

BENEFITING FROM A SUPPLIER'S INNOVATION – A CONCEPTUAL APPROACH

Work-in-Progress paper

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ABSTRACT

From the high technology marketing's perspective it is essential to understand how a customer can benefit from an innovation offered by its supplier. The authors study whether a systematic approach could be found to understand customers' success benefiting from a supplier's innovation. Several interesting and relevant concepts were found by studying the literature. In this article three cases are introduced that help understand and further develop the concepts in the underlined topic.

1. INTRODUCTION

From the high technology marketing's perspective it is essential to understand how a customer can benefit from an innovation offered by its supplier. However, the topic has been relatively scantily discussed in the literature. Several studies have been executed to understand the suppliers' viewpoint. The importance of a customer reference in adaptation of new technology innovation has been considered in several articles (Ruokolainen 2008a; Salminen 1998; Jalkala, 2009). In addition to that, it has been studied the importance of a lead user in order to create a new commercial products (Urban and Hippel, 1988; Herstatt and Hippel, 1992). Based on the authors experience and reported cases in the articles the adaptation of the new technology innovations can be far from easy.

The authors of this study were keen on starting a study whether a systematic approach could be found to understand customers' success benefiting from a supplier's innovation. Several interesting concepts were found while studying the literature: for example, according to Teece (1996, 2008), in order to profit from its innovation a company should create a dominant design and ensure that critical complementary innovations are in place. Teece talks about general complementary assets and special complementary assets that are firm specifics. However, Teece articles' (1986, 2008) focus are also on how a supplier can profit from an innovation and he does not discuss about this from the customer perspective. Nevertheless, the concept introduced by Teece seems to form a good starting point for further investigation of the topic of this study. Profiting From Innovation as it is introduced by Teece (1986) has been discussed widely by scholars (Anderson and Tushman, 1990, 1991, McGrath et. al. 1992, Murmann and Frenken, 2006, Rosenkopf and Tushman, 1994, Suarez and Utterback, 1993, Teece et. al. 1997, Tushman and Murmann, 1998, Utterback, 1994, Uusitalo, 1995; Uusitalo and Mikkola, 2010).

This paper consists of following parts: First, we introduce Teece's (1986) complementary asset. Second, we discuss the research methodology. Third, we illustrate briefly our cases. Fourth we analyse briefly the use of complementary asset. At the end we identified the future research topics.

2. LITERATURE

According to Teece (1986) in almost all cases, the successful commercialization of an innovation requires that the know-how in question can be utilized in conjunction with other capabilities or assets. Teece called these complementary assets and they include services such as marketing, competitive manufacturing, after sales support, complementary technologies etc. He further categorized them in three groups: generic, specialized and co-specialized. Generic complementary assets are easily available, specialized complementary assets depend either on innovation or innovation depends on them, while co-specialized assets both depend on innovation and innovation depends on them (see Figure 1).

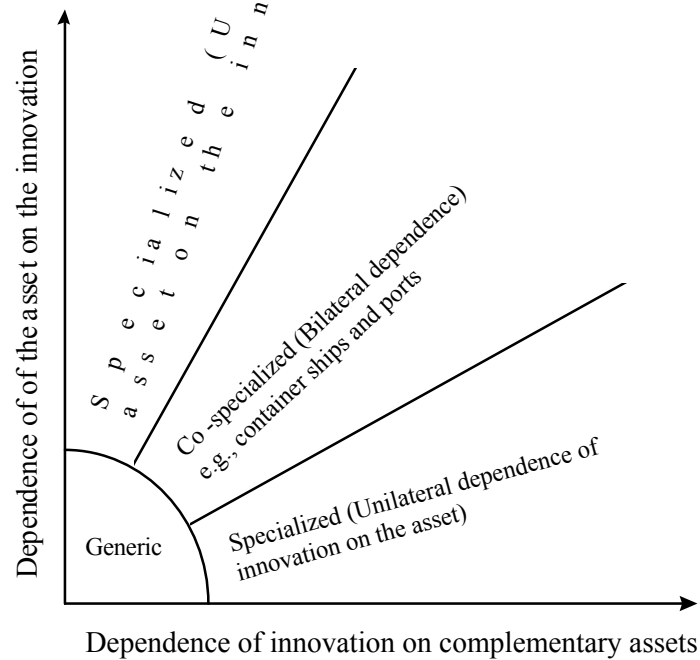


Figure 1. Complementary assets (Teece, 1986)

The use of complementary assets depends on the appropriability of the business idea. Rarely patents confer perfect appropriability; many patents can be "invented around" at modest cost. Patents seem to be ineffective especially at protecting process innovations. If innovation is embedded in processes trade secrets are viable alternative to patents. Basically better the potentiality to patent the idea or higher the appropriability is easier it is to use complementary assets in commercialization of an innovation.

