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Open Innovation Mill: Utilization of Nokia's Non-Core Ideas

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Abstract

The Innovation Mill (IM) is an initiative which has been established in collaboration mainly among Nokia Corporation, Technopolis, and Tekes. Nokia Corporation provides its non-core ideas to other existing and start-ups companies through IM to turn these ideas into valuable products and services. Nokia's idea database consists of enormous number of ideas that are non-core to it. Companies earn gratuitous licensing of ideas from the Nokia Corporation. This study explores the IM case to understand the insights of the initiative. IM case can be a learning lesson for other large companies who have unused ideas that can have commercial value if those ideas are given to various pertinent external companies. Moreover, this study raises some important issues which are pivotal to explore so that IM grows successfully.

Keywords: Ideas, Innovations, Innovation Mill, Non-Core, Open Innovation, Nokia, Ideas

1. Introduction

Neither all ideas are brought out in the market nor do ideas which are brought out in the market become successful. Only a fraction of ideas turn into profitable accomplishment. However, the ideas which are not brought to the market can be turned into commercial products and services by other companies. Large companies generate numerous ideas to make their business profitable and to go beyond competition. Only a few of the ideas generated in a large company come to the target market. Most of the ideas remain idle or die out silently. These idle or die out ideas can be valuable for other companies who have different business strategy. Giving away these ideas to other companies can also bring benefit to the idea generating companies.

Nokia Corporation is a Finland based company. It is a leader in the mobile device market. Technopolis provides business environments and services for knowledge-intensive companies and organizations in Finland (Technopolis

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2010a). Its service portfolio ranges from comprehensive business and development services to modern premises. There are around 1,200 companies with 16,000 employees operate in the Technopolis centers in Espoo, Jyväskylä, Kuopio, Lappeenranta, Oulu, Tampere, and Vantaa in Finland, and in St. Petersburg in Russia. Tekes - the Finnish Funding Agency for Technology and Innovation- is the main government funding and expert body for research and development (R&D) and innovation in Finland (Technopolis 2010a). It finances industrial research and development projects and universities and research institutes projects. Around a half of its funding is channeled through diverse range of programs (Technopolis 2010a). Nokia, Technopolis and Tekes - the Finnish Funding Agency for Technology and Innovation- launched an initiative called Innovation Mill (IM) (Smrcka, 2011). The aim of IM is at strengthening Finland's information and communication technology (ICT) cluster and inspiring Finnish companies to develop globally competitive products and services (Smrcka, 2011). It takes ideas that are no longer required for Nokia and provide them to companies across Finland, who might have ability to turn them into valuable products and services (James, 2009). The Nokia Corporation has granted to transfer its rights to companies that convince the evaluation board of their ability to create value from the Nokia's unused ideas. The Nokia's ideas and innovations database consists of patents and patent applications with demonstrations and validated idea descriptions. In March 2009, Nokia, Tekes and Technopolis (NTT) kicked-off the IM program that would turn thousands of Nokia's unused non-core ideas into commercial products and services (Innovation Mill, 2012). It is a unique example of open innovation. The open innovation concept coined by Chesbrough (2003) is relatively new and the IM concept is a very new dimension of open innovation paradigm which means the use inflows and outflows of knowledge purposefully to accelerate innovation. This paradigm assumes that there are always smarter people out there and firms can and should use both internal and external ideas and paths to advance their technologies (Chesbrough et al., 2006).

IM is unique in a way that the owner (Nokia Corporation) of the ideas does not get financial benefits for giving ideas out. Moreover, Nokia considers IM program as a part of its corporate responsibility (Suomi, 2011). The IM initiative has created a business model by offering the participating Finnish companies funding and business development services, and potential successful innovations (Technopolis, 2010). It is searching for innovative companies that can turn Nokia's non-core ideas into new success stories. The objective of IM is to generate around a hundred business projects (Silverang, 2011). IM is considered as a new growth vehicle for the Finnish technology companies. Moreover, Technopolis promises to provide resources and networks for participating companies to evolve their innovations into global solutions. IM recycles Nokia's non-core ideas to give them new lease of life for Finnish companies to tap into world class product and service innovation (James, 2009). IM enables the businesses involved to benefit from the contribution without giving any return to Nokia (James, 2009).

