providing high performing energy efficient building solutions and promoting healthy ecosystems. The company is providing the world's most advanced sensor and analytic platform for commercial buildings that saves 70% of the organization's energy bills.

### 3.3.3 Challenges & Countermeasures

The CEO's transition from a manager to an entrepreneur created his appetite for getting involved in various technological niches. He faced a number of challenges defined below:

- *Products selection:* In order to establish a new venture in a developed economy was not an easy task. There were several tech-companies offering various solutions. The CEO wanted to bring some unique tech-solutions that

would give him an edge over the competition. Another important aspect was to determine how the products would be developed. The broad market and technological knowledge, entrepreneurial vision, vast experience, and creative thinking of the CEO helped overcome this challenge.

- *Limited financial resources:* One of the key challenges was the financial aspect related to the establishment of a new venture. The CEO was determined not to start the new venture by going into debt, so a bank loan was not an option. The CEO mainly used his own capital to invest in the new venture to carry out its activities along with some subsidies from the government.
- *Few human resources:* To support his line of new products, he would need to involve more people. Due to the limited financial capacity of the company, a collaborative model was preferred with a R&D institute. This helped the CEO maintain a low number of technical employees and outsource the rest.
- *Finding the right partners:* Due to the past experiences of the CEO, he has a huge network and preferred relationship with various relevant companies. But one of his biggest challenges was to find the right ones for his product range. The CEO followed a rigorous personal meetings approach to get in touch with each potential candidate and pick the right ones.
- *Large geographical area:* The partner companies that initially started to work with VelocityRDT wanted to cover many international markets at the same time. This was important because the technologies being selected were high-tech solutions with a small market life-cycle. The CEO overcame this challenge by expanding his network of distributors and partners worldwide.

In a nutshell, the lesson learned by the CEO of VelocityRDT Ltd was that he had to go for an open innovation model to make his business a success.

### **3.3.4 Entrepreneur's Skills and Capabilities:**

The role of the entrepreneur has a significant impact on organizing and managing the open innovation process. In this section, we will summarize this role below.

1. The entrepreneur's educational background and vast experience in his field is a key success point that gives motivation and courage to a simple manager to start his own company.



2. It is an obvious fact that there are always some driving forces which compel companies to base the foundations of their company on an open business model. Likewise, these driving forces for the VelocityRDT were increasing the scope of their technologies, mounting competition, and emerging trends in the market. The CEO of the company took the initiative to adopt a business model based on a channel partnership, an effective component of an open innovation model, for the purpose of ensuring sustainability and growth of the company in the market.
3. There were not sufficient resources within the company to take such a huge initiative to capture the progressive market of Europe. Therefore, the company opted for utilizing and customizing external technologies to meet the needs of the local market. The open innovation activity was carried out with the help of establishing and strengthening partnerships with larger companies located in the Silicon Valley in this case.
4. The company adopted the strategy of integration of the best available technology and relocated it in the market through proper judgment. The focus of the company was to integrate all the components that are linked with the company. The open business model has not only expanded the business, but it has also developed a collaborative environment internally as well outside the company.
5. Simon, CEO, continuously strives to bring new innovative technologies to the market. In addition, the company aspires to enter in the global marketplace, and where possible, replicate in new appreciative geographies and markets through collaboration, and networking locally, regionally, and internationally.
6. The business model adopted by the entrepreneur was unique in Europe-Asia-Middle East and Africa, which was a success for this small company. For example, in the case of their wearable Bluetooth camcorder, the CEO decided to sell the product only Business-to-Business. He developed partnerships with distributors and retailers who would buy the product directly from the company, thus saving him the costs of marketing. Many big retailers sold the product under their own brand name, thus giving the company the option to charge a premium price from them. Within one year the product was a big success, and by means of joint decision of both partner companies, the product technology and shares were sold to another company. In case of smart sensor lights, Simon adopted a unique selling strategy of offering the product for free and charging the customer's company from the money saved from their

energy bills. The unique commercialization models helped company to have optimal revenues even in difficult markets.

7. The role of the CEO of VelocityRDT is imperative in making sure the effective utilization of the open innovation model, along with managing networks and innovation internally as well as outside the company. Moreover, some of the key success factors like communication, trust, networking, regular meetings, participation in trade expos, and time management were mainly considered by the CEO. These factors played an important role in strengthening and managing the collaboration network, and introducing the innovation in the market more effectively.

