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# Open product innovation process

Partner selection  
Preliminary findings of a case study

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HÁSKÓLI ÍSLANDS

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## Partner selection

### Preliminary findings of a case study

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One way to manage product innovation and systematically drive radical new products to markets is through a product innovation process (Cooper, 2009). Innovation processes are in an increasing manner adapted towards more open innovation which has been practiced for decades (Chesbrough, 2003; Chesbrough, Vanhaverbeke & West, 2006; Cooper, 2009; Thomke & von Hippel, 2002; von Hippel, 1988, 2007). Around 29% of Icelandic companies were in the period 2002-2004 involved in some kind of external cooperation during innovation (Stella Stefánsdóttir & Runólfur Smári Steinþórsson, 2008). External cooperation can be with suppliers, customers (von Hippel, 1988; 2007), potential users (Thomke & von Hippel, 2002), competitors (Hamel, 1991), research institutions, universities (Laursen and Salter, 2004), public organizations and government (OECD & Eurostat, 2005). On one hand research, (Faem, Looy & Debackere, 2005) has shown a relation between cooperation with customers and suppliers and development of improved products. On the other hand cooperation with research institutions and universities is related to development of radical new products. Companies cooperate with different cooperation partners on different stages of the process (Cooper, 2009). Early in the process research institution and universities are desirable partners and later in the process customers and suppliers are more desirable cooperation partners (Rothaermel & Deeds, 2004).

## Method

This is a qualitative study based on Eisenhardt's (1989) research approach, combined with Glaser's and Strauss's approach to grounded theory development from 1967 (Glaser & Strauss, 1967; Strauss & Corbin, 1998) and Yin's (2003) case study approach. Main source of information is from ten in-depth interviews at Marel ehf. Kvale's interview guide was followed (Kvale & Brinkmann, 2009). Data analysis included a so called open coding where major categories of information were grouped to identify concepts and categories (Creswell, 2007). Selective coding was used to integrate and refine categories (Strauss & Corbin, 1998). Axial coding was used to systematically develop and link subcategories (Strauss & Corbin, 1998). Finally, Gustavsson (1996) approach to formal data structure analysis was used to reject any hypotheses that were not supported by data.

Marel (hereafter the Marel group) is a leading global provider of advanced equipment, systems and services to the fish, meat and poultry industries. The Marel group has over 3.500 employees worldwide. Marel ehf. (hereafter Marel) is the unit of analysis and is a part of the Marel group. The company is located in Iceland and has about 350 employees. Marel has a formal R&D division and cooperates with external partners during its product innovation process. Regularly the company launches new

patent pending products which are sold worldwide. Marel invests 5-6% of annual income in R&D.

## Results

Marel's product innovation process is ISO (International organization for standardization) documented and includes five phases; idea qualification, evaluation, design and prototyping, release and follow-up. Nothing is documented about external cooperation, but all participants claimed that no new product is developed without external cooperation or as a manager said:

It is not possible to work on product development without the possibility of cooperation or networking with other companies. The products and the results from such development would be far from the best. This is absolutely a clear goal at a Marel.

According to the interviews cooperation with customers seem to be an intertwined part of the product innovation process at the company. The company also cooperates with research institutes, universities, suppliers and in few cases users and other companies within the Marel group. A manager said:

The company benefits most by working with customers, then perhaps suppliers, then research institutions and universities.

The discussion in the paper will be around these partners

### **Cooperation partners at different stages of the process**

For mapping external cooperation at Marel the third phase of the product innovation process, design and prototyping, has been split into two different stages whereas external cooperation seems to be approached differently when designing than prototyping. A so called basic technology development phase was frequently mentioned in the interviews. This phase is added to the process for analysis.

#### *Ground technology*

A team working on development of ground technology operates outside the traditional innovation process. Cooperation at this stage is mainly with research institutes and sometimes universities. Participants seemed in many ways not look at this cooperation option as essential. They said cooperation is usually initiated and defined by research institutes and is most often around mutual innovation projects related to an application for government support because:

They are really putting effort into having Marel's name on the application. Marel has a good reputation. Gunnar (one of the research engineers) has a good name to get money.

said one of the younger engineers. Another young engineer doubts cooperation with research institutes and said:

Regarding the research institutes I have extremely little faith in them.. ..this is all about getting the funds.