3. RESEARCH METHODOLOGY

In this section our research methodology is briefly introduced. First, we justify the case study as our method and, second, we explain the selection. A single case study design has certain advantages compared with multiple cases. The most important is the depth of the analysis, both in terms of the number of factors studied and sources of information used (Yin, 2003). A single case study is also valid when a theory or frame is to be tested or deployed. In this research we study the concept of complementary assets (Teece, 1986, 2006).

A single case analysis is the best way to get a holistic picture and understanding of the research problem. Patton (1990) argues that "qualitative inquiry is highly appropriate in studying processes because depicting a process requires detailed description".

For the video room concept the study was made by participant observation. The other author of the paper has worked for the telecommunication industry for 20 years. For duplex filter case the development of mobile phones networks were tracked and the inventor, Lauri Kuokkanen was interviewed (on 27th April, 2011)

Content analysis provides a systematic recognition of valuable information that firms are communicating (Weber, 1990). It is a term used for text analysis in different forms (Weber, 1990). Such text analysis can be complex interpretations of underlying themes (Weber, 1990). According to Bowman (1984) "[c]ontent analysis of annual reports can be of real usefulness for understanding some issues of corporate strategy" (Bowman, 1984: 70). Content analysis of annual reports and other published material has several advantages. The data in content analysis is reliable and eliminates some of the biases such as sensemaking and selective memory (Bowman, 1984). Moreover top management in fact put a lot of effort into what the firm communicates through the annual reports. This increases the reliability (Bowman, 1984). The data is also available for researchers. This is a crucial matter for research on sensitive information such as strategy (Ginsberg, 1984). The access to data enables reproducibility, which strengthens reliability (Weber, 1990).

A teaching case was written on the innovation, Benecol. The case has been used for more than ten years both in master degree and postgraduate courses plus in management training. The case base on interviews, news clippings from Finnish and international business magazines and newspapers (1995-2005) as well as on other additional sources such as company newsletters and published material of Benecol provided by Raisio Group. In addition, several conference papers and articles have been written about the cases (e.g. Uusitalo, 1998 and Uusitalo & Grönhaug, 2006).

4. EMPIRICAL CASES

4.1. Video room concept

In a company a video room concept was established for meetings that required participants from different countries. By using video rooms instead of travelling it was possible to save significant amount costs. However, video rooms were expensive and usually fully booked. Therefore a simplified solution was deployed. It was investigated the use of wide angle web-cameras that were cheap compared to any other video solution. The current conference software supported also this approach and therefore it was decided to buy wide angle web-cameras fitting for meeting rooms. The fully use of the web-camera with the meeting facilitation software was not possible in practice due to the limited band-width capacity of the network. According to Teece (1986, 2006) the check of the general complementary asset is needed to be done before the taking innovation in use. It was admitted that the band-with capacity was not fully checked. However, the capacity problems were known but the need for avoiding further investments for expensive video meeting rooms were tried to avoid by introducing this solution. Even if the web-cameras video picture quality didn't fulfil the expectation, the idea anyhow provided better than no solution for sharing pictures of the meeting rooms with several participants.

From the web-camera technology deployment's point of view, the internet band width represented general complementary asset that was necessary to have to make a web-camera call through internet easier.

4.2. Duplex Filter

Duplex filter was / is an important component for mobile phones. The duplex filter enabled simultaneous receiving and transmitting voice. The duplex filter was invented already in the 1930's (Kuokkanen, 2011). However, the size of it was not suitable for mobile phones not even the early and large ones. The ARP (Autoradiopuhelin, "car radio phone") was the first commercially operated public mobile phone network in Finland. The technology is zero-generation (0G), since although it had cells, moving between them was not seamless. The network was launched in 1971, and reached 100% geographic coverage in 1978 with 140 base stations. ARP reached great popularity (10 800 users in 1977, with a peak of 35 560 in 1986). (Jaakkola et. al., 1998).

