Business Model Innovation: Role of Entrepreneur for Open Innovation in SMEs

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Abstract

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Abstract:

Open innovation is becoming a widespread practice in companies and has developed into a prominent research topic in the current innovation management literature (Chesbrough, Vanhaverbeke et al. 2006). However, open innovation research has focused mainly on large companies while Small and Medium Enterprises (SMEs) has received meager consideration in literature and its relationship with entrepreneurship is virtually inexistent. These publications show that open innovation can play a pivotal role in the innovation and commercial performance of SMEs. However, open innovation practices suitable for large enterprises cannot be simply transposed to SMEs (Van de Vrande, De Jong et al. 2009, Vanhaverbeke 2012).

This paper illustrates that open innovation in SMEs should be examined jointly with the entrepreneurial activities that are required to make open innovation in SMEs successful. The role of the entrepreneur’s vision is a starting point to develop an open business model over time together with partners that have the

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ABSTRACT

Open innovation in SMEs is a relatively unexplored field and its relationship with entrepreneurship virtually inexistent. We show in this paper that open innovation in SMEs should be examined jointly with the entrepreneurial activities that are required to make open innovation in SMEs successful. We focus on the key entrepreneurial activities: the role of the entrepreneur’s vision as a starting point to develop an open business model over time together with partners that have the required resources or competencies in-house. The role of the SME manager to orchestrate its ecosystem of innovation partners has also appeared to be a key entrepreneurial activity to implement business model innovation. The study has various theoretical and managerial implications.

Key Words: Open Innovation, Entrepreneurship, Business Model Innovation, SMEs, Innovation networks
1. INTRODUCTION

Open innovation is becoming a widespread practice in companies and developed into a prominent research topic in the current innovation management literature (Chesbrough, Vanhaverbeke et al. 2006). Open innovation research has focused mainly on large companies while Small and Medium Enterprises (SMEs) received in comparison little attention\(^1\). These publications show that open innovation can play a pivotal role in the innovation and commercial performance of SMEs. However, open innovation practices suitable for large enterprises cannot be simply transposed to SMEs (Van de Vrande, De Jong et al. 2009, Vanhaverbeke 2012). SMEs embrace open innovation for their own specific strategic purposes and they organize and manage it in a way, which can be hardly compared to the open innovation practices developed for large companies. In SMEs, open innovation practices are part of the firm’s strategy and managed essentially through an entrepreneurial process. As open innovation in SMEs has its own particularities there is a need to develop a specific research framework for open innovation in SMEs wherein entrepreneurial activities play a crucial role.

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In this study we focus on low- or medium tech industry where SMEs do not play a role as technology providers (as in high-tech industries) but rather develop new products and services incorporating new technologies developed by other companies or organizations. The SME entrepreneur plays a crucial role in driving the overall strategy of the firm. He is the key person who continuously looks for new business opportunities. To realize these new business opportunities he has to find partners due to the liability of smallness, lack of adequate resources, which encourages him to engage with other firms (Bougrain and Haudeville 2002, Edwards, Delbridge et al. 2005, Dahlander and Gann 2010, Lee, Park et al. 2010, Rahman and Ramos 2010). The search for new business opportunities and the basic insight or vision of the entrepreneur is the driver behind the SMEs’ search for innovation partners. Open innovation in SMEs cannot be conceived in isolation of the entrepreneurial process of new business development in which an entrepreneur gradually develops and implements a business with the help of different (innovation) partners. The SMEs managers who are interested in seizing new business opportunities have to learn how to orchestrate their ecosystem of innovation partners. Managing innovation partners is new for many SME managers and proves to be one of the major hurdles to be successful with open innovation.

We substantiate this explorative research on the link between open innovation and entrepreneurship in with examples of several European SMEs. Studies exploring the role of business model and managing network in open innovation from SMEs viewpoint are still in their infancy neglecting the specific challenges faced by the entrepreneurs and the strategies followed by them to address such challenges. Moreover, the existing research is mainly based on
secondary data. The case based evidence within this study is a first step forward to bridge the gap between the open innovation and the entrepreneurship literature.