Nokia has many business ideas and projects which have to cancel at some point and cannot be further developed, due to many reasons and circumstances, even though these could hold a significant potential. So, taking up some of these 'unused' ideas in another business context may have significant business for other companies (Suomi, 2011). There are around 4 000 drafts of business ideas and innovations available in the central Nokia database (Suomi, 2011). Nokia does not use these considering that these are non-core ideas (Suomi, 2011). On the other hand, other companies have no access to these ideas (Suomi, 2011). IM gives opportunity to the applicants who can make these ideas into profitable business (Suomi, 2011). Moreover, Tekes offers a grant of up to € 75,000 to the applying party provided that the applying party has significant self-financing for the applied ideas. Tekes, in general, holds monthly meeting for financing innovation mills related projects. The funding is planned to allocate for the activities such as integration of the new ideas into the existing technology, market studies, pilot runs and business development, etc. (Suomi, 2011).

The purpose of this study is to evaluate the success of IM through evaluating its different activities. To the best of the author's knowledge, Innovation Mill is the first of its kind body. Thus, exploring innovation mill is expected to help us to get insights so that it can be implemented by other context, in another industry to utilize unused ideas and innovations of global companies by other relatively smaller firms. Further research should show whether this trend persists or whether some companies have good reason for not exploiting their knowledge externally. The remaining part of the paper is structured as follows. Section two describes open innovation and licensing ideas out briefly. Section three IM and its salient activities to understand how IM functions and the relation among the stakeholders. Section four includes the process of IM program along with a schematic illustration of different activities. The success of the IM program has been depicted in section five. Finally, conclusion is drawn in the section six.

2. Open Innovation

The speedy race of technological change, globalization, and increasing user sophistication means that more and more changes will take place in the innovation realm. Companies are growingly changing the ways in which they generate and bring ideas into the potential market (Chesbrough, 2003). The concept of open innovation assumes that knowledge is widely distributed, and companies should aim to identify, collect and leverage external ideas no matter how strong internal R&D of a company is (Chesbrough et al. 2006). According to Dahlander and Gann (2010), the concept of open innovation means that valuable ideas emerge and can be commercialized from inside or outside of a firm. Enkel et al. (2009) believe that companies should emphasis on both closed and open innovation and consider a more open innovation approach rather than complete shift toward openness. Open innovation has already been proven as a beneficial concept for companies in theory and in practice (Dodgson et al., 2006). Innovative ideas are very scarce while market opportunity, time to take out an idea into market, networking for an idea, etc. are becoming increasingly challenging.

Previously, internal idea generation was a fundamental necessity. However, numerous large companies conduct little internal R&D instead they acquire new ideas from outside and market these ideas in various channels. Companies such as Cisco, Nokia, and Dell acquire ideas from outside by partnering with other companies. Huizingh (2011) classified open innovation into two main groups based on their paths: inbound and outbound. Inbound refers to internal use of external knowledge and outbound open innovation refers to external exploitation of internal knowledge. In open innovation approach, Gassmann and Enkel (2004) recognized that companies practice three archetypes of core processes: (1) the outside-in process – to enhance the company's own knowledge base through the integration of suppliers, customers and external knowledge sourcing that may increase its innovativeness, (2) The inside-out process - to profit through taking ideas to market, selling intellectual properties (IPs) and multiplying technology by transferring ideas into the outside environment, (3) The coupled process - combining the previous two processes i.e. coupling the outside-in and inside-out processes through alliances with complementary partners in which give and take is crucial for success. However, there is no clear understanding about how and when to utilize inside-out and outside-in processes to achieve optimum balance (Enkel et al., 2009). The multiplication of ideas to gain increasing return is considered as an important characteristic of open innovation (Gassmann and Enkel, 2004). Open innovation is mainly used in product and process innovation. Although, its role in service sector is growing enormously, literature lacks adequate studies on open innovation in the service sector context (Gassmann et al., 2010). The open innovation implementation process in practice is an issue that still unknown (Chiaroni et al., 2011). On the other hand, critics claim that open innovation is not a new phenomenon (Trott and Hartman, 2009).

