

Coversheet Information for Submission

(send your full paper and coversheet to iasp2011papers@iasp.ws)

Full Paper for the XXVIII IASP World Conference on Science and Technology Parks, 2011	
Title of the Paper:	Creating Business with Strategic Innovation Management: how STPs can contribute to the next generation of competitive companies by incorporating innovation advice as a strategic tool.
Session for which the Steering Committee has provisionally allocated the abstract:	Parallel Session 2 Theme: Managing people & Performance
Length of the paper:	4715 words
Author *	
Given Name:	Helena
SURNAME:	KARLSSON
Position:	PhD student
Author's E-mail Address:	helena@munktellsciencepark.se
Organisation:	Munktell Science Park
Mailing Address:	Portgatan 3, SE-63342, Eskilstuna, Sweden
Phone (with Area Code):	+46 70 10 46 004
Fax (optional):	+46 16 550 00 99
Co-author(s) **	
Given Name:	Mikael
SURNAME:	Johnsson
Position:	PhD student
E-mail Address:	Mikael@munktellsciencepark.se
Organisation:	Munktell Science Park
Mailing Address:	Portgatan 3, SE-63342, Eskilstuna, Sweden
Phone (with Area Code):	+46 70 10 46 002
Fax (optional):	+46 16 550 00 99
<input checked="" type="checkbox"/> I confirm my ability to present my paper in English	
<input checked="" type="checkbox"/> By submitting my Full Paper I authorise the Conference Organisers to publish it in the Conference Proceedings (if the Paper is approved by the Steering Committee).	
Date:	2011-02-18

Signature:

Helena Karlsson

* Please use capital letters for the surname. (Examples: Fred SMITH, KASHIMA Yoshio).

IASP 2011 Copenhagen (XXVIII World Conference) - Full Paper
Creating Business with Strategic Innovation Management: how STPs can contribute to the next generation of competitive companies by incorporating innovation advice as a strategic tool.

H.Karlsson^{1*}, M.Johnsson¹,

¹Munktell Science Park, Eskilstuna, Sweden

*Corresponding author: helena@munktellsciencepark.se

EXECUTIVE SUMMARY

To be able to meet radical changes in market and technology in a successful way there is an urgent need for a more strategic approach to innovation in established companies. This is a need that can be addressed at two fronts; with a reactive approach towards established companies who need an active implementation of strategic innovation in their overall business strategy. With a proactively approach that aims to help start-ups to form a business, better prepared to work with contingent innovation in a strategic manner. First this paper describes the current state of innovation of two Swedish SMEs with focus on how the companies relate to innovation from a strategic point of view. Second it discusses if, and possible how STPs could offer strategic innovation support to established as well as companies in their early startup phases to build a strategic innovation platform in those companies to contribute continuous innovation.

Definitions

Innovation is by nature a multidisciplinary area where active practitioners as well as scientists have their origin in a wide range of disciplines. With this follows a broad range of varying approaches to innovation that sometimes result in a fuzzy and fragmented picture that complicates both understanding and communication of innovation. This article therefore begins with the definition of some central words and concepts. Let us start with the word innovation in itself.

Innovation - “the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations” (OECD, 2005).

The word innovation is often associated with technological inventions and most often with product inventions of technical nature. Technical product inventions can become innovations but does not necessarily have to and innovations are not limited to products.

An innovation could actually be anything that is new e.g. new products, services, processes, business models or even a recombination of something that already exist. That something does however consist an element of novelty to be considered an innovation. The degree of novelty does however vary greatly from innovation to innovation, innovation range from incremental to radical. Where incremental innovations in the lower end of the spectrum are improvements or further developments of something already known while we on the higher end of the spectrum find radical innovations that brings something radically new to the world.

Common to all innovations, regardless of sort and degree of novelty, is that they are not considered to be innovations unless they have been implemented and reached success on their market. An innovation is thus something new that has been successfully taken from concept to market.

Strategic innovation - strategic innovation is often used as synonymous with radical innovation. Here strategic innovation is used in the sense of “strategically planning and executing innovation in a way that supports the companies overall business purpose and goals as an integrated part of overall business strategy”.