All participants shared this view to a certain extent. They said, nowadays, Marel employees are both better educated, have more diverse education as well as inter-

national work experience than earlier in the company's lifecycle. Access to new knowledge has also improved by the rapid development of the internet. A experienced research engineers said:

I personally feel and I think more people agree that the weight of research institution has decreased the last few years. ...People are getting more self-supportive.

At this stage of the process cooperation with universities is usually through students who are working on final research projects. Customers are sometimes invited to join focus groups to discuss and visualize future trends in the industry.

#### *Idea qualification*

At this stage feasible ideas are selected for further evaluation and eventually turned into product innovation projects. Participants explained how product ideas can come up in various situations, internally, at sales people's visits to customers or by customers. Participants spoke about the long and curvy road from a product idea to an innovation project and how important it is that people out in the field bring product ideas to R&D. A lot of ideas seem to "drop out" on the way. To follow product ideas through R&D people need to visit customers for proactively develop ideas further because they know what questions to ask, according to a participant. A young engineer said:

We get a bunch of great ideas all the time and we develop them further. To encourage this, people need obviously to see and hear and feel.

A manager emphasized the importance of not spoiling ideas for no one knows in the beginning if an idea is a good idea or not. He said:

A matter of fact, we try to encourage people to be fearless to put ideas forward, no matter how crazy they are. Nothing is suffocated at birth, nothing at all.

#### *Evaluation*

During the evaluation phase, a justification for further development based on market potential, cost and technical risk is put forward. To estimate these factors the company has, according to a participant in some rare cases, sought for assistance from research institutes to estimate technical feasibility and risk. A need analysis is usually done with customers. Either R&D personnel or sales people visit customers in targeted markets and measure current production input and output to estimate optimal productivity for the new product innovation. An engineer who has a long experience on evaluation says it is important that someone that knows how to design a new product evaluates input or as he put it:

It is important that those who will work on the development gather data from customers, not some sales consultants.

#### *Design*

The design phase includes designing the product and to build a prototype. The design phase is completed when the first edition of the prototype has been built and passed testing against product specifications. This phase in the product innovation process is like a black box for outsiders and R&D seems to be protective of the company's intellectual properties. A manager described it this way:

If this is a new technology this is obviously the company's vital egg. If this is something that is generally known today, this is another matter.

In some cases, suppliers' cooperation is required whereas new components with special features are needed for the new product innovation. Suppliers do not get an overview of the entire product or solution.

#### *Prototyping (testing)*

When a prototype has been built, an internal testing starts. Participants claim that internal testing is never sufficient and R&D team works with customers on testing. Sales- and marketing people at subsidiaries assist R&D staff to define desirable customers for testing the prototypes at customers'.

#### *Release*

When the product is ready for manufacturing and general sale it is released. At this stage R&D cooperates with sales- and marketing people in subsidiaries, agents and even some customers if something comes up with the new product innovation.

#### *Follow up*

The final phase of the process is an adaptation period for the new product. In the long run this means minor design changes or improvements of the product over its lifecycle. Cooperation related to product innovation at this stage is with customers if something related the product design need to be changed and suppliers if components need be changed.

### **Factors influencing selection of cooperation partners**

The participants did not say anything directly about how they came about selecting cooperation partners. However, after analyzing the interviews there seem to be a pattern of which factors are considered when external partners are selected.

#### *Research institutions and Universities*

Since the company has started to grow and become a prestigious name internationally in the industry, research institutions, both Icelandic and increasingly European, plead for cooperating with Marel. Research institutions aim is to jointly apply for research grants for defined projects whereas Marel's name on the application increases the likelihood of acceptance according to participants. An engineer explained how a Nordic research institution which got funding from national government approached Marel when it was looking for:

...a dependable world class producer for technical products for the industry.