The processes of knowledge exploration, retention, and exploitation can be performed either inside or outside a firm's boundaries (Lichtenthaler and Lichtenthaler, 2009). Recent studies reveal that companies are more involved with inbound than outbound activities (Bianchi et al., 2011; Cheng and Huizingh, 2010). Bianchi et al. (2011) find three inbound and outbound activities: (1) Licensing agreements (in and out), (2) Non-equity alliances, and (3) Technical and scientific services (purchase and supply). In many cases, companies fail to capture potential benefits from their large magnitude of ideas (Lichtenthaler, 2010). Large companies have many ideas which do not reach a market ever. For example, it is reported that Procter & Gamble utilize only 10 percent of its technologies (Huston and Sakkab, 2006) whereas Motorola's estimated value of licensing out is approximately $10 billion annually (Lichtenthaler, 2007). There are, at least, several pertinent reasons for external under exploration: fear to lose control, diminishing competitive advantages and giving away corporate ideas (see e.g., Rivette and Kline, 2000; Kline, 2003).

Market is changing very swiftly through the advent of new technologies. Thus, ideas which are not implemented promptly faded away. The outbound transfer of ideas has very recently become an important issue of corporate strategy (Kim, 2009; Murovec and Prodan, 2009; Spithoven et al., 2010; Veugelers et al., 2010). Licensing ideas out has, at least, monetary (through revenue) and strategic (competitive positions) benefits (Kollmer and Dowling, 2004) and higher brand image. Moreover, the strategic benefits strengthen product market position and enhance technological position (Nagaoka and Kwon, 2006). Additionally, the growing convergence of various technology and increasing R&D expenditures persuade companies to identify new ways to achieve adequate return on their R&D investments (Chesbrough, 2003). There seems to have changing pattern in the corporate culture for licensing out or giving away ideas. More recently, Nokia Corporation has given out many of its ideas freely as these ideas are non-core and Nokia is unable to use these profitably.

3. Innovation Mill Model

Nokia Corporation has various kinds of ideas. The ideas mainly consist of applications, services, and products (James, 2009). As a large corporation, Nokia has many business ideas and internal projects which have to cancel at some point and cannot be further developed due to many reasons and circumstances, even though these ideas may have significant commercial potential. So it is beneficial to take these "unused" ideas in another business context – for instance in a different business context. The IM initiative has explores this route and started a three-year program.

