How Entrepreneurs are Managing Open Innovation in SMEs
Master (MSc.) of Strategic Entrepreneurship
Halmstad University

Abstract
It is these days very consistent for Small and Medium Enterprises (SMEs) to participate in open innovation activities to battle the internal and external difficulties they are confronting, for example, less resources for R&D, constrained financial resources and specialized abilities, fewer production facilities and distribution channels and so on. Studies demonstrate that open innovation encountered a quick increase in recent years. As of late researchers have additionally indicated distinct interest in research on SMEs whereas in past research large companies were the focus. The focus of the thesis is to highlight how SMEs solve their shortage of scare resources by engaging into open innovation activities. Two SMEs from various regions, to be specific Pakistan and the United Kingdom, were chosen as research cases for the thesis. Interviews have been utilized as a primary method for data collection. Despite of certain limitations, the research was successfully concluded with imperative findings with the suggestions and practices of open innovation utilized by SMEs. Finding from the thesis demonstrate that entrepreneurs in view of their individual attributes perceived the value of the opportunity and well-spoken the thought into a successful product. Their most vital entrepreneurial qualities are quick basic leadership, risk taking capacity and innovativeness in discovering answers for issues. Both entrepreneurs were effective in sorting out and managing the open innovation process and overwhelm the liabilities of being small. In both cases, entrepreneurs must have utilized external resources to satisfy the absence of their internal resources such as technology exploration innovation strategy and through building and dealing with their innovation network. The result of the research demonstrates that the achievement of the entrepreneurs of how an entrepreneur deals with the business is not simply based on his aptitudes and abilities, however it additionally relies upon the type of innovation procedure which entrepreneurs incorporates within the organization. While organizing and managing the open innovation process there were many difficulties that both entrepreneurs needed to face to make their SMEs successful. Although few differences emerge when the both CEO’s adopted open innovation activities.
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I would like to take this opportunity to thank my supervisor Dorit Christensen at School of Business and Engineering Halmsatd University. It’s been honoring to have you as a part of this research and guidance. All through this research I have gotten helpful recommendation in deciding my thesis topic, the method of research, important feedbacks and recommendation that helped me completing this thesis on time. I offer my thanks to Mia Larson and Roger Schweizer for giving me feedback on my research during the seminars.

This research is done with regards to a one-year Master’s Program (Strategic Entrepreneurship and Management) as Master’s thesis. The research journey has been full of challenges, risks, knowledge and fun. It’s been an honor to be the one writing about such a unique topic, I consider myself lucky to contribute my part in future research on the same and relevant topic.

Last but least, I offer my profound thanks to every one of the professors, who I had the pleasure to be with during this journey, who share their knowledge and experience with me throughout the coursework.

Thank You.

Nouman Ahmed Qureshi.
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**Abbreviations**

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<th>Description</th>
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<tbody>
<tr>
<td>APAC</td>
<td>Asia-Pacific</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>ConTra</td>
<td>Context-aware Transportation</td>
</tr>
<tr>
<td>EMEA</td>
<td>Europe-Middle-East-Africa</td>
</tr>
<tr>
<td>GEM</td>
<td>The Global Entrepreneurship Monitor</td>
</tr>
<tr>
<td>ICT</td>
<td>Information Communication and Technologies</td>
</tr>
<tr>
<td>IP</td>
<td>Intellectual Property</td>
</tr>
<tr>
<td>Ltd</td>
<td>Limited</td>
</tr>
<tr>
<td>OI</td>
<td>Open Innovation</td>
</tr>
<tr>
<td>Pvt</td>
<td>Private</td>
</tr>
<tr>
<td>QA</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>RDT</td>
<td>Rate-Distance-Time</td>
</tr>
<tr>
<td>SMEs</td>
<td>Small and Medium Enterprises</td>
</tr>
<tr>
<td>SUNY</td>
<td>State University of New York</td>
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<tr>
<td>w.r.t.</td>
<td>with respect to</td>
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Chapter 1: Introduction

1.1 Background

Entrepreneurs are playing an essential part of the contemporary society and their effect on individual, social, financial and strategic level is imperative. There are sure individual attributes that makes the entrepreneurs stand out from the traditional managers. An entrepreneur is always seeking for the new opportunities, react to it quickly by taking risk and organize various internal and external resources in an untraditional way. Entrepreneurs are mostly referring as an innovator, risk taker, action oriented, decision maker and proactive network builder. Many scholars have defined why few 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).

Opportunities are just waiting to be found, there are strong ramifications related with the activities of an entrepreneur. Despite the presence of the opportunities, the main objective of an entrepreneurs is to find them, regardless of whatever methodologies and models are required to exploit them, and if they cannot find an opportunity then an entrepreneur tries to make them.

The actions of an entrepreneur are extensively interlinked with the success and utilization of the opportunities, because finding the new opportunity may have strong ramifications in the context of entrepreneurial choices. However, scanning for new opportunity to utilize might employ entrepreneurs in an iterative learning process, which encourage them in settling on the most suitable choice for their advantage. With regards to finding and utilizing opportunities, there is an extensive need of open innovation mechanism for small companies.

It is proposed that the cutting-edge time of globalization and fierce market competition has abbreviated the product life cycle, and expanded innovative work costs for small companies (Chesbrough, Vanhaverbeke, and West, 2006, 2014). Because of this reason, small companies require another income source through which they can share expenses and work for the fate of the organization.
Chesbrough has characterized the term open innovation as the way of finding another or new source of revenue is usually described as open innovation which incorporates the contribution of data and ideas from the external sources within the working environment of the small organizations (Chesbrough, 2003). To content and survive in the competition, small organizations can accomplish a faster method for presenting new product by participating with external resources for instance consumers, universities, supplies and distributers (Alvarez & Barney, 2007). Even though suggestions and complexities are constantly connected with the implementation of new innovative procedure in the SMEs business environment, the part and decision making of an entrepreneur is very crucial for the organization success (Huston & Sakkab, 2006).

Entrepreneurship incorporates activities of organizational development, innovation, or recovery that happen outside or inside an organization (Sharma and Chrisman, 1999). Then again, Josef Schumpeter, who is, for the most part, viewed as the principal significant of advanced innovation theory, underlined that the role of an entrepreneur in an organization altogether contributes towards the procedure of financial improvement (Schumpeter, 1934). Innovation indicates the dynamic presentation of novelty. “Innovation” originates from the Latin word “innovare” that signifies “restoration”. Innovation demonstrates the ability to construct something new. It is normal to isolate the out of innovation and the demonstration of innovation. It is also important to make distinction between innovations and inventions. An innovation is a demonstration of putting an innovation into practice and an invention is the essential occurring of an idea for another procedure or product (Fagerberg, Mowery, & Nelson, 2005).

1.2 Problem Statement
To compete in an exceptionally competitive market and to develop new sources of revenue, open innovation procedure has been expected as the new paradigm for organizations and management of innovation (Chesbrough, 2003; Enkel et al., 2009; Gassmann, 2006). Besides, the quick changes on the world economies have pushed organizations to present new and better product, as well as to build the speed of presenting them available in the market.

1.3 Research Questions
On the base of the background and problem area covered in this thesis, I will focus on the following research question. To analyses the research question, various objectives were also defined.

How do SMEs manage open innovation activities and what is the role of entrepreneurs in implementing the open innovation activities?
1.4 Purpose of the Study
The purpose of this study is to describe how entrepreneurs manage open innovation in SMEs and create an understanding for open innovation activities in SMEs. Changing from closed innovation to open innovation transformation in large companies has been studied by many different researchers. The wonder of transformation in still new within the SMEs, and yet misty how entrepreneur influence the procedure of innovation inside the organization. Thus, the aim of this particular research is to concentrate on how entrepreneur impacts the change through his current business model and what motivates the entrepreneurs to induce the external resources to choose for improving the business performance. For SME’s with scared resources it is not generally simple to move model from close to open innovation system. In such manner, the present research has been led to inspect the strategies embraced various organization and to adjust with the recommended theories within the area of innovation. Furthermore, this research will also analyses the role of an entrepreneur who influence the innovation process within the organization. Besides, this research will also focus on how entrepreneurial abilities and personal life experiences add to the designation and usage of internal and external resources to enhance the innovation procedure with in the entrepreneur’s organization.

1.5 Significance of this Research
Considering the significance of socio-economic development, the SMEs plays an important role in upgrading the economic prosperity within a region. However, a specific focus is required in this sector. Because of their limited size and scare resources, SMEs are left with the alternative to work together with external resources to stay up with the technological advancement. In this specific context, this subjective research will toss light on the advantages of open innovative for high-tech SMEs with the respect of the development in their market. What's more, this research will likewise cover the main impetuses that force entrepreneurs to change business model from close to open innovation. Two SMEs have been incorporated as case studies analyses keeping in mind the end goal to break down how these entrepreneurs conveyed the open innovation practices to their business model. These case studies and the finding of the research can be useful to the individuals who have an entrepreneurial soul and want to begin and lead their own small organization.

The 21st century is tilting towards an economy that is principally determined by innovation and learning, where entrepreneurs need to perceive and expect high-technology opportunities to join the positions of future entrepreneurial leaders. This research on SMEs in Pakistan and UK will be
valuable, because very few empirical studies has been done on SMEs on developing countries. Majority of the studies or research on EO and open innovation has been done in the United States and Western countries, whereas generalizability of open innovation in SMEs limited because of proclivity for limited cross-cultural testing (Antoncic & Hisrich, 2001). According to the studies of Kreiser., 2002 has already confirmed that to check the cross-cultural validity of EO scales typically exclude from some Asian and African countries. Study of this nature will be helpful for considering that open innovation and its effective diffusion is very essential for the growth of the economic such as increase in productivity and employment. The internalization of entrepreneurship also justifies that construct which are already tested can be analyzed in the developing countries as well (Jantunen et al., 2005; Ulijn, Nagel & Liang, 2001).

This research also helps in re-establishing the reliability and validity of the literature of open innovation and entrepreneur with regards to the developing countries according to implication of the theories in the developed economy so that why UK SME is also considered. Before 1947 Pakistan was one of the colonies of UK, and in present days Pakistan still follows the British laws. So, it was easy to see that if Pakistani SME is also following the same procedure to implement open innovation and entrepreneur theories exactly in same manner with developed countries.

In this chapter, the basic concepts of the open innovation procedure and the action taken by the entrepreneurs.
Chapter 2: Literature Review
In chapter 2, the author will present the literature which he will utilized in this thesis.

2.1 Closed and Open Innovation
Prior to the adjustment of cutting edge business inclines in the 21st century, organizations depended on various methodologies. Before the transformation of business trends in the 21st century, companies depended on various methodologies. Most of the companies most part depended on their internal research and development departments rather than utilizing external resources. The traditional model which they utilized was known as the “Closed Innovation Model”. Many previous studies demonstrated that most companies have utilized the closed innovation model for the past numerous years (Chesbrough, 2003; Esseiva, 2013; Gassmann, Enkel, and Chesbrough, 2010). The closed innovation model depends upon various assumptions like fixed structure and cultures, IP right, productivity and tight controls. These transformed in the current era. This leads that internal resources are most dependable and reliable at warding off the competition. Closed innovation procedure is done within the premises of the company and no mechanisms exist for generating new ideas, knowledge and development processes. Besides, no new ideas from different companies can enter the company’s R&D procedure (Esseiva, 2013).

Even though companies were firstly based on closed innovation systems, thus transformation and revolutionary technological changes brought a tremendous change to an open innovation system in business environment (Van de Vrande et al, 2009). Big giants for example Xerox and IBM in the early 1980s were related to closed innovation model (Chesbrough, 2003; Esseiva, 2013), but were forced to stop their traditional way of developing innovation because of changes economics environment of the business world. Companies were not getting the desired result from their operations. Yet, they were contributing extensive resources to bring out changes in the business environment (Van de Vrande et al, 2009).

The term “Open Innovation” is proposed for organization to react to the changing business environment. Most of the researchers have argued that companies must introduce external knowledge and ideas. The proposed open innovative model covers the approach through which SMEs can obtain benefits through working together with external resources and clinching technological transformation. The open innovative model manages the coordination of external and internal resources to obtain maximum outcomes (Chesbrough, Vanhaverbeke, & West, 2006, 2014). Utilizing the model of open innovation companies can welcome partners, customers and
different stakeholders to add to the procedure of innovation. However, companies can exploit the benefit by the affluence of knowledge that exit outside the company.

Dispersing their knowledge does not put the company at the risk in the market. Open innovation utilizes crowd sourcing, where large numbers of individuals are welcome to share their ideas regarding innovative objective.

To sum up the concepts of closed innovation and open innovation, the diagram is shown below. It obviously shows that closed innovation has limited scope for the resources and mostly relies on the internal resources, while open innovation is free from these limitations and conveys more extensive scope of the external resources.

![Diagram of Closed vs Open Innovation](image)

**Figure 1: Closed vs Open Innovation (Chebrough, 2003) (Page, 98)**

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.

There are various thought processes that empower open advancement rehearses among huge and little firms going from thought age to dissemination. Recognized thought processes that energize open advancement hones from different researchers are condensed (Table-1) beneath in Table 1. They are taken from Steninger's (2014) inquire about.
There are various motives that empower open innovation practices between large and small firms going from generating new ideas to distribution. Recognized motives that encourage open innovation practice from different researchers are summarized in Table 1 below.