In few cases Marel has initiated partnership with research institutions to solve certain problems, but this is more of an exception according to the participants. Marel's research network is therefore increasingly stretching from Iceland to Europe as well. When Marel considers to cooperate with research institutes it looks into what type of funds is available for the project. It considered whether there are other participants in the project as well as technology knowhow within particular research institute.

Cooperation with universities is usually through Icelandic research students studying at Icelandic universities, in Europe or in the United States. Students approach the company to work projects for or within the company during their studies.

#### *Suppliers*

During the product innovation process Marel has a lot of explicit components' demands. The R&D team approaches suppliers when they need specific components which the company cannot produce or are not available on the market. Participants mentioned supplier's relevant technology level, size, and ranking of contact person as well as loyalty as factors influencing selection supplier to cooperate with.

It can be complicated to work with too big suppliers, they said, because Marel has little or no influence on what they are willing to do. On the other hand if suppliers are too small they do not have the necessary capacity to fulfill Marel's needs. As Marel has grown the company has more power to cooperate effectively with bigger suppliers, with high technology level. A manager explained how important it is to be in contact with the right people:

It was more personal, like a family firm. You came directly in contact to the general manager and head of technology. All communication was through them. In the other company we were always dealing with the sales guy. It was much harder to get to the technical people. It is hard to work that way. I always want to cooperate with those who will do the job. I don't want to talk to the messenger.

But, it all comes down to whom at the supplier you are dealing with. They also seem to be loyal to their long term suppliers and a manager said:

It is only in the case that we need something absolutely new that we go outside our suppliers' network. Cooperation with our network suppliers which we have worked with for a long time is not any worse than cooperation with our own companies within the corporate.

Marel's supplier network is strongest in Europe and Northern America, but stretches itself around the globe where the "right" technology is.

#### *Customers*

There is no formal way of selecting customers as cooperation partners during product innovation at Marel. Based on the interviews the following factors seem to influence the selection of cooperative partners among customers:

- Location close to market
- Geographical location
- Culture
- Trust
- Production range which reflects the market
- Size
- Chemistry

Usually, Marel chooses customers to cooperate with because of their location in relation to market importance and geographical location. One of the engineers who has long experience of trials said:

Cooperative partners are often not only chosen because of product development, but with future marketing in mind.

In the recent years Marel's customers' cooperation network has stretched around the world, closely to Marel's network of sales- and marketing subsidiaries. A manager explains it this way:

In the beginning this (customer cooperation network) was obviously only the fishing industry here in Iceland which was only one market, but today this is like a spider web which is stretched all over the world.

Geographical location matters in trials, because the new product is usually bulky and has to be transported to the customer's plant. An engineer explained this is:

They are so close to us. Let's take England as an example. They are located so close to us or in Scandinavia which is comfortable.

Another said:

Then it came clear that it was actually too much work going all the way to Canada each time we had to try something.

According to them a national culture and organizational similarities seem to play a big role. If national culture is much different from the Icelandic national culture it can make the cooperation hard. The participants mentioned the Danish and English as ideal cooperation partners based on culture similar to culture in Icelandic companies. Companies from a particular nation were named as an example of difficult cooperation partners and as an engineer put it:

They are extremely difficult. You know how they are. I really do not know how to describe this, but this really matters.

Trust is an important factor in cooperation according to participants, but is often put aside for more desirable location. A manager said:

We choose a customer that we had got to know recently, just because he was located closer to the potential market. We have examples of customers that have been crossed because we did not come to them again.

Another engineer who has worked on numerous trials claimed it is easier to work with partners that you have been working with for a long time.

According to participants ideally, customer's production range must effect a typical product range at the market. An engineer who has long experience of customer trials said:

We must choose a customer that is typical and often it is good to partner with someone who has diverse production. A customer that only reflects perhaps 1% of market production does not give an overall picture.