The paper is structured in three parts. First, we posit that open innovation in SMEs only makes sense within the broader context of a strategic change or a business model innovation. Second, we elaborate on the role of entrepreneur in conceiving and development of business model (innovation) in SMEs. The entrepreneur is usually the instigator open innovation in SMEs. Third, we briefly discuss why a process view on business model development is required to understand how SMEs develop an innovation ecosystems with partners and how they change that over time in line with the stepwise changes in strategy which are, in turn, the logical outcome of new competencies and strategic positions developed during the previous steps. Next, we identify development and orchestration of innovation network for SMEs as the next most considerable role of entrepreneur. To verify this discussion, open innovation efforts among some selected SMEs are illustrated in detail. We wrap up the conclusions in the last section and discuss a number of managerial implications, the limitations of our work and some prospects for future research. We build on the extensive field research developed in Vanhaverbeke (2012) to understand the nature of open innovation activities in low-tech SMEs. We also conducted additional interviews with the managers of these SMEs to get more and updated information and to examine entrepreneur role in managing open innovation through business model innovation over a longitude of time. The SME case studies we use in this paper are Curana (bicycle part manufacture), Jaga (a radiator manufacturer) and Quilts of Denmark (a functional quilt manufacturer).
2. OPEN INNOVATION IN SMEs INTEGRATED IN THE BROADER FRAMEWORK OF STRATEGIC CHANGE

The business models have emerged as new unit of analysis, it does not only explain how the value is captures but also explains how it is created (Zott, Amit et al. 2011). Osterwalder (2004) has defined business model as a conceptual tool to create and capture value. (Zott and Amit 2007) explains business model as design of the central firm’s set of boundary spanning transactions with partners. A similar observation is made by (Magretta 2002, Mansfield and Fourie 2004) where they describe business model crux on working with partner firms and joint value creation. The value to technology is brought business model (Chesbrough 2007). Some scholars considered business model as a vehicle for innovation and subject of innovation (Mitchell and Coles 2003, Zott, Amit et al. 2011).

Studying open innovation in SMEs makes sense only within the broader framework of a strategic change or a business model innovation. Open innovation is a well-developed business practice in larger firms with people that are held accountable for it. This is not the case in small firms, where an entrepreneur seizes open innovation activities as a direct consequence of a strategic change or a business model innovation to reap the benefits of new business opportunities or to cope with increasingly competitive business conditions. The business landscape of many SMEs is getting increasingly competitive due to mounting commoditization pressure, growing competition, price battles, increasing globalization, shortening product life cycles and changing government regulations. To face these deteriorating business conditions SMEs have to go for strategic re-orientation. This strategic change, in its turn, prompts small companies to look for external partners to source and leverage their technological or professional expertise. As small firms have few internal resources available and compete on a small competence base, a strategic shift almost
automatically drives them towards open innovation in search for partners’ resources and competencies. Therefore, open innovation is SMEs has always to be considered as part of a broader strategic change or business model innovation perspective (Vanhaverbeke, 2012; Slowinski and Sagal, 2010). SME managers will start to collaborate with external partners during their search for a strategy shift to seize new business opportunities. Open innovation has no meaning independent from strategic change projects. On the contrary, open innovation becomes relevant within the setting of such projects.

The Curana case illustrates the intertwineament between open innovation and strategic redirection nicely. Curana is a small family-owned Belgian company established in 1940 as an Original Equipment Manufacturer (OEM) of bicycle accessories. Dirk Vens and his brother inherited the company in 1990s, as a third generation owners, at a time when bicycle parts industry was getting increasingly competitive. The business landscape was going through some drastic changes with the introduction of fashionable mountain bikes, sport/bikes and with the internationalization of the bicycle market resulting in the continuous decline of Curana’s profit.

Curana’s CEO, Dirk Vens, decided in 1999 to change from an OEM to an ODM (Original Design Manufacturing) business model. Vens’ vision was to offer innovative fascinating designs of bicycle parts to the bicycle manufacturers and to be a product-driven company instead of customer-driven. He believed that Curana could escape the fierce, price-based competition and could charge a premium price to the customers with the innovative and sleek designs. Curana had at that time only a good understanding of the bicycle market and production skills ‘to bend steel’. It didn’t have any in-house design competencies or knowledge about polymer extrusion to
make plastic mudguards. Vens started a new product development project to develop a unique mudguard with sleek design combining aluminum and plastic parts. From day one, this was an open innovation project, as Curana had no expertise in design and polymer extrusion: Vens started a strategic partnership with a local design office and a polymer extruder to accomplish his vision. The efforts finally paid off in 2002 with the introduction of the B’Lite mudguard. It was Curana’s first major success and was result of intensive collaboration with several external innovation partners.

Quilts of Denmark (QOD) is another case in point. Quilts of Denmark (QOD) is a Danish SME that produces quilts and pillows. Søren Løgstrup and Erik Schmidt, two entrepreneurs with 20 years of experience in the quilts business, founded QOD in 2000 with a vision to reform the conventional quilts and pillow industry. At that time quilts industry was facing many challenges due to high commoditization pressure and consolidation of retailers, rapidly increasing globalization of the industry and low profitability. The founders of QOD knew from their extensive business experience that sleep was becoming a problem in contemporary societies.