Strategic innovation can by other word include both radical and incremental innovation if both kinds of innovation supports the companies overall business purpose and goals. If so, activities that support both incremental and radical innovation needs to be strategically planned for.

Innovation investments - all kinds of short- and long-term investments in innovation.

This means innovation investments could be both direct monetary investments, e.g. wages for development teams, risk capital or investments in prototypes, but could also be indirect monetary investments as e.g. time for employees outside development teams to work with conceptualisation, education in areas outside current innovation areas, customer co-development, foresight planning and so on.

Innovation activity - all kinds of activities that promote innovation as well as innovation revenue, e.g. searching innovative opportunities, knowledge development and co-

development of innovative ideas, prototyping, market introduction

Innovative firms - here used synonymous with firms that consciously manage and innovate repeatedly.

Innovation space - market space that is potentially available for innovation. Could be space enough for larger innovations but also small but easy to access spaces connected to other products or services e.g. adding a new business model to a existing product.

Background

Innovative companies have showed to be more successful than non-innovative ones. Research show for an example that they are more successful both in terms of revenue and growth. Therefor increased overall innovation capability and a good mix of innovation that strategically contributes the overall goal and purpose of a company is to be strived for.

Unfortunately both established companies and start-ups often have a short-term perspective on innovation. Entrepreneurs who are the driving force of start-ups are often the ones who build businesses around innovative ideas. Two true but critical asset of many start-ups that unfortunately goes hand in hand with two innovation related problems. First its well known that entrepreneurs often are not interested nor suited to operate a business in more mature phase where maintenance have become a major part of management focus. Second is that even though demands from e.g. venture capitals and support from STPs often drives a structured and strategic business planning no or low focus is set on forming an business built to foster contingent innovative behavior. Building in a innovative mindset in the organization is crucial if you want it to repeatedly bring innovations to the market which can be a very obvious lack or strength after the entrepreneur have left the company or the innovative core of a start-up have grown mature.

Research shows that mature firms often tend to be trapped by their own excellence and mainly innovate incrementally e.g. to meet demands of existing customers and to preserve the use of their excellence.¹ Markides mean that more radical innovation requires creation of new competences and business models that break the rules of the industry.² To be able to do this there is a need of change in mental maps of managers.³

Earlier studies and experience from the industry does also indicate that there is a general lack of strategic consciousness when it comes to how innovation is managed in established SMEs. Development of new innovative ideas is often managed in a short-term perspective, customer initiated and executed in a manner substantially similar to traditional project management. Innovation specific issues as well as available innovation space of e.g. future or non-technical character to a high extent is left unaddressed.

Previous research shows that it often takes a major crisis to force mature companies to step out of their comfort zone and reject status quo, relocate resources and aim for more radical innovation.⁴ Unfortunately does an ongoing crisis provide, maybe, the worst thinkable conditions for a strategic change. Organizations who wishes to avoid such bad conditions and late changes but still wants to be able to meet future demands in a successful way needs

¹A Braganza and J Ward; C.D. Jacobs and L-Th. Hereacleous

²Markides

³C.D. Jacobs and L-Th. Hereacleous

⁴R. Chapman Wood

to monitor its strategic health continuously. Doing that helps those companies to construct destabilizing challenges that create positive crises.⁵ To be able to do that it is important that companies have a dual strategic focus where strategic planning for excellence of today as well as tomorrow is managed in parallel.⁶

Research shows that companies need to be rather innovation mature to be able to evaluate and increase their innovation ability on their own.⁷ Results from earlier studies do also indicate that companies promote from an external innovation driver or facilitator when implementing a more active approach towards innovation⁸. The effects of the presence of an innovation facilitator have sometimes even showed to have larger impact on the company than the actual auditing provided by the facilitator⁹.

The question is if Science and Technology Parks (STP) often have a central role in the innovation system can strengthen their offer and contribute to the next generation of competitive companies by incorporating innovation advice as a strategic tool.