Participants frequently mentioned size of the partnering company in relation to selecting customers. However, size is such a relative concept and participants spoke about the advantages of being a part of a large organization. That opens opportunities for working with larger and often more prestigious customers. A manager said:

We are now able to choose amongst more variety of companies and many are willing to cooperate with us. Now, when we are bigger and more international we are able to cooperate with bigger companies than we were able to cooperate with only five or ten years ago.

On the other hand an engineer claimed it is hard to work with companies that are much larger and said:

They are such monsters. It is hard to get to the best people. I try to avoid too big companies where everything goes upside down if something goes wrong.

An engineer explains that smaller companies are more flexible and with structure that is easily. Another engineer says he tries to avoid small companies because:

If something goes wrong, they do not have the capacity to assist you.

According to participants the way people connect during cooperation influences results of the cooperation. Usually it is not the person who actually gives permission for a trial that works on the trial with Marel's R&D team. Therefore, even though a formal permission for a trial is in place it does not mean that customer's managers or other employees on site are supportive. An engineer put it:

Perhaps, some corporate guys pushed the trial through. It does not mean that it has been discussed in details how to operate the trial. I have felt this a little bit and there has been a conflict around this".

This is important says an engineer who has been working on trials for years:

If you don't have the management of your cooperative partner on board, this cooperation is doomed dead.

Even though the companies have a written cooperation agreement the cooperation will not be effective unless the people on both sides of the trial have a mutual understanding of what needs to be done. This can be a tough job and participants mentioned an incident when Marel actually had to change test sites because of resistance of customers' employees.

## Discussion

The aim of the paper was to show how Marel uses inter-firm cooperation during product innovation. According to the participants the most important cooperation partners are customers, suppliers, research institutes and universities. Users were also named, but they do not seem to be generally involved in innovation projects. In theory competitors are also named as cooperative partners, but participants did not mention this type of cooperation. Marel has an ISO qualification on its product innovation process, but nothing about external cooperation is defined there. Marel's practices supports Rothaermel and Deeds's (2004) findings as well as Cooper's (2009) theories which claim companies use different cooperation partners at different stages of the product innovation process. As illustrated in figure 1 Marel cooperates with research institutes and universities during development of basic technology. Supplier networks have been built around the product design phase and partly around development on basic technology. Cooperation with customers is mainly in the phase of idea qualification, the evaluation phase where R&D people do a need analysis with customers at trials.

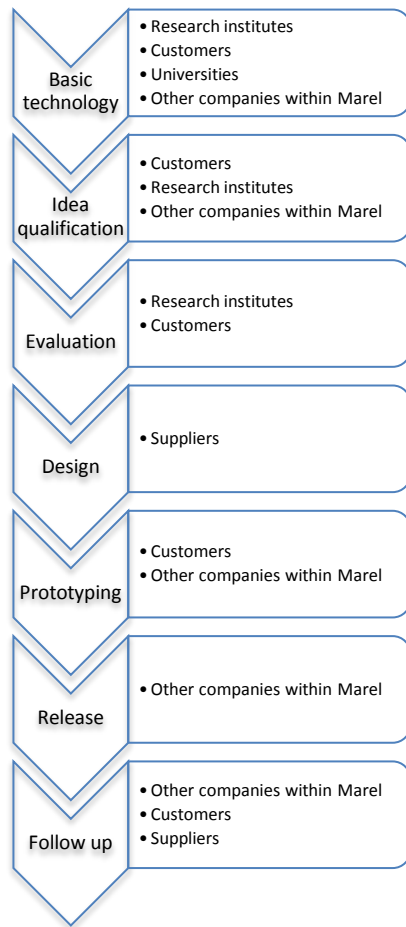


Figure 1. Marel's open product innovation process.