Løgstrup and Schmidt realized that in order to be successful in this competitive industry, they should come up with a radically new idea. Based on their long experience in the bedding industry, they were convinced that customers would pay a premium price for a “good and healthy night’s sleep”. Therefore, they envisioned QOD as a “provider of health sleep”. Both entrepreneurs however had absolutely no idea what healthy sleep entails. Therefore, they reached out to sleep institutes for advice as a first step. During their meetings with several sleep experts, they discovered that most important factor that influences quality of sleep was the temperature
variation under the quilt. Quilts are used to keep a person warm in bed but they also tend to trap heat, leading to considerable temperature variations and a reduced quality of the sleep. The company had no in-house. This prompted the two entrepreneurs, to look outside the company and to work with external partners to achieve it. They finally found the PCM technology used by NASA in their space suits. QOD introduced ‘Temprakon’ in 2003 after some intensive years of collaboration with Outlast, the company responsible for the commercialization of PCM technology in civil applications on behalf of NASA. The Temprakon was the first functional quilt up shaking the quilts industry. The Temprakon was the results of a new strategic orientation that forced the two founders start a bewildering cross-industry and cross-disciplinary learning process bringing together knowledge from sleep experts, PCM technology used in expensive settings such as the space industry, and microencapsulation technology.

In sum, open innovation has never been an explicit objective of Curana and QOD. They envisioned a strategic change for their company. Once the SME starts to work on the business model innovation, it has to look for external resources and competencies. Due to lack of internal resources and skills, SMEs have to collaborate with external partners to seize new business opportunities. In other words, open innovation is a direct consequence of SMEs’ business model innovation: the requirement to use new skills and competences drives them towards collaboration with external partners (Lee et al., 2010; Van de Vrande et al., 2009; Vanhaverbeke, 2012).

3. THE ENTREPRENEUR AS INSTIGATOR OF OPEN INNOVATION IN SMEs

In large companies open innovation is a well-developed business practice implemented through specialized departments or teams? In contrast, in small companies the entrepreneur or CEO of
the firm takes all decisions. Implementing open innovation in small firms is part of the entrepreneurship and may be viewed as two sides of the same coin. The entrepreneur plays a key role in articulating a business model and formulating strategies to embed value. It is usually the entrepreneur who instigates the strategic switch and drives the strategic change or built up a new business model for the start-up. This articulation of new business model in a SME creating value for the customers at a profit starts from a basic insight or vision of the entrepreneur (Lumpkin and Dess, 1996).

Quilts of Denmark (QOD) is a nice case illustrating how the basic vision or business insight of the entrepreneur ignites a new strategy for the SME. Based on their experience of over 20 years in the bedding industry and the information in magazines about wellness and sleeping, Løgstrup and Schmidt believed that customers could pay a premium to fulfill their need of healthy night’s sleep. Therefore, they envisioned QOD as a “provider of healthy sleep” rather than just producers of quilts and pillows. Though both entrepreneurs were convinced that providing a healthy sleep was a promising business opportunity, they had no idea what may be considered as a healthy sleep. At the inception of the project they didn’t know what healthy sleep means and how quilts could be instrumental in achieving this target. It took a stepwise approach for articulating the detailed business model for the functional quilt. They first went to some sleep institutes for advice from professionals to get a better idea what a healthy sleep exactly means. During the interviews with several sleep specialists, the founders discovered that the most important factor that influences quality of sleep is the temperature variations under the quilt. They knew quilts are generally used to keep a person warm in bed but as they trap heat, they may not offer the best possible sleep due to temperature variations. Capitalization on this business opportunity and in collaboration with Outlast (which was entitled to commercialize PCM
technology on behalf of NASA. QOD introduced ‘TEMPRAKON’ – the first functional quilt - in 2003. TEMPRAKON was a quilt that could stabilize the temperature during the sleep due to the physical properties of Phase Change Materials (PCM) which were originally developed by NASA for the spacesuits of astronauts. TEMPRAKON was the result of a cross-industry and cross-disciplinary learning process that forced the company to open up to different innovation partners from the sleep experts to PCM technologist and NASA – besides many others with smaller responsibilities in the innovation process.

iStyling, a virtual fashion store, introduced by DNA Interactif Fashion also illustrates how the entrepreneur’s vision instigates the business model innovation and drives strategic orientation. It was Dirk Ghekiere, founder of DZine, a leading digital signage company, who envisioned in 2006 the idea of a virtual store, i.e. a digital system where customers can virtually try out fashion goods and then buy the clothing they like. In quest of realizing his vision, he started to look for external resources. In 2008, he met Huub Fijen who transformed his vision into a business model. Huub insisted on developing a 3D body scanner that can make consumer’s virtual avatar in a few seconds. Consumers can then use their avatar to virtually try available dresses on a screen to select for purchase. The idea looked fascinated to both the entrepreneurs.