Scope

With reference to experience from the industry, previous research and a survey with 21 Swedish STPs this paper describe and discuss the results from a current state survey. The survey where used to audit the innovation awareness and management efforts in two Swedish SMEs.

Purpose

Purpose of this paper is to describe and discuss the current state of innovation in the participating SMEs with focus on how the companies relate to innovation from a strategic point of view. Further will it be discussed if, and possible how STPs could offer strategic innovation support to established as well as companies in their early startup phases to build a strategic innovation platform in those companies to contribute continuous innovation.

Objectives and contribution

The aim of this paper is to discuss if, and possible how, STPs can strengthen the impact of their support to established companies as well as start-ups by incorporating strategic innovation advice as part of their offer to them. The paper will primarily contribute to those who work with innovation support or business development by focusing on the need of a strategic approach to innovation.

Method

As part of a larger project a descriptive study have been done at two Swedish SMEs, Company A and Company B. The selection of companies was done by that they would be in different businesses, having their own production and located in Eskilstuna, Sweden. The companies would also be interested in developing an more innovative structure to the company. Another reason for studying companies located in Eskilstuna was to be nearby Mälardalen's University for which the author belongs to.

Participants - Company A is one of the leaders in their niche of components in the car manufacturing industry and their customers are spread all over the world. Company B is

⁵ Markides

⁶ D.F. Abell

⁷ E. Hallgren

⁸ E. Hallgren; M. Johnsson

⁹ E. Hallgren

an electronics consultant, which develops and produces electronic components to be built in other products. The authors met the CEOs at both companies to explain how the survey would be managed. Audits and interviews were conducted with both management and personnel from different departments within the companies. The CEOs choose all personnel to participate in the survey and the authors had no impact of the selection, nor didn't they know anyone in person before the survey. According to the method strategy, the authors were focusing at working areas and not on gender or age. The purpose with this method was to collect as broad information and knowledge as possible from the companies. At company A did 11 people out of a total staff of 65 participate and at Company B did 10 people out of a total staff of 38 participate, at both companies there were a mix of management and personnel according to innovation models which support the involvement of "the whole" company into the innovation process. By involving them in the survey the authors assumed to get a true picture of the current innovation state.

Interview supported innovation audit -In order to identify a current state of innovation the authors chose to use a pre-developed audit. The audit is developed by Tidd and Bessant (Tidd and Bessant, 2009) and the audit headline is "How do we manage Innovation". There are a lot of research developed innovation audits available with large internal similarities. Internal differences between different audits targeting the same area often seems to be off less importance than the fact that they provide a structured base for discussion and evaluation. This means that a number of audits are likely to be equally useful. This audit was chosen because it is part of a comprehensive theoretical context developed by well-reputed scientists with long experience from academia as well as industry that the researchers knew well.

The audit is based on five areas critical for successful innovation management, including Strategy, Processes, Organization, Linkages and Learning. it is a self-assessment audit that contains 40 statements, eight from each area, that describes "the way we do things here", e.g. We are good at learning from other organizations. In order to gain a deeper understanding of the audit results the authors choose to complement the audit with an additional interview. Interview questions was based on the audit statements but rewritten as questions from a "how" perspective e.g. How do you learn from other organizations? Both audits and interviews were given in Swedish why the original audit was translated into Swedish. All respondents conducted the audit before doing the interview. Audits and interviews were sometimes conducted the same day but more often at different days, not more than one week between the audit and interview.

Audits and interviews were given at the companies. All respondents from company A took the audit at one occasion and all respondents from company B at another occasion. Instructions as well as definitions where written at each audit but also given verbally before handed out to respondents. Respondent answered the audit by scoring each statement with a number from 1 (not true at all) to 7 (very true) depending on how well they considered statements to describe "the way we do things around here". An average time for one audit was about 20 minutes. The respondents sat in the same room but no discussions were allowed, if there was any problem in understanding the statements the respondent could ask the authors who were present the hole time. When the respondents had any questions the author made the same statement but in other words.