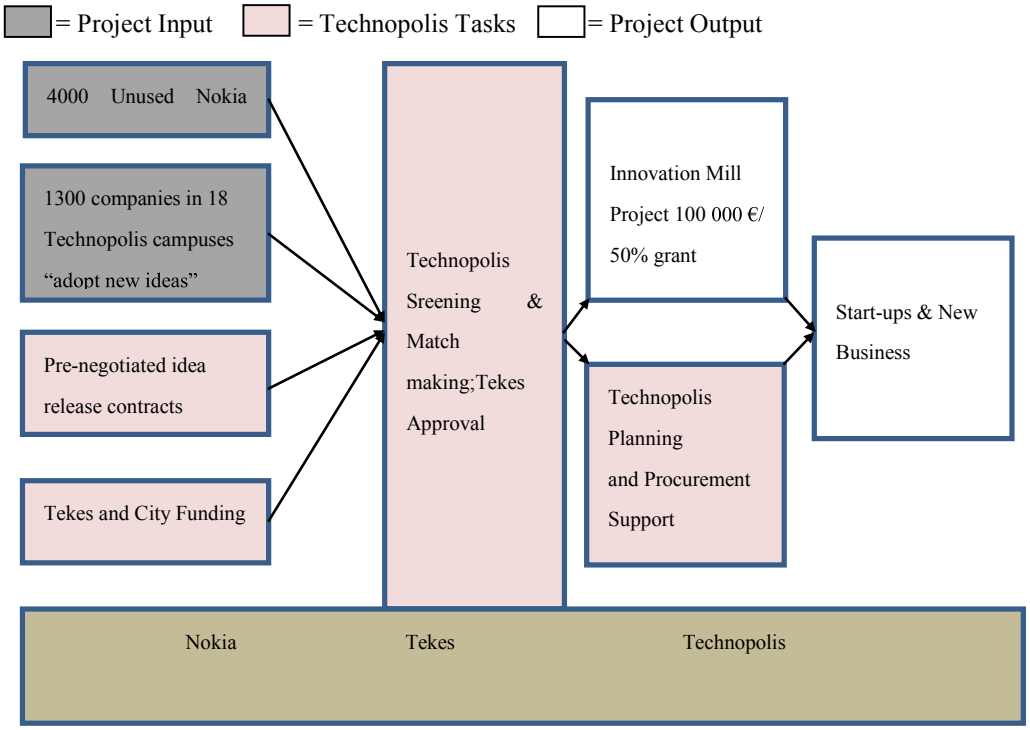

Figure 1. Stakeholders of IM and their Inter-relationships (Technopolis, 2010b)

The purpose of the 3-year program is to convert Nokia's unused ideas into profitable businesses through founding new companies or integrating these ideas into the selected Finnish ICT companies for further development and exploitation. All the related development, results, materials, deals and know-how have been transferred from Nokia to other companies with a gratuitous licensing deal. At the same time, a team was merged with the company, bringing smart metering and energy efficiency know-how to the corporation. Nokia is in the fore front of the structure of IM. It provides its unused ideas which Technopolis does screening and matching. Tekes and city authorities are the funding sources. Thus, Nokia, Tekes, and city authorities provide input to the project and the output of the IM project is start-ups and new businesses. Moreover, participating companies can utilize Technopolis' resources and networks to evolve their innovations into global success.

4. Innovation Mill Process

IM has a very systematic process from the beginning of idea collection to making them commercial success. It makes assumption on each idea and screens them very carefully. At the establishment stage, Nokia has great influence in the success of the venture (Silverang, 2011). If any idea seems to have commercial value and matches the requirements necessary for all the stakeholders, it goes to immediate agreement as per readily available templates. IM applies for necessary funding primarily to Tekes which gives approval relatively quicker than funding given to other applications. Tekes considers the applications from IM very carefully. Once an idea received funding approval from Tekes, IM

procures services necessary from third parties. Finally, any particular idea goes into any one of three places: new start-up, existing company or rejection. IM expects an idea to flourish within three years from the inception.