Currently, as an entrepreneur, Simon has learned a lot from his two different experiences with establishing new networks, managing partnerships, defining adaptable strategies, and creating synergies. This new learning experience of managing a new start-up has polished his ability to manage change over time. Being change oriented and having a visionary leadership capability has grown his desire to take a step ahead and create new joint ventures.

### **3.3.5 Business Model Canvas for Company VelocityRDT:**

VelocityRDT Ltd kept the Business Model of his company open, which we will explain by means of the Business Model Canvas (Figure-7) for one of his products. This business model canvas explains all the open innovation activities that the entrepreneur undertook and helps in visualizing the whole process:

#### **3.3.5.1 Wearable Bluetooth Camcorder Explained via 9 Building Blocks of the Business Model Canvas:**

1. **Value proposition:** The VelocityRDT and his partner identified a gap in the camcorder market and worked on R&D and prototyping for 2 years.
2. **Customer segment:** The wearable camcorder was designed to fulfill the purpose of a wide range of customers covering all markets like Business-to-Business (Organizations like News channels or Engineering companies), Business-to-Consumer (Personal Entertainment such as skiing, sports, fun, lifestyle, etc.) and Business-to-Government (Security, Military, and Police).
3. **Customer Relationship:** The relationship was transactional.

4. **Channels:** Both the companies could use multiple channels which depend on the country where the product will be sold like retailers, distributors, and online sales.
5. **Key activities:** The key activities both Velocity and Silicon Valley had to perform to bring this product to market were meetings for brainstorming ideas, research and development, Open Innovation activities, prototyping, production, IP Rights, marketing, distribution.
6. **Key resources:** The assets for this product are the entrepreneur’s vision to detect the gaps in the market, the R&D team, and experience.
7. **Key partners:** VelocityRDT, Silicon Valley Team, and the Company in Asia.
8. **Revenues:** per unit sales
9. **Cost:** R&D cost- Prototyping-Production-Distribution-Travelling-IP Rights