The interview questions were structured with open answers and conducted individually by each one of the respondents. The interviewer (one of the authors) read the questions loud and the respondent was free to speak without being interrupted or corrected. When respondents did not understand a question the interviewer gave a further explanation

or rephrased the question without changing the overall meaning. The average time for conducting the interview where approximately 1 hour and 10 minutes. The interviewer typed the answers simultaneously as the respondent gave the answer and audio-recordings were also made.

In total 21 out of 103 possible respondents at both companies, answered 840 audit statements and 840 interview questions that where documented through written audits, audio recordings and written interviews notes.

Workshop series - After a first analysis of the interview based audit the a second data collection were done during a workshop series based on the four steps of the innovation process of Tidd and Bessant. The researchers choose to build the workshop series on the four steps of the innovation process model of Tidd and Bessant as a way to integrate the two steps of data collection as the innovation process model and parameters of the audit are strongly interlinked in the work of Tidd and Bessant.¹⁰

The workshop series were conducted with three multifunctional-groups of representatives from the two participating companies. The workshops were based on the results from the earlier study containing reflective discussions and examples of best practise. Two company-specific groups and a cross-company group of senior management participated in this study. Group-M contained senior management from both companies. Group-A from Company-A and Group-B from Company-B contained a mix of management and personnel representing a broad mix of departments from the company, but no senior management.

Data from the workshops were collected with written questionnaires, notes, audio-recordings and observations. The questionnaires were structured with open answers and conducted individually at each workshop by all participants. Each workshop were held approximately every fifth week and lasted for two hours. In total 21 out of 103 possible respondents at both companies, answered 20 questions each at 15 different workshops.

Innovation advice at Swedish STPs - With the focus on how STPs uses Innovation advice as part of their offer to their customers, 21 Swedish STPs where interviewed. Interviews was made through telephone interviews and written questionnaires sent by e-mail. Both interviews and questionnaires were based on the same semi-structured questions given to CEO or senior management the participating STPs . The different STPs were found at the Swedish Incubators and Science Park´s (SISP) website, which also provided contact information and a map showing the location for every STP. SISP is a network of Science Parks in Sweden. At the time fore the interviews SISP had 48 members representing 70 Incubators and Science Parks. The researcher choose STPs from the list of members from five different areas in Sweden; North, South, East, West and Middle of Sweden to get a mix of different STPs in size, niche and location. In total 10 telephone interviews where conducted and 11 written questionnaires where e-mailed to those respondents who were not available for a telephone interviews.¹¹

Practical experience - Over the last 10 years both authors have obtained practical experience of innovation in the role of innovation advisers and innovators. Both authors have been giving innovation advise to SMEs (up to 250 employees) as well as individual idea owners with focus on how to manage and implement innovation.

Results

¹⁰ Tidd and Bessant

¹¹ M. johnsson

Both participating SMEs are at the edge of their market niches. They are both well established with a good reputation among customers. Both work close to key customers but have no or very limited contact with end-users of their products.

Company A's product line is very mature and is facing a radical market change in industry, driven by eco-car technology. The market and technology of company B on the other hand is still evolving and is far from mature.

Areas of innovation - Both of the participating companies innovate in a limited span of innovation. Core of innovation in both companies are technical products even though company B does also focus on extending their products by developing platform solutions that gives a better opportunity to reuse and extend the use of the innovation-core of different products. The majority of the innovations in those companies are incremental and there is no or limited focus on searching, identifying or using and extending available innovation space around those innovation cores e.g. by adding service solutions, developing innovative business models or support model to a existing innovative core products.

Innovation participation - The current state study of the two Swedish SMEs did in both companies reveal large internal differences in innovation involvement between e.g. individuals, positions and departments. Majority of the employees have in general a low innovation consciousness and most of them had difficulties in seeing their role in the company's innovation system. "Innovation is not part of my job" was a common reaction when discussing who participated in innovation activities. Both companies have appointed work activities associated with innovation in the more radical end of the innovation spectrum to a few key persons in positions traditionally associated with product development, construction or market. Company B works actively with lean, which have come to create a broad involvement in incremental improvements from all employees that have a positive effect on incremental innovations.