The ARP first used only half-duplex transmission, meaning that receiving and transmitting voice could not happen at the same time. The talking was cumbersome and once a while a total mess was created between persons talking to each other. Later, full-duplex (with the duplex filters) car phones were introduced. The only target was to make the phone call easier (Kuokkanen, 2011). Necessity is mother of innovation. The miss of duplex filter was a real process need or a missing link (Drucker, 1985). The first ARP mobile terminals were also extremely large and could only be fitted in cars' trunks, with a handset near the driver's seat. ARP was also expensive.

The inventor of duplex filter for mobile phones, Lauri Kuokkanen, worked at the beginning in Nokia. There he design the first filters for mobile phones. The first applications were in sold to Soviet Union. In the late 1970s duplex filter was introduced in ARP. The technology was well accepted by the users. Only the chief authority in Finland resisted. In 1978 Lauri Kuokkanen found his own company. (Kuokkanen, 2011).

NMT (Nordic Mobile Telephony) was a mobile phone system that was created in the late 1970s and the early 1980s (opened in Sweden and Norway in 1981, and in Denmark and Finland in 1982) as a response to the increasing requirements of the ARP network. The prerequisite was the easiness of calling created by the duplex filters in handsets. NMT is based on analog technology (first generation or 1G) and two variants existed: NMT 450 and NMT 900. The numbers indicate the frequency bands uses. NMT 900 was introduced in 1986 because it carries more channels than the NMT 450 network. By 1985 the network had grown to 110 000 subscribers in Scandinavia and Finland, 63 300 in Norway alone, which made it the world's largest mobile network at the time. (Jaakkola et. al., 1998).

The demand for handsets (for NMT) increased. Handset and network manufacturer (Mobira and later on Nokia gave explicit specifications for new filters to Lauri Kuokkanen's company who then design the products. The production lots varied from 10 to tens of thousand units.

From the mobile technology's point view, the special complement asset, a small size duplex filter, was created afterwards. With the help of duplex filters the mobile phone calls were made easier and, therefore, it supported deployment of the mobile technology.

4.3 Raisio's Benecol in 1989-2003:

Benecol is a Finnish innovation and it is an ingredient used in food stuff. Thus, it represents both health constituent of foodstuff. It is functional food. The target customers are food manufacturers all over the world. Functional food leads to think a food with a specific function or effect. The product may vary both in shape and in specific function but the desired outcome is a scientifically justified medical effect. The effect may be a preventive one, which delays or altogether impedes the onset or further development of a disease, or even a curing one. The last effect, curing one, makes the distinctions between food and medicine blurred. If functional foods are seen as food products, they are also expected to appear food-like and have a pleasant taste. If functional foods are seen as proactive medicines, they may assume medicine-like shape and taste (Mark-Herbert, 2002).

In the 1970s it was known that plant stanols were the most effective and safe of the plant sterols in reducing serum cholesterol. In 1989 Raisio, a Finnish food and chemical manufacturer, found a way of turning plant sterol and stanol into plant stanol fat suitable for food production. In 1991 Raisio got world wide patents for Benecol and four years later manufacturing started. Raisio's turnover in 1996 was 0.65 billion euros. The cholesterol-lowering findings in a Finnish clinical study (of Benecol) were published in the New England Journal of Medicine (NEJM) in 1995. Benecol margarine was introduced with great success on the Finnish market. The stanol discovery had also sparked very active interest internationally. Cholesterol problems were shared by all industrialized countries.

Raisio couldn't keep up with the demand - even though the product was seven times more expensive than ordinary margarine. Raisio's shares soared - from around \$2.4 in January 1996, to a high of \$14.5 in March 1997. Since the health authorities in Finland approved Benecol's cholesterol reducing claims. Raisio sold \$12 million worth of Benecol in 1996 – and gained 2.6 % of the Finnish margarine market. Raisio looked on the US market. Raisio told that they knew that it may take years for the company to get Food and Drug Administration's of US (FDA) permission to claim that Benecol reduces cholesterol levels. Raisio management was surprised with offers (for cooperation) coming from large and small companies.