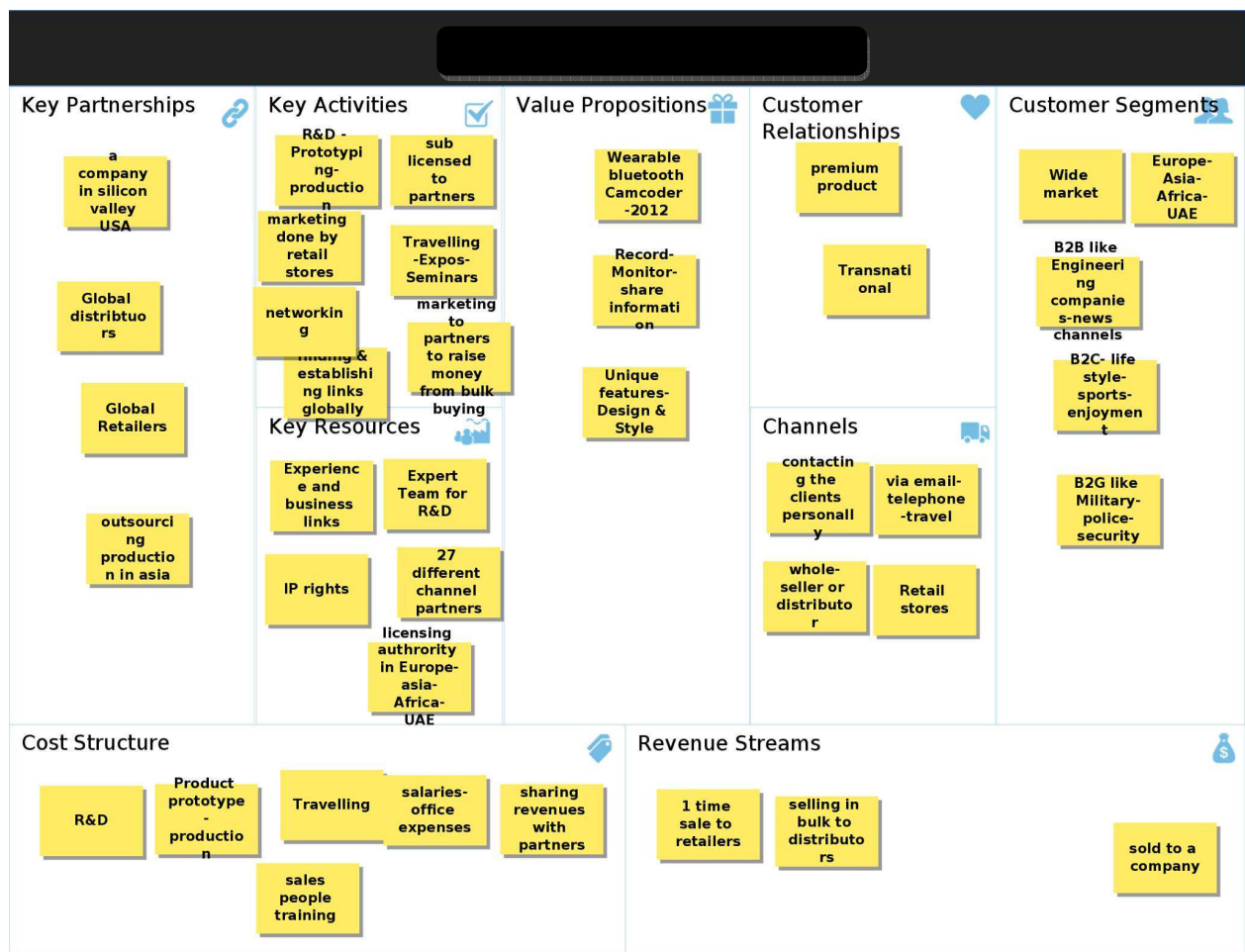


Figure 7: Business Model Canvas - Wearable Camcorder.

Please note that the business model canvas for the *Smart Sensors – Intelligent Lighting System* will not be presented in this thesis because the permission from the CEO was not granted due to the privacy concerns.

## **Chapter 4: Conclusions and Limitations**

### **4.1 Conclusions**

Open innovation is a rational way of not giving up on the huge potential that external ideas can bring to the innovative process of a company. The term open innovation argues that the dynamism of entrepreneurs and the demand for a quick market entry of their products are compelling reasons to apply a new perspective of innovation that goes beyond the traditional approach. Open innovation helps to generate richer innovation processes with the support of new agents of interaction and the enhancement of knowledge, but involves more complex management models (Arnold & Barth, 2011).

In this research we have analysed through two in-depth case studies how SMEs can overcome their scarcity of financial and technological resources and the challenges of fierce competition, globalization and rapid changes in technologies. The business landscape is getting increasingly competitive and open innovation seems to be most beneficial way forward for SMEs. With the implementation of an open innovation system, these companies find themselves in a world of new opportunities and the global window opens for them (Chang & Chen, 2015). Involving in open innovation practices had many benefits for these two SMEs. Most importantly, it helped them in getting their hands on the new state of the art technology. The open innovation helped them in saving time to market and overcoming competing firms due to the unique solutions and features of their products.

Network management proved to have an instrumental role in the open innovation without which it might have been impossible for both SMEs to be successful in the market. Starting from R&D till the commercialization of the products, network development and management had a key role to play.

In both the cases the entrepreneur played a key and crucial role in organizing and managing open innovation for the SMEs. In SMEs, everything strategic depends on the entrepreneur. Beginning from realizing the value that can be captured from the idea, over the formulation of a strategy and the implementation of these strategies for product development, till the commercialization stage, all is dependent on the skills and capabilities of the entrepreneur. In both cases the entrepreneurs closely looked after the whole open innovation process to make the venture successful. Entrepreneurial skills and capabilities such as risk taking, decision-making, network management, negotiation-skills, etc. seemed to be of critical importance for the

ventures. The use of external partners generated business models that reduce budgets for R&D, accelerate product development, improve innovation performance, help find new markets and increase the creativity of the organization. The financial resources saved can be allocated to other R&D projects or products.

The study also finds that the entrepreneur's knowledge of the field and past experience is of great significance in implementing open innovation activities in the company. In both SMEs, the entrepreneurs had the substantial experience of working in relevant fields, which helped them immensely in realizing the opportunity, building their network and negotiating better deals.