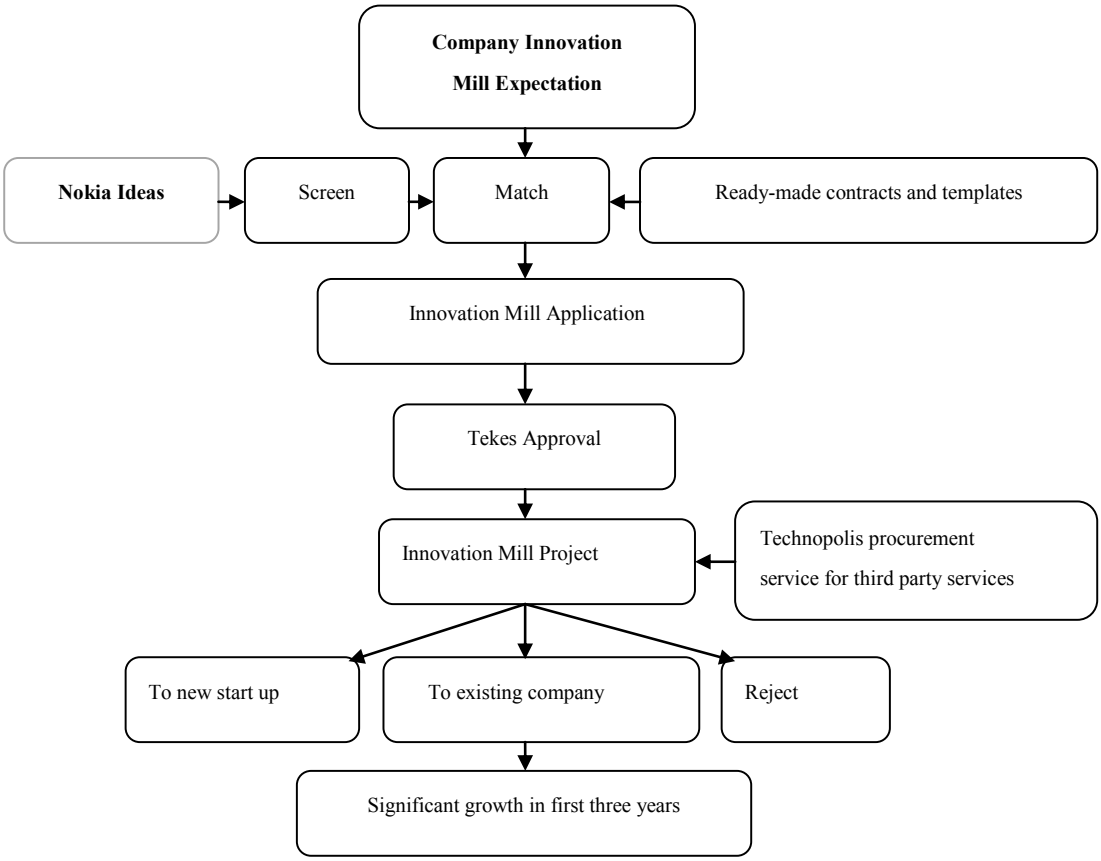

Figure 2. Schematic View of Innovation Mill Process (Technopolis, 2010b)

IM has a well-organized application process for the potential companies who are willing to adopt any of the ideas for commercial purpose. Potential companies and Nokia sign-in non-disclosure agreements for mutual co-operation. Nokia provides permission to utilize the ideas in a condition that the ideas can be used in parallel by more than one company. Companies with the help of Technopolis, prepare project plan. The next step for the potential companies is to prepare and present a business plan on which Tekes decides whether a project is to be funded or not. A business plan should include project impact on business and project impact on growth, among others. The contents that are considered for evaluation of a project are mainly of two aspects: technical and commercial. Technical aspects include technical specification for the new product, user interface, interface design, systematic test design, demo, production plan, etc. Commercial aspects include market study, competitor analysis, sales and marketing plan, business plan, project plan for the next project, financial plan, partnership negotiations, contract and other legal study and planning.

5. Success of the Innovation Mill

IM initiative has crowned the main prize in the community category of the Productive Idea 2010 competition, which gives recognition to innovations and new ideas. Business ideas which are identified and assessed as suitable for an applying party can get financed by Tekes with a grant of up to € 75,000. However, applicants need to provide a significant portion as self-financing for their projects. There are a good number of themes in each areas: (1) Near Field Communications, (2) Environmental and Energy Related Solutions, (3) Health Care and Well Being Applications, (4) Location-based Services, (5) Mobile Security, and (6) Future Internet Services, etc. (Innovation Mill, 2012). The ideas are presented on ready-made project templates that are provided free of charge. Tekes has reserved a budget of at least € 5 million for the years 2009-2011 for co-financing projects under the "Innovation Mill" program. The funding can be used for activities such as integration of the ideas into the existing technology, market studies, pilot runs and business development, among many others. IM initiative has been assessed at half way of its three year journey.

