

A case study using the process model innovation



Then, in order to gain better understanding on innovation management and structure of Siemens the process innovation model, which covers the key aspects of the challenge, will be thoroughly explained and applied to the company. Afterwards, the resource-based view will be introduced to explain and analyze the importance of resources and capabilities Siemens possess and their contribution towards company's competitive advantage. Then, the report will provide the recommendation on Siemens future strategy and conclusion of the overall findings. 113 About Siemens. Siemens is a German conglomerate founded in 1847 by Werner von Siemens and Johann Georg Halske as a telegraph company (Siemens A, 2012). By 2012 Siemens employed more than 370,000 people in more than 190 countries around the globe, among which 29,500 people were working in R&D, submitting roughly 40 inventions and 21 patents every workday. The total revenue for the financial year 2012 was €78.3 billion (Siemens B, 2012). The company has a decentralized structure and is being involved in four main business sectors, which are: Energy; Healthcare; Industry; and Infrastructure and Cities, further divided into eighteen Divisions, which in their turn are composed of a plurality of Business Units (Siemens A, 2012).

Each of these entities is considered as a « global entrepreneur » and has is responsible for its own profits and losses. It helped to inspire entrepreneurial spirit and opportunities among employees, but, due to decentralization, coordination and communication between these units was a challenge Siemens faced (Lakhani, K. R. , et al, 2013). 151 Process Model Of Innovation. Successful innovations are always require a lot of technical resources as well as managerial capabilities, which could be obtained

through different ways, such as doing something and making mistakes, working with other firms, asking customers about their needs, etc. but the main challenge for innovation to become successful is company's maturity to accept it and not be afraid of it, to see opportunity for the long-term improvements (Tidd, J. , Bessant, J. , 2009).

There are number of models created to evaluate the effectiveness of innovation management. Some of them are simple, others are more complicated (Chiesa, V. , Coughlan, P. and Voss, C. , 1996), but in this paper the process model of innovation will be represented. 110 PICTURE The process model of innovation consist of four stages, which are search, selection, implementation and capturing.

First stage implies a spotting of signals in the internal and external environment which could indicate the potential for change. These signals could be new technological inventions and wherefore greater opportunities, growth of competition, change of customers preferences, or new laws (Tidd, J. , Bessant, J. , 2009). 60 In Siemens case search stage started then Lackner realized the great potential for innovation the company possess, but could not apply in reality due to decentralized structure of organization.

He had an experience in working with external partners that is why he knew the importance of knowledge exchange. Therefore, considering the examples of open innovation (Appendix 1) in Procter&Gamble and Eli Lilly, which transferred idea creating and problem solving to the online competitions in order to find the best solution, he wanted to try such an approach in Siemens to enhance more open communication and concept exchange between

Business Units (Lakhani, K. R. , et al, 2013). 100 The second stage is selection. It is well known fact that innovation is risky.

In order not to fail, firm has to thoroughly assess the opportunities, so innovation will be held within the frame of company's technological and marketing competences and will be coherent with overall business strategy (Tidd, J. , Bessant, J. , 2009). There are three components in this phase. The first component comes from previous stage and implies the analysis of opportunities, both marketing and technological, procurable for the firm. The second component includes the distinctive features company possesses, which are knowledge base, employees, equipment and experience (Prahalad, C. Hamel, G. , 1990). The third component is suitability to the overall business strategy. This implies the fact that proposed innovation should be beneficial for firm's performance, in other words, be in company's competence base, otherwise it could lead to the failure (Cooper, R. , 2000). 140 Lackner knew that Siemens own huge baggage of knowledge which was hidden in its employees' minds. Additionally, diversified profile of the company gave it an access to the advanced technology, which was important for the open innovation.

He created an experimentation plan, which was not very welcomed as Corporate Technology group thought that they were already doing everything he proposed. Moreover, even more uncertainties were created by the fact that open innovation could damage personnel due to the lack of anonymity and insecurity of intellectual property rights as well as leak of information on Siemens future projects, which could be beneficial for competitors. The task was to find the solution, which avoids these problems

and works at the same time (Lakhani, K. R. , et al, 2013). 22 The third stage is implementation.

