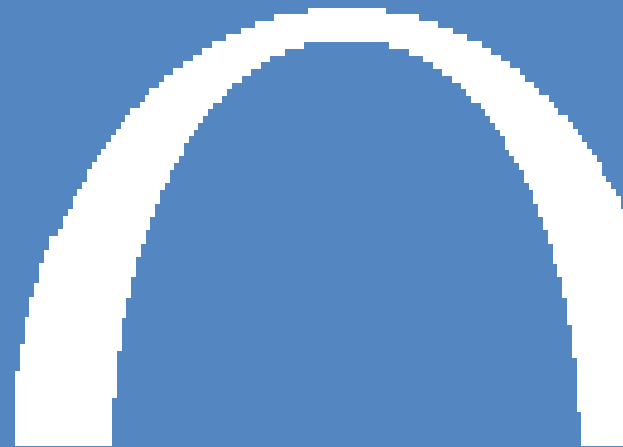




Danish companies working with user driven innovation

CIS data for Denmark

Tanja Bisgaard, Manager of Policy Analysis
Casper Høgenhaven, Høgenhaven Consulting
Louise Marianne Lempel, Research Assistant
Tobias Ritzau-Kjærulff, Research Assistant



INDEX

COMPANY CHARACTERISTICS	4
USER DRIVEN INNOVATION IS KNOWN TO COMPANIES	4
ANY SIZE COMPANY CAN WORK WITH USER DRIVEN INNOVATION	5
USER DRIVEN INNOVATION IS POPULAR ACROSS INDUSTRIES	6
THE EFFECT OF WORKING WITH USER DRIVEN INNOVATION	7
HIGH GROWTH IN TURNOVER	7
INNOVATIVE COMPANIES	10
SUGGESTIONS FOR FURTHER WORK	11

FORA

Erhvervs- og Byggestyrelsens enhed for
Erhvervsøkonomisk forskning og analyse
Langelinie Allé 17
Denmark - 2100 København
www.foranet.dk

Danish companies working with user driven innovation

The way Danish companies work with user driven innovation is not very well understood or documented since statistics for this form of innovation has not previously been measured. Until recently it has only been possible to describe user driven innovation projects through case studies of the few front runner companies and organisations.

The case studies have only been able to present qualitative data on companies that work with user driven innovation, leaving gaps in the knowledge about the characteristics of these companies and the effect of the methods. To get a true picture of what is taking place in companies and how they work with user driven innovation, quantitative data is needed. Once the data are systemised, policymaking regarding user driven innovation will be facilitated.

In recognition of the need for knowledge about user driven innovation in companies the *Enterprise and Construction Authority* in Denmark made a request to include new questions about innovation in the Danish 2007 version of the Community Innovation Survey (CIS).

The Community Innovation Surveys are a series of surveys conducted by the national statistics offices in the EU countries, Norway and Iceland. The surveys are designed to give information on the innovation activity going on in the different regions and sectors. The results of the CIS surveys are used in the annual *European Innovation Scoreboard* and for academic research in general.

The CIS surveys are sample surveys and they are based on representative samples from companies across the different regions, sectors and company sizes in the EU, Norway and Iceland. In Denmark more than 20,000 companies participated in the 2007 CIS survey.

This working paper is based on data taken from the Danish 2007 CIS survey where questions are asked regarding how companies work with user driven innovation in Denmark.

In the Danish 2007 CIS survey companies could choose from three methods of working with user driven innovation: 1) develop/implement ideas based on *users' unacknowledged needs*, 2) develop/implement ideas by *involving ordinary users* and 3) develop/implement ideas by *involving lead users*.¹

¹ You can see the innovation part of the CIS 2007 survey for Denmark online. Please note that the survey is in Danish. http://www.dst.dk/upload/fui_skema_2008.pdf

Company characteristics

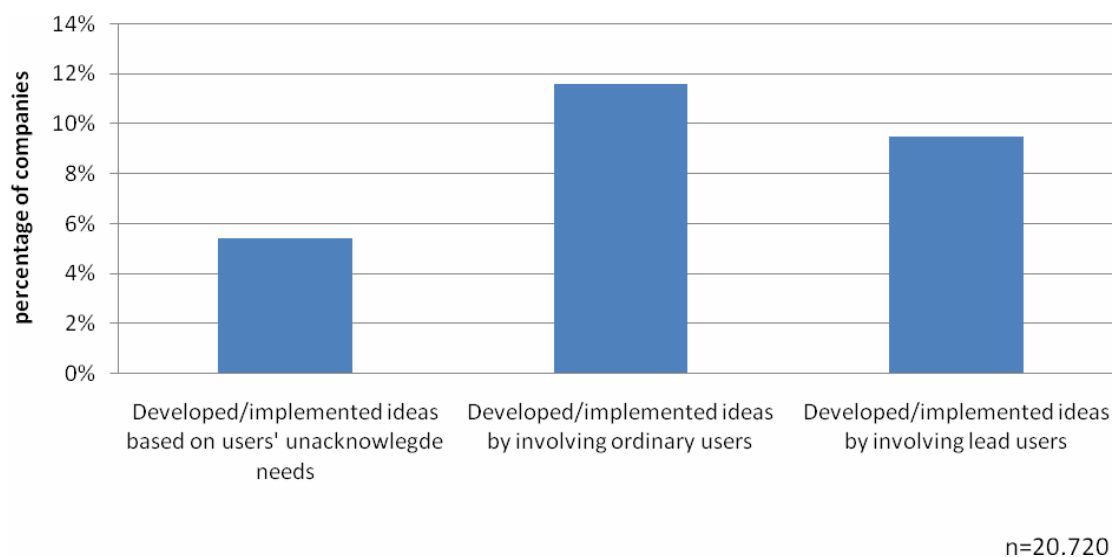
The CIS survey showed that companies that have been working with user driven innovation in Denmark share some common characteristics. In the following the most important ones are presented.

User driven innovation is known to companies

User driven innovation does not seem to be unfamiliar to Danish companies. 3.235 companies or 16 pct of the Danish companies participating in the survey replied that they have been working with user driven innovation in 2007.

The most popular approach to user driven innovation in Denmark is represented by companies that have developed/implemented ideas by *involving ordinary users*, a method used by close to 12 pct of the companies participating in the survey. Nine pct of companies have developed/implemented ideas by *involving lead users* in their innovation process while five pct of the companies have developed/implemented ideas based on *users' unacknowledged needs* (cf. figure 1).

Figure 1: User driven innovation method used by Danish companies



Source: Statistics Denmark

Companies participating in the CIS survey had the possibility of choosing more than one option to the question related to which method of user driven innovation they used. The total number of companies using these methods therefore differs from the total amount of companies that replied whether they work with user driven innovation or not.

