When is it favourable to outsource innovation

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Abstract
Companies needs to constantly innovate and improve in order to remain profitable and keep up with competition. But innovation can be costly and knowledge and new ideas hard to find. Therefore companies outsource innovation and do so increasingly even though it is difficult to successfully decide when and how.

When should companies try to come up with new ideas themselves, and when should they give the job to outside experts? Does outsourcing of innovation work in established markets, new markets, for incremental or disruptive innovations, for product or process types of innovations?

Research involving small companies and outsourcing of innovation has not been widely addressed in the literature, this thesis intend to give a better understanding of this area.

After conducting a literature review we went looking for specific answers to the questions what effect does the business newness and size of a company have on the success of outsourcing and is there a difference in the outcome of outsourcing of innovation regarding the areas product, process, market and organization.

A survey among decision makers and decision influencers showed:
1. Outsourcing of product and market innovation in new business compared to established business was considered equally successful.
2. Outsourcing of process and organisation innovation in new business was considered significantly less successful compared to established business.
3. The perceived benefit from outsourcing product innovation is higher than perceived benefit from outsourcing of processes, markets or organizations innovation.
4. Market leaders (including those who where runner up) believes that outsourcing of organization innovation in established business is more successful compared to none market leaders same goes for outsourcing of process innovation.

This thesis tries to explain these and other findings concerning outsourcing of innovation.

Acknowledgements
Many thanks to our supervisor, the people answering our survey, friends and family that we neglected to spend time with while writing this thesis.
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1. Introduction

1.1 Background
Outsourcing of innovation is not a new thing. According to Teece (1988) the proportion of outsourcing of innovation (or research as he names it) in the US was very high around 1900, "During the late nineteenth century and the first half of the twentieth century... practically all of it [research] had been conducted outside of the firm in stand-alone research organisations." In-house research laboratories were considered novel and most companies that needed to undertake research would contract it out to universities or independent research institutes. Starting around the first world war, outsourcing of innovation decreased substantially.

Today it is estimated that 90% of research and development is done inside the company as stated by Tapscott and Williams (2008). But the reality for companies today is different from what it once was. Factors like the speed of new ideas emerging and globalisation create new problems and possibilities for companies. It would be hard not to have seen the discussion in literature and media about these changes that have accelerated during the last 15 years. Dixon (2002) explains this in one sentence: "Never before has the future so rapidly become the past". Another example about the scale of the changes taking place is by given by Tapscott and Williams (2008): “We are witnessing the reweaving of the social, political and economic fabric that binds our planet, with long-term consequences that are as or more profound than those of the industrial revolution.”

As well as these changes affect society they also affect companies. In today's globalized competitive environment it is a constant struggle to be or remain profitable and advantages, even small advantages, can make a large difference. Advantages can be created via innovation of product, process/manufacturing, market, or organisation. Most companies, even the market leaders, must keep innovating/improving in all or some of these areas in order to keep up with competition. But innovation can be costly with knowledge and new ideas hard to find. Therefore company outsource innovation and do so increasingly in order to increase the product/service attractiveness, speed time to market with improvements, cut costs, get access to top talent.

During the last decade we can notice significant increase in the outsourcing industry Oshri et al. (2011). In early days outsourcing was mainly intended in saving costs Lacity and Hirschheim (1993). Lately companies are expecting outsourcing to help them transform
their business, adding value but increasing the level of relationship between the client and supplier Oshri et al. (2011).

1.2 Problem discussion

When should companies try to come up with new ideas themselves, and when should they give the job to outside experts? Does outsourcing of innovation work in established markets, new markets, for incremental or disruptive innovations, for product or process types of innovations? Which type of partner is the right one to choose? There are many questions and parameters to take into consideration.

Looking at the organizational challenges, it is more or less a contradiction for a firm to both excel in execution of one successful product/service at the same time as looking for new innovation and challenge the assumptions/basis for the existing one. On the other hand we have the need for IT and innovation to be close to the business. That is the case for both incremental and disruptive innovations.

Control versus cost where in‐house innovation can be fully controlled and adapted to the firms specific need vs. outsourcing of innovation which does not give the same level of control but will normally give lower cost due to scale of operation and specialization. See for example Lai et al. (2008).

The cost of purchased goods and services according to Porter (1985) can be a large cost to a company and he points out that it still often receives less attention in regards to management of cost then the own labour input of the company. It might be easier to focus on the cost inside a company then to try to get the best return from the outsourced parts of the organisation.

Another aspect apart from cost when outsourcing knowledge-based services is the management of intellectual property (IP). Subroto and Sivakumar (2011) conclude that decisions regarding outsourcing of knowledge-based services should not be done purely from short operational considerations but also take into account how to accessing, exploiting, and defending IP. Subroto and Sivakumar (2011) further stress that this is particularly important in industries undergoing rapid change and requires rapid innovation because such industries have the most to lose by not appropriate to manage IP. To deal with this kind of problem is likely to require a lot of IP expertise and resources which, especially for smaller companies, can be a large obstacle.