The conviction of the both the entrepreneurs convinced them to continue looking for external solutions and resources to develop and materialize the vision. After several failed attempts and contacting various external sources they could finally secure a deal with an American non-profit organization for the exclusive distribution of body scanners that could make consumers’ avatar. The business plan for 3D body scanner was then rolled out and the whole business concept, labeled as ‘iStyling’, was introduced with some features as a first way to facilitate the purchase process for fashion goods such as clothing, glasses, hairstyles and jewelry. The retailers and
consumers alike appreciated the concept; it saves retailers’ expensive store space and consumers’ could reduce the number of outfits that they finally never wear.

Also in this case of DNA Interactif Fashion, the entrepreneurs started the process that finally led to the collaboration with several partners to develop and implement the whole business model. At the start there was just the basic insight that the current way of purchasing fashion goods is quite inefficient for producers, retailers as well as consumers, and that the virtualization of the process could be beneficial for each of these stakeholders. Turning a basic business idea into a reliable business model may take time: at the start the business model is not well articulated and a lot of untested ‘hypotheses’ have to be explored through rapid experimentation (Blank, 2005). However, this basic insight works as an igniter for initiating the business model innovation and setting direction for an SME’s strategic innovation.

In SMEs, the entrepreneur’s vision works as a starting point for the development of business model. The entrepreneur thinks of the industry in quite new ways, using different perspectives than other players in the industry. Thinking cross-industry and cross-disciplinary wise is must to come up with new ways to compete in the industry. In its turn, this broadened perspective leads to open innovation as the company needs unusual partners to develop the idea into a business model that articulates clearly how the value will be created for the target costumers and how part of that value will be captured by the different partners. The basic idea for example in QOD was to ‘provide healthy sleep’ and in case of iStyling to offer a virtual and more effective shopping solution. Those ideas where not just opinions, but the entrepreneurs were deeply convinced that their idea was right based on years of experience in the business and the information they absorbed about (business) trends and new technologies.
4. PROCESS VIEW ON BUSINESS MODEL INNOVATIONS

New business models may be challenging to articulate due to their innovativeness. For instance, in cases like QOD and iStyling, the conceptualization and articulation of their business models were quite challenging. Designing such innovative business models can take months or even years to get it right. Articulation of radically new business models is a hard task as several major aspects remain uncertain and many questions unanswered. This makes business model innovation in essence an adaptive process that may not be planned analytically as many success factors remain unknown at the outset.

As many of the success factors are unknown in the beginning, the entrepreneur embarks on a ‘discovery-driven’ journey. McGrath and Macmillan (2009) explain why discovery-driven approach works while articulating business model innovations and why it is better than conventional strategic thinking. In discovery-driven point of view, entrepreneurs while taking innovative measures face many uncertainties and do not usually possess all the requisite information to make the right decisions. Innovative SMEs evolve their business model over time through experiments, as they re-evaluate their progress against various checkpoints and re-direct the efforts, which eventually takes to the articulation of the most suitable business model (McGrath; 2010).

Similarly, SMEs rely more on actions than analysis as the available data may be inadequate for articulating the business model. Such approach is termed as effectuation by the Sarasvathy (2005) and is reverse of causation approach. In the causal approach, entrepreneurs determine goals to achieve and look for the resources to do so. In contrast, with effectuation entrepreneurs determine goals in line with the resources in their possession.
The ‘Curana’ case illustrates that the articulation of a business model innovation is a step-wise effectual process and it depends on the entrepreneurial vision and abilities to take it forward. Curana was an Original Equipment Manufacturer (OEM) of bicycle accessories. During the nineties, the business landscape was going through some drastic changes with the introduction of fashionable mountain bikes, sport bikes and with the internationalization of the bicycle market resulting in the continuous decline of Curana’s profit. At that point of time, Curana’s CEO, Dirk Vens decided to significantly change the business model of the company. In 1999, he opted to go for ODM (Original Design Manufacturing) model rather than OEM. Vens’ vision was to offer innovative fascinating designs of bicycle part to the bicycle manufacturers and to be a product-driven company instead of customer-driven. He believed that in this way he could escape traditional competition and can also charge a premium price to the customers with the innovative high-tech unique designs. Withstanding the fact that Curana didn’t have any in-house design competency, his vision of developing stylish innovative bicycle parts was an even greater challenge.