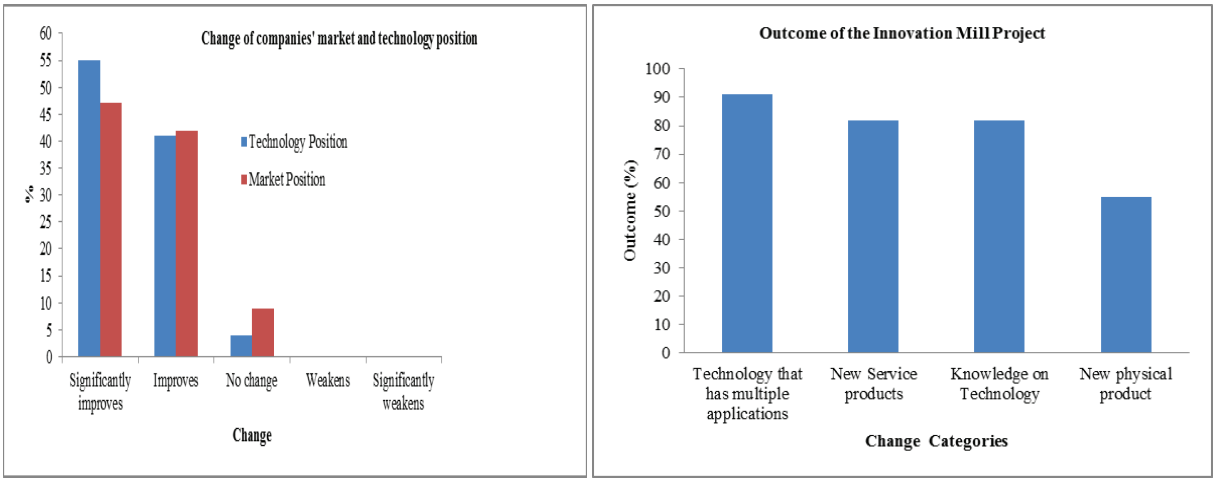

Figure 3 Change of companies' market and technology position and outcome of Innovation Mill (Technopolis, 2010b)

In the interim assessment, it reveals that the project has been succeeded in building a new kind of Finnish operation model for creating new businesses, products, and services (Silverang, 2011). IM went through over 1000 ideas and around 100 of these ended up as part of the initiative. In the first year of the three-year initiative, fourteen new businesses were created (Smrcka, 2011). Within first 18 months of IM, over 4000 ideas have been screened; more than 100 ideas have found matching with entrepreneurs and companies, 27 ideas were submitted for further development, 29 new development projects initiated (Tekes, 2010). Moreover, 450 companies have shown their interest of utilizing the idea database to develop new products and services (Suomi, 2011). By the end of 2011, IM has generated 18 new companies and around 200 new jobs across Finland. Four million euros of financing has been granted to 36 projects. It shows how unused non-core ideas in a major corporation can, with proper support, be refined into worthwhile and interesting businesses. IM helps to generate a new national intent. It is considered as a unique co-operation model where financing and productization are effective and quick to generate new Finnish success stories in the long term (Silverang, 2011). Ten partner cities of Technopolis support the financing arrangement. In the first 18 months, the project portfolio generated a value of about € 13 million, of which about € 10 million were provided by venture capitalists and business angels (Suomi, 2011). An interim evaluation revealed that around 90% of the participating companies believed that the participation in the project had significantly improved their market or technology

positions (Suomi, 2011). More than 50% of the projects have developed new physical products (Suomi, 2011). In some cases, Tekes has been able to make financing decisions in a week for the companies involved with IM program whereas regular entrepreneurs can rarely think of it (Vilpponen, 2010). Thus, Nokia supports Finnish companies and helps them to be competitive in an international scale (Tekes, 2010).