1.3 Problem formulation and purpose

Cost pressures are prompting companies to turn to third parties for new ideas Stanko et al, (2009). While this strategy has been found to reduce costs in the quest for new ideas,
Overby (2007) found that many companies were dissatisfied with the innovation driven from their outsourcing partners as the incentives did not encourage them to provide breakthrough ideas.

As recognised by Gassmann (2006) managing innovation practices is difficult. Thus, this thesis seeks to identify scenarios in which innovation can successfully be outsourced. Stanko et al. (2009) performed a study considering 359 companies in the U.S. and reviewed existing research in outsourced innovation. It was determined that the outsourcing was successful when the reasons for outsourcing followed four main reasons. These where:

1. When companies would need to add lots of new knowledge to innovate. Stanko et al. (2009)
2. In the early stages of a project. Stanko et al. (2009)
3. When intellectual property is not well protected. Stanko et al. (2009)
4. When companies have had lots of experience with outsourcing. Stanko et al. (2009)

On the other hand, Overby (2007) conducted a survey about the satisfaction levels from companies about the level of innovation obtained from outsourcing and found that nearly half of the respondents were unhappy. Hoecht and Trott (2006) describe innovation related risks of outsourcing that can hinder innovation.

It is important to recognise that it is difficult to successfully manage innovation, so successful examples should be understood. Research involving small companies and outsourcing of innovation has not been widely addressed in the literature, this thesis intend to give a better understanding of this area. Or more specifically answer the questions what effect does the business newness and size of a company have on the success of outsourcing and is there a difference in the outcome of outsourcing of innovation regarding the areas product, process, market and organization.

1.4 Thesis structure

The thesis begins with a background chapter where we briefly describe the subject of outsourcing of innovation. This is an introduction into the subject and its limitations. The second part is called theory. In this chapter we make an in-dept review of literature and ideas we have reviewed about the subject of this thesis. This chapter states the knowledge base the thesis builds upon. We have used this part as a basis of our hypothesis formulation and the further chapters.

Chapter three explain the method we use to gather information to prove our hypothesis right or wrong. After that comes the analysis of the information gathered. The last chapter states our conclusions and its implications.
2. Theory

The authors will conduct a review of the scientific literature addressing key concepts such as outsourcing, innovation, outsourcing of innovation concepts and detail arguments for and against the outsourcing of innovation. Resources used to identify literature will include articles from known scientific databases. Summaries of relevant information will be made and integrated.

2.1 Outsourcing

There are several definitions for outsourcing, specifically for IT services. Overby (2007) defines it as the farming out of services to a third party to gain access to specific IT skills not available in-house, reduce costs, lower investment in internal infrastructure. Goles and Chin (2005) define outsourcing as contracting with one or more third party vendors for the provision of some or all of an organization's IS functions, where "functions" include one or more IT activities, processes, or services to be provided over time.

There are several and conflicting definitions, for outsourcing. For this work we recognise as outsourcing paid an unpaid work as other types of motivation could be considered.

During the last decade we can notice significant increase in the outsourcing industry Oshri et al. (2011). In early days outsourcing was mainly intended in saving costs Lacity and Hirschheim (1993). Lately companies are expecting outsourcing to help them transform their business, adding value but increasing the level of relationship between the client and supplier Oshri et al. (2011).

As an example of the importance of outsourcing, Forbes magazine reported that global pharmaceuticals expended 2 billion US dollar in outsourcing of R&D in 2003, in 2007 they reported 7 billion US dollar, this shows a big increase in outsourcing activities. Xiaolin (2011).

2.2 Innovation

For this work we understand for innovation the creation of a new product, service or process as De Bretani (2001) defines.

The academic literature splits innovation in a number of ways. The two most common ways of dividing innovation is by the entity which has been improved by the innovation and the impact of the innovation. De Bretani (2001) and Veryzer (1998) identified four entities which can be improved by innovation within an organisation. These are products, processes, organisation and marketing. This last classification systems is described in the guidelines for collecting and interpreting innovation data that was issued by the
Organisation for Economic Cooperation and Development OECD (2005). Innovation is also split according to the degree of innovation, with Orshri et al. (2011), Schilling (2007) and Malhotra et al. (2001) identifying both incremental and radical innovations.

These types are product, process, market and organisation innovation.

- **Product innovation:** the development of new products and new features that significantly improve an existing product.
- **Process innovation:** new or significantly improved changes to any working processes.
- **Market innovation:** significant changes to a product design or packaging, product placement, product promotion or pricing through new marketing methods.
- **Organization innovation:** changes to the company’s business practices, workplace organization or external relations.

In addition these types of innovation can be classified according to the innovation impact level as incremental innovation, technical and market breakthroughs and radical breakthroughs Tomczak and Befurt (2006)

- **Incremental innovations:** relatively minor changes in technology based on existing platform, which deliver relatively low value incremental customer benefits.
- **Market breakthroughs:** based on core technology that is similar to existing products, but that provide substantially higher customer benefits per dollar.
- **Technological breakthroughs:** substantially different technology than existing products, but do not provide superior customer benefits per dollar.
- **Radical innovations:** or disruptive innovations, which introduce first time features or exceptional performance using substantially different technology at a cost that transforms existing or creates new markets and delivers novel utility.