In 1997 Raisio signed an agreement with the American McNeil Consumer Products Company (McNeil), a subsidiary to the Johnson & Johnson group (JJ). The contract gave McNeil the sole right to use the Benecol trademark and patents on the US, Canadian and Mexican markets. The agreement released Raisio's resources to other markets. In 1998, the cooperation was extended to global dimensions. JJ was that time the world's biggest producer of health-related products. Its turnover in 1996 was 24 billion euros and it had 170 subsidiaries in 50 countries. McNeil is the largest supplier of over the counter drugs in the US. Raisio chose McNeil because it trusted McNeil's abilities to handle the bureaucracy of the FDA.

The antitrust authorities of the US approved the Raisio and McNeil agreement quickly, but the FDA did approve the Benecol ingredient as the status of an ordinary food after a long process in 1999. This long waiting time gave the possibility for competitors to enter the market. McNeil sold the first Benecol products in 1999. The launch in the US was a disappointment which made McNeil to cut the advertising budget. In 1999 Unilever launched its cholesterol lowering margarine in Europe. In 2000-2003 Raisio took responsibility for several international markets. Figure 2 summarizes the major events and the evolution of Raisio's stock price.

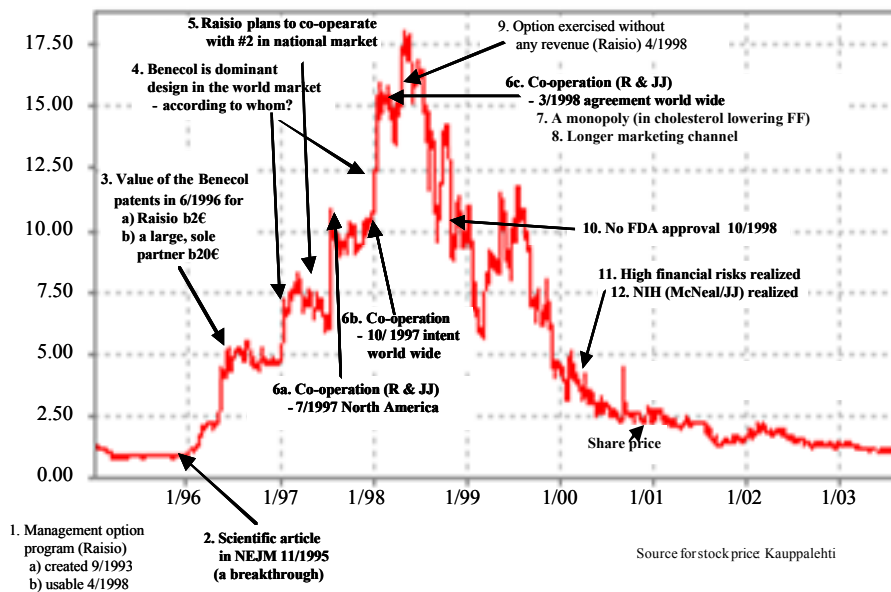


Figure 2. The events relating to Raisio Benecol and Raisio's stock price in 1995-2001.

Benecol represented an innovation for which enough production capacity, a special complementary asset, was not scalable as the market of the product expanded. The design of the complementary asset was in from that perspective a failure.

5. DISCUSSION

This study employed these and other concepts introduced by Teece (1986, 2006) in several customer cases. Based on our work with the customer cases we introduced new concepts in order to identify missing concepts. The first customer case is based on an example of a large company operating in the telecommunication market. The second customer case is a mobile phone manufacture to whom first duplex filters were provided. The third customer case company is Johnson and Johnson to whom an innovative functional food supply was offered. All these customer cases enabled us to study profoundly how the concepts introduced by Teece could be employed.

Because the topic of this study has not been introduced from the angle discussed in this paper, the nature of this paper is conceptual. In addition, this paper takes also the bird's perspective on a network of companies in order to study how the created to concepts fit in it. We believe that the customer's perspective on adaptation of new technologies can bring many new fresh ideas how the adaptation and marketing of new technologies should be done in Business-to-business context. The research question of this study is: What are the relevant concepts for benefiting from a supplier's innovation in the B2B context?

