

## Preface

Innovation is the development and commercialization of knowledge, and translation of ideas and researches into value-added products, processes, or services. To many, innovation is not fundamental research and development (EEDA, 2008), but rather, the incremental accumulation of knowledge focusing value addition of an existing product, process, or service. Moreover, along the context of increasing global competition and rising research and development (R&D) costs, enterprises are no longer in a position to survive on their own internal resources, but to look for new, more open modes of innovation (OECD, 2008a), thus creating a wider window of exploration and exploitation of ideas, concepts, expertise, strategies, and methods, namely open innovation.

Open innovation is a paradigm, which presumes that enterprises can and should use both external and internal ideas and corridors to the market, when enterprises look to discover and realize innovative opportunities. The open paradigm further assumes that internal ideas can be taken to markets through external channels, outside the current businesses of the enterprise to generate value. However, the open innovation model does not completely upset traditional policymaking, such as common rationales to legitimize policy interventions including spillovers, system failures, and market failures, which are still applicable in this mode (De Jong, Vanhaverbeke, Kalvet & Chesbrough, 2008)

If one compares the open innovation model with the traditional, closed model in which enterprises generate, develop, and market their own ideas, and usually organize an internal R&D department, the closed model has become outdated due to increased mobility of workers, better learning, growing presence of venture capital, increasingly shortened product life cycles, growing competition, and wide availability of knowledge from multiple sources. Whereas, in the open innovation model, enterprises can still initiate and nurture innovations within the borders of their organizations, and at the same time, they may depend on alternative pathways to bring ideas to the market and to benefit from external knowledge (De Jong, Vanhaverbeke, Kalvet & Chesbrough, 2008)

Open innovation is thus seen as a broader concept, which encompasses diverse dimensions. Firstly, there is the inside-out movement, or more familiar in this arena, *technology exploitation*, in which existing technological capabilities are leveraged outside the boundaries of the firm. Secondly, there is an outside-in movement, also known as *technology exploration*, in which external sources of innovation are used to enhance existing technological developments. Thirdly, in a fully open paradigm scenario, companies combine both technology exploitation and technology exploration in order to create maximum value from their technological capabilities or by taking from others' competencies (Van de Vrande, de Jong, Vanhaverbeke, W. & de Rochemont, 2008).

In recent years, countries such as Austria, France, Japan, Korea, Mexico, Portugal, and Spain have undertaken large-scale initiatives to reform their science, technology, and innovation (STI) policies. Others, including Belgium, Canada, the Czech Republic, Finland, Germany, Ireland, New Zealand,

Norway, Portugal, Turkey, the United Kingdom, and the United States, are increasing support to their science base. Countries are also making greater efforts to evaluate the prospects of the implemented policies. More attention is given to STI issues at the highest levels of government, often through the establishment of a high level ministerial council for STI policy or through greater synchronization in the area of STI. Many countries are also increasing their efforts to involve civil society in developing STI policies (OECD, 2000).

Even despite the economic slowdown across the OECD area in 2001, investment in exploration and exploitation of knowledge remain key drivers of innovation, economic performance, and social well-being. Over the last decade, investments in knowledge, as measured by expenditures on research and development (R&D), higher education, and information and communication technologies (ICTs), grew more rapidly than gross fixed capital formation. The movement of OECD countries towards a knowledge based society is linked to the emergence of a more networked economy, which has helped to improve productivity, chiefly through the generation, diffusion, and utilization of information. The shift towards a more networked economy has been accompanied by knowledge dynamics and facilitated tighter integration of the knowledge economy creating an expansion of market and non-market knowledge transactions. The production and application of scientific and technological knowledge has become a more collaborative effort, linking the activities of industry, academia, and government. Formal and informal cooperation among institutions has become vital for reaping the full benefits of knowledge creation and fostering the development of new technological innovations. Virtually all forms of collaboration, including cooperative research, public/private partnerships, international and domestic strategic alliances, and foreign direct investment show signs of increasing (OECD, 2002).