Concerns and parameters to take into consideration:

- A business can vary in its “newness” depending on how much it departs from existing business in terms of value proposition, target market, assets and competences employed, and intensity if competitors Aaker (2008). This “newness” level is one parameter when choosing strategy. Below are some general concerns for new business and established business:

  a. Innovation in new businesses can often earn more than the average firm in established business due to the innovators advantage or first mover advantage Aaker, (2008). The explanation is that competitors may believe that the new business will cannibalize their existing business and therefore entering the new business too late, 2) it might be difficult and take time for competitor to copy the innovation, 3) the innovator can create a loyal customer base which will see no reason to switch to something similar from a competitor if introduced too late. So to gain the first mover advantage it is
important to hit the market first, i.e. try to keep the innovation secret as long as possible i.e. this is an argument for not outsource innovation. In this research we define New Business as: a new product/service and/or a new market/sub market with limited competition yet. For example Apple iPad (until second half year 2012) or the Starbucks Coffee house (1986 and for several years in US).

b. Earnings in established Innovation in existing business can be a struggle even with good management and innovation due to 1) competitors responds fast and vigorously, 2) incremental innovation are difficult to hide since changes are rather transparent in an established market with established players, and 3) an overcapacity that makes it hard to grow and every extra market share is costly to win Aaker (2008). Under such conditions it is hard to get enough return on innovation investments and since there is little idea to try to hide them since most incremental changes in established market is rather transparent and thus arguments for outsource innovation for increase margins can be favourable. In this research we define New Business as: an existing product/service in an existing market where it is hard to get sustainable market position or point of differentiation due to extensive competition.

Engardio and Einhorn (2005) describe how big electronics companies are buying complete designs from Asian developers and using their brand. Examples in the mobiles phone industry like Motorola used BenQ to manufacture and develop mobiles phones and then BenQ decided to commercialize the phone using their own brand. They describe how companies that outsource impose strict confidentiality agreements to their suppliers.

In the article from Xiaolin (2011), they describe the characteristics of technological innovation outsourcing for small and medium enterprises. In this article some motives and risks are defined. It is important to define what are the activities that will be outsourced, this needs to be clear. Compare different outsourcing partners to define which one is the one that best suit the specific case. Control of the outsourcing partner it is necessary to define mechanisms to regularly evaluate the performance of the outsourcing partner. Adjustment of the outsourcing activities to internal and external environmental changes.

There are many dimensions to consider when looking at IT/SW based innovation. Literature studies from earlier empirical studies which is relevant has given us some valuable answers and a good base to start from. In this section we list relevant findings.

Cui et al. (2010) summarize motivation factors from other studies:
Table 1. Motives for Innovation Outsourcing, (Cui et al, 2010)

Based on empirical study of 31 innovation project Cui et al. (2010) results suggest that the match between motivations and providers’ strength is a necessary but not sufficient condition for the success of outsourcing:

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>• Reduce investment by R&amp;D cost and risk sharing</td>
</tr>
<tr>
<td></td>
<td>• Partner’s low development cost (better process, cheap labor,</td>
</tr>
<tr>
<td></td>
<td>competitive provider market, larger scale, etc.)</td>
</tr>
<tr>
<td>Market</td>
<td>• Understand current market needs</td>
</tr>
<tr>
<td></td>
<td>• Gain access to potential new market</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>• Shorten time-to-market cycle</td>
</tr>
<tr>
<td></td>
<td>• Obtain lower manufacturing cost or total cost of ownership</td>
</tr>
<tr>
<td>Technology</td>
<td>• Obtain access to technology and general expertise</td>
</tr>
<tr>
<td></td>
<td>• Identify and influence potentially disruptive technologies</td>
</tr>
<tr>
<td>Strategic</td>
<td>• Outsource non-core competences</td>
</tr>
<tr>
<td></td>
<td>• Respond to regulations, standards, or changing market structure</td>
</tr>
<tr>
<td>Organizational</td>
<td>• Avoid internal rigidities and barriers</td>
</tr>
<tr>
<td></td>
<td>• Encourage organizational change and innovation</td>
</tr>
</tbody>
</table>

Table 2. Innovation Provider Strengths by Type (Cui et al, 2010)

In addition the the match in table 2 above, Cui et al. (2010) result also identifies the following operational success drivers:
Another dimension to consider for outsourcing of innovation is the degree of outsourcing where large scale of outsourcing will limit the future options for innovation Windrum et al. (2008).

This is also highlighted by Miozzo and Grimshaw (2004) when they conclude that “short-term cost-cutting, client organisations can not delegate power and responsibility to computer service firms without jeopardising their ability to upgrade innovation capabilities in the longer term”.