However for taking up further his vision, Vens anchored whole strategic reorientation into a single new product development project and he searched for resources outside Curana to accomplish the project: important partners were Pilipili, the design house, and Anziplast, the polymer extruder. However, also two major bike manufacturers (clients of Curana) plays a major role, since they guaranteed major purchasing orders for the new product in exchange for exclusivity on the European market. The joint efforts finally paid off in 2002 in the shape of the B”Lite mudguard after a time-consuming and agonizing joint innovation process. B”Lite turned out to be the Curana’s first major success and was result of intensive collaboration with several external partners.
At the outset, Vens didn’t know how his vision about premium priced bicycle parts with a sleek design would finally result into a product such as the B”Lite (the sequence of the different prototypes shows major changes in the conceptualization and development of the B”Lite). He followed effectual learning process: the end result could not be anticipated or even conceived at the start and during the development partners had to deal with numerous challenges by making decisive adjustments during the entire development process. The switch from an OEM to an ODM strategy was paying off very well for Curana. Most SME-managers would stick to the new ODM strategy, but Vens moved on and changed the business model again. In fact, he changed three times to a new business model in 15 years capitalizing on the benefits of the previous ones. Orchestrating a new business model paves way for new opportunities for the adoption of another new business model. It is a path-dependent, stepwise process in which the prevailing business model paves way for the development of new business model.

In 2006, Curana switched to the so-called Original Strategic Management (OSM) and established an in-house design office to conceive and develop innovative ideas continuously without waiting for client’s request as in the ODM model. Due to the growing self-confidence of Curana in developing new designs, the company took a proactive approach by initiating the innovation cycle itself with partners in the lifestyle business rather than waiting for the design specs of customers. Curana was in the OSM model no longer restrained by the customers’ requirements and could therefore come up with very innovative designs. Curana earned many esteemed innovation and design awards. This in turn moved Curana to shift again the business model in 2008. The new model is called the Original Brand Management (OBM): the awards gave high visibility to Curana’s products, consumers wanted the ‘by Curana’ logo on their bikes. Authenticity and reliability became crucial in the strategy. Curana established itself as a
trendsetter in the industry. Today, ‘By Curana’ has become a brand name, which has tilted the market power towards Curana, which is now not only determining its own destiny but also that of the bicycle parts industry.

Curana changed its business model towards more openness in response to the opportunities in the marketplace. Vens’ continuous search for reinventing the firm’s business model was a major driving force behind these strategic changes. Implementing three strategic changes seems very challenging but it is the logical outcome Curana’s discovery driven growth path. The innovative solutions were neither planned nor developed in a linear way. The discovery driven approach led to the innovative solutions as a result of experimentation and thereof redirecting projects.

Jaga is another illustration of a stepwise change of the business model in innovative SMEs. Jaga is a Belgian, medium sized radiator company with focus on values such as reducing the ecological footprint and the aesthetics of radiators. Jaga products are a combination of design and technical expertise incorporated with cradle-to-cradle philosophy. However, the company was not aiming for this when it was founded in 1960s; the strategy focus surfaced as a result of discovery-driven, stepwise evolution of business model orchestrated by Jan Kriekels, a visionary entrepreneur.

Initially Jan Kriekels, started to change the company’s innovative culture by taking some simple initiatives in 1990s when he took over the company of his father. He started with the solution strategy, that is, to cater for customers’ demand by offering various unique products with the help of local partners. The solution strategy was a success for Jaga offering customers an alternative when oil prices were high. But when oil prices started to swing in the nineties to extreme highs and lows Kriekels decide to switch to an experience strategy in 2002 and he established an Experience department as a first step to implement it. This department established
the “experience labs” in 2005 as its first major accomplishment. The Jaga experience labs is a test facility where all weather conditions can be simulated to calculate heating time and cost. Jaga opened the lab for scientists to conduct their personal research. This helped Jaga to stay connected with their technological progress and get early access to promising technologies in order to beat competition.

Kriekels also organized Jaga product days in 2007. In preparation of the product days Kriekels invited employees, external partners and suppliers encouraged to propose creative ideas for heating solutions. An external jury evaluated the ideas from various aspects such as design, innovativeness, and commercialization potential and the winning projects were taken into production. This resulted into several unique product ideas that were developed by Jaga and were commercially very successful.

Most of the SMEs we examined articulated their business models over time, as they cannot be fully anticipated at the start. Rather, they are developed and adapted over time, which emphasizes the significance of experimentation in the articulation of new business model. Once a business model is established, the company develops new capabilities that enables it to shift to a new and more profitable business model. The most interesting example is of Curana: Its business model evolved from an OEM, towards an ODM, into a proactive design. This gave them a prominent position due to highly innovative products that also won various innovation and design awards, pushing company towards a brand strategy. This continuous evolution of the business model is necessary to have sustainable competitive advantage.