Innovation management - Innovation in both companies mainly managed as traditional product development. Innovation specific issues seem to a large extent being managed in an unconscious and ad hoc manner. The current state analysis revealed large differences between how management considered them self to encourage involvement in innovation and how employees perceived that they where encouraged to do so. Managers did generally consider themselves to encourage a higher degree of innovation participation than the degree of encouragement as the employees perceived it. Employee seminars where senior management did not participate did also reveal that employees perceived several innovation conflicting incentives given by management e.g. being encouraged to participate in early innovation activities and at the same time have to meet demands for high billing rates, allowed to invest time in innovation activities but at the same experience lack of available time because of work-overload.

Innovation support and organizational structure - Both participating companies have a good or at least quite good support system for incremental innovation. Company B has actively been implementing lean, which have resulted in a broad and active participation in ongoing improvement work from all employees. Out of this has evolved in to a organizational climate that supports a broad involvement in incremental innovation. Both organizations supports and invests in more radical innovation to have strictly directed that kind of innovation work to a few "key" positions in the organization. Innovation conflicting incentives do exist in both companies. Internal innovation gaps do exist in both companies in terms of e.g. innovation awareness and use of terminology of innovation. Employees do not consider innovation activities to be for everybody.

Strategy and innovation - Innovation planning and management is in neither of the companies an integrated part of the overall business strategy. There is no, or few, conscious connections between the companies overall purpose, long term strategic goals and the planning and management of innovation actions and investments. Innovation is generally handled in a short time perspective. None of the companies seems to have any innovation specific goals or strategies.

Innovation investments - Both companies invest large sums in both long and short-term innovation activities. Innovation investments do though seem to be done quite late in the process when initiated by market, technology or customers. There is in general a low innovation-cost focus except from focus on costs directly connected to the development stages of innovation e.g. prototyping and RnD. Managers experience a lack of tools and parameters that can be used to estimate risks, evaluate and calculate effects of innovation investments. Effects of innovation are only to a very low extent measured and evaluated.

Innovation advice at Swedish STPs - The earlier STP study showed that a majority of the participating STPs does not offer any kind of innovation advice. Several of them refer to other actors whom customers are sent to when innovation advice is needed. A high proportion of the participating STPs did not know whether they offered innovation advice and where not always able to differ innovation advice from business advice. Innovation advice offered to customers by STPs or other actors in their network are strongly focused on giving advice on how to develop an innovative idea into a successful innovation but no, or low, focus is set on forming an business built to foster contingent innovative behavior. A third of the answering STPs in the survey thought their customer would want innovation advice, but two thirds on the other hand did not think so, mainly because they believed customer already had access to such advice provided by other actors in their network. Only two of the answering STPs thought innovation advice would provide a competitive advantage against other STPs. The vast majority did not think it would give competitive advantages against other STPs and did repeatedly motivate that with not being in a competitive situation against other actors in the innovation system, other STPs included.

Discussion and Conclusion

Innovation activities and investments were in the participating companies often customer initiated and when innovation possibilities emerged they where often managed in an ad-hoc manner. The situation in the participating SMEs in the study confirmed current research and showed that the participating companies, as most established companies, had a major focus on incremental innovation. Mainly focusing on incremental innovation does not necessarily have to be negative but doing so by unconscious reasons could indicate a lack of strategic innovation perspective. Lack of strategic innovation focus, or even worse, lack of strategic innovation consciousness could be one probable cause of some of the innovation ineffective behaviors reveled in those companies.

Company A is a typical example of a company that have used incremental innovation to meet its customers needs with excellence and who is now confronted with a radical, ongoing market and technology change. A change that forces them in to late and time-pressured innovation actions under strong competitive pressure. A situation like the one company A is facing is considered to offer really bad conditions for a radical change. To be able to avoid to end up in such a situation research shows that it is beneficial to approach innovation in a strategic way that addresses both long- and short-term perspectives.