Evidently, among the business sector entrepreneurs, the small and medium scale enterprises (SMEs) play an increasingly important role in innovation and job creation, but are nevertheless left out of the research on open innovation, which has been carried out mainly within the context of large and technology oriented firms (Chesbrough, 2003). However, this is not surprising, considering the increasingly important role SMEs play in innovation. After all, small firms often lack resources to develop and commercialize new product in-house, and as a result, are more often inclined to collaborate with large firms.

Furthermore, open innovation is mainly motivated by market related targets, as these are the most important driver for firms to engage in venturing, participate in other firms, and involve users in the innovation process. In this aspect, most SMEs use a broad set of methods to meet the ever-changing customer demand and to stay competitive. Corporate renewal is the second most important driver towards open innovation. In addition, many barriers for open innovation in SMEs are related to corporate organization and culture, no matter which type of open innovation practice is being pursued (Van de Vrande, de Jong, Vanhaverbeke & de Rochemont, 2008).

Globalization is another major driver of open innovation processes, not only because of it means more intense and global competition, but also because it creates a more global landscape for innovation. A growing number of countries, including developing and emerging economies, have developed important science and technology (S&T) capabilities and resources, internalization of R&D and science, as well as international mobility of resources, all of which have created an increasingly global supply of S&T (OECD, 2008b) as a prevalent environment of open innovation.

By following these issues and trends of open innovation surrounding SMEs development in developing and emerging economies, this book has tried to incorporate applications, research, and case studies on open innovation concepts and strategies. These cases are from various countries across the world focusing research practices and adaptation of open innovation strategies. The book has 12 chapters divided into three sections.

## **WHERE THE BOOK STANDS**

This book has tried to compile cases with concepts and practices illustrating open innovation adoption within the entrepreneurships among the SMEs, which acts as a catalyst of economic development at the grassroots of a country. Incorporating cases on municipalities, non high-tech SMEs, collaborative and innovative enterprises, including intermediaries, cases on SMEs adopting corporate social responsibilities as an innovating tool, and cases on weaving industry or firms belonging to waste management, this casebook has tried to cover various aspects of different companies who are thriving to promote their businesses in this globalized competitive market. Furthermore, one or two cases have exhaustively illustrated the nature and characteristics of entrepreneurships within the framework of open innovation focusing development of small sector enterprises. In this context, one may find the book as a potential guide to acquiring knowledge of entrepreneurship development.

## **TARGET AUDIENCE**

Ranging from government agencies or policy initiators, entrepreneurs and enterprises, researchers and academia, users and intermediaries, this book will find its audiences across all corners of the society, especially those who are interested in finding innovative ways of doing business. In recent years, many countries have established research houses, universities are carrying out specific researches to promote innovative businesses, and private entrepreneurs are also not far behind in carrying out research upholding the concept of innovation, and therefore, the book will have an inherited target group among them.

## **ORGANIZATION OF THE CASEBOOK**

Incorporating twelve case studies, the book has been divided into three sections, government sponsored programmes and projects; public-private partnerships in innovation, and open and collaborative approaches in innovation. The book contains manuscripts focusing business practices using innovation strategies and upholding the main theme of the book, and effort has been given to accommodate case studies related to the small and medium sized enterprises. Emphasis has also been given to include the concept of open innovation, where applicable.

Chapter 1 is a case illustrating the use of municipal broadband to build a “digital city” across the Southwestern Greek city, Kalamata and repositioning the city through open innovation and creativity. The model of the first successful Greek digital city (“e-Trikala”) shows that the Digital City ICT applications can improve everyday life by simplifying public transactions in regional urban centers, reducing telecommunication costs, and delivering new services related to the local way of life. In this case study, Kalamata’s municipal leadership believes that a short-term promotion campaign for the benefits of city’s digitalization is enough to build a new image and personality for the city as an ideal location to visit, do business, and live. However, the author argues that the development of a short-term promotion campaign in order to achieve the repositioning of a city is a major strategic pitfall. He argued further that to achieve the goal, the municipal leaders must realize that transforming the city as an open innovative and creative city, needs a new philosophy. Furthermore, the achievement of such a strategic goal prerequisites an overall transformation of all the protagonists (from citizens to municipal administrators to entrepreneurs) as the

following strategic issues must be managed: the introduction of an open innovation model, the choice of an innovation scenario for the local economy, and the strategy in order to address the way of urban innovation through the municipal broadband infrastructure.