The cases illustrate that entrepreneurs usually do not look at a grand design or over a longer period of time. They just start with a vision to offer a new value proposition to the customers.
Once the entrepreneur envisions the company’s offering and starts to articulate the business model, the first obvious step is to look for key resources. Due to lack of internal resources, SMEs have to collaborate with external partners to create and seize new business opportunities and to be successful in the competitive landscape. Open innovation is a possible solution to overcome SMEs’ scarcity of internal resources (Lee et al., 2010; Van de Vrande et al., 2009). QOD, for instance, did not have any key in-house competencies to realize their dream of becoming a “provider of a healthy sleep”. This prompted the two entrepreneurs to look outside the company and to work with external partners to achieve it. Approaching sleep experts at various sleep institutes to know what constitutes a healthy sleep was the first step. They established an informal advisory board of several experts to advice them on key issues related to a healthy sleep. The advisory board that pointed out temperature as the most important factor for comfortable sleep. They got via NASA in touch with Outlast who adapted IP protected PCM-technology to an adequate application, which resulted to the development of a temperature regulated quilt. It took QOD and its partners almost two and a half year to get the knowledge, gathering the resources and developing a commercially viable product, which then resulted as an instant success.

Curana offers a similar story. When Curana decided to make develop the B”Lite mudguard it had no in-house design facility or expertise in polymer extrusion. Vens had to collaborate with external innovation partners to realize the project: Pilipili, a local design company, was contacted for developing innovative products with a sleek design. Dirk contacted Anziplast, a neighboring polymer extruder to co-develop the product and set-up a innovation ecosystem with numerous companies in the related businesses to gather the necessary expertise and resources to develop the a B”Lite and its successors.
5. THE ROLE OF ENTREPRENEURS IN DEVELOPING OPEN INNOVATION NETWORKS

SMEs in general cannot mobilize enough resources (Van de Vrande, De Jong et al. 2009, Lee, Park et al. 2010). In such a situation open innovation comes out handy in resolving lack of internal resources. When SMEs focus on major changes in their business model to seize new business opportunities and boost profitability, required competencies and financial means to execute the change lack which forces them to look for innovation partners. For SMEs, open innovation is a direct consequence of SMEs’ ambition to change their business model.

A business model describes how a firm creates value for a particular customer group and how it captures a portion of that value. When SMEs change strategy, they jointly create value with their innovation partners. SME innovation networks have the following characteristics: First, most SMEs collaborated with value chain partners and less with technology partners. Small firms in low and medium tech industries start cooperating with partners when they discover new business opportunities, usually based on market or customer insights. Developing technology can be very important in realizing the business model, but in most cases it remains a supporting activity to realize the new business model. Second, the entrepreneur plays a vital role in changing the business model changes and combining knowledge from unrelated fields. He pulls in expertise from other industries and disciplines that previously never have been related to the industry to which the small firm belongs. Quilts of Denmark and IStyling are excellent examples of how the entrepreneur’s visionary approach leads to the development of an innovation ecosystem with unexpected partners from different industries. Third, success depends largely on the quality of the innovation network management. Creating joint value with partners implies that a company organizes itself internally so that it can learn from its partners. In many cases, this can be done using simple and inexpensive tools such as Jaga’s experience Labs or Products Days.
When collaborating with innovation partners, SMEs cannot extract value from the collaboration to the detriment of their partners. Every partner involved in the network should be better off than when it goes for alternative strategies. If partners do not feel comfortable in the ecosystem, the joint value will not be maximized and the cooperation may finally break down. The SMEs we interviewed work together with different innovation partners to create, but also to appropriate more value. Findings of the study state that SMEs who innovate together with partners significantly increase profitability.

Establishing an innovation ecosystem can lead to substantial benefits for SMEs, but the management of that ecosystem or network is quintessential for its success. SME entrepreneurs have to assume a new role as network orchestrator to guarantee the success of their strategic change. When entrepreneurs innovate with partners in the value chain they build strong personalities with the main partners. Managing the innovation network is the key process of open innovation in SMEs as the whole network is based on trust and transparency about the objectives of the partners and regarding time and money that have to be invested. Success of the network in open innovation depends on open communication and mutual respect among the value chain partners. It also depends on the fact that does everybody want to take risk? Network management is based on the fact that the locus of innovation is in the network. Growth and economic strength do not depend on firm size but on progressively increasing the ecosystem of innovation partners. Entrepreneurs as the nodal point in the network also have to set out rules for the support of partners and the sanctions when a partner is behaving in a disloyal way. In innovation networks, tensions are likely to pop up among partners in the network and good relationships may come under pressure. When tensions emerge, the entrepreneur should be a skilled conflict manager:
open bookkeeping with main partners and organizing regular evaluation session with partners keep the network sustainable.