**Table 1- Motives of Open Innovation in Companies (Steniger,2014) (Page 8)**

<table>
<thead>
<tr>
<th>Strategic motives</th>
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<tbody>
<tr>
<td>Reducing time to market</td>
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<tr>
<td>Monitoring “potentially disruptive technologies”</td>
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<tr>
<td>Access improved product features</td>
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<tr>
<td>Improve the internal innovativeness by leveraging external resources</td>
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<table>
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<tr>
<th>Financial motives</th>
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<tbody>
<tr>
<td>Access to new geographical markets</td>
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<tr>
<td>Improve product margins and reduce risk in technology development</td>
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<table>
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<tr>
<th>Technological motives</th>
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</thead>
<tbody>
<tr>
<td>Fill the development pipeline and access new ideas</td>
</tr>
<tr>
<td>Allow a variety in product development</td>
</tr>
<tr>
<td>Access new or supplementary product or process technologies</td>
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<table>
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<tr>
<th>Operational motives</th>
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<tbody>
<tr>
<td>Earlier identification of technical problems</td>
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<tr>
<td>Fewer engineering change orders and the possibility to access prototypes</td>
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</table>

2.2 Open Innovation in SMEs

The size of the firms may influence the utilization of open innovation (Chesbrough & Crowther, 2006). The result of the study shows that both small and medium sized companies are obtaining benefits from open innovation model. It has been noticed that procedure of innovation of large companies are naturally more professionalized and organized. Large companies face less difficulties in the business field contrasted to SMEs. Large firms have well developed and enhanced R&D systems because they have adopted and taken resources from the external environment. While comparing it with small companies, they have different organization structure which are subject to external sources. Advancement of technology in the field business, SMEs are now currently developing more professionalized standards and introducing hierarchy layer of management in the organization.

In present era open innovation carries a lot of importance for SMEs (Chesbrough, Vanhaverbeke, West, 2006). It is an innovation strategy under which companies go past the internal limits of the organization and try to cooperate with professionals’ experts to obtain mutual benefits. Trott, 2012
exhibits that open innovation is small organizations has not received great consideration unlike larger companies, however small and medium sized companies can be effective in using and gathering data and knowledge from external sources to make new products or reinforce the organization.

Open innovation in SMEs has been assessed in few organizations taking in to account extensive quantitative databases (Van de Vrande et al., 2009). This research has investigating why SMEs take part in open innovation activities, what are the barriers that are needing to change for open innovation and how managing and dealing with open innovation in SMEs in unique contrasted with large companies. The knowledge gained from extensive open innovation from large firms are additionally not transferable to the structure of the SMEs. The data which was collected from SMEs in Netherlands, the researchers have examined the obvious pattern and noted the change towards open innovation. As per the findings, SMEs tend to adopt open innovation to be on track with innovation and technology. They are engaged in implementing more advanced open innovation practices to accomplished market related goals, for instances staying ahead of competitors and taking care of customers desired and need (Van de Vrande et al., 2009).

2.3 Motives and Opportunities of Open Innovation for SMEs

Often, large companies face difficulties in managing finances, service, distribution, marketing and production in the meantime. However, they tend to follow open innovation. Same as large companies, medium and small sized have been attracted towards open innovation model (Huggins & Johnston, 2009).

However, most of the research indicates the utilization of the open innovation model in large companies, it has been notice that there is a need to fill the research gap regarding how the transformation from close to open innovation is being adopted in small and medium enterprises (Luo et al., 2013). There are many different motives for small and medium enterprises to implement an open innovation system and model. Luo, 2013 the Chines researcher conducted semi structured interviews to find out the result of their research. As per the finding of the research, the motives for utilizing open innovation consist of including cooperation between different stakeholders to enhance the innovation procedure. By bring in the latest technologies, by motivating and encouraging innovation processes and by building up networks, these SMEs companies are flourishing.
It has been observed that an open innovation system leads to opportunities for the SMEs because it enables SMEs to make improvements in action plans without having any issues (Chandler et al., 2009). In this way SMEs might be influenced by the external sources and get help in developing a system with external supports that might they have the required skills.

For the open innovation, overall point of view is made from the internal R&D process and external sources. External R&D can bring essential quality, while internal R&D is totally dependent upon few individuals (Chesbrough, 2006). The ability of development for SMEs is restricted by internal resources and outdated innovation systems. The procedure of open innovations makes SMEs to find alternative approaches to increase their development capacities: one renounced thought may be important for another undertaking (Chesbrough, 2006). SMEs tend to intention to consolidate different sorts of innovations and information to increase their own specific abilities (Kuhakarn, 2012). The study focused on the opportunities open innovation presents to SMEs.

2.4 Challenges and Barriers
SMEs can consider to the immediate requests of the changing business environment because of their internal communication system. Yet, when expect to apply open innovation, SMEs may face various challenges and barriers. Many researchers argued that SMEs have a couple of ideal conditions related to well established multinational endeavors of large companies (Rothwell & Zegveld, 1985).

Talking about the main challenges faced by SMEs while fusing the open innovation into their current business environment, researchers suggested that lack of association alongside less trust in open innovation is critical beside restrictions to dealing with the challenges related to intellectual property, absence of communication with the government and inefficacy to change the external data and knowledge into internal information. These all are the noticeable challenges (Luo et al., 2009). Therefore, it is very crucial for the SMEs to work with each other and develop global network and systems.

Different researchers have also suggested that some of other challenges and barriers. It has been resolved that innovation driven strategies are fruitful for small firms under certain conditions, which are normally considered challengers (Gans & Stern, 2003). To start with, small firms have benefit from the past experiences gained from different business sectors that are consider niche to attract large companies. Secondly, technological advanced companies tend to enter the market
after some time, when imitators introduce identical yet less costly product in the market. Technological advance companies, in this manner go ahead that requires the small companies to move forward with one innovation opportunity. Third, when innovation drive competition, small firms can flourish when they cooperate with a small specialized scope of creative individuals, who separately do not require in house innovation and financial assets to include to the innovation on their own. Although, there is need to concentrate on each aspect while moving towards open innovation.

However, other research expresses that small firms, regardless, come across many difficulties while sourcing external innovation. Most of the time, they do not have abilities to distinguish, exchange and acclimatize external ideas and innovation sufficiently into their organizations (Yin, 2013). They must have utilized staff with the required exploratory establishment to comprehend, assimilate and absorb the experimental innovation made in universities, research labs, or large organizations. Finally, small firms are likewise required to settle on choices about the way they will obtain benefits from their innovation. This is about how to market and offer the innovation.

While implementing open innovation system. SMEs need to gain on their intentions and overcome the challenges to enhance their success. To develop a collaboration in SMEs in an effective way is very helpful because it leads to open innovation while supporting the external communication (Vanhaverbeke & Cloodt, 2006). SMEs producing tangible products can obtain resources and innovation from external sources. Well-executed coordination efforts will be a win-win policy for everyone involved.

While discussing the barriers faced to open innovation by a SME, some researchers believe that the small enterprises need to handle challenges when there are quick or abnormal movement within the business sector (Vanhaverbeke, 2012). In this manner, SME need to proceed with the innovation. They should subject themselves to the openness, participation, and dynamic incorporation.

2.5 Entrepreneur and Entrepreneurship: What is an Entrepreneur?
The managerial challenge looked by entrepreneurs is maintaining the right balance between transformation through innovation and stability through proficiency. Entrepreneurial management is opportunity driven without respects of availability of the resources and potential barriers, which requires a great amount of inclination to change (Hortovanyi, 2009). The question here emerges
of how these individuals make and oversee effective organizations. To answer this question, it is important to recognize the attributes of an entrepreneurial manager from those of a traditional manager.

An entrepreneur is a person who makes a new company or organization or who animate innovation in a current organization, while entrepreneurship is a demonstration did by the entrepreneur for organization building and innovation inside or outside the organization (Sharma & Chrismans, 1999; Nybakk, 2009). Entrepreneurship is the person ability to transform ideas into actions, bring innovativeness and take risks. It is also important to imply his ability to plan and deal with the projects to achieve his set goals (Marques, 2010). The word entrepreneurship can be looked at from various contexts.

![Figure 2: Different perspectives for Entrepreneurship Conception (World Economic Forum, 2009)](image)

These four perspectives will be elaborated in detail to understand in a better way: “Which individual an Entrepreneur is and What an Entrepreneur does? Or in other words “How an entrepreneur organizes and oversees open innovation in the organization?” This will help in understanding one of the core objective of the researcher and help in analyzing the cases more in detail.

### 2.5.1. Individual as an entrepreneur

The main distinction between an entrepreneur and different individuals in the society is that entrepreneurs perceives his capabilities and abilities, want to setup his own company, recognizes the opportunities, innovates, take risking decisions and gather necessary resources (Casson, 1990; Gaspar, 2009; Knight, 1921). In 19th century also known as Industrial Revolution era, Schumpeter come up with entrepreneurial theory with three important benefits (Hortovanyi, 2009).
An entrepreneur is an ambitus transformation management agent (Sandberg, 1992) who extricates the idea from the knowledge and information and change into economic knowledge.

Entrepreneurship is not just a profession but it is ability of connecting market problem to innovation. An entrepreneur loses his entrepreneurial qualities if he cannot find new ideas or opportunities (Schumpeter, 1980).

An entrepreneur is an individual who brings change in traditional practices by bringing new ideas and move the market in new direction (Mintzberg et al., 1998). Entrepreneur has the ability of utilizing new combination of resources to come up with new products, production techniques, new business model etc. (Schumpeter, 1934; Nybakk, 2009). Many researchers believe that entrepreneurs help by creating wealth in the economic development as they abolish old practices for something new and innovative. Also, entrepreneurs help in creating social entities (Aldrich and Ruef, 2006; Nybakk, 2009).

2.5.2. Entrepreneurship (Process)
Entrepreneurship alludes to the ownership of getting distinctive knowledge and competitive behavior which leads to change in the economic (Kirzner, 1973; Davidsson, 2003). Entrepreneurship can be opportunity bases or necessity based (Busenitz et al., 2003).

The aspect of entrepreneurship procedure begins from the opportunity exploration and go up to opportunity utilization that leads to value creation. “Opportunities exist freely of specific performing actors” and because of this differing nature, it is entrepreneur’s exceptional understanding, knowledge, aptitudes and the way he composes the activities that make the startup effective (Davidsson, 2003). As such, it can be stated that the economy is heterogeneous and in this way individuals, organizations and geological regions differ regarding opportunity exploitation and utilization context (Hortovanyi, 2010). Different researchers have recognized different motives that drive an entrepreneur towards setting up his own start up, for example, self-awareness independence and consistent learning (Birley and Westhead, 1990). All these motives are interlinked to social attributes with the fulfillment of specific needs (Hofstede, 1980; Maslow, 1954).
2.5.3. **Entrepreneurial Traits (Skills-Attitudes-Behaviors)**

Certain traits are related to entrepreneur which illustrate the effectiveness of the entrepreneurial behavior (Gartner et al., 2006). Numerous SMEs wind up because of different reasons for example entrepreneurial opportunity misinterpretation, unanticipated threats, absence of knowledge, data and funds and absence of business abilities (Afolabi & Macheke, 2012; Chimucheka & Rungani, 2011; Monk, 2000; Smith & Perks, 2006). There is an immense number of research (Collins and Moore, 1970; Timmons, 1994) representing different attributes of entrepreneurs. Entrepreneurs are depicted as practical, coherent individuals with independence and accomplishment needs.

Some important entrepreneurial traits are discussing below

**2.5.3.1. Risk taking ability**

McCelland in his work “The Achieving Society” highlight psychological traits of an entrepreneur for instances need and want for success, taking up the responsibility and readiness to take risk, which all are very vital for the development of the society (Midgley & Dowling, 1978).

**2.5.3.2. Decision making capability**

Entrepreneurship has moved from what is entrepreneur? towards another specific focus what entrepreneur do? This emphasize on the behavior aspect of the entrepreneurs for instance level of education, experiences, memory, perception and judgement (Gartner, 1988). These attributes prompt to further thinking and decision making. The behavior of the entrepreneur is influenced by the ability, need and opportunity relying on demographic, social norms and other employment alternatives (Davidsson, Delmar, Wiklund, 2006). Decision making is the most important skill of the entrepreneur because it allows to take risk and tackle with competition (Mintzberg, 1973). Recently established SMEs need lot of time and effort to bear day to day activities of the business. Thus, decision making is important skill.

**2.5.3.3. Management capability**

Entrepreneurial management mode is constantly proactive, opportunity driven, and action oriented. The style of entrepreneurial management can be found on the business or firms strategic choices and the policy of the management. With such management skills, entrepreneur can successfully and efficiently blend the external and internal resources to its innovation activities (Brazeal, 1999; Hortovanyi, 2009; Shane & Venkataraman, 2000; Venkataraman, 1997). Botha, 2006 argues that performance of the SME would decline due to lack of motivation, lack of resources (human and financial) and lack of management skills.
2.5.3.4. Learning capability
According to Smilor, 1997 stated that entrepreneurs outstanding learners, who not just gain from their past education, knowledge and experience yet keen on learning new things from their network for instances customers, suppliers, distributors, competitors etc. They gain and learn from experience by doing something new. They gain from the things which works vices versa. News SMEs are normally small and their odd for survival are typically low compare to larger companies despite that one strategy of survival for SMEs can be their continuous hunger for learning and adaptation (Audretsch & Acs, 1990).