Chapter 2 presents a case of SMEs from non high-tech sector, which would normally find innovation more difficult to achieve than those who belongs to sectors with intensive R&D. The Users Association of Advanced Technologies of Israel is a national program that helps SMEs in searching, identifying, selecting, and implementing technologies, methodologies, and processes by reducing the resources required for that activity. The program lowers financial as well as managerial costs and allows SMEs to acquire the innovation they require, which they could not get from elsewhere. The initial concept of the program was meant for the selected SMEs, however; as the concept is becoming universal, the case study argues that the concept and basics can be adopted by other countries/regions. It can also be regarded as a risk mitigating program executed on behalf of SMEs.

Risk-Off Method is presented in Chapter 3, where it is mentioned that the method can be used to improve the quality of data and information on milk chemical safety. By taking this method as a model, it has been used by the National Plan for Control of Residues and Contaminants (PNCRC) of the Brazilian Ministry of Agriculture, Livestock, and Supply (MAPA). Authors argue that the SMEs, which notably lack internal expertise, could benefit from the Risk-Off method, given that SMEs worldwide contribute significant amounts of food to meet global needs. This case develops an innovative tool to help countries provide robust and transparent chemical safety guarantees for their food products.

To overcome the economic crises and global competition, enterprises are increasingly adopting newly developed ideas, concepts, and perceptions to fit into the scenery of business dimension from within and outside the boundaries of their entities, thus channeling the entrepreneurships through the paradigm of open innovation. The majority of the corporate business houses and large multi-national enterprises are competing or collaborating with a consensus of promoting value added products, processes, or services. However, a major portion of the business community, despite their justified contribution to economic growth and generation of employment, the sector belonging to the SMEs are not always in advantageous situations in the arena of open innovation, due to many factors. Chapter 4 provides some insight into the scenario by illustrating a few national contexts from developing countries (Bangladesh, China, India, South Africa, and Uganda). It has observed that countries ranked as developed economies are ahead in the race of adopting open innovation in their business development, while countries within the developing and transitional economies are struggling to fit into the race.

Chapter 5 is based on a case study from Portugal, discussing about a SME, Rvolta, working in the waste management industry for over 16 years. The case study addresses a network of partners working in various activities to disclose the underlying innovative spirit, strategy, and partnership structure. Objectives of the study are to portray and analyze a SME success case in open innovation, and clarify how knowledge creation and collaboration amongst different players in a network take place. The study finds interactions, networking, and partnership connections are important factors and indeed make a difference, thus enabling SMEs to innovate. This case evolved from an exploratory phase of an information systems PhD research, addressing open and crowdsourcing innovation.

Chapter 6 describes a case study referring to a project, namely DIscourse in COmmunity of practices through TEcnologies (DI.CO.TE.) from Southern Italy. The main scope of the project is to introduce “externality” as a concept able to introduce and develop innovative practices for SMEs for environmental, economic, and social sustainability. The case has analyzed focus group discussions and responses from questionnaires to explore various parameters of externalities, such as: how externality is conceived,

the interplay between a sense of community and a re-definition and negotiation of identity, the role of technology, the sense of belonging, and the propensity to collaborate. Data are analyzed through both thematic discourse analysis and quantitative frequencies analysis. Results show that entrepreneurs hold a multidimensional definition of externality, mediated by their professional and private experience. Ultimately, the reflection on externalities sustains a sense of innovation connected to multi-membership and to re-negotiation of the sense of identity. Authors argue that, within this framework, technology is conceived as a tool supporting the appropriation and sharing of externalities.

Value chain practices focus on market orientation of products and services, while products and services rely on processes included in the supply chain in order to contribute to the value chain. However, globalization, competition, and high cost of production influence the value chain imperatives. Thus organizations involved in the value chain are challenged with creation of innovative designs and establishing lean production scenarios. This challenge is more serious in the cases of SMEs. The rug industry in India is one example of such market behavior, and various SMEs are involved in this sector. Chapter 7 illustrates a case of rugs industry from India representing SMEs there whom are trying to adopt innovative designs through customer engagements utilizing ICTs. There are also efforts to use ICTs as a tool to innovate processes, products, and services to harness better returns on investment and to sustain business. In this case, the firm strives to manage innovation cycles to ensure development oriented value chain for the weavers, and ICT applications have been intrinsic to realize these efforts.