6. Conclusion and Managerial Implications

IM is a unique body and any example of this kind is unheard of. It is a three-year project started in 2009. This initiative gets credit for numerous commercial successes of ideas by launching new start-up, improving service, along with over 200 people's employment. The IM is an example of open innovation. Open innovation concept generally encompasses spin-off, licensing out, licensing in or inbound and outbound flows of technology and information. Thus, companies consider open innovation aiming to gain some kind of competitive advantage in their business. In contrary, IM project is driven by the Nokia's generosity to give out unused ideas to other companies as part of its social responsibility. This Nokia's initiative could be a great lesson for other large companies and policy makers across the world. The successes of the companies are still not fully perceivable. It requires several years to understand the success of IM initiative as any idea takes a considerable time to be successful. Moreover, if there is a better way of financing could be an interesting study. Could these ideas can be combined with ideas from the other large companies to get better commercial success is a crucial issue to explore in future. How to measure the values of IM initiative in a vivid and tangible manner is also an important factor to explore. It is crucial to consider possible market expansion of any idea to be commercially successful. The ideas IM uses are only from Nokia Corporation. Potential of merging these ideas with other ideas even from small companies could be a new field in future. It seems very essential to explore how ideas are performing in the target market, reasons for their success and failure. Additionally, understanding the companies' perceptions on the IM's overall performance could be an interesting and valuable future study. This IM initiative can be a classic example for large companies, policy makers, politicians, economists, small companies, etc.

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References

Bianchi, M., Cavaliere, A., Chiaroni, D., Frattini, F. & Chiesa, V. (2011), Organisational modes for Open Innovation in the bio-pharmaceutical industry: An exploratory analysis, *Technovation*, 31, 22-33.

Cheng, C. & Huizingh, K. R. E. (2010), Open innovation to increase innovation performance: evidence from a large survey, In: Huizingh, K.R.E., Conn, S., Torkelli, M., & Bitran, I. (Eds.), 2010. Proceedings of the XXI ISPIM International Conference, Bilbao, Spain, June 6–9.

Chesbrough, H. (2003), Open Innovation: The New Imperative for Creating and Profiting from Technology, Harvard Business School Press, Boston.

Chesbrough, H., West, J. & Vanhaverbeke, W. (2006), Open Innovation: Researching a New Paradigm, Oxford: Oxford University Press.

Chiaroni, D., Chiesa, V. & Frattini, F. (2011), The Open Innovation Journey: How firms dynamically implement the emerging innovation management paradigm, *Technovation*, 31, 34-43.

Dahlander, L. & Gann, D. M. (2010), How open is innovation? Research Policy, 39, 699-709.

Dodgson, M., Gann, D. & Salter, A. (2006), The role of technology in the shift towards open innovation: the case of Procter & Gamble, *R&D Management*, 36, 333-346.

Enkel, E., Gassmann, O. & Chesbrough, H. (2009), Open R&D and open innovation – exploring the phenomenon, *R&D Management*, 39, 311-316.

Gassmann, O. & Enkel, E. (2004), Towards a theory of open innovation: three core process archetypes, Proceedings of The R&D Management Conference, Lisbon, Portugal, July 6-9.

Gassmann, O., Enkel, E. & Chesbrough, H. (2010), The future of open innovation, *R&D Management*, 40, 213-221.

Huston, L. & Sakkab, N. (2006), Connect and Develop: Inside Procter & Gamble's New Model for Innovation, Harvard Business Review.

Huizingh, K. R. E. (2011), Open innovation: State of the art and future perspectives, *Technovation*, 31, 2-9.

Innovation Mill (2012), Open Innovation with Nokia, Technopolis, Tekes and Technopolis Cities, Available at http://www.technopolis.fi/development_services/innovation_services [Accessed on 15.02.2012].

James (2009), Nokia Technopolis Innovation Mill: giving good ideas a chance, Available at http://conversations.nokia.com/2009/05/12/nokia-technopolis-innovation-mill-giving-good-ideas-a-chance/ [Accessed on 15.02.2012].