2.5.3.5. Networking capability
Subjective and former knowledge is very vital for entrepreneurs because it allow them to judge the value of an opportunity. Although it looks like a simple task but articulating this idea to others might turn in to difficult task. When opportunity is recognized, after that entrepreneur needs to choose and spend time in finding, building, arranging and creating network. When startup is established and moving towards the desire goal, then entrepreneur must start looking for external strategic partners (Hortovanyi, 2010). Social ability is very critical for entrepreneurial capabilities because it add knowledge and value (Dayan, Zacca, & Di Benedetto, 2013). Many researchers have referred networking capability as knowledge creation, is characterized as organization capacity to develop and maintain relationship internally and externally. Messersmith and Wales, 2013 argued that maintain strong relationships with network helps the entrepreneur in generating new knowledge related to market and finding solution to the problems and finding new opportunities. Entrepreneurs can develop their internal capabilities and access to external resources by making connections with unconnected groups (Flyod & Wooldridge, 1999). As per Hite, 2005 entrepreneur can enhance the innovation idea by proactively developing their network.

2.5.3.6. Communication capability
Most important entrepreneurial skill which is core of the business is communication. Success of the business relies upon the quality of relationships that entrepreneur develops and manage his whole career. The capacity transmits the organization objective and idea to the partner, customers and employees is important for growing the business and making a relationship of trust and understanding (Charles, 1998).
2.5.3.7. Entrepreneurial ecosystems
Ecosystem of entrepreneur consist of government, venture capital industry, banking system and society that impact the new companies directly or indirectly by the factors.

External factors consist of structure of the economy and industry, social norms, political stability rules and regulatory and innovation changes play important role in determining the success of the SME (Hortovanyi, 2010).

In 1990s various research were conducted on socio-cultural backgrounds of entrepreneurs. It has been notice that an entrepreneur will probably be successful if he/she is the child of a self-employed parent, being let go twice from the job, has worked in large company managing more than 100 people. The Global Entrepreneurship Monitor, 2007 (GEM, 2007) carried out there research on 43 different countries intends to study the entrepreneurial background by looking at the entrepreneurial activities at different phases of the entrepreneurial procedure and by checking out with various factors that describe entrepreneurs and their businesses diversity. Entrepreneurial abilities and activities on both individual and worldwide level were monitoring to carry out GEM. It helps in explaining the patterns and trends that are followed in different regions. Wide range of research has been carried out in the past that recognize entrepreneurial profiles and activities from different regions of the world both empirically and theoretically but no research has been conducted in developing countries like Pakistan. To fill this knowledge gap, entrepreneurial traits and activities will be study in this thesis to find out how entrepreneur in Pakistan manage open innovation. Apart, from that comparison will be done between Pakistani entrepreneur to an entrepreneur from the UK to find out any differences or similarities contrast to the geographical regions. Firms or companies are expected to maintain worldwide economic, competitive power, standard of living and employment. Entrepreneurship is all about this (Kjeldsen & Neilsen, 2000). Additionally, entrepreneurship is needing to interlink all the management, business procedures and system. These three core components are mostly independent but their interdependency has been developing in significance and are important to understand the extravagance of the open innovation cases. When entrepreneur start a new company, he can follow up on two types of attributes, he can take risk by setting up new activity (Knight, 1921; Nybakk, 2009) or he can look for new opportunity (Schumpeter, 1934). Jenssen, 2004 allude entrepreneur as a champion whose greatest quality is taking risks by vigorously developing and implementing of innovation procedure within the organization through acquiring external resource.
In defining the role of the entrepreneur in SMEs, some researchers combine many different theories in their research for instances risk theory (Hawley, 1907; Onakoya and Abosede, 2013). As per this approach, an entrepreneur can effectively create profits through innovation. Managers tend to follow entrepreneurs when they understand the philosophy of risk taking. Yet, as a leader, all the responsibility of managing the organization is oversee by the entrepreneur however, entrepreneur might be truant from the conventional theory of the organization. Furthermore, this theory comprehend that the function of entrepreneur is to build new ideas and transform them in desired results (Hayek, 1937).

According to Dalto, 2013 that each entrepreneur must develop open innovation exercise that are relevant with the strategies of the organization. The benefits of open innovation are in this way responsible for the position of each firm. But open innovation cannot be implemented in those SMEs where chances for development or coming up with new products are very limited. In this situation, it is duty of the entrepreneur who has to keep on concentrating on the latest trends and techniques to enhance business performance and productivity.

By looking at the role of entrepreneurship one important aspect is promoting dynamic approach like open innovations in SMEs. In 2013 Wynarcxyk conducted a researcher on the open innovation approach on the export performance and innovation capabilities. The findings of the studies incorporate on the competitiveness of the SMEs which depends upon the interdepended and aggregate influence of the internal factors for instances entrepreneurial capabilities, organization structure and R&D abilities and capabilities. It demonstrates that open innovation methods make a firm capable enough to pull the government funds for technological innovation and R&D. 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.

A similar research expresses that if the business means to apply the contemporary business procedures, the favorable results are related with are linked with effective entrepreneurship and more categorically on the role of entrepreneur same as Schumpeter (1934) expressed. The entrepreneur ought to be sufficiently capable enough to introduce new strategies, new products and strategies, find new opportunities and distinguish new sources. Additionally, the idea of open innovation seems to be tied developing trend of globalization. As per Wynarcxyk, 2013 stated that
entrepreneur ought to have imitating skills also. It is no longer a mystery that competition become more competitive when one organization imitates the other organization to outsmart others business within the similar industry. Most of the time it can only be done when entrepreneur could imitate different entrepreneurs working in multinational. For example, it is very vital for the economy of developing countries to have entrepreneur who can copy the innovation methods and strategies implemented in developed countries. An entrepreneur must perform different sort of activities for instances, recognizing market opportunities, coming up with new products and production strategies and managing and merging factors of innovation techniques (Knight, 2000). In such manner, one might say that an entrepreneur is answerable for implementing the latest combinations to comprehend the apparent opportunities. Since the expectation is to start and organize a profit based business, an entrepreneur is answerable for take sequence of interdependent decisions identified by a group or an individual (Knight, 2000). Hence, an entrepreneur plays a vital role associated to developing new innovations and opportunities, the ability to handle the risk of ambiguities and to offer new amalgamation of required abilities.

2.6 The Role of an Entrepreneur in SMEs: What Does an Entrepreneur Do?
Innovation Activities: Bringing the change is a fundamental part of an entrepreneurship, however sorting out market-related activities is the primary source resulting in entrepreneurship (Davidsson, 2003). Entrepreneurship happens just if the value is created which can be estimated by assessing the kind of innovation activity achieved by the entrepreneur (Davidsson, Delmar, & Wiklund, 2006). One of the key highlights of new businesses or SMEs is that they pick to move far from existing items and markets to something new or obscure. The part of an Entrepreneur along these lines incorporates fluctuating dispositions and practices towards an open door. Opportunity Recognition is at the core of business and entrepreneurial exercises. Production of another association denotes the move from what business visionary "is" to what a business person "does". Therefore, entrepreneurship researchers should move their focus from psychological state and personal traits of an entrepreneur, against the behavior and activities of individuals who begin new company and bring innovation (Gartner, 1988; Nybakk, 2009; Shane and Venkataraman, 2000). SMEs tend to attract individuals with an entrepreneurial focus since they have strong market knowledge and they promote experimentation with different alternative and new business models (Ahlstedt & Linde, 2011). Other researchers suggested that SMEs enjoy some certain benefits over large companies for instances, small size, adaptability, flexibility and versatility towards new
opportunities and inventions. They also argued that more focused and specialized offerings and having entrepreneurial mind increase their R&D efficiency (Chesbrough, 2010; Laursen and Salter, 2006). In the mean time because of limited finance and capabilities, SMEs need to enhance innovation to grow and stay ahead of competitors. However, it very difficult for the SMEs to innovate individually, hence they can obtain benefit if they comprehend and efficiently implement open innovation in their business model. Organization that are classify as technology intensive, knowledge advantage and that utilized new business models will probably engage in open innovation (Gassmann, 2006). Introducing innovation into an organization’s business model is an entrepreneurial act. An entrepreneur performs activities for instances, efficiently and effectively utilization of internal and external resources, developing new market segments, new products and service, new production techniques etc. Entrepreneur disclose the new market opportunity that is not perceive earlier (Ahlstedt and Linde, 2011; Markides, 1997; Van de Vrande et al., 2009).

Open innovation consists of two dimensions for innovation and information flows shown in the figure 2. They are

1. Technology Exploitation (Outbound OI activities): Innovation activities utilize the existing technology and capabilities outside the business boundaries, like joint venture, licensing of IP and external non-R&D worker involvement.

2. Technology Exploration (Inbound OI activities): Innovation activities that are used to capture and benefit from the information and knowledge and technology of external sources outside the business for instances customer inclusion, networking, external participation, outsourcing and inward licensing of IP.
Figure 3: Most common technology exploitation and exploration practices in SMEs (Van de Vrande et al., 2009 (Page 9)).

This study will concentrate on the technology exploration activities that the entrepreneur conveys in his open business model. SMEs can accomplish competitive advantage when they utilized both inbound and outbound open innovation activities together (Chesbrough, Vanhaverbeke, & West, 2006). Apart from outbound, inbound activities helps the SMEs in saving huge amount of financial resources and human (Van de Vrande et al., 2009; Kuhakarn, 2012).

2.6.1. External Networking
As per Powell & Grodal, 2005 and Nyball, 2009 social theory and network analysis, signifies the important of networking in heterogeneous groups. External network consists of activities procure associations and relations with external sources which incorporate individuals and organizations (Van de Vrande et al., 2009). A social network is an arrangement of interdependence among individuals which give human resource to the entrepreneur with regards to education, intelligence, experience etc. (Coleman, 1988; Burt, 1997). Entrepreneurs create formal and informal relationships with suppliers, distributors, universities and sometimes even with competitors just to obtain some certain benefits for the business. Researchers have highlighted many benefits for instances human capital sharing, information sharing, financial resources sharing, reducing risk, and formation of joint ventures etc. (Nybak, 2009). Outer or external sources are established by mechanism of networking which includes various partner such universities, suppliers, distributors, external firms and manufacturers etc.
Although, networking has certain benefits but it can be risky as well. Risks which are associated with networking can be in any form such as information leakage, ownership at stake, communication failure about goal and objective and IP rights (Littler, 1993; Nybakk, 2009). Many researchers recommend to includes culture, economy, type of industry and social norms should be taken in to account before establishing networks because this factor can be mismatch as far as product, market and technology fit in various nations (Lin & Zhang, 2005; Tidd & Bessant, 2009; Kuhakarn, 2012).

2.6.2. Outsourcing R&D
If any business wants to enhance its innovation performance, decrease its cost and risk and obtain external knowledge, it must outsource its R&D. Outsourcing normally includes partnership with supplier companies, institutions, research organizations, etc. In the meantime, it must ward off if the internal gain is less compare to what is given to the external party (Kuhakarn, 2012).

2.6.3 Customer involvement
It is a method for using ideas to commence innovation according to the customer demand. It cannot be refuse that customers’ satisfaction and recommendations are very important. However, it is modification to invent something new more effectively and efficiently with customers’ help. When business want to implement the changes customers’ feedback is vital, it is additionally required that the business has sufficient resources, which can only be accomplished if the organization has external network.

2.6.4 IP inward licensing
The SMEs can also take benefit from the IPs of their external partners for example, licenses, trademarks and copyrights when it can utilize its own business model its product (Chesbrough, 2006; Ahlstedt & Linde, 2011).

Summing up the discussion, one might say that all technology utilization activities are related with each other and therefore play a vital role if implemented correctly and comprehended in a proper way. This thus totally relies on the approach chose by the entrepreneur and depends on his aptitudes and capabilities. Additionally, it has been said that entrepreneur should care of the previously mentioned factors to accomplish desired result. For example, securing IP rights, networking, and organizing conferences are few factors that must be considered by the entrepreneur for effective open innovation in SMEs. It all started with perceiving the opportunity
to establish a start up the entrepreneur must develop a wide range of network to be well aware of the latest trends and opportunities to meet the customers’ desires.

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

Bommer and Jalajas, 2004 argued that SMEs attract individuals and managers with entrepreneurial spirits for number of reasons which includes the abilities like adaptability, speed, handling risk and opportunities acknowledgment abilities. It is considered that entrepreneurs deal with a small organization, can convey their objective more efficiently and effectively because of less informal communication channels and administration in SMEs.

It is essential for an entrepreneur to be a manager of the company whether he or she is managing large firm or SME, to comprehend the idea and broad meaning of “management”. However, the term management can be express in various ways. But the procedure of management always communicates the objectives of the organization. Keeping the objective in the mind that manager must make all the important business strategies and operations (Onakoya & Abosed, 2013).