As claimed in the beginning of the paper the field of partners' selection is understudied. According to the participants there seem to be certain factors that affect Marel's the selection of partners. Figure 2 illustrates factors that affect Marel's decision to participate with particular partner or not. The arrows illustrate if Marel approaches partners or vice versa. Research institutions usually initiate cooperation when applying for official research funds. Factors like what type of fund, other participants in the project and research institution's ability to solve technical problems affect Marel's decision to participate or not. Marel usually initiates cooperation with suppliers. Factors that influence Marel's decision to participate with suppliers are suppliers' relevant technology level, size of the supplier, position of the contact person as well as loyalty if Marel has worked with the supplier before. Usually Marel approaches customers for cooperation. Many factors influence Marel's decision when selecting customers as cooperative partners. Location close to important markets and geographical location close to Iceland were named. Organizational similarities, as well as national culture influence the selection. Size of the company matters as well as trust and chemistry between the persons working together.

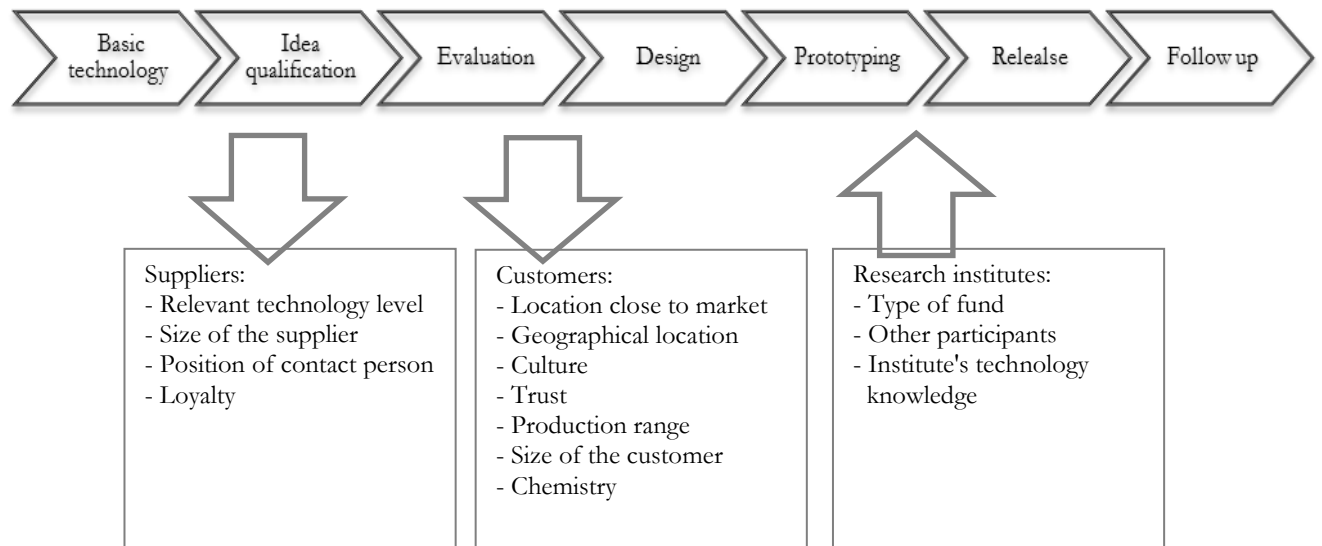


Figure 2. Factors which affect selection of cooperation partners.

## Conclusion

This paper is a part of a more extensive study on strategic inter-firm cooperation during product innovation in leading companies. A well grounded partner selection is a key factor in building successful strategic networks. Holmberg and Cummings (2009) claim that the limited number of literature around partner selection neglects to link partner selection to broader strategic management issues and fails to weight and rate the many specific elements of partner selection. However, Bierly and Gallagher (2007) note that selection is usually made with limited time and information. These results (Bierly & Gallagher, 2007; Holmberg & Cumming, 2009) fit with Marel's partner selection pattern where firms trust of potential partners builds on their knowledge of them which they have gained through social networks, location, cultural and organizational similarities rather than thorough strategic analysis of potential partners. The paper also supports research (Cooper, 2009; Rothaermel & Deeds, 2004) that have shown that companies cooperate with different partners at different stages of the product innovation process.

The paper provides a foundation for the author's further studies within the field as well as more insight in how leading companies practice open product innovation process.

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