Recently the open innovation model, exemplified by App store from Apple and open source software development such as Linux and Apache have received enormous attention, at least in the Apple case also resulted in high profits and margin. Please recall that a similar “eco systems” with open innovation has been created/evolved earlier as well. In the early 1990 electronic exchanges published open APIs for providers to build front office and back office application for securities trading, the Stockholm Stock Exchange and OMX, had a certification process of providers applications, promoted providers/applications on a list on their website, and later on even built the infrastructure (high bandwidth fiber networks) and provided hosting of suppliers program trading server (very near the central matching server). Everything to help the providers and also in return become helped by the providers in the global race for liquidity in the most traded securities that are traded on several marketplaces in competition. So in our eyes the Apple store is not a so mind

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Table 3. Common and Provider-Specific Success Drivers for Embryonic Technologies (Cui et al, 2010)

<table>
<thead>
<tr>
<th>“Universal” Success Drivers (across Providers)</th>
<th>Providers</th>
<th>Provider-contingent Success Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Trust and commnunication&lt;br&gt; • Organizational stability&lt;br&gt; • Defined goals</td>
<td>Universities&lt;br&gt; • Detailed process control&lt;br&gt; • Incentive alignment&lt;br&gt; • Knowledge transfer (from client to university)</td>
<td>Customers&lt;br&gt; • Expectations management&lt;br&gt; • Incentive alignment</td>
</tr>
</tbody>
</table>
blowing new technology and neither mind blowing new idea indeed a very beautiful en excellent execution of existing ideas in a new created market.

Gassmann (2006) identifies important perspectives on open innovation as: 1) globalization of innovation, 2) outsourcing of R&D, 3) early supplier integration, 4) user innovation, and 5) external commercialization and application of technology. Where the purpose for outsourced R&D historically has been due to cost savings but becoming more and more important in order to increase strategic flexibility, gain access to new knowledge and higher the innovation rate.

<table>
<thead>
<tr>
<th>Antecedents of innovation outsourcing literature</th>
<th>Relevant empirical findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset specificity</td>
<td>Positively related to internal governance</td>
</tr>
<tr>
<td>Market uncertainty</td>
<td>No consensus due to lack of examination</td>
</tr>
<tr>
<td>Technological uncertainty</td>
<td>No consensus due to conflicting findings</td>
</tr>
<tr>
<td>Behavioral uncertainty</td>
<td>Positively related to internal governance</td>
</tr>
<tr>
<td>Appropriability</td>
<td>Weak appropriability is positively related to internal governance</td>
</tr>
<tr>
<td>Ability to develop competitive advantage</td>
<td>Positively related to internal governance</td>
</tr>
<tr>
<td>Low cost goal</td>
<td>Positively related to internal governance</td>
</tr>
<tr>
<td>Firm size</td>
<td>Negatively related to internal governance</td>
</tr>
</tbody>
</table>

Table 4. Antecedents of innovation outsourcing: research consensus (Stanko et al, 2010)

Hoecht and Trott (2005) identifies the risks with outsourcing of innovation to 1) forgoing the development of the knowledge base of the firm, and 2) the firm’s existing skills and core competencies may be unwittingly being leaked via the third party provider.

Weeks and Fenny (2008) explain that most of the innovation achieved from outsourcing are incremental innovations. On the other hand when analysing radical innovation they conclude that there are more problems to achieve innovation. In this work we aim to find an relation between this and the size of the business.

Most of the outsourcing vendor relationships deliver incremental innovations Oshri et al. (2011), in this document we intend to find out in which extent do the companies outsource the different types of innovation.
Radical innovation in outsourcing is more difficult to achieve. This paper explains that a strong client-supplier relationship lead to success radical innovation in IT outsourcing. The larger the firm, the greater the reliance on more formal procedures for contracts.

2.3 Hypothesis
Based on the literature review it is our hypothesis that

1. There is a negative relationship between the newness of the business and the perceived benefits from outsourcing of innovation.
   a. The rational, in our opinion, is that 1) the company has a larger reason for keeping the innovation secret as long as possibly in order to keep the first movers advantage, and 2) a more new market/business is more volatile than an established and therefore there is a larger need for keeping innovation power and innovation options in-house. Please note that outsourcing of non innovating pieces is another story.

2. There is a positive relationship between the firm size and the perceived benefits from outsourcing of innovation.
   a. The rational, in our opinion, is that a larger firm normally have larger power and thus less risk to be over-run by the outsourcing provider/the innovation is captured by the outsourcing provider.

3. The perceived benefit from outsourcing product innovation is higher then perceived benefit from outsourcing of processes, markets or organizations innovation.
   a. It is our feeling, without any statistics to back that feeling, that outsourcing of processes, markets and organization innovation is less frequently used and a reason for that is likely to be that the perceived benefit is less.

3. Method
We will use methodology from two books one by Patel and Davidson (1994) and the second by Körner and Wahlgren (1996). By using their methodology we will try to prove our hypothesis right or wrong.

3.1 Population
To gather data we need to get in touch with people that take outsourcing decisions and can evaluate the outcome of outsourcing for a company. One such position within a company is
the CIO (Chief Information Officer). We will therefore put our questions used to gather data to a community on LinkedIn for CIO:s. It has over 40 000 members. We intend to use a convenience sampling or accidental sampling Leedy and Ormrod (2005), meaning that we will ask people that is readily available from the LinkedIn group to participate.