The comparative analysis from the **both cases with respect to similarities and differences w.r.t. their geographical location and the use of the OI processes** is discussed below:

1. The first outcome is the out-of-the-box entrepreneurial thinking of the CEOs of these companies that encouraged them to implement effective open innovation processes in their businesses. This thesis clearly indicates that open innovation is indispensable for the growth of SMEs globally. They require a certain entrepreneurial attitude, which appreciates, encourages criticism, creativity, self-motivation, self-discipline, desire for life-long learning, cooperation and openness.
2. The second outcome from our two cases is that although the entrepreneurial open innovative approach followed by these two SMEs was similar, the outcomes were slightly varied due to geographical differences. In the first case of ConTra International, the CEO conceived the product idea from an informal meeting, built networks, created a number of internal and external collaborative partnerships and defined innovative strategies to create a market for his product. As ConTra International is based in a developing country, the socio-economical and the political factors led to a slow market penetration. In the second case of VelocityRDT the CEO followed a very similar approach, as ConTra International's CEO, to opt for an open innovative business process. However, they could create networks and partnerships faster and had the ability to change their business models due to availability of ample opportunities (e.g. the complete buy-out option) resulting in a rapid growth.
3. The third outcome deduced from our two cases is that different type of partnership was concluded by each CEO. In a developing country such as Pakistan, the CEO of ConTra International outsourced its manufacturing task to a local partner (onshore) within the

country to make use of cheaper labour costs. Whereas in the UK, the CEO of VelocityRDT had to look for similar partners in the international markets e.g. Asia (offshore) to attain better pricing. It has also been observed that onshore outsourcing results in easier channel management.

4. The fourth outcome deducted from this analysis enhances our understanding that the knowledge gained through the model of open innovation paves the way for expansion and growth of the SMEs. It is now clear that small companies or new ventures need external partners to be able to grow their business with shared risks and responsibilities. This outcome is clearly visible from the two cases discussed in this thesis. Furthermore, the open innovation approach helps co-creation of businesses that can eventually boost the economy of a country, regardless if it is a developing or an already developed region.
5. The fifth outcome deducted from both our cases is that exclusive sub-licence was possible to acquire when a partnership was concluded with an SME (e.g. in case of the driving simulator or the wearable camcorder) as compared to a larger company (e.g. in case of the intelligent lighting system). The reason behind it was explained by the CEOs of both companies. They described that it was easier to establish a trust based relationship with an SME and had stress-free legal discussion rounds.

## **4.2 Limitations and Future Research**

Lastly, there were a few constraints we faced during the data collection phase of this research. As the research was on private companies, there were some hurdles in acquiring in-depth information from the companies regarding their track records, business strategies, and common practices. Similarly, this thesis also has certain limitations, which were identified during the interviews conducted with the CEOs of the chosen companies. On the one hand, the CEO of the ConTra International has kept the identity of their customers, information about their local manufacturing partners and pricing strategy confidential. Therefore, the potential strength of the company could not be completely assessed. Moreover, the information about the available financial resources and the investment was also not revealed by the CEO. On the other hand, the CEO of the VelocityRDT Ltd also did not give any details about their financial resources, investments, detailed pricing models, or the partners' identities in the US. These limitations of the research conducted for this thesis posed some challenges in analysing the total impact of

using the open innovation approach on these companies. However, by analysing other aspects of these case studies we were able to get many useful findings.

The research also has some limitations. The research is focused on two SMEs and is conducted through qualitative research methodology. It may therefore not be generalizable. Future research using quantitative methods and larger sample can validate the outcome of this research and will be helpful in understanding the effect of entrepreneurial traits and open innovation on SMEs.

## **Glossary**

APAC	Asia-Pacific
CEO	Chief Executive Officer
ConTra	Context-aware Transportation
EMEA	Europe-Middle-East-Africa
GEM	The Global Entrepreneurship Monitor
ICT	Information Communication and Technologies
IP	Intellectual Property
Ltd	Limited
OI	Open Innovation
Pvt	Private
QA	Quality Assurance
R&D	Research and Development
RDT	Rate-Distance-Time
SMEs	Small and Medium Enterprises
SUNY	State University of New York
w.r.t.	with respect to





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Richting: **Master of Management-International Marketing Strategy**

Jaar: **2016**

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