Kim, Y. J. (2009), Choosing between international technology licensing partners: an empirical analysis of U.S. biotechnology firms, *Journal of Engineering & Technology Management*, 26, 57-72.

Kline, D. (2003), Sharing the corporate crown jewels, *MIT Sloan Management Review*, 44, 89-93.

Kollmer, H. & Dowling, M. (2004), Licensing as a commercialization strategy for new technology-based firms, *Research Policy*, 33, 1141-1151.

Lichtenthaler, U. & Lichtenthaler, E. (2009), A capability-based framework for open innovation: complementing absorptive capacity, *Journal of Management Studies*, 46, 1315-1338.

Lichtenthaler, U. (2010), Technology exploitation in the context of open innovation: finding the right 'job' for your technology, *Technovation*, 30, 429–435.

Lichtenthaler, U. (2007), The drivers of technology licensing: an industry comparison, *California Management Review*, 49, 67–89.

Murovec, N. & Prodan, I. (2009), Absorptive capacity, its determinants, and influence on innovation output: cross-cultural validation of the structural model, *Technovation*, 29, 859–872.

Nagaoka, S. & Kwon, H. U. (2006), The incidence of cross-licensing: a theory and new evidence on the firm and contract level determinants, *Research Policy*, 35, 1347–1361.

Rivette, K.G. & Kline, D. (2000), Rembrandts in the Attic: Unlocking the Hidden Value of Patents Harvard Business School Press, Boston.

Silverang, K. (2011), Nokia Technopolis Innovation Mill to be presented at the UK Nordic Baltic Summit in London, Available at http://www.tekel.fi/in_english/newsroom/?x95030571=96364180, [Accessed on 15.02.2012]

Smrcka K. (2011), 'Innovation mill' reshaping Finnish business models, Available at

http://www.engineeringnews.co.za/article/innovation-mill-reshaping-finnish-business-models-2011-07-29 [Accessed on 22.03.2012]

Spithoven, A., Clarysse, B. & Knockaert, M. (2010), Building absorptive capacity to organise inbound open innovation in traditional industries, *Technovation*, 30, 130-141.

Suomi, R. (2011), Finland: The "Innovation Mill" project by Nokia and Technopolis, Available at http://www.proinno-europe.eu/inno-grips-ii/newsroom/finland-innovation-mill-project-nokia-and-technopolis [Accessed on 23.02.2012]

Technopolis (2010a), In a year, nokia technopolis innovation mill created more than 100 jobs and Enabled more than €5m in angel and venture capital funding, Available at http://www.euroinvestor.com/news/2010/05/06/in-a-year-nokia-technopolis-innovation-mill-created-more-than-100-jobs-and-enabled-more-than-5m-in-angel-and-venture-capital-f/11045951 [Accessed on 17.02.2012].

Technopolis (2010b), Nokia Technopolis Innovation Mill™, Available at http://ec.europa.eu/enterprise/policies/sme/best-practices/charter/2011-sba-conference-budapest/files/speakers/presentations/wsg_jokinen_en.pdf [Accessed on 17.02.2012].

Tekes (2010), Nokia Technopolis Innovation Mill created new jobs and companies, Available at http://www.tekes.fi/en/community/a/482/b/1344?name=Nokia+Technopolis+Innovation+Mill+created+new+jobs+and+companies [Accessed on 23.02.2012].

Trott, P. & Hartmann, D. (2009), Why 'Open Innovation' is old wine in new bottles, *International Journal of Innovation Management*, 13, 715-736.

Veugelers, M., Bury, J. & Viaene, S. (2010), Linking technology intelligence to open innovation, *Technological Forecasting & Social Change*, 77, 335-343.

Vilpponen, A. (2010), 12 New Startups and 120 Positions Created with Nokia Technopolis Innovation Mill, Available at http://www.arcticstartup.com/2010/05/12/12-new-startups-and-120-positions-created-with-nokia-technopolis-innovation-mill [Accessed on 21.02.2012].