3.2 Variables

Patel and Davidson (1994) defines two types of variables. Dependant and Independent variables. They describe the dependent variable as a variable that can be a certain value. The independent variable is the variable that causes a certain value to the dependent variable. Körner and Wahlgren (1996) gives the example of the two variables a child’s length and age. The child’s length which is the dependant variable is dependent on the independent variable that is the child’s age. They also describe this as the child’s length being a function of the child’s age.

In our case the depending variable is outsourcing of innovation. Outsourcing of innovation can take the values on two scales that has been discussed in the theory part. These scales are as follows:

Outsourcing of innovation can be:
- Unsuccessful
- Somewhat Successful
- Successful
- Very successful

Outsourcing of innovation can lead to:
- No innovation
- Incremental innovations
- Market breakthroughs
- Technological breakthroughs
- Radical innovations

Our independent variables are the following variables:
- Size of the company
- The market share the company holds
- Newness of the product/service
- Degree of outsourcing at the company
- Type of innovation: Product, Process, Market, and Organization

We believe that these independent variables have an effect on the value of the dependent variable. This can also be described as outsourcing of innovation can take any of the values on the scales described above depending on the size, newness and degree of outsourcing at the company.
3.3 Selected method
To be able to put our questions to such a large group of people we will send out a survey. We believe that interviews would give us only a limited population and the possibility for dilution of the answers because of the way the questions was put. In contrast to this we feel that a survey gives us access to a large population with standardized questions in a time efficient manner.

3.4 The survey
According to Körner and Wahlgren (1996) questions can be divided into two categories, quantitative and qualitative questions. Quantitative questions are numerically measurable while qualitative questions are non numerical. We intend to use qualitative questions in the survey.

For the survey, 59 respondents were considered. As Howell describes for the data to be considered a coming from normal sampling distribution a sample of 25 to 30 individuals is recommended (Howell, 2010).

To try to motivate people to answer the survey and answer fast we will offer to send our findings in form of the thesis to the first 50 respondents. Another way of ensuring that people can take time to answer the survey is to make sure that the survey should not take more then 5 minutes on average to answer.

The questions in the survey are directly related to the independent and dependant variables described in section 3.2. In total there are nine questions. Five of them are concerning the independent variables. Two of them are questions asking for the perceived value of the dependant variable according to the two scales described in section 3.2 that the dependant variable can be measured by.

The last two questions ask for other factors then the independent variables that can have an effect on the success of outsourcing (the dependent variable). The respondents are asked to give up to three suggestions of items that can increase the likelihood of success and three that can decrees the likelihood of success of outsourcing.

5. Analysis

5.1 Data Analysis
A total of 59 respondents were asked to answer to which extent do they outsource the different types of innovation in their companies. The data was divided in four tables each representing the type of innovation and the amount of the business outsourced.

The businesses were categorised according to their size considering the number of employees. There are different classifications according to the countries and usually the businesses are categorised as micro, small, medium, large and enterprises. In this work we grouped the size of the business in Group A and Group B, where Group A considers micro, small and medium businesses and Group B considers large and enterprise as shown in Table 5.

<table>
<thead>
<tr>
<th>Business</th>
<th>Number Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>Micro</td>
</tr>
<tr>
<td></td>
<td>1-9</td>
</tr>
<tr>
<td>Group A</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td>10-49</td>
</tr>
<tr>
<td>Group A</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>50-249</td>
</tr>
<tr>
<td>Group B</td>
<td>Large</td>
</tr>
<tr>
<td></td>
<td>250-999</td>
</tr>
<tr>
<td>Group B</td>
<td>Enterprise</td>
</tr>
<tr>
<td></td>
<td>1000+</td>
</tr>
</tbody>
</table>

**Table 5. Size of business**

<table>
<thead>
<tr>
<th>Product/Service</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of business outsourced</td>
<td>Micro-Medium</td>
<td>Large-Enterprise</td>
</tr>
<tr>
<td>None</td>
<td>43%</td>
<td>40%</td>
</tr>
<tr>
<td>Some</td>
<td>41%</td>
<td>50%</td>
</tr>
<tr>
<td>Half</td>
<td>3%</td>
<td>10%</td>
</tr>
<tr>
<td>Most</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>All</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Table 6. Product/Service amount of business outsourced.**
Figure 1. Product/Service amount of business outsourced.
As appreciated in the Table 6 and Figure 1 product and service innovation in micro-medium businesses, for the option “Most” of this type of innovation is outsourced, was obtained a 14% compared to 0% for large-enterprise.
<table>
<thead>
<tr>
<th>Process</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of business outsourced</td>
<td>Micro-Medium</td>
<td>Large-Enterprise</td>
</tr>
<tr>
<td>None</td>
<td>51%</td>
<td>57%</td>
</tr>
<tr>
<td>Some</td>
<td>41%</td>
<td>38%</td>
</tr>
<tr>
<td>Half</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Most</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>All</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 7. Process amount of business outsourced.

The Table 7 shows the results obtained for the process type of innovation.

Figure 2. Process amount of business outsourced.
Table 8. Market amount of business outsourced.

Table 8 and Figure 2 show the results for the market type of innovation, it is noticeably that the values obtained for Micro-Medium businesses and Large-Enterprise business are very similar.
Table 9. Organisation amount of business outsourced.