We analyze the success of supplier's innovation by Gartner's and Fenn's Hype Cycle Model. A central aspect of this model is that it captures and characterizes the impact of prototypical expectations over time in the process of commercializing a break-through innovation or technology. Figure 3 is to be read as follows: The horizontal axis of the model is the maturity of the technology

and the vertical axis of the model is visibility. Five stages are included in the model: 1) technology trigger, 2) peak of inflated expectations, 3) trough of disillusionment, 4) slope of enlightenment and 5) plateau of productivity.

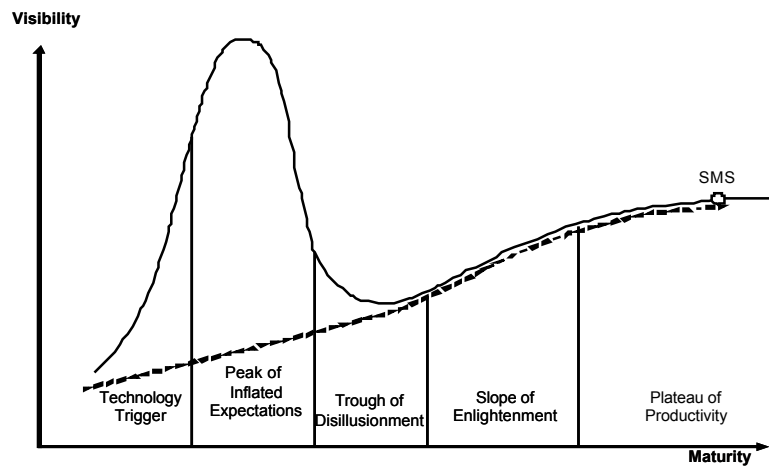


Figure 3. Hype Cycle of Emerging Technologies (Jackie Fenn, 1995)

In technology trigger a break-through, public demonstration, product launch or generates significant press and industry interest. Peak of inflated expectations, a phase of over enthusiasm and unrealistic projections during which a flurry of publicized activity by technology leaders, results in some successes but more failures as the technology is pushed to its limits. The only enterprises making money at this stage are conference organizers and magazine publishers.

In the trough of disillusionment phase is the point where the technology becomes unfashionable, the press abandons the topic. Because the technology did not live up to its overinflated expectations the press abandons this topic. In the slope of enlightenment phase the focus is on experimentation and solid hard work by an increasingly diverse range of organizations leading to a true understanding of the technology's applicability, risks and benefits. Commercial off-the-shelf methodologies and tools become available to ease the development process.

In the plateau of productivity phase the benefits of the technology are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generation. The final height of the plateau varies according to whether the technology is broadly applicable or only benefits a niche market. “(<http://www.out-law.com/page-6043>)”. When a new break-through technology is introduced it has huge publicity and expectations usually highly unrealistic. Then comes the drop to the reality and new start is in the hand.

Based on our cases it seems that the success of an innovation provided by the supplier depends on the visibility of the innovation. The duplex filter was needed in order to increase the easiness of the use of mobile phone. There was a real need (as was mentioned a process need, Drucker, 1985) for the innovation. In Benecol case high public expectations and the hype were created which misled the market analysis of the recipient company, Johnson & Johnson. SMS message is another case where no expectations were created. It provided real value for the user the same way as the duplex filter. While using SMS one has not to bother the recipient but still the message gets through. This is real customer utility. We can see in Figure 3 how the commercialization of new technologies / innovations may also occur without inflated expectations and publicity, e.g. SMS messages.

6. CONCLUSION

The case studies proved that the more detailed studies would be needed in order to understand more profoundly new various types of complementary asset concepts fitting for benefiting of innovation. New angles can also found and presented, for example, what would be complementary assets related concepts from the technology deployment's point of view, what is the society's point of view for benefiting of the technology, how about the network's view etc.

Usually big innovations (like Benecol) gets on the headlines (Drucker, 1985). However, Drucker also suggests that innovating operations should be an ordinary task for companies. The benefiting from innovations in a company represents that aspect.

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