This stage implies collecting different pieces of knowledge « jigsaw» obtained in two previous stages into single business plan in order to give innovation a way into real life. The implementation stage is full of uncertainties, therefore it requires continuous change in order to simplify the process and avoid fatal mistakes (Tidd, J. , Bessant, J. , 2009). This stage consist of three main sections: « acquiring the knowledge; executing the project; and launching and sustaining the innovation» (Tidd, J. Bessant, J. , 2009). First section requires uniting the knowledge (both internal and external) existing within the company and new knowledge gained through search and selection stages as well as technology shifting (Rickards, T. , 1997). The second section is the core of the whole innovation process. It requires well-stated strategic conception and related ideas, which could help to understand it better, and results in developed innovation and mature internal and external markets. That is the most challenging part of innovation process.

The third section aims to minimize resistance to change within the company and requires the right managerial approach, that will enhance communication, interaction, involvement and intervention (Tidd, J. , Bessant, J. , 2009). 187 Met by the wall of resistance, Lackner and his colleague Blumoser decided to create an internal web-based platform, called Innovation Jams, which provided the communication between different business units in number of geographies within the safety of company's

firewall. It was basically discussions on 2 set in advance topics – anti piracy and influence of information technologies on Siemens future performance.

In 5-days-time more than 1, 000 people took part in the discussion and a lot of ideas were taken into account for future development. Innovation Jams showed the simple truth, which Lackner was aware of – the employees within the organization did not know about each others knowledge due to the lack of connections between units of the company. Having succeeded with the Innovation Jams, Lackner went forward into creating a sophisticated internal social network, which allowed to identify experts within the company.

The network was called TechnoWeb 2. and was upgraded several times to make communication as easy and precise as possible. Moreover, Lackner set several internal and external contests, which were quite successful and even tried to implement the external network to communicate with experts within the globe, but the latter project was never approved (Lakhani, K. R. , et al, 2013). 200 The fourth stage of process model of innovation is capturing of economic value from that innovation. It could take a form of cost reductions, market share growth, increase in profits.

It is important to find ways to benefit from implemented innovation, otherwise it all would be just waste of money. The company can profit by selling the patent, or by using the innovation in the way it is hard for others to imitate (Jacobides, M. G. , Knudsen, T. , Augier, M. , 2006). 77 After the implementation of TechnoWeb 2. 0 a lot of Siemens employees claimed that it saved a lot of time allowing fast and effective access to the hidden

knowledge and cost-saving ideas, better communication and access to the technologies.

Even though all of the fact above were beneficial for Siemens, there were still space for uncertainty of those who was not involved in Open Innovation and the main task for Lackner was to figure out the framework, which will show how Siemens can benefit from it (Lakhani, K. R. , et al, 2013). 92

Resource-based view In this paper the resource-based view analysis of Siemens will be presented. To gain better understanding of this framework one has to look for definition. According to Wernerfelt (1984) the resource-based view shows the degree upon which the firm uses its tangible and intangible assets in order to get competitive advantage.

The core concept in this theory is that all firm are not the same and own different resources and capabilities that are heterogeneous in a kind (Barney 1991 and Peteraf 1993). Barney (1991) also added that such resources has to be valuable, rare, difficult to imitate and non-sustainable (VRIN) in order to sustain competitive advantage and get higher profit margins. 113 PICTURE Resource-based view as long as other strategic management frameworks was built upon and expanded to form the knowledge-based view.

This theory assumes that knowledge is a key idea, not just a common resource, but also a vital resource and something that is remarkable and extraordinary. It puts the greatest importance on the human resources of the company as they lead the organization to innovation and profitability (Johnson, G. , Scholes, K. , Whittington, R. , 2008). 72 In order to create competitive advantage the company has to use and exploit its resources and

capabilities in the best ways. The term resources in that case implies firm's tangible and intangible possessions. As for those, tangible resources are divided into financial and physical.

Financial resources could be described as company's borrowing capacity and internal funds generation. Physical resources include plants and equipment, size, location and technology flexibility, land, building and raw materials. Intangible resources include technology, reputation and human resources. Technological resources could be described by patents, copyrights, know-how and R&D facilities. Brands, customer loyalty, company's relationship with suppliers, customers and government are considered as reputation. Human resources are characterized by employees qualification, experience, adaptability, commitment and loyalty.

The term capability is very broad in this case. It implies management development, financial control, strategic innovation, research, product development, brand management, etc. , everything that could contribute to the firm's competitiveness (Prahalad, C. , Hamel, G. , 1990). 156 Resources and capabilities, both tangible and intangible, of each firm create its core competences – strong sides of the organization, which give the basis for the provision of added value. In order to survive in the market these core competencies have to comply with Barney's VRIN factors, which means that these factors have to be unique and hard to imitate or gain.