Managers ought to perform corporate activities that involve sending delegates to work inside a new organization and allowing representative to invest their resources into new business (Mintzberg & Van der Heyden, 1999). It can be more beneficial and grounded “enterprise endeavor” by embedding “start-up DNA” into the network or association (Morschett, Schramm-Klein, & Zentes, 2015).

Entrepreneurial operations must be managed in an effective way since business achievement relies upon the way entrepreneur execute action plans and management methods. The problem for the entrepreneur in an SME is to set up and manage his professional approach (Georgellis, Joyce, & Woods, 2000). It is critical to consider effective management practices which will guarantee that the business flourish. The quality and accomplishment of relational ties and networking with partner relies upon different factors for example, the amount of time spend, the enthusiastic force, trust, common interested and reciprocal services (Granovetter, 1973).

From an alternate point of view, it was notice that some of the founders of SMEs after some time turn out to be less systematic and analytical in their approach contrasted with proficient managers. Managerial limitation, inefficiency and vulnerabilities, in addition personal and financial difficulties are some of the vital issues a manager of an SME must deal with (Longenecker et al.,
2011). This is the motivation behind why this study looking at the personal experience of an entrepreneur managing a small firm. Results depicts that the business operation of the small firms are not generally complicated rather the owner of the small venture are required to have proficient manager to deal with change in management and leadership procedure (Longenecker et al., 2013). However, same concept has been depicted in another study (Brock, 2013). Entrepreneur when acting as manager of the small company should join hierarchical and managerial roles to accomplish the desire results.

2.8 Business Model Development
A business model is the design of hierarchical and financial structure of a business (Chesbrough and Rosenbloom, 2002) or a story that clarifies how enterprises work (Magretta, 2002). An entrepreneur starts the company with a dream that clarifies it goals and objective. To give life to the dream entrepreneur formulates a strategy. Every single large firms and SMEs have a business model which shows the strategy of the firm. A business model not just clarifies how it make value for the customers, yet in addition clarifies how it will make value for the organization.

A business model need to have six types of attributes: value position, market segment, value chain, cost structure and profit potential, position of the firm value in network and competitive strategy to change the technical inputs into economic inputs (Chesbrough & Rosenbloom, 2002). Many large companies and SMEs, these attributes can be comparative, however what make a difference between one company to another is the competitive strategy it will extract out of these attributes and use in the business model. Technology is dormant and has no specific economic incentive until it is commercialized innovatively through a business model by organizations or “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 impressive business growth, the SMEs rely upon innovation through improvement and management of knowledge base strategies (Gray & Colin, 2006).
The Business Model Canvas

![The Business Model Canvas](image)

**Figure 4: The 9 building blocks for a business model (Osterwalder & Pigneur, 2010) (Page, 44)**

Due to changing business environments and technologies, entrepreneurs are compelled to shift from traditional and boring business plans towards realistic and innovative business model.

Research has characterized the core concept of business model (Figure 4) in an effective way, through which business model is made up of nine building blocks value propositions, customer segments, channels, revenue streams, key activities, key resources, customer relationships, cost structure, and key partnerships (Osterwalder & Pigneur, 2010).

But, not every business is prepared for disruption. Without a plan, pivoting is next to impossible. For an organization to innovate, it must have a fine-tuned strategy that guides it towards a viable future business model. Using a tool like the Business Model Canvas can serve to unite your company under a clear visualization of where your organization sits today and where it can be tomorrow (and how it will get there).
When business decide to become more innovative they face certain problems and challenges (Osterwalder & Pigneur, 2010). In this thesis I have selected two SMEs who are following the Business Canvas Model to implement the open innovation activities. For these two SMEs to innovate and to be more successful in the future, they need to have a fine-tune strategy that will aids towards a viable future business plan. Business Model Canvas tool will help these two SMEs to define a clear objective and goals and help the SMEs to monitor their performances for instances where these two SMEs sits todays and where it can be tomorrow (and how it will arrive). Later in analysis chapter this model will be very useful as it will help the researcher to determine the key partners, Key activities, Value proposition, Customer Relationship, Customer Segments, Key Resources, Channels, Cost Structure, and Revenue Streams.

A business model canvas is a famous tool for designing, challenge, invent and modifying their existing and implementing new business plan in an efficient way (Osterwalder, 2004).

2.9 Open Business Model
The concept of business models has presented another term, which is an open business model, where ‘open’ alludes to few unique concepts for instances, open information, open sources, open standards and open transparency (Chesbrough, 2013). These concepts can be comprehended for shifting value propositions towards developers, partners and users. The open business model is also known as collaborative business model, which is related with the boundaries of the business and its collaboration with internal and external sectors. As per the definition of an open business model, business models are open to some extent. They differ completely from integrated business with customers only, to those businesses who depend upon external proficiencies and resources to capture and enhance the value (Chesbrough, 2013). In this way open business model supplements internal activities, capabilities and responsibility for the resources with access to required procedure and resources from the external core innovations. Vanhaverbeke, 2012 argued that SME managers of low and medium tech entreprenues like Devan Chemicals and CURANA QUILTS of Denmark trust that their business models play an important role and not simply on innovation alone. They kept their business model open to work together with partners for different resources which they needed.

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. 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 analyzed 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.
Chapter 3. Research and Methodology

In this chapter the methodology used in this thesis will be presented. The research question and the research problem helps the author in deciding the methodology for this research. For this thesis, the author began with theories to develop a frame of references utilizing a literature research as proposed by Jansson (1993). Jansson (1993) additionally recommend that the researcher(s) have mental control over the collected literature and data to see how they are linked.

3.1. Research Process

The information for the utilization in the literature review, the researcher found in books, and articles. Researcher mostly utilized the databases of “Web of Science”, “Scopus” and the one from the online-library of Halmstad University. Particularly for the definition of open innovation and business model the researcher utilized loads of current articles. This information can be characterized as secondary data since they already exist and can be found in different books and articles (Hussey & Hussey, 1997). After going through few articles about the topic for the literature review, which gave more profound significance for the thesis the researcher accumulated them and deal with all relevant articles.

Two case studies are considered for the research, the first case is an SME called ConTra International Pvt Ltd Pakistan (ConTra international) and second case British SME known as MCWare Mechanical Ltd. The selected SMEs for this thesis belong to two different regions South Asia and Europe.

3.1.1 Research Method: Qualitative research

For this thesis, I will be taking a qualitative research method as indicated by Bryman & Bell (2007). A qualitative research is picked when circumstances will be characterizing and new results are required (Guest & Namey, 2005; Bryman & Bell, 2007). Besides, a qualitative research gives a profound comprehension of underlining reasons, assessments and motivation (Bryman & Bell, 2007). It is more focusing on articulations and words (Bryman & Bell, 2007).

An issue while utilizing this qualitative research approach is that the conclusions cannot be summed due to small amount of companies that have been taken for the research. To verify the result and the speculation on qualitative research approach ought to be taken. The main purpose of the thesis was to clarify and point out how entrepreneurship introduce open innovation and how successful they are. The researcher is attempting to point out how others utilize their knowledge.
and experience successfully (Ospina, 2004). Hence, the qualitative approach best suited for this topic and problem of this thesis. It helps to profound learning and understanding on the field of how open innovation helps the entrepreneurs to outsmart their competitors and how SMEs get benefited from external networking (Auerbach & Obstfeld, 2005).

3.1.2 Research Approach: Deductive
There are three different types of research approaches which are deductive, inductive and adductive (Lewis & Thornhill, 2007). For this research, author will be working mainly with the deductive approach.

In the deductive approach, firstly literature framework is defined with the assistance of the theory and is very important for the empirical data and secondary data to develop conclusion or result (Lewis & Thornhill, 2007). The literature review must give a wide diagram of the research field and subject to comprehend related to the central problem. As per Bryman and Bell (2007) the deductive approach is transforming the theory to empirical data.

Hence, the analysis is utilizing the theories, methods and models from the literature to clarify the collected data or information (Elo & Kyngäs, 2008). Especially, for this thesis this implies that the definition of entrepreneurship, entrepreneur, entrepreneurial orientation, close and open innovation and business model give the reader a more extensive comprehension of the field. With the assistance of the knowledge the analysis of the data can be drawn.

The inductive approach, works with the collectively work with primary and secondary data the outcome or the result to link with the available theories. This research is not an induction research since this approach is collecting the result and trying interface it with the existing theory. So therefore, the researcher would not utilize the inductive approach. The deductive approach will give more extensive comprehension about the creating the procedure for the entrepreneurs or SMEs through open innovation. Hence, interesting question can be constructed and asked to the organizations. The existing theories can be linked to the empirical data and a conclusion develop (Jacobsen, 2002).

This research takes deductive approach on the bases of Lewis and Thornhill, (2007) and Bryman and Bell (2007).
In the following the summarized methodology approach based on Bryman and Bell (2011) is illustrated:

![Figure 5: Summarized methodology approach (Own-construction based on Bryman & Bell, 2011)](image)

### 3.2. Design of case study

When designing a case study, the author has two options: single or multiple-case studies (Yin, 1994). As per Miles and Huberman (1994) opting for multiple case study, adds certainty and confidence in finding. The outcome from multiple case study design are more compelling, and overall study is viewed as more vigorous (Herriott & Firestone, 1983). Multiple case studies are utilized when the cases are relied upon to deliver either comparative or differentiating result. Leonard-Barton (1990) recommended that the odd of having the chance to get intriguing finding are enhanced. Hence, the author opted for multiple case study.

To increase the creditability of the research and to find a better understanding of the chosen topic of open innovation activities in SMEs, researcher took two case studies into consideration. The outcome from multiple case study design are more compelling, and overall study is viewed as more vigorous (Herriott & Firestone, 1983).

This research also helps in re-establishing the reliability and validity of the literature of open innovation and entrepreneur with regards to the developing countries according to implication of the theories in the developed economy so that why UK SME is also considered. Before 1947 Pakistan was one of the colonies of UK, and in present days Pakistan still follows the British laws. So, it was easy to see that if Pakistani SME is also following the same procedure to implement open innovation and entrepreneur theories exactly in same manner with developed countries.
3.2.1. Case selection
Strauss and Corbin (1990) stated that when a sample must be drawn from multiple case study, it ought to be "available to those people, places, circumstances that will give the best chance to assemble most pertinent information about the marvel under scrutiny" (p. 181).

3.2.2 Case selection requirements
The sample of open innovation SMEs were chosen from the chamber of commerce list from Pakistan and United Kingdom. Both organizations meet the requirements of being classified as SME on open innovation. The author searched for a variation of open innovation considering their business models, industry, founders and location. Multiple cases of companies in the case study approach strengthen imperative factors as indicated by Yin (1994). The main purpose of this selection is to give enough diversity to find possible similarities and differences on the open innovation based on their countries. The author opted for two companies from two different continent Asia and Europe.

3.3. Operationalization
The term operationalization can be characterized as “the process of converting concepts into their empirical measurements or of quantifying variables for measuring their occurrence, strength and frequency” (Sarantakos, 1993). According to Jonker and Pennik, 2010 it literature construct into concepts, which is mostly consist of empirical data.

The questions which were formulated for this research are linked with literature and questions will be asked from the selected SMEs to collect the valid information. Hence, each question in linked with the theory.

The researcher was endeavoring to interface each question with the literature framework. So, it can be stated that used theories is preparing each question to be asked. In the analysis the empirical data gather from the question can be linked with the theory, which is a good base for detailed analysis.

The table in the attachment is explaining the relation between the questions and the literature review to get a profound understanding for the reader.
3.4. Data collection
A comparative case study method is an appropriate approach to find out information from the previous research (Eisenhardt, 1989; Yin, 1994). They express that this strategy can be very useful when you need to find out issues where existing literature cannot be utilized for specific situation.

Before starting the research, it is important to have profound thesis are Closed and Open Innovation, Open Innovation in SMEs, Business Model Development and Open Business Model. Scientific databases as Google Scholars, Halmstad online Library, Wed of Science and Wiley Online Library, the authors utilized the relevant journals and articles that used specific topic. The research was carried by the key word search as recommended by Ely and Scott (2007).

The study utilized primary and secondary data. Numerous data sources have been utilized to collect qualitative data for the enhancement of the literature review and for developing the cases for the open innovation in SMEs. Since open innovation in SMEs are relative new idea in the entrepreneur field. The data utilized for the case studies, it can be said that this data is collected from the interview daily papers and sites, web journals, books, recordings, interviews, keynotes, organization sites, LinkedIn and different databases. The data which is utilized for the thesis is publicly available or requires (free) registration to get the data.

Utilizing distinctive kinds of methods and sources for organizing the research, which means triangulation, is recommended by numerous researcher (Yin, 1994; Romano, 1989; Denzin & Lincoln, 1994). Even though, Richardson (2000) condemn this triangulation as if that there is a “fixed point” or “object” to triangulate. Richardson (2000) recommend rather to utilize, the concept of crystallization, where there are much more than three sides to approach to the point. With the utilization of this concept, the author will have the capacity to search wider scope and more profound understanding of the topic. The author of this thesis will utilize this concept to enhance the quality.