Intellectual property rights are another important aspect of managing the network. Entrepreneurs plays a key role in making proper arrangements with the partners as to how make use of technology that is co-developed. Who should be the owner? And who is going to court in case of any patent infringement? Co-ownership of IP leads to complex problems in managing the IP afterwards. SMEs who co-innovate or better of with deals where one party owns the IP and the other one can license it royalty free under particular conditions.

Curana is a good example of a company that has successfully leveraged close relationships with the partners in the innovation network. Combining internal and external knowledge a key competency of Curana, which enhance the creativity and speed in producing new bicycle parts but also assisted in attaining market leadership. Vens realized that Curana could not develop itself the B"Lite and needed a variety of expertise from different partners to bridge the gap. Together with partners Curana could build upon an extended platform of knowledge and expertise, they could produce prototypes more quickly; and they could develop highly innovative products as they integrated different types of expertise. Curana established strong bonds with suppliers, the designer community, knowledge centers, and customers. Working with external partners over the value chain (from design to production and sales) leveraged the business to new opportunities that could not have been seized without the innovation network. Moreover, Curana’s network gave it access to an extensive pool of knowledge and expertise, which they jointly transformed into extraordinary solutions for its customers. The network proved to be a
powerful tool in speeding up the innovation process and in combining novel designs with new materials. In this respect, Curana’s innovation network is a nice example of how collaboration with innovation partners defines the competitive strength of a small firm and how the network becomes the locus of Innovation (Powell, 1990).

Another example of successfully managing open innovation network by the entrepreneur is Quilts of Denmark. The founders of Quilts of Denmark started their business in 2000 with the firm conviction that it is possible to sell quilts at a premium price if they could offer customers the experience of a healthy sleep by adding new functionalities. They started with the observation that many people do not sleep well and that providing the experience of a “healthy sleep” could be an attractive sales argument. The success of Quilts of Denmark was the result of years of close cooperation among the network of sleep scientists and physiotherapists. QOD extensively used its network of medical contacts to acquire knowledge of who can define “what is a healthy sleep?” How to translate these insights into technical specs for a functional quilt? In the case of QOD, developing a functional quilt required a combination of different types of knowledge from very diverse scientific discipline. Quilt of Denmark offers a strong control point owing to its strong network with sleep scientists and having collaboration with technology leaders in the field. This network also helped QOD to find the right mixture that delivered the optional temperature and cooled down and heated up slowly enough to ensure comfortable sleep.

6. DISCUSSION AND CONCLUSIONS

The benefits and management of open innovation have been widely researched among large companies while only few researchers have explored open innovation practices among SMEs. (Van de Vrande et al., 2009; Lee et al., 2010). Open innovation in small companies has received relatively little attention,
although they tend to benefit more from open innovation due to their smallness and lack of internal resources and competencies. Managing and organizing open innovation in SMEs is also quite specific and the lessons learned from open innovation in large firms cannot be transferred automatically to SMEs. This renders the need for studies about the specificity of open innovation in SMEs even more urgent.

One aspect that differentiates open innovation management between SMEs and large firms is the role of the entrepreneur. Open Innovation in SMEs can only be understood appropriately when it is integrated into the strategy of the firm and considered as part of the entrepreneurship activities in SMEs. This paper is one of the first to systematically analyze how entrepreneurs manage open innovation in small firms (notable exceptions are Lee et al. 2010; Ju et al. 2013). We try to specify the role of SME entrepreneurs when they start open innovation. We observe that entrepreneurs play two major roles. First, they are the instigators of new business ideas or they start a reorientation of the firm’s strategy. This is a classical theme in the entrepreneurship literature, but integrating open innovation as part of the entrepreneurship in SMEs is novel within the open innovation literature. Second, they set up an ecosystem with partners to develop new products or implement the strategic orientation: this topic is to our knowledge relatively new within the entrepreneurship literature, but essential to understand open innovation in SMEs. SMEs that know how to manage a network of innovation partners can seize new business opportunities, become key players in growth industries, and turn themselves into highly profitable companies. An SME will engage in open innovation depending on its need for new technology, value chain positions, and competencies to realize a new product offering. The type of products or services the SME wants to launch determines the size of the network. As a consequence, the locus of innovation is shifting, from largely being confined to operations within the four walls of the SMEs, to a distributed innovation network. SMEs need to re-orient their
business model and management processes to make greater use of external network in their own innovation systems.

In an innovation ecosystem, a hub firm plays very important role in managing innovation coherence, both internal and external (Nambisan and Sawhney, 2011). An SME can successfully take up the role of on ecosystem orchestrator as we have shown with examples such as, Curana and Jaga. Most SME managers are not acquainted with this new task to manage a network of innovation partners and this factor is the main reason why SMEs tends to fail in open innovation.