Table 9 and Figure 4 highlight that for organisation innovation most of the respondents, 76% for micro-medium businesses and 57% for large-enterprise do not consider organisation outsourcing in their business.

Hypothesis 1
Our hypothesis, from chapter 2.3 was that: “There is a negative relationship between the newness of the business and the perceived benefits from outsourcing of innovation”. The rational, in our opinion, is that

1. The company has a larger reason for keeping the innovation secret as long as possibly in order to keep the first movers advantage, and
2. A more new market/business is more volatile than an established and therefore there is a larger need for keeping innovation power and innovation options in-house.

We tested that hypothesis by asking the following two questions in our survey:

- Question 5: For outsourcing of innovation in NEW Business, which types of innovations do you consider successful?
- Question 6: For outsourcing of innovation in ESTABLISHED Business, which types of innovations do you consider successful?

We define NEW Business as a new product/service and/or a new market/sub market with limited competition yet. For example Apple iPad (until second half this year) or the Starbucks Coffee house (1986 and for several years in US)

We define ESTABLISHED Business as an existing product/service in an existing market where it is hard to get sustainable market position or point of differentiation due to extensive competition.

<table>
<thead>
<tr>
<th>Type of innovation outsourcing</th>
<th>New Business</th>
<th>Established Business</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product/Service</strong></td>
<td>47%</td>
<td>42%</td>
</tr>
<tr>
<td>The development of new product/service and features that significantly improve an existing product/service</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>5%</td>
<td>31%</td>
</tr>
<tr>
<td>New or significantly improved changes to any working processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Market</strong></td>
<td>31%</td>
<td>29%</td>
</tr>
<tr>
<td>Significant changes to a product design or packaging, product placement, product promotion or pricing through new market</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Changes to the company’s business practices, workplace organization or external relations</td>
<td>7%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 10. Type of innovation new versus established business.

In the Figure 5 we can appreciate that we have a significant difference for the process and organisation innovation for established and new businesses.

So our hypothesis was wrong since there seems to be no negative relationship between business newness and product/service type of innovation outsourcing and neither a negative relationship between business newness and organization type of innovation outsourcing. But we were partly right since the survey result shows a significant negative relationship between business newness process type of innovation outsourcing where only 5% consider if being successful for new business compared to 31% in established business. Similar with organisation innovation where only 7% consider if being successful for new business compared to 20% in established business.

Hypothesis 2
4. There is a positive relationship between the firm size and the perceived benefits from outsourcing of innovation.
a. The rational, in our opinion, is that a larger firm normally have larger power and thus less risk to be over-run by the outsourcing provider/the innovation is captured by the outsourcing provider.

We tested that hypothesis by asking the following two questions in our survey:

- Q3: For the types of innovation your organisation outsources. To what degree do you consider it successful?
- Q5: For outsourcing of innovation in NEW Business, which types of innovations do you consider successful.
- Q6: For outsourcing of innovation in ESTABLISHED Business, which types if innovations do you consider successful.

The survey result did not confirm the above hypothesis.

- Smaller companies considered their outsourcing of process innovation being successful (46%) while only 18% from the larger companies.
- Larger companies considered their outsourcing of market innovation being successful (27%) while only 14% from the smaller companies.
- Smaller companies considered outsourcing of product innovation in established business being successful (91%) while only 38% from the larger companies.
<table>
<thead>
<tr>
<th>Type of innovation outsourcing</th>
<th>Group A Micro to Medium</th>
<th>Group B Large to Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 Product innovation successful</td>
<td>51%</td>
<td>55%</td>
</tr>
<tr>
<td>Q3 Process innovation successful</td>
<td>46%</td>
<td>18%</td>
</tr>
<tr>
<td>Q3 Market innovation successful</td>
<td>14%</td>
<td>27%</td>
</tr>
<tr>
<td>Q3 Organisation innovation successful</td>
<td>24%</td>
<td>32%</td>
</tr>
<tr>
<td>Q5 Product innovation successful new Business</td>
<td>84%</td>
<td>70%</td>
</tr>
<tr>
<td>Q5 Process innovation successful new Business</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Q5 Market innovation successful new Business</td>
<td>48%</td>
<td>60%</td>
</tr>
<tr>
<td>Q5 Organisation innovation successful new Business</td>
<td>4% 1*)</td>
<td>12% 1*)</td>
</tr>
<tr>
<td>Q6 Product innovation successful established Business</td>
<td>91%</td>
<td>38%</td>
</tr>
<tr>
<td>Q6 Process innovation successful established Business</td>
<td>55%</td>
<td>46%</td>
</tr>
<tr>
<td>Q6 Market innovation successful established Business</td>
<td>45%</td>
<td>54%</td>
</tr>
<tr>
<td>Q6 Organisation innovation successful established Business</td>
<td>27%</td>
<td>46%</td>
</tr>
</tbody>
</table>

**Table 11.** Survey result firm size and percentage successful  
1*) Too few answered yes on this question in order to draw any conclusion about a general difference between smaller and larger companies.
When it comes to the result from product, process and market innovation outsourcing, where the result can be of different magnitude:

- **INCREMENTAL INNOVATION** as a relatively minor changes in technology based on existing platform, which deliver relatively low value incremental customer benefits.
- **MARKET BREAKTHROUGHS** based on core technology that is similar to existing products, but that provide substantially higher customer benefits per dollar.
- **TECHNOLOGICAL BREAKTHROUGHS**, substantially different technology than existing products, but do not provide superior customer benefits per dollar.
- **RADICAL INNOVATION**, which introduce first time features or exceptional performance using substantially different technology at a cost that transforms existing or creates new markets and delivers novel utility.