3.4.1 Interviewees
To find out how entrepreneurs are managing open innovation in SMEs, the authors has conducted 6 interviews (3 interviews in each company). The length of the interviews was in average for 50 minutes. The questions that were asked during the interviews were emailed before interview took place. Mainly, the questions (Appendix operationalization) concentrated on how they perceive open innovation and how entrepreneur’s skills and capabilities help them to implement open
innovation activities in the organization. The CEO of both companies did not give the researcher permission to use the name of the employees to whom interviews were conducted, so the researcher named them subject 1 and subject 2.

Table 2. Name of the interviewers

<table>
<thead>
<tr>
<th>Company</th>
<th>Interviewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConTra International Ltd Pakistan</td>
<td>Mr. Anwar (CEO)</td>
</tr>
<tr>
<td>MCWare Mechanical Ltd UK</td>
<td>Mr. Simon (CEO)</td>
</tr>
<tr>
<td>Subject 1 (Employee)</td>
<td>Subject 1 (Employee)</td>
</tr>
<tr>
<td>Subject 2 (Employee)</td>
<td>Subject 2 (Employee)</td>
</tr>
</tbody>
</table>

3.4.2 Data analysis
As per Yin (2003) a good data analysis is “examining, categorizing, tabulating, testing, or otherwise recombining both quantitative and qualitative evidence to address the initial propositions of a study” (Yin, 2003, p. 109). From a similar significance is a detailed description of the data and reasonable characterized structure how the procedure will look like (Hartley, 2004).

To get the best out of data analysis, it is vital to structure the gathered data in different categories (Yin, 2009). That makes it substantially less demanding to find a pattern in the analysis later for the researcher (Jacobsen, 2002). Then data will be compared with both SMEs to find differences and similarities (Miles, Huberman & Saldana, 2013). Therefore, conclusions will be made from the analysis and pattern will be found.

3.5 Trustworthiness
Lincoln and Guba, 1985 give four criteria for establishing trustworthiness in a research study. These are credibility, transferability, dependability and confirmability and many more techniques in order to accomplish. Credibility tends to the issue how the interviewee “perspective of the world fits with the researchers” re-establishing this view. Dependability is near to reliability and emphasis on the procedure and it the responsibility of the research to make the procedure logical, traceable and recorded. The paradigm of transferability emphasis around the issue of generalization to another case. The researcher must present the information which illuminates the resemblance between the current study and other studies. The last criteria is confirmability, which is there to guarantee that collected data and understanding is done on the study are more than researcher’s consideration (Patton, 2015). Shenton (2004) have established certain procedure to
ensure these criteria. Member checking is the important measure to guarantee the credibility of the study (Shenton, 2004). Checking includes giving the interviewee a chance to read the transcripts or recording after the interview to guarantee that the words coordinate with their perspective (Shenton, 2004). When researcher reconstruct the data that will confirm, that the collected data are consistent with the actual intention. The interviewee for this thesis were given the transcripts after the interviews to verify and checked the content. Thick description is a technique that indorses transferability and this is accomplished when prodigy and the way it contemplated is depicted in detail. In this way the outcomes in a study is transferable to different settings, circumstances and individuals (Lincoln & Guba, 1985). Dependability tends to subject of reliability and a point by point depiction of the methods used and their adequacy is an approach to give the reader a comprehension what has been done. As indicated by Shenton (2004), this description ought to incorporate the design of the research and the usage, insights about the research done on the field and an assessment of the adequacy of the procedure in the study. Ultimately, confirmability tends to the significance of objectivity. This implies that the finding of the research should highlight the interviewee experiences more than researcher’s inclination. For this to be accomplished the researcher’s bias must be diminished, which adds quality to the research (Shenton, 2004). “Miles and Huberman consider that a key criterion for confirmability is the extent to which the researcher admits his or her own predispositions” (Shenton, 2004, p. 72). For this thesis all of the mentioned techniques to guarantee the trustworthiness were utilized.

3.6 Ethical consideration
The procedure of carrying out this research may confront moral issues. As Stake (2005) said: “Qualitative researchers are guests in the private spaces of the world. Their manners should be good and their code of ethics strict” (p. 459). The objective of this research is to understand the managing open innovation in SMEs. All the data utilized for this research is entirely for study only and the data collected from official company website, publicly available news articles, online blogs, interviews, keynotes. The data is publicly available.
Chapter 4: Cases

4.1 Introduction
To additionally explore the concept of open innovation, two case studies are considered. First case is SME called ConTra International Pvt Ltd Pakistan (ConTra International) and the case is MCWare Mechanical Ltd, United Kingdom. Although, both SMEs are from different region South Asia and Europe, but there is strong relation in their business. So, it is intriguing to study the similitudes of the open innovation approaches, they utilize and the distinctions in result in view of geographical regions. These case studies are useful to recognize the procedure basics to clarify the steps required for the entrepreneurs to establish SME on a new concept influenced by open innovation.

4.2 Company Case 1: ConTra International Pvt Ltd Pakistan

4.2.1 Background
The CEO of the ConTra international, Mr. Anwar is a Civil Engineer and served in the Ministry of Defense in Pakistan for more than 30 years beginning 1978. In his period, he travelled around all the country and served in different administrative roles. After his tenure, Mr. Ali was searching for a new challenge. Anwar’s experience was generally identified with the government sector, hence he opted to take up professional management course to get to know the most recent techniques of conduction a business. In 2009, while he was doing his MBA from Sweden, Anwar met the CEO of ST Software (Netherland base company), in an informal gathering. In this informal meeting, the two shared their experience and knowledge. During that time, ST Software was a new SME setup in the Dutch market, concentrating on utilizing high-tech solution to overcome traffic safety problems. Anwar immediately grasp the potential having such solution conveyed in the developing market for example, Pakistan. In Pakistan, traffic administration and street safety issues are the main problems that required serious consideration. Huge number of traffic accidents and the costs related to them in Pakistan are more than international average. Despite government was pouring out substantial resources on urban planning and infrastructure to solve this problem. Comparing with developed countries is utilizing controlled simulated environments to analyze this issue and coming up with countermeasures.

After the informal meeting between Anwar and the CEO of ST Software, it immediately prompted a new partnership, establishing a new venture in Pakistan after Anwar retirement. His vast
experience and background urge him to respond to this call and to be an entrepreneur. The new venture was named as ConTra International.

ConTra International was setup in 2013 in Pakistan. It was the first company in Pakistan that introduce traffic management solution and road safety simulation. It offers innovative services and product relevant with intelligent transport solutions to the different market segments. Within no time ConTra International turn to be the fastest growing consultancy services company in transportation sector utilizing high-tech driving simulators.

Currently, ConTra International has seven full-time twelve employees. Out of these twelve employees, there are six software developer with skills in C++Java and different scripting languages and 2 are full-time QA and testing engineer to empower customization according to needs of customers in Pakistan. The rest of the four employees are carrying out support and administrative duties at the company. Furthermore, company has a qualified board of advisors, to align its focus and market segment. The board of advisors is compromised of the founder, representative from it partner network and Ministry of Planning and Transport.

4.2.2 Company Case 2: MCWare Mechanical Ltd, United Kingdom

4.2.2.1 Background
The MCWare Ltd, was setup in 2011, by Mr. Simon Poyser. It focusses on technology driven solution. MCWare Ltd, contributes over various numerous technology market and products to enhances the proficiency of citizens, buildings and cities. MCWare Ltd, has wide range of products consisted of smart sensors and intelligent lightening technology, wearable camcorders, smart mobile apps, smart electric vehicles, and augmented reality solutions. MCWare sells it product and services in different market like EMEA (Europe, Middle East, and Africa) and APAC (Asia Pacific) regions. MCWare Ltd, compromise of different product domain markets for instances healthcare, technology and telecom market, transportation, and aviation industries. The entrepreneurial vision of the company is totally compromise on the concept of disruptive and open innovation.

The CEO of MCWare Ltd, has firm believe that he cannot accomplish everything alone, therefore his ideology is to look forward and cooperate with different partners to generate new ideas. The methodology of the CEO is to participate in open innovation activities globally with the assistance of his specialists and experts team belonging to multiple nationalities, culture and age. The strategy
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which is opted by the CEO of the company, is to listen to the customer and bring disruptive
technologies in the business model.

Before setting up, MCWare Ltd, the CEO and the co-founder of the company, Simon had the experience of 20 year working in high-tech industry. He initially started his career as a manager in iLOG- division of IBM, USA. He has specialized expertise in telecom sector and iLOG deals in artificial intelligence, business rules and visualize technologies over different markets in northern Europe. In previous companies his clients were telecom operators and system integration companies like Ericsson. Before iLOG, CEO has work experience from many different organization for instances French telecom operators (Orange), where he was responsible for maintain global business division. His clients include, Experian, Skype and UK’s labor party (political party). With the help of all these clients, he gained experience on how to manage the business efficiently. This experience helps him in starting his future company. At the time when iLOG start opening his new subsidiaries in other part of the world, at that time Simon start wondering about new future. He utilized the ideas of the components based technologies, all the knowledge and his extensive knowledge to establish his new business, known as MCware Ltd.

The main idea which drive the CEO’s to initiate of new company was to explore the opportunities accessible in the European market and to utilize all his knowledge, skills and experiences. At that time when MCware was established, business environment was very competitive, but somehow company established it position in the market with the methodology of the customization of the technology as per the needs and requirement of the customer. At present MCware has 20 employees.
Chapter 5. Analysis
In this chapter, the analysis of both cases will be presented and shows the determination of the entrepreneur in managing and introducing the procedure of open innovation with the assistance of various aspects related with these SMEs. This chapter will also highlight the challenges which entrepreneurs have come across and how effectively they are overcoming by adopting to open innovation approach.

5.1 Organizing and Managing the Open Innovation Processes (ConTra International)

5.1.1 Strategy Formulation and Network Management

ConTra International, introduced totally new product in the business environment in Pakistan and therefore the company has encountered lots of different challenges. In this specific situation, the CEO opted to utilize open innovation approach to acquire and develop external network. This was accomplished with the help of partner network which include ST Software in the Netherlands, the Transportation Informatics lab at the State University of New York (SUNY) USA, and the local partner in Pakistan.

5.1.1.1. International supplier partner – ST Software the Netherlands

The vital feature of the ConTra International business model was it collaboration with ST Software Netherlands, who give away entire driving simulator software solutions. Choosing of ST Software as key partner was a characteristic result of the informal meeting which was historically based on mutual trust. To manage this relationship company is following below mentioned steps.

i. To keep this business relationship flourishing, ConTra International, R&D department kept a close contact with their Dutch partners, with the assistance of video conferences. These video conference help in sorting out software bugs faced by the customers and adjusting the future upgrades according to the requirement of the customers. Fixing the software updates, bug fixes and upgrading the hardware enables both companies to remain ahead in the market with innovative ideas. Apart from the video conferences, ST Software additionally part of the board of advisors of ConTra international.

ii. To protect the technology companies always used IPs, Patents and Licenses because it is the top priority of any company. In the same manner, the ConTra international has taken all the precautionary measures to secure and ensure its intellectual knowledge. ConTra International is utilizing the method of inward IP licensing. ConTra
International acquired the technology externally, therefore, ST Software Netherlands kept all the entire core of IP. The ConTra International has acquired the exclusive license of the innovation for the South Asian region. The IP which is generated because of the customization of the driving simulator’s software and hardware to meet the customer needs of the ConTra International is owned by the both business with equal sharing of revenues.

It was the social ability of the CEO of the ConTra International Ltd, which will help the SMEs in maintaining good relationship with their key network ST Software Netherlands, this can be 

5.1.1.2 Research & Development partner – Transportation Informatics Lab USA
One of the important part of ConTra international is R&D team which is located at Transportation Informatics lab in SUNY USA. Because of this international R&D team which help the local R&D team in Pakistan in training to customize the Dutch driving simulator’s software and hardware according to the customers need in Pakistan. To manage the relationship ConTra international follows the below mentioned steps.

i. Although, it is a short-term collaboration relationship between ConTra international and Transportation Informatics Lab, SUNY, USA. The appropriate staff from the company gets 2 to 3 weeks for the lab to find out about the customization for software and hardware. Aside from in-person trainings both R&D hold 3 video conferences monthly, to talk about the future technological trends.

ii. The protection of IP is done through water-tight-non-disclosure agreement between all the three partners (ConTra International, ST Software and Transportation Informatics Lab.)

5.1.1.3 Local manufacturing partner
“Bringing the hardware from the Netherlands was too expensive for small organizations because of Government regulations” as per CEO of the ConTra International so “as a manager or owner of the company I have to find out new ways to reduce the cost” hence the CEO proceeded with his open innovation methodology of working with the local manufacturing company in Pakistan. They would have developed the customized hardware of the simulator as per the requirement of the ST Software in the Netherlands with the customization according to the Pakistan local market. He embraced this strategy because of the following three reasons.
1. Cheap production,
2. Capacity building based on local market knowledge
3. Quality control (check and balance).

ConTra International taking following steps to manage the relationship.