The SMEs successfully managing open innovation keep in developing business model with time. The SMEs do not plan for longer period such as they do not develop 5 year or 10 year plans. They keep on evolving their business model according to various business environmental factors. The open innovation can only be successful if the innovating company is choosing the right partners. This choice is crucial because partners have to share the same ambition and be trustful in tough times. Innovation ecosystems do not get organized automatically. Clear leadership is needed to organize and manage the innovation network. The basic rule is that each partner should be better off in joining and staying in the network compared to leaving the network. That implies that some partners may have to be compensated for losses, investments, or risks they take. In an innovation network, partners are interconnected and SMEs’ health greatly depends on the health of the whole network. Innovation networks need to be activated continuously. Inactivity is deadly for the network strength and partner commitment. Cross-disciplinary and cross-industry communication around specific projects releases energy and creativity among the partners involved to spark the search for innovative products and concepts. Managing innovation
networks also entails that the orchestrator disciplines partners that do not play according to the rules and values that are common among the partners. The entrepreneur of the central firm should operate as a strong leader in the network. Joint innovating and commercialization implies that partners that do not comply with the may have to discontinue the collaboration. Partners that are cut off from the network lose considerably in the long term when innovation networks are the locus of innovation. Open innovation networks are only sustainable when the value that is jointly created is several times larger than what partners can realize on their own.

The paper highlights the role of entrepreneur in organizing and managing open innovation practices in SMEs, elaborates how articulation of business model innovation roots from basic insight or vision of the entrepreneur and how he or she orchestrates the business model for the new value proposition. Our study shows business model innovation for SMEs as a stepwise discovery driven approach. It adds to the understanding of open innovation in SMEs more broadly and presents insights of best practices of how SMEs manage open innovation partnerships and value chain networks. SMEs collaborate in a completely different way than large companies. In SMEs personal relationships plays a very crucial role. Collaboration rules are generally informal and trust is the main foundation of the network. This study will be of value to anyone seeking to better understand open innovation in SMEs context. The multiple case analyses revealed the linkages of entrepreneurial vision and network management with open innovation strategies followed by SMEs. The paper highlights the impact of value chain network management, which is the most crucial aspect for successful open innovation by illustrating multiple case examples from SMEs. Consequently, one general and key practical implication from this study is the importance for SMEs to build and sustain external network for continual
innovation and competitiveness. The strong need emerged from this study is to harness the value chain network with certain entrepreneurial skills in SMEs. The study has demonstrated the importance of entrepreneur’s vision and the approaches adopted by SMEs entrepreneurs for paving way for open innovation. The findings of this study can be used to develop the strategy for open innovation in SMEs. This research has practical implications for entrepreneurs who are in the process of implementing OI and for policy makers who are interested in enhancing competitiveness of SMEs.

7. MANAGERIAL IMPLICATIONS:

The concept of open innovation is introduced since 2003 and research in this area is still in its infancy. Vanhaverbeke et al. (2014) and West et al. (2014) identified several research gaps vital research gaps. This paper addresses one of these important gaps: the need to integrate open innovation in SMEs with the entrepreneurship literature. In this paper we emphasized first the role of an entrepreneur’s vision in establishing and sustaining an open business model or innovation and second the entrepreneurs’ role in orchestrating the innovation ecosystem as a crucial factor in determining the success of open innovation in SMEs. Thus, the paper holds several practical implications for the SME managers/entrepreneurs including the role they play in organizing and managing open innovation activities. Furthermore, this paper suggests how SMEs could develop and manage the network of innovation partners.

8. LIMITATIONS AND FUTURE RESEARCH:

We only pointed at the need to integrate the entrepreneurship and the open innovation literature and we illustrated it with several case studies. We invite entrepreneurship and open innovation
scholars to develop integrated frameworks to help SME managers to develop innovation ecosystems.

The paper is based on exploratory case studies so the conclusions drawn may not be generalizable at large. Future research, including quantitative studies, will be helpful in examining the conclusions and providing more in-depth understanding of developing and managing open innovation networks from SMEs perspective.

Gaining a better understanding of how entrepreneurs in these firms adopt open innovation and overcome their size-related competitive challenges is important because it can help these firms with becoming more economically viable and prosperous. Future research is also needed to improve the current understanding of open innovation in SMEs as a whole because focus of this paper was restricted to the entrepreneur and collaboration network. However, using quantitative data will be needed to examine other possibilities through a framework encompassing the concept of open innovation.

REFERENCES


Vanhaverbeke, W. (2012). "Open innovation in SMEs: How can small companies and start-ups benefit from open innovation strategies?".