The survey result shows that small companies perceives the result from product, process, and market innovation outsourcing generating significant more innovation compared to larger companies while the result from organisation innovation outsourcing was the other way. The result did also confirmed that most of the outsourcing vendor relationships deliver incremental innovations Oshri et al. (2011) and to a less extent market breakthrough, technological breakthroughs and radical innovation.
<table>
<thead>
<tr>
<th>Type of Innovation outsourcing</th>
<th>Magnitude of result</th>
<th>Group A Micro to Medium</th>
<th>Group B Large to Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None/Not Applicable</td>
<td>22%</td>
<td>55%</td>
</tr>
<tr>
<td></td>
<td>Incremental innovations</td>
<td>35%</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td>Market breakthroughs</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Technological breakthroughs</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Radical innovations</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Product/Service</td>
<td>None/Not Applicable</td>
<td>51%</td>
<td>73%</td>
</tr>
<tr>
<td></td>
<td>Incremental innovations</td>
<td>43%</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>Market breakthroughs</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Technological breakthroughs</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Radical innovations</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Process</td>
<td>None/Not Applicable</td>
<td>54%</td>
<td>82%</td>
</tr>
<tr>
<td></td>
<td>Incremental innovations</td>
<td>32%</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>Market breakthroughs</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Technological breakthroughs</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Radical innovations</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Market</td>
<td>None/Not Applicable</td>
<td>78%</td>
<td>64%</td>
</tr>
<tr>
<td></td>
<td>Incremental innovations</td>
<td>32%</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>Market breakthroughs</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Technological breakthroughs</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Radical innovations</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Incremental innovations</td>
<td>22%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>Market breakthroughs</td>
<td>0%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Technological breakthroughs</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Radical innovations</td>
<td>0%</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

Table 12 Survey result, different magnitude of output from innovation outsourcing

**Hypothesis 3**

5. The perceived benefit from outsourcing product innovation is higher than perceived benefit from outsourcing of processes, markets or organizations innovation.
   a. It is our feeling, without any statistics to back that feeling, that outsourcing of processes, markets and organization innovation is less frequently used and a reason for that is likely to be that the perceived benefit is less.

The survey result confirmed this hypothesis. 50% claimed that product innovation outsourcing was very successful or successful, while the result for process innovation outsourcing was 36%, the result for market innovation outsourcing was 32%, and the result for organisation innovation outsourcing was 27%.

**Further analysis**

We went one step further to see if there was any differences between market leaders and the rest. And we found when comparing market leaders (including companies that was runner up) with none market leaders gave the 2 significant differences.

1. Market leaders (including those who where runner up) consider their own outsourcing of process innovation successful or very successful (58%) of the cases while none market leaders (3rd or more behind) where less positive (24% consider their own process type of innovation successful or very successful).
2. Market leaders (also included those who where runner up) believes that outsourcing in organization type of innovation being in Established business is successful or very successful (50%) while none market leaders (3rd or more behind) did not (5%).

beside that everything else was very similar both in terms of size, extent of outsourcing etc when comparing market leaders with none market leader.
6. Conclusions and Implications

6.1 Result discussion

Our objectives were to answer the question what effect does the business newness and size of a company have on the success of outsourcing and is there a difference in the outcome of outsourcing of innovation regarding the areas product, process, market and organization? To do this we formed three hypothesis which we tried to prove right or wrong by analyzing the result from a survey sent out to IT professionals. This survey in the end turned out to give us a different result then we expected on two of the three hypothesis. Scientifically we can only note that the result was different to what we expected. But after we have gone through this process of gathering background information about the subject, and analyzing the survey result, we can speculate in hindsight why the result is different then we first expected it to be.

Our first hypothesis was that there is a negative relationship between the newness of the business and the perceived benefits from outsourcing of innovation.

One possible explanation for innovation outsourcing in established business of product/service and market is much more likely compared to process and organization type could be that for the respondent companies product and market innovation comes first while investing in (or adapting of) processes and organization is done later when the new business has proven itself being successful and is about to be established business. But we have no scientific evidence for that explanation.

The second hypothesis stated that there is a positive relationship between the firm size and the perceived benefits from outsourcing of innovation. On the contrary to this smaller companies seems to believe that their outsourcing is successful to a larger extent then large companies. One explanation to this that we think can be plausible is the fact that small companies don’t have all the parts needed to run a company. Being a small company might mean that they don’t have their own Legal, PR even R&D department. The best way for them to make up for this is to buy these functions on the market, i.e outsource these functions. On the other hand companies that are large enough to reach economies of scale to have these departments might gain in transaction cost and function control by using their own staff that they have full control over.