1. ConTra International has signed long term formal agreement with the local manufacturing company. The design team of ConTra International work closely with local manufacturing company to deliver specific hardware. Both companies hold consistent meetings. One of the member of the board of advisors is from the local manufacturing company.

2. The protection of IP is done through water-tight-non-disclosure agreement between the ConTra International and the local manufacturing company.

3. To maintain the financial relation a service agreement if signed for the manufacturing of the hardware.

5.1.1.4 Commercialization
5.1.1.4.1 Initial Sales Plan
“In Pakistan people are not willing to follow the rules so selling directly to the people was tough job” CEO of the ConTra International so ConTra International has distinguished a niche market compromising of different government agencies as it major customer because of the nature of the customized solution provided. The CEO opted for one-off payment strategy but quickly realized that this strategy is not fruitful since customers were not ready to adopt these new technological solutions, due to lack of bulk payment ability and the inaccessibility of demonstrated outcomes in Pakistan. Anwar, opted to reconsider his sale strategy in 2015, a leasing model was acquainted to the customers. In this model, the customer could lease yet not claim the driving simulator, and the installment was done intermittently for the rendered services. ConTra international do not want to give details of this installment plan.

5.1.1.4.2 Sub-licensing opportunities
Anwar, the owner of the ConTra International utilized his managerial experience to bargain a favorable agreement with ST Software, Netherlands. He additionally figured out sub-licensing clause from ST Software alongside permitting of the software which implies ConTra
international got the permission to sub-license the technology in various other markets. ConTra International pays a royalty to ST Software, Netherlands for every deal made.

ST Software, has given ConTra international the exclusive right to cover the enormous South Asia and Middle Eastern markets due to vast experience in the field of engineering, fairly comparative issues, the dialect similarity and a common culture. Lately ConTra international took part in trade fair in Dubai where the owner met couple of the organizations and shared his opinion of expanding the business.

Currently ConTra International is trying to establish partnership with a local technology company in Sharjah. ConTra International is planning to sublicense its technology to company in Sharjah. The company could follow the business model of ConTra International with specific modifications. The royalty fees which is earned by the ConTra International will be split between ST Software according to the parent license.

“By obtaining the right of sub-license was major breakthrough for the future of the ConTra international” Mr. Anwar the CEO of the Contra International

5.1.1.4.3 Possible Competition
Hence, it is a new concept of business in Pakistan so therefore company has not confronted any competition. Right now, in Pakistan, all transportation companies are giving infrastructural solutions. Though, ConTra international opted for a new technology and the out of come this technology result in lock in strategy. There is no competition available currently because of exclusive licensing.

“I do not have to worry about the competition ConTra International is the only one in the market and I am sure that to copy the business plan of ConTra International is not that simple”. MR Anwar the CEO of the ConTra International

5.2 Challenges & Countermeasures
The main reason for establishing a new venture was not the whole job. The main challenge was to transform this concept into a genuine company. The major challenges and difficulties came across by the entrepreneurs are mentioned below and the solution which were opted by the entrepreneur also included.

“With different business comes different challenges”. CEO of the ConTra International
5.2.1 Scared financial resources
The headmost challenge the CEO of the ConTra International faced was how to accumulate the finance for new venture. Because of complex bank credit procedure and high loan cost in Pakistan, the CEO of the ConTra International was not propelled to utilized loans as financing. But due to his strong endeavors, he abled to secure financial help from National ICT R&D Fund, Pakistan to start an international partnership for establishing new venture. Likewise, he also contributed his own money to get the business through the initial time until the point the sales started to grow.

“To startup a business in Pakistan you need to have lots of finances because you do not know what will happen tomorrow”. CEO of the ConTra International

5.2.2 Fewer human resources
Apart from availability of funding, hiring the right individuals for the job was a tormenting task because of the new idea. The CEO understood that it would be extremely hard to find handful of individual with required aptitudes and knowledge and hiring individuals from the developed countries with the correct know-how would be very costly. So, CEO, opted to hire the individuals having much more significant knowledge as possible and after that give them required training. He went into contracts with the accomplice companies in the network for the vital trainings of the HR.

5.2.3 Governmental regulations
In Pakistan, most of the businesses must face tough imports law, so it was very difficult for the ConTra International to acquire the complete and ready-made solution is a cumbersome and expensive procedure. After detail examination of the current circumstances in detail and counseling from different import/export experts, CEO opted for license the software from ST Software, which was exempted from tax and produce the hardware locally.

“Since PMLN government the business situation in Pakistan improve, they are prompting new business and I took full advantage of this policy” CEO of the ConTra International.

5.2.4 Finding the right partners
Establishing a partnership with ST Software, was a piece of cake because of the informal relation between the CEOs. The difficult task was to get the training for the local stuff for the software customization and to produce the hardware locally. In 2014, the CEO of the ConTra International attended the transportation conference in US, where he discovers about
Transportation Information lab, State University of New York, USA has well developed R&D, which was only focusing on the important factors required for customization of software and hardware according to the needs of developing countries. Besides, the Transportation Informatics lab is closely working with some of the institutions in Pakistan. The CEO of the ConTra International established a short-term partnership for the training of the new stuff and R&D.

5.2.5 Commercialization
Mostly in developing countries, customers do not adopt the new technology easily. Likewise, the concept of utilizing driving simulator to handle the traffic safety was a big problem for the company. But Mr. Anwar the CEO of the ConTra International utilized his network from previous profession to overcome this hurdle. He contacted the right individuals at the right organization, who could become the customers.

The knowledge which is gained from the CEO of the ConTra International was the Mr. Anwar only had the option for opting open innovation strategy for the success of the business. Open innovation model and it procedure is explained in the following section.

“If people from my country see people utilizing this technology they will appreciate it but if you give them the same thing in Pakistan they will start complaining about it” CEO of the ConTra International.

5.3 Entrepreneur’s Role in Organizing & Managing the Open Innovation Processes
Entrepreneur play an important role on organizing and implementing open innovation procedure in the organization. Some of the important points related to the roles which are performed by the entrepreneur are explained in detail.

5.3.1 Entrepreneurial Vision.
Because of the entrepreneurial vision, the CEO of the ConTra International was able to spot the gap in the market and introduced a new concept in the country. His talent to recognize the opportunity and ability to take the risk turned out to be his strong points, which help him to drove his new establish venture towards success.

5.3.2 Entrepreneurial skills and capabilities
The Entrepreneurial skills and capabilities of the CEO of the ConTra International helped in organizing and managing the procedure of the open innovation. The skills include.
5.3.2.1 Knowledge
The knowledge which CEO of the ConTra International gained in his study career helped him in understanding the potential success of the new and diverse technology.

5.3.2.2 Experience
The experience from the previous professional helped the CEO in understanding the business and solve the problems smoothly. The experience additionally, helped him in focusing and target the potential market and reduce the risk related to new business.

5.3.2.4 Networking Skills
The experience of the CEO helped him incredibly in developing and managing the networks of suitable partners and customers. This might be very difficult if he has not experience from his previous profession.

5.3.2.5 Management Skills
The managerial skills of the CEO of the ConTra International helped him with operational part of the organization and managing the relation with the partner networks, particularly with the negotiation with the partners.

5.3.2.6 Communication Skills
The communication skills of the CEO play an important role in expressing his ideas with his partners and the customers. In Pakistan people speaks many different languages. The ability of the CEO to communicate with different languages helped in developing the business in different provinces of Pakistan.

“We have many hidden qualities Nauman which we are unable to identify anyone can be entrepreneur depends whether he creates an opportunity or have the guts to spot an opportunity”. CEO of the ConTra International.

5.4 Business Model Canvas for ConTra International Pvt Ltd Pakistan
The Business Model Canvas of the ConTra International is presented below. The Business Model Canvas is very helpful because it gives a visual presentation of open innovation procedure that entrepreneur embrace Business Model Canvas has 9 building blocks.

1. Value proposition: Providing solution related to traffic which consisted of both hardware and software.
2. **Customer segment:** *ConTra International* has business to business and business to government customer segment.

3. **Customer Relationship:** The service which is provided by the *ConTra International* is transactional and customer can opt for monthly installments or lumpsum. *ConTra International* has one advantage in Pakistan, they can charge high price because of no competition in the market.

4. **Channels:** The entrepreneur has sell his product through direct sales.

5. **Key activities:** Organization is involved in various activities like R&D, customization of hardware, establishing partnership with right organization or manufacture.

6. **Key Resources:** R&D is responsible for linking all the work experience and licensing related issues.

7. **Key partners:** The main partners of *ConTra International* is ST Software from Netherlands and one company from Pakistan for manufacturing and customizing the hardware.

8. **Revenues:** *ConTra International* is generating revenue through one-time sale or through rental.

9. **Cost:** The cost which is beard by the *ConTra International* is the customization of the software and the operational cost.

The figure or the canvas demonstrates the new strategy of the sales opted by the CEO of the *ConTra International* after opting for leasing method. The new strategy helped in the development and the growth of the business and was parallel according to the specification of the developing countries.
5.5 Main findings of ConTra International Ltd Pakistan
It was the social ability of the CEO of the ConTra International Ltd, which will help the SMEs in maintaining good relationship with their key networks ST Software Netherlands, Research & Development partner – Transportation Informatics Lab USA and local manufacture in Pakistan. This is justify with the current literature of Dayan, Zacca, and Di Benedetto, (2013) where the emphasize that no matter what happens entrepreneurs are liable to develop critical relationship to enhance the knowledge and value. Messersmith and Wales, (2013) have suggested the same thing, to maintain strong relationship to enhance the knowledge which can help the entrepreneurs in finding solution to the problem and new opportunities that are prevailing in the market. With the help of these literature it is define that CEO of the ConTra International has been maintaining the relationship well so far.
One of the key factors of open innovation activity is external networking, in present era business must find a way to overcome scarce resources and this can be attained by external networking. ConTra International has overcome most of the hurdle by developing external networking with ST Software Netherlands, to bring the new technology in Pakistan which was unique and new in system and with the partnership, entrepreneur learn new opportunities which were prevailing in the country. Secondly to modify the software according to needs of the customer in Pakistan, CEO of the ConTra international establish a partnership Research & Development partner – Transportation Informatics Lab USA, which help the SME in equipping their employees with up-to-date system which enhances the capabilities of the SME. To import the software from abroad was expensive, for that CEO of the ConTra establish a partnership with local manufacture in Pakistan which help them reduce the cost. The CEO of the company work accordingly with existing theories of external networking, for instances as per Van de Vrande et al., (2009) external networking involves compromise of different individuals or organization are mutually benefiting each other, all the organization which are working with ConTra International are mutually benefiting each. With the key networks ConTra International has develop an interdependent relationship which is enhancing the capabilities of the business in term of education, intelligence experience etc (Coleman, 1988; Burt, 1997).

ConTra International has distinguished a niche market compromising of different government agencies as it major customer because of the nature of the customized solution provided, so CEO spotted the opportunity (Casson, 1990; Gaspar, 2009; Knight, 1921). The CEO of the ConTra International is the individual who brought the change in traditional practice by introducing new idea in the market (Mintzberg et al., 1998). CEO of the ConTra International also bought the new strategy in term of leasing model, which created the value (Davidsson, Delmar, & Wiklund, 2006). With the development of external network, the CEO of the ConTra International overcome most of the challenges as well, the CEO of the ConTra International was not propelled to utilized loans as financing. But due to his strong endeavors, he abled to secure financial help from National ICT R&D Fund, Pakistan to start an international partnership for establishing new venture (Wynarcxyk, 2013) He went into contracts with the accomplice companies in the network for the vital trainings of the HR (Marques, 2010). Researchers have highlighted many benefits for instances human capital sharing, information sharing, financial resources sharing, reducing risk,
and formation of joint ventures etc. (Nybakk, 2009), in this way CEO of the ConTra International Ltd reduce the risk as well by involving the external network.

Numerous SMEs wind up because of different reasons for example entrepreneurial opportunity misinterpretation, unanticipated threats, absence of knowledge, data and funds and absence of business abilities (Afolabi & Macheke, 2012; Chimucheka & Rungani, 2011; Monk, 2000; Smith & Perks, 2006). Because of the entrepreneurial vision, the CEO of the ConTra International spotted the gap in the market and introduced a new concept in the country. The Entrepreneurial skills and capabilities of the CEO of the ConTra International helped in organizing and managing the procedure of the open innovation.

CEO of the ConTra International Ltd, Mr. Anwar as manager of the SME played a very vital role in developing the company and bringing success to new startup. He managed the activities in an effective way because business success was depending upon his execution plan and management methods. Mr. Anwar the CEO of the SME overcome the problems through his professional approach (Georgellis, Joyce, & Woods, 2000). In some cases, it was notice the after some time SMEs turnout to be less systematic, managerial limitation of the entrepreneurs arise different issues in the SMEs (Longenecker et al., 2011). But the CEO of the ConTra International Ltd’ so far has kept a professional approach in dealing with the issues related to the business, and changing his management and leadership style with the time (Longenecker et al., 2013).
5.6 Organizing and Managing the Open Innovation Business Model (MCware Ltd UK)

5.6.1 Strategy Formulation
The CEO of the MCWare Mechanical Ltd UK had a very intriguing concept about the product of his company. The CEO tends to analyze and identify the market trends for coming 5 to 10 years and then launch the products in the market. His believes in the concept to consolidate the latest innovative, creative and latest market ready technologies and introduce in the market before his competitors. He urged that instead of developing the product from scratch, develop a new modified and customized product with the assistance of the partners and introduce to the market. He preferred this business model. For this thesis I will only take two of the important products and will analyze the procedure of open innovation the company follows.