Nowadays, it is imperative for companies to integrate concepts like corporate social responsibility (CSR) and innovation into their strategies in order to be competitive. The first intervention helps to build trust in business by enhancing sustainable and inclusive growth, while the second initiative enhances market performance and profitability by transforming ideas into new and improved products, services, or processes. By analyzing the experience in Romania, Chapter 8 aims to provide insight into the relationship between SMEs' CSR activities and their economic competitiveness in the light of innovation, mandatory in times of economic crisis, and emphasize the idea that business as usual is no longer acceptable. The case is also describing the most relevant public actors engaged in this issue, the level of deployment of CSR among SMEs, as well as the characteristics of these activities.

Chapter 9 presents a project, namely "Casa do Conhecimento" (Knowledge House), evolved from a partnership between the Vila Verde Municipality, the University of Minho, and the Computer Graphics Center. It is a case on adoption of the open innovation in a public administration context, and it is from Northern Portugal. Illustrating a business model following the Triple Helix, Knowledge House is working as a municipal infrastructure, thus investing in information technologies, and a set of technological assets and associated services. The aim is to create a space to support creativity, innovation, and entrepreneurship as a local implementation of the Living Lab concept.

Recent years have seen the developments of the Internet, the proliferation of the use of Web 2.0 technologies, and new ICTs in general, and these are leveraging novel ways for people to communicate, collaborate, transact, and interact. This new world and these new markets, in a daily changing fashion, are enabling the emergence of new innovative enterprises and services by taking advantage of the new technologies and the global network. Chapter 10 is based on a SME, namely Cardmobili, a Portuguese start-up company working in the area of mobile services. The company provides mobile services to manage rewards and membership cards, enabling users to store them in the cloud, while using mobile applications to present them in store, collecting and using the rewards, and sharing cards and information with other users and friends in social networks. It is linked to merchants' loyalty management systems, enabling users to access exclusive offers, delivered to their mobile application and web account. The case

focuses on various services provided by the company including branding, new customer registration, integration of customer account balance, mobile vouchers, coupons and offers, and mobile communication.

Inovamais is an innovation consultant from Portugal, who has started using open innovation, years before its popularization. The founding motivation was to enable the connection of academic and entrepreneurial worlds focusing on entrepreneurship and their needs with emphasis on SMEs. The company works within both the worlds, by turning universities' intellectual assets into commercially attractive knowledge, and helping enterprises to search external resources for their innovation processes. Chapter 11 is providing some illustrations over the role and services of an intermediary of open innovation in the current innovation landscape. The case presents a business model on intermediation of open innovation, discusses the cultural, managerial, and political challenges and problems that have been identified and dealt with during the period of work at the Portuguese and European levels.

Collaboration and e-collaboration are now among essential necessities for firms to develop. The time is gone when a firm could stand alone in the market warding off the competitive pressures from other rival firms. But, in these days, the competitive forces of globalization alone are significant drivers to enable collaboration amongst rivals. The advantages of collaboration and e-collaboration for SMEs are profuse, thus providing small firms a measure of economic security in a world where many industries face hyper-competition, particularly from countries with very low costs of labor. In discussing the nature and advantages of e-collaboration, the need for an e-collaboration champion becomes apparent. Based on these scenarios, Chapter 12 discusses on e-collaboration from the perspective of various Australian SMEs and presents a model for the successful e-collaboration championship. In so doing, it discusses the multiple roles a champion must embrace and also put forwards various issues and challenges that are contingent to these roles.

## CONCLUSION

In a very near future, the days are not too far away when a majority of the world population will enter into the arena of knowledge economy. Entrepreneurship, depending on virtual connotation will grow, and especially, businesses incorporating open innovation strategies will flourish, specifying trust, confidence, competition, interaction, and sharing, leading to value gain. In spite of availability of cases and practices in the aspect of SMEs development through open innovation, this book has tried to accommodate a few exceptional cases covering various business dimensions. It is expected that these cases will assist readers in understanding the business processes related to this field and encourage others to carry out further research to find potentiality of open innovation in future entrepreneurship.

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