Another possible explanation that there is no general positive relationship between the firm size and the perceived benefits from outsourcing of innovation can be that the lack of power from smaller companies resulting in a risk of loosing the innovation is still not enough to discourage outsourcing of innovation maybe because the cost reduction benefit out-weight that risk. Further research needs to be done to understand these factors.
The last hypothesis we had was that the perceived benefit from outsourcing product innovation is higher than perceived benefit from outsourcing of processes, markets or organizations innovation. This turned out to be correct. One reason for this we think can be that outsourcing is seen as a way to exploit labour in countries where labour is cheap. These countries still lack skilled labor with higher education in sciences like law, marketing and business economics. But they have plenty of skilled engineers which makes outsourcing of product innovation possible, but it also represent challenges as is stated by Levina and Vaast (2008).

In addition to the answers on our hypothesis we also found that:

1. Smaller companies considered outsourcing of product and process innovation successful in 50% of the cases while market and organisation innovation being successful in only about 20% of the cases. Outsourcing of process and organisation innovation in new business/market was not considered successful, less than 10% of the respondents.

2. A notable difference between smaller and larger companies was that larger companies consider outsourcing of process innovation successful in only about 20% of the cases compared to almost 50% for smaller companies.

3. Market leaders (including those who where runner up) consider their own outsourcing of process innovation being more successful (58%) compared to none market leaders (24%). Market leaders (also included those who where runner up) believes that outsourcing of organization innovation in Established business is more successful (50%) compared to none market leaders (5%). So this result indicate that market leaders a more successful to manage process type of innovation as well as market innovation in established businesses to turn those outsourcing relations into delivered values.
7. References

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- Miozzo, M., Grimshaw, D., Modularity and innovation in knowledge-intensive business services: IT outsourcing in Germany and the UK, *Research Policy* 2004
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8. Appendix
**Outsourcing of Innovation**

**Quick Survey - Outsourcing of Innovation**

This short questionnaire aims to find out when outsourcing of innovation within small to medium size firms is beneficial.

Please help us by sharing your experience, the survey takes approximately 3-5 minutes to complete and we will share the result with you. Your participation in this survey will be greatly appreciated.

1. How many people are employed at your organisation?
   - 1-9
   - 10-49
   - 50-249
   - 250-999
   - 1000+

2. How much of each type of innovation is outsourced within your organisation?

<table>
<thead>
<tr>
<th>Type of Innovation</th>
<th>None</th>
<th>Some</th>
<th>Half</th>
<th>Most</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product/Service (The development of new products/services and features that significantly improve an existing product/service.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process (New or significantly improved changes to any working processes.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market (Significant changes to a product design or packaging, product placement, product promotion or pricing through new markets.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization (Changes to the company's business practices, workplace organization or external relations.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment: [Space for comment]
3. For the types of innovation your organisation outsources. To what degree do you consider it successful?

<table>
<thead>
<tr>
<th></th>
<th>Very Successful</th>
<th>Successful</th>
<th>Unsuccessful</th>
<th>Very Unsuccessful</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product/Service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. To which degree of impact is your experience that your outsourcing of innovation in the different areas have lead?

Here we define:

INCREMENTAL INNOVATION as a relatively minor changes in technology based on existing platform, which deliver relatively low value incremental customer benefits.

MARKET BREAKTHROUGHS based on core technology that is similar to existing products, but that provide substantially higher customer benefits per dollar.

TECHNOLOGICAL BREAKTHROUGHS, substantially different technology than existing products, but do not provide superior customer benefits per dollar.

RADICAL INNOVATION, which introduce first time features or exceptional performance using substantially different technology at a cost that transforms existing or creates new markets and delivers novel utility
Outsourcing of Innovation

5. For this question we define NEW Business as a new product/service and/or a new market/sub market with limited competition yet. For example Apple iPad (until second half this year) or the Starbucks Coffee house (1986 and for several years in US).

For outsourcing of innovation in NEW Business, which types of innovations do you consider successful.

☑ Product/Service (New products/services and features that significantly improve an existing product.)
☑ Process (New or significantly improved changes to any working processes.)
☑ Market (Significant changes to a product design/packaging, placement, promotion/pricing via new markets.)
☑ Organization (Changes to the company’s business practices, workplace organization or external relations.)

Comment:

6. For this question we define ESTABLISHED Business as an existing product/service in an existing market where it is hard to get sustainable market position or point of differentiation due to extensive competition.

For outsourcing of innovation in ESTABLISHED Business, which types if innovations do you consider successful.

☑ Product/Service (New products/services and features that significantly improve an existing product.)
☑ Process (New or significantly improved changes to any working processes.)
☑ Market (Significant changes to a product design/packaging, placement, promotion/pricing via new markets.)
☑ Organization (Changes to the company’s business practices, workplace organization or external relations.)

Comment:

7. List up to three factors which most increase the likelihoods of success when outsourcing of innovation

8. List up to three factors which most reduce the likelihood of success when outsourcing innovation.