Another effect that seems to be caused by a deficient planning of innovation efforts out of a dual perspective is weak understanding for the connection between what different kinds of innovation activities drives what outcome.

Lack of knowledge and control of what innovation activities that leads to the results wanted is another probable effect of not planning the innovation efforts from a dual perspective that take in to consideration both short and long perspective.

Experience from the industry as well as from the participating companies does indicate that management lacks knowledge about how to measure and measure innovation actions and investments.

Lack of parameters to estimate risks, evaluate and calculate effects of innovation activities and investments complicates innovation management. Lack of parameters for evaluation, lack of formulated requirements for return on innovation investments and acceptable risk levels are perceived as shortages especially in the early stages of the innovation process. Experience is that lack of measurement parameters and evaluation tools reduces management's willingness to invest in more radical innovation as well as in innovation outside the innovative core area of the company as the risk of such investments is perceived as disproportionately high.

Making innovation an integrated part of the company's overall business strategy makes it possible to use overall business goals and purpose as a point of reference. Points of reference against which innovation activities and investments could be evaluated to prioritize for excellence of today as well as tomorrow.

Previous research does though shows that a company needs to be relatively innovation mature to be able to evaluate their own innovation situation develop and implement changes in their innovative behavior. The uses of an external facilitator or innovation-driver who leads and guides a company in its innovation promoting work have showed to accelerate implementation of an innovation-enhancing behavior.¹²

Positive effects of a more planned and conscious choice of innovation action and investments would likely be a better opportunity to identify what incentives drive innovation and which conflicts. To be able to do so and thereby reduce innovation conflicting incentives would likely increase employees participation in innovation activities, which would promote a innovative organization and reduce internal innovation-gaps.

A more strategic approach to innovation requires the company to actively evaluate what kinds of innovation that could strengthen the company. When this is done innovation activities and investments can be assessed and evaluated against what is believed to contribute to overall goals and purpose of the company.

If STPs would take the role of an innovation facilitator and offer strategic innovation advice to their customers. They would need to help those companies to increase their understanding of the effects innovation can have on long- and short-term competitiveness. They would also have to help those companies to link and integrate innovation to the corporate strategy. Furthermore strategic innovation advice plays an important role as it helps companies to focus on formulating e.g. objectives, acceptable risks and other parameters that will help those companies to manage innovation in a conscious way. Another important role is to use strategic innovation advice as a guiding tool to help customers to formulate those

¹² E Hallgren, M. Johnsson

measurement parameters. To do innovation more manageable of identifying what they, in their organization, need to be able to measure to be able to steer and control the innovation management process in a conscious way is an important part of the support.

Conclusion - The future will not allow innovative ignorance and the conclusion is that STPs would not only strengthen their offer by incorporating strategic innovation management as part of their offer - but needs to do so. There is an urgent need for a more strategic approach to innovation in established companies. This is a need that can be met on two fronts as I see it; first you can work reactive with established companies who need to actively start to implement strategic innovation in their overall business strategy. Secondly you can work proactively to help start-ups to form a business better prepared to work with contingent innovation in a strategic manner. They are the next generation of companies and a strategic approach towards innovation should be part of the agenda when forming the organization.

There is of course no need for the STPs to provide strategic innovation advice to their customers there might be other actors more suitable for that. But STPs are strong actors that have a strong and often central position in the innovation system that enables them to reach and influence innovation supporting actors as well as established companies and start-ups.

They have a unique position where they reach a lot of qualified, innovation centered start-ups and to be able to support those I think its going to be of importance that the STPs have a more strategic approach to innovation in the future. STPs have the possibility to help put strategic innovation in focus of their colleagues who does actually provide innovation advice. Not only can they contribute to the building of stronger foundations for repeated innovation in the next generation of mature, established companies. Considering their position in the innovation system they can also influence and strengthen established companies as well as innovation supportive actors to be able to meet future market fluctuations in a more successful way. In my opinions STPs should work for strategic innovation to become integrated as part of any long-term business advice/coaching because innovation will continue to play an increasingly important role when shaping business success of the future.