The two products of MCWare Mechanical Ltd UK are Bluetooth based wearable camcorder and Smart Sensors – Intelligent Lighting System. In the following paragraph the development and open innovation procedure for Bluetooth based wearable camcorder will be discuss.

5.6.2 Network Development.
MCWare Mechanical Ltd has established connections with many different companies, majority of the connections are with substantial large organization in the Silicon Valley in USA. These connections are mostly based on the view of the CEO entrepreneurial qualities, for instances experiences in high tech industry, European and Asian market knowledge and a business focus. The real challenge faced by the MCWare Mechanical Ltd was how to utilize the network and bring them in the market a head of competitors. Since, organization is using external resources, diverse management styles and size of the organization is an important hurdle and barriers which required careful examination for developing a good working and result oriented relationship. By examining the hurdle and challenges, the CEO of the MCWare Mechanical Ltd opted the policy of hiring profoundly qualified and skilled experts from different countries to develop and fortify the joint efforts with the external resources. What’s more, the CEO coordinated the internal and external resources to build up a strong network.

“My contacts from my early experiences helped me to develop my network” CEO of the MCWare Ltd.

5.6.3 Partnerships and Collaborations
The most important resource of the CEO was his network of expert connections that he made while working with various companies. MCWare Ltd apart from important product development
partner in Silicon Valley, understood that current wearable Bluetooth camcorder lack some important features and catering this features in the product will capture large market segment. **MCWare Ltd** with the help of his partner in Silicon Valley, developed the technology and introduce the first Bluetooth wearable camcorder with the features which was missing in the competitor’s product. Some of the important and unique features made it stand out against the competitors was the connectivity with the smart phones, automatic sharing with the social networking, live streaming, light weight, and the material used is eco-friendly. Both companies R&D team worked closely from idea generation to prototyping to product development. The cost of development and the risk associated of a potential market failure were shared equally. It is an attribute of an entrepreneur to estimate the risk. In 2014 product was launched. If product was manufactured in Europe or USA it would have increase the cost of production, so they outsourced the production to the Asian company.

### 5.6.4 Commercialization

There is an agreement with the company in Silicon Valley that they would cover the US market and **MCWare Mechanical Ltd** would be given sublicensed for the markets of Europe-Aisa-Middle-East-Africa. With the help of entrepreneurial skills Simon assured a large scale of commercialization of the product with the help of his business links and his experience in the high-tech global market.

The **MCWare Mechanical Ltd** opted the business model of partnership channel. The partnership channel model depends on the reconciliation of the partners identified criteria, development of the program, management and implication, review of the markets, investment strategy and licensing strategy. By opting for this business model SME opened the vital routes which were necessary for entering into new markets and regions. With the help of collaboration, a network was established which strengthened the business to expand in too many different countries.

The CEO’s were in the favor of the strategy of selling wearable camcorder through Business-to-Business approach. To execute this strategy, he develops partnerships with the distributors and retailers who could likewise sub-license the product from **MCWare Ltd**. Number of different communication channels were opted for instances, personal meetings, attending expos and email correspondence to develop and establish partnerships. With the help of the partners new markets were capture and it also help the company in identifying gaps in the market.
The product was at peak during the year 2014 and was close to product life cycle. Both partner companies agreed to change the business model of the product but tech-giant showed them interest in buying this product. Both partner selected this option and so therefore, their partnership came to an end with a beneficial result, significantly greater than they at first anticipated.

“I cannot keep a check and balance on each individual market so I have to trust my partners in Silicon Valley”. CEO of the MCWare Ltd.

5.6.5 Protection of IP rights
MCWare Ltd, protected the technology with the help of strict vigilance and registration of their intellectual property. Because of less funding and predefined agreement most of the IP rights were held by the large companies in the Silicon Valley.

5.6.6 Market Competition
MCWare Ltd and its partner company from the US knows about the 3 other competitors in market with the same product via market research. With detailed market research, they overcome the flows of the products which was occurring in competitor’s product for instances improved design, better technology etc. With the help of improvement and upgradation help them to distinguish the product from the competitors and it helped them to charge a premium price.

The second product of the MCware Ltd, is a Smart Sensors “Intelligent Lighting System”. The CEO of the company opted for the following development and open innovation activities.

“You can find the copy of my product very easily in the market but they will be lacking certain features I can guarantee you that” CEO of the MCWare Ltd.

5.7 Networking Development
Because of the previous product experience, the CEO enter a new market with long-term benefits, due to his entrepreneurial instincts he was constantly motivated to complete and test new ideas. Because of his past job experience, Simon had worked with different big tech companies in the Silicon Valley, which in the long run become a destination to locate his future business partners.

The idea of the second product came after the meeting with the CEO of another huge company of Silicon Valley in a networking event in the US. The Silicon Valley company was concentrating on giving in-build smart lighting solution. During the meeting, the CEO of the MCWare Ltd, came up with an idea to utilize their in-house analyze and optimization engine with the combination of smart lighting solution to come up with a new and unique Smart Sensors- Intelligent Lightening
system. Since this first meeting, it took both companies roughly one and half year to bring this idea into action.

“Remember my advice when you will start your professional career try to maintain good relationship with everyone” CEO of the MCWare Ltd.

5.7.1 Commercialization
The target market for this product was Business-to-Business. The segment comprises of the fortune 500 companies around the globe. At first CEO’s idea was that the fortune 500 companies have abundant finances to pay all the expense of putting in the solution. After couple of failures and no successful sales, the CEO transform his sales strategy from pre-paid to totally free solution. After discussing the new sales strategy with his partner in US alongside with external financial collaborators the CEO implemented the new sales strategy.

The parties which were involved in this venture distinguished that the cost could be covered and the profits could be enhanced from the energy saving from the customer’s side. The company made an offer that the customer does not have to pay nothing for the installation of the solution yet would continue to pay the energy bill with some discounts to MCWare Ltd, for next 4 years. With this method company would save 20% and enhancing exponentially every year. To take care of initial setup costs, a third part agreed to pre-fund MCWare Ltd and its partner in the US.

The distribution strategy is a customized one where the CEO needs to arrange high-level meeting utilizing his network. Besides, utilizing his consistent communication abilities, the CEO needs to persuade other companies the capability of his solution.

5.7.2 IP Issues
The IP of the Smart Sensor-Intelligent Lighting system is collectively owned by MCWare Ltd and their partner in the Silicon Valley. MCWare Ltd secure it technology through strick vigilance and copy right IP.

5.7.3 Market Competition
Right now, Smart Sensors-Intelligent Lightning system does not have any kind of competition currently. Large companies like Philips and General Electric does not have it, because product which is offered by the MCWare Ltd, possesses a unique technology which cannot be replicated easily. The business model of the product has given the company an opportunity to apply the lock-in strategy. Only MCWare Ltd in Europe and furthermore in different part of the world is giving
high performing energy efficient building solution and encouraging healthy ecosystems. The company is giving the world’s most progressive sensor and helping commercial building to save 70% of the vitality bills.

“MCWare Ltd is only one to introduce such product while others are still figuring out the way”
CEO of the MCware Ltd.

5.8 Challenges & Countermeasures
The transformation of CEO’s from manager to an entrepreneur made him crave for getting associated with different technological niches but doing so he came across various challenges which are defined below.

5.8.1 Products selection.
Establishing a new venture specially in a developed economy was not a simple task. There were various high-tech companies providing different solution. The CEO needed to bring something unique tech-solution that would give him edge in the market. Another imperative aspect was to decide how the product would be created. The wider market and technological information, entrepreneurial vision, relevant past experience and creative thinking helped the CEO overcome the challenge.

5.8.2 Limited financial resources
One of the major challenge was how to arrange finances for the establishment of a new venture. The CEO does not want to start new venture by going into debt, therefore bank loan was not possible. The CEO primarily utilized his own capital in the new venture alongside subsidies provided by the government.

5.8.3 Few human resources
For the new product, the CEO would have required to hire more people. Because of financial limitation, a shared or collaborative model was favored with a R&D institute. This helped the CEO in maintaining the cost by hiring less specialized technical employees and outsource the rest.

5.8.4 Finding the right partners
Because of the past working experience, the CEO has already established a huge network and has working relationship with many different companies. Despite having huge network, still one of the biggest challenges of the CEO was to locate the right partner for the product range. To
overcome this challenge CEO, hold a rigorous meeting with different individuals to find out potential candidate and pick the correct one.

5.8.5 Large geographical area
The partner companies who were working with **MCWare Ltd**, wants to cover numerous international markets in the meantime. This was vital because **MCWare Ltd** was utilizing high-tech technological solutions with a little market life-cycle. The CEO overthrown this challenge by increasing the network distributors and partner around the globe.

The lesson learned by the CEO of the **MCware Ltd**, was that he needed to adopt for an open innovation model to make his business a success.

“*Without any challenges you will not learn anything new*” CEO of the **MCWare Ltd**.

5.9 Entrepreneur’s Skills and Capabilities
Entrepreneur play’s an important role in organizing and managing the open innovation procedure.

1. Educational background and the past experiences of the entrepreneur’s in the related field plays an important role to give him motivation and courage to an ordinary manager to startup his own company.

2. It is an obvious that there some impetuses which urge the companies to base the establishment of their companies on an open business model. Similarly, these main impetuses for the **MCWare Ltd** were expending the scope of their technologies, increasing competition and new trends developing in the market. The CEO of the **MCWare Ltd**, took the action to apply business model in view of a channel partnership, a powerful part of an open innovation model, to ensure sustainability and development of the company.

3. At time of starting the company there were not adequate resources with the company to take such a big step to capture the dynamic market of Europe. In this manner the company decided on using and modifying the external technologies to address the needs of the local market. Open innovation activity was completed with the assistance of setting up and reinforcing partnership with bigger organizations situated in the Silicon Valley in this case.

4. The CEO of the company ceaselessly endeavors to bring new innovative technology in the market. What’s more, this motivates the CEO to enter the global market and where
conceivable, replicate in new appreciative geographies and markets through coordinated efforts and networking, locally and globally.

5. The business model opted by the entrepreneur was a modified one in Europe-Asia-Middle East and Africa, which was very successful for this small company. For instances, for wearable Bluetooth camcorder, the CEO chose to sell the product Business-to-Business. He established partnership with the distributors and retailers who would purchase the product directly from the company, it also helps the company saving market expenditure. Numerous retailers sold the product under their own brand, which gives the company an option to charge a premium price. Within one year, the product was a major success. For smart sensor lights, Simon opted a very different and unique see selling strategy, this strategy was unique because the product was offered and while charging the customers from the money saved from their energy bills. This unique commercialization models helped the company to achieve optimal revenues in different markets.

6. The CEO of the company plays an important role in ensuring the effective use of the open innovation model, alongside managing the networks and innovation internally and externally. In addition, most of the important success factors for instances communication, networking, trust meeting, participation in trade expos and time management were closely monitor by the CEO.

7. As of now, as an entrepreneur, CEO has taken a lot of learning from his recent two different experiences with setting up new network, overseeing partnerships and modifying the strategies. The new learning experiences of developing and managing a new business has enhance his ability to make changes over time.

5.10 Business Model Canvas for MCWare Ltd.
MCware Ltd, utilized open business model, which I will explain with the help of Business Model Canvas for one of the product of MCware Ltd. With the help of Business model canvas, I will explain the open innovation activities that the entrepreneur took and aids in visualizing the procedure.
5.10.1 Wearable Bluetooth Camcorder Explained via 9 Building Blocks of the Business Model Canvas

1. Value proposition: MCWare Ltd, with his partner recognized the opportunity in the camcorder market and worked on R&D and prototyping for 2 and half years.

2. Customer segment: The wearable camcorder was intended to satisfy the purpose for an extensive range of customers covering all the segments for instances Business-to-Business, Business-to-Consumers and Business-to-Government.

3. Customer Relationship: MCWare Ltd, develop a transactional relationship with the customer.

4. Channels: Both partner companies could utilize numerous channels which rely upon the country where the product will be sold retailers, distributors and online sales.

5. Key activities: The important key activities of both partners needed to perform to offer this product for sale to the market were meeting for coming up with new ideas, research and development, Open innovation activities, prototyping etc.

6. Key resources: The key and important resources for this are the entrepreneur’s vision to identify the opportunities in the market, the R&D team, and the part experience.

7. Key partners: MCWare Ltd, Silicon Valley Team, and the Company in Asia.

8. Revenues: sale per unite.

9. Cost: R&D cost- Prototyping-Production-Distribution-Travelling-IP Rights
Figure 7: Business Model Canvas - Wearable Camcorder

The business model canvas is for the Smart Sensors – Intelligent Lighting System cannot be presented in the thesis because the CEO did not grant me the permission because of privacy concerns.