Hamel and Prahalad (1990) first came out with the idea of core competencies and describe them as « the skills and abilities by which resources are successfully deployed through an organization's activities and

processes to create competitive advantage». 99 On the other hand, organization have to seek ways to improve its core competences to become distinctive competences, which would mean that the firm outperforms its competitors, involving innovation and development of such competences to make the organization responsive and flexible to fit into dynamic ever changing business environment (Teece, D. J. et al, 1997). 56 Siemens has a long history and possess a broad range of resources, which are necessary for the survival.

Some of these resources are key success factors for four industries Siemens operates in, while others are beneficial for the firm have created its competitive advantage and continue to do so. Appendix 2 shows Siemens' tangible and intangible resources, which will be further described as threshold and unique resources. Siemens threshold resources are composed by shareholders, land, buildings, investors and loyal employees. These are resources necessary for survival in every business section.

The possession of fossil fuel and renewable energy sources are considered as unique sources for the company, even through they are threshold for the Energy industry, due to the fact that Siemens operates in other 3 Business sections such resources are considered as unique because they create a collective competitive advantage for the firm. Siemens' ability to supply their own power leads to significant cost reductions. These resources meet Barney's (1991) VRIN factors as due to the cost-cutting it provides the value for the customers via lower prices.

Moreover, these resources are rare by the nature, therefore it creates sustainability for the company, which directly enhances the performance. The complexity makes such resources very difficult to imitate especially in Healthcare, Industry and Infrastructure sectors, therefore they are inimitable. On the other hand, there could be competitors, which can possess or acquire energy resources, but it is not the case yet even with General Electric – Siemens' main competitor in the Energy section.

Successfully developed and implemented, Siemens' renewable energy resources could become worldly accepted, which would make such resources non-substitutional. 269 Appendix 3 presents Siemens capabilities, which are closely connected to the owned resources. Threshold capabilities consist of financial control, multidimensional coordination and brand management. As long as Siemens operates in world-wide important and highly competitive industries, such capabilities are essential for survival. The vital capability Siemens possess is the ability to strategically innovate.

The 'open innovation' was one of those strategic innovation. It resulted in broken walls between business units, enhances creativity, problem-solving time, increased the knowledge and idea inflow, and therefore decreased the time of projects submitting, which results in cost-cuttings. The product quality was consequently increased and summation of these fact above created the value for the customers and benefited Siemens. Siemens HR is being extremely strict while hiring people, therefore the culture and the 'knowledge pot' in Siemens are very special, which makes it rare and hardly imitable.

The continuous flow of information, concept exchange and personnel unique knowledge create sustainable and secure environment, that makes capability resources in Siemens non-substitutional. 173 The unique resources and capabilities Siemens possess results in distinctive competencies, that increase companies competitive advantage. The range of these competences helps the firm to be a cost leader on the market and be presented in variety of Business sectors. Considering the fact that Siemens 'give a life' for 21 inventions every day makes the company product range very diversified and helps to gain differentiation advantage.

Siemens creates value using different value added activities and processes involved in each stage. The company incorporates IT solutions, innovation, mix of centralized and decentralized managerial approaches in order to enhance operational efficiency and control. Siemens finds out the most rational logistical solutions in order to provide Just-in-time delivery and shorten supply cycles, moreover, Siemens have strong suppliers culture, that contributes to the long-term relationship and creates win-win situation for both.

Also, company uses innovation in order to simplify and connect all business areas. Furthermore, Siemens' highly-selective recruitment process creates special culture within the company. Employees are the main innovation and entrepreneurial source of the company, which is being encouraged by continuous training and knowledge exchange. 116 Recommendation Siemens was quite successful in implementing open innovation within the company, but failed to create purely open culture and implement the same system of acquiring knowledge externally.

As for future recommendations, Siemens has to learn from mistakes made in the past and keep on improving open innovation within and outside the company. Communication and knowledge exchange enhance the productivity and creativity among employees, making them more valuable, which contributes directly to the company's success and competitive advantage. Fully integrated open innovation system will have significant impact on Siemens performance. 89 Conclusion Siemens possess huge baggage of threshold resources and capabilities, which are necessary for survival.

Moreover, company's history and involvement in diversifies business sectors created some unique resources and core competences, which differentiate Siemens from other companies and becomes firm's distinctive competences, which have crucial meaning for the company's success. Implementation of open innovation helps to add more value to each process in the organization and, therefore reduce costs and time of production. The provided analysis helped to gain better understanding of innovation management in Siemens and highlighted the resources and capabilities importance for the company's success.