5.11 Main findings of MCWare Ltd, UK
The CEO of the MCWare Ltd UK has very unique way to analyze the market, he always thinks a head of his competitors that why he was able to come up with unique products which are not even provided by the giants like Philips etc. According to Luo, 2013 “the main motive for utilizing the open innovation is to include different stakeholders to enhance the innovation capabilities”, Simon the CEO of the MCWare Ltd is utilizing different stakeholders for instance customers are giving feedback, which gives the idea to the CEO what kind of improvement needs to be done.
They are engaged in implementing more advanced open innovation practices to accomplished market related goals, for instances staying ahead of competitors and taking care of customers desired and need (Van de Vrande et al., 2009). It has been observed that an open innovation system lead to opportunities for the SMEs because it enables SMEs to make improvement in action plan without having any issues (Chandler et al., 2009). MCWare Ltd, UK spotted the opportunity in the market which was there in Wearable Bluetooth Camcorder and Smart Sensor Led.

When starting the company, the CEO of the MCWare Ltd, UK utilized his own personal network, which he has developed from early profession. This help the CEO in forming more resources for his own company which enhances the innovation procedure of the company, this has been mention in the research work done by Chesbrough, (2006) where he emphasizes on developing external network to increase the innovation capabilities of the SMEs. SMEs tend to intention to consolidate different sort of innovations and information to increase their own specific abilities (Kuhakarn, 2012). Managers ought to perform corporate activities that involve sending delegates to work inside a new organization and allowing representative to invest their resources into new business (Mintzberg & Van der Heyden, 1999). It can be more beneficial and grounded “enterprise endeavor” by embedding “start-up DNA” into the network or association (Morschett, Schramm-Klein, & Zentes, 2015). Large companies face difficulties in managing finances, service, distribution, marketing and production in the meantime. However, they tend to follow open innovation. Same as large companies, medium and small sized have been attracted towards open innovation model (Huggins & Johnston, 2009). MCWare Ltd, UK faced many challenges and with the help of external networking, SME manage to overcome these barriers and challenges.

Talking about the main challenges faced by SMEs while fusing the open innovation into their current business environment, researchers suggested that lack of association alongside less trust in open innovation is critical beside restrictions to dealing with the challenges related to intellectual property, absence of communication with the government and inefficacy to change the external data and knowledge into internal information. These all are the noticeable challenges (Luo et al., 2009). In contrast to the literature, MCWare Ltd, UK successfully overcome these challenges by implementing open innovation activities and open business model, with the help of these two mythologies CEO of the company efficiently overcome the hurdles.
Entrepreneurship is not just a profession but it is ability of connecting market problem to
innovation (Schumpeter, 1980). CEO of the MCWare Ltd, UK connected the market problems
which were prevailing in existing model Wearable Bluetooth Camcorder and Smart Sensor Led,
and bought the innovation in these two products to outsmart and dominate the competitors. When
opportunity is recognized, after that entrepreneur needs to choose and spend time in finding,
building, arranging and creating network. When startup is established and moving towards the
desire goal, then entrepreneur must start looking for external strategic partners (Hortovanyi, 2010).
Social ability is very critical for entrepreneurial capabilities because it add knowledge and value
(Dayan, Zacca, & Di Benedetto, 2013).

5.12 Comparative analysis
Looking at the comparative analysis from the two cases regarding similarities and differences
related to their geographical location and the utilization of the open innovation procedure is
discussed below.

1. Unorthodox entrepreneurial thinking of the CEOs of these organizations that urged them
to implement effective open innovation procedure in their organizations. This study clearly
shows that open innovation is imperative for the development of SMEs internationally.
They require a specific entrepreneurial mindset, which acknowledges, empowers feedback,
innovativeness, self-inspiration, self-restraint, motivation for life-long learning and
openness.

2. From the two cases, both entrepreneurs following the same approach of open innovation
in SMEs, but the results somewhat varied because of geographical differences. The CEO
of the ConTra International perceive the product idea from a casual meeting, established
network, made various internal and external partnerships and characterized a unique and
innovative strategies to make business opportunity for his product. Because ConTra
International is situated in a developing country, the political and socio-economic factors
prompted a moderate market penetration. The CEO of the MCware Ltd followed the same
approach as ConTra International CEO prefer open innovation procedure. Yet, they could
establish networks and partnership quicker and had the capacity to transform their business
models because of ample opportunities (e.g. the complete buy-out option) resulting in
faster growth.
3. From the two cases it was deducted that diverse partnership was concluded by each CEO. In developing country for instance Pakistan, the CEO of the ConTra International outsourced it manufacturing to a local partner (onshore) inside the country to utilize cheaper labor cost. While in the UK, the CEO of the MCware Ltd, needed to search for similar partners but in the international markets e.g. Asia (offshore) to achieve better pricing. Additionally, it’s been observed that onshore outsourcing is easy to manage.

4. While studying these two cases, it enhances the understanding that the knowledge obtained through open innovation model, played an important role in expansion and growth of the SMEs. It is clear now that small companies require external partner to have the capacity to grow their business with shared risks and responsibilities. The result is clearly seen from these two cases study in this thesis. Moreover, the open innovation approach helps businesses to benefit the economy of the country, regardless it is a developing or developed region.

5. From these two cases it was discovered that sub-license was possible to procure when a partnership was concluded with an SME (e.g. in case of the driving simulator or the wearable camcorder) when compared to large company (e.g. in case of the intelligent lighting system). The purpose behind was clarified by the CEOs of the two SMEs. They portrayed that it was easier to build up trust based relation with a SME and required stress free legal discussion.
Chapter 6 Conclusions, Practical Implication and limitation

6.1 Conclusions
Open innovation is a balanced method for not giving up the immense potential that external ideas that can enhance the innovation process of the company. Changing from closed innovation to open innovation transformation in large companies has been studied by many different researchers. But still it remains a mystery How do SMEs manage open innovation activities and what is the role of entrepreneurs in implementing the open innovation activities? Both SMEs have successfully implemented the procedure of open innovation activities. Both entrepreneurs were effective in sorting out and managing the open innovation process and overwhelm the liabilities of being small. In both cases, entrepreneurs must have utilized external resources to satisfy the absence of their internal resources such as technology exploration innovation strategy and through building and dealing with their innovation network.

For this thesis, I have studied and analyzed two case studies and its showed that SMEs can overcome the limitation like scared financial resource, technological resources and competition. The business environment is getting increasingly competitive and open innovation is the best alternative to outsmart the competitors. When companies implement open innovation system, these companies create or find new opportunities and it open entrance for them in global market (Chang & Chen, 2015). Implementing open innovation practices brings many benefits for these two SMEs. It helped them in getting their hands on latest technology. With the help of open innovation, it helped them in saving time and financial resources on marketing and overcoming competitors because of the unique and improved feature of their product.

Network management demonstrated to play an important role in the open innovation without which it might be impossible for both SMEs to be successful. Beginning from R&D till the commercialization of their products, network development and administration had a key role to play. It is an obvious that there some impetuses which urge the companies to base the establishment of their companies on an open business model. The CEO of the MCware Ltd, took the action to apply business model in view of a channel partnership, a powerful part of an open innovation model, to ensure sustainability and development of the company. The informal meeting between the CEO of the ConTra International and the CEO of the ST Software Netherlands help them established a partnership between them which later benefited both companies.
In both SMEs the entrepreneur played a critical role in organizing and managing open innovation in their organizations. In SMEs, everything is depending upon entrepreneur. Starting from understanding the value that can be capitalize from the idea, over the expression of a strategy and the execution of these strategies for the developing of the product, till the commercialization, all is depending upon the skills and capabilities of the entrepreneur. In the two cases the entrepreneur carefully looked after the whole procedure of open innovation to make venture successful. The skills and capabilities of an entrepreneur for instances risk taking, decision making, network management, transaction abilities and so on appeared to be of basic significance for the venture. The utilization of external partners created business models that decreases budgets for R&D, increase the pace for product development, enhance innovation performance, help find new opportunities in the markets and enhances the creativity of the organization. The financial resources which are saved can be distributed to other R&D projects or products.

The result of this study shows that the entrepreneur’s knowledge of the field and experience is of great importance in following the procedure of open innovation activities in the company. In both cases, the entrepreneurs had considerable experience of working in pertinent fields, which helped them a lot in capturing and realizing the opportunity, establishing their network and bargaining better deals.

6.2 Implications
Practical implications

The result in the conclusions can help the potential entrepreneurs who are thinking to implement open innovation in their SMEs. With the assistance of the advices and their utilization of open innovation activities entrepreneurs could utilize this information to expand and grow their businesses. Moreover, already established SMEs could use the information by reading this research.

Those reader who are interested in this topic can read this research to enhances the understanding of the open innovation activities. It can help the present generation of entrepreneurs that how they can change their business model from close to open and what benefit they can obtain by transforming the business model.
Theoretical Implications

The main focus of this thesis is how entrepreneurs manage open innovation in SMEs. In present time there is very limited literature available of open innovation in SMEs because of my study has been done related to big multinational so little focus is given to SMEs. As already mentioned, the reason behind this is that open innovation in SMEs is such an up to date topic and exits only a bit more than ten to fifteen years. The researcher should concentrate more on the subject itself since this field is somewhat new for him. Occasionally it was difficult to find comparable information that could be used for this study. For the future researchers should concentrate more on entrepreneurs who are implementing open innovation business model in SMEs.

6.3 Limitations

While collecting the data for this research I faced few constraints. The thesis was on private companies, there were few obstacles in gaining in-depth data from the companies regarding track records, business techniques and day to day practices. However, this thesis also has few limitations, which were distinguished during the interviews with the CEOs of the companies. For the instance the CEO of the ConTra International did not told the name of the customers, data about their local manufacturing partners and pricing strategy highly secret. So, the potential quality and strength of the company count not be totally evaluated. In addition, the data about the accessible financial resources and CEO did not revealed the investment as well. Then again, the CEO of the MACware Ltd did not give any insight about their financial resources, pricing models, investments and US partners identities.

6.4 Future Research

This research is only focusing towards two SMEs and is directed through qualitative research technique. It might in this way not be generalizable. Future research utilizing quantitative technique and bigger sample can approve the result of this research and will clarify the impact of entrepreneurial traits and open innovation on SMEs.
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Appendix

Interview Question

Could you provide me an overview about your roles and responsibilities in your organization?

Roles and Responsibility

In your opinion, how important do you think innovation is in today’s fast paced world?

In your opinion, which companies in your industry do you regard as being especially good at innovation? Why do you think they are good?

Now, I would like to turn to Open Innovation.

Q1 Does your company pursue an open innovation model? Are motivations to collaborate influenced by product lifecycles? Are different strategies used to manage relationships with the partner companies?

Q 2 How SMEs applies open innovation practices?

Q 3 How SMEs are managing open innovation strategies and firm performance.

Q 4 What changes in a SMEs organizational structures and management systems does the shift from closed to open innovation entail?

Q 5 What sort of challenges do you (entrepreneur) faces when implementing the open innovation strategies? How you (entrepreneurs) overcome these challenges?

Q 6 As an entrepreneur what was your most important skills which you utilized more often when implementing open innovation activities in your SMEs.

Q 7 To find out the competencies that entrepreneurs needs to work in open innovation and to overcome the challenges.

Q 8 To find out the impact of open innovation procedure. Does personnel resources scarcity impact on the involvement of the network? Which companies do you regard as being leading practitioners of Open Innovation? Why do say that? (Probes: Do companies inadvertently place more emphasis on inbound OI than on outbound OI? Is it the idea-generation or the idea-exploitation capability of these firms that makes them good? Is it because of the culture? Organization Structure?

Q 10. How opportunities for innovation diffuse throughout interpersonal networks?
Q11. Would you say that the Open Innovation model can be applied across all industries and in any organization?
## Operationalization (Own construction)

Table operationalization According to 3.3

<table>
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<tr>
<th>Question</th>
<th>Topic</th>
<th>Central References</th>
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<td>Q4 What changes in a SMEs organizational structures and management systems does the shift from closed to open innovation entail?</td>
<td>Literature related to open innovation and organizational change</td>
<td>Sieg, Wallin &amp; von Krogh 2010, Van de Vrande et al. 2009, Lichtenthaler 2009,</td>
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<td>Q5 What sort of challenges do you (entrepreneur) faces when implementing the open innovation strategies? How you (entrepreneurs) overcome these challenges?</td>
<td>Literature related to open innovation and challenger faced by entrepreneurs.</td>
<td>Chatenier, Versteegen, Biemans, Mulder &amp; Omta 2010, Muller &amp; Hutchins 2012, Limpkin and Dess 199.</td>
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<td>Q6 As an entrepreneur what was your most important skills which you utilized more often when implementing open innovation activities in your SMEs.</td>
<td>Literature related to skills an ability of entrepreneurs.</td>
<td>Floyd, S.W. &amp; Wooldridge, B. (1999). Gartner, W.B. (1988).</td>
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<td>Q8 To find out the impact of open innovation procedure. Does</td>
<td>Literature related to open innovation.</td>
<td>Chiaroni, D., Chiesa, V., &amp; Frattini, F. (2010). Dahlander, L., &amp; Gann, D. M.</td>
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<td>Q 9. How opportunities for innovation diffuse throughout interpersonal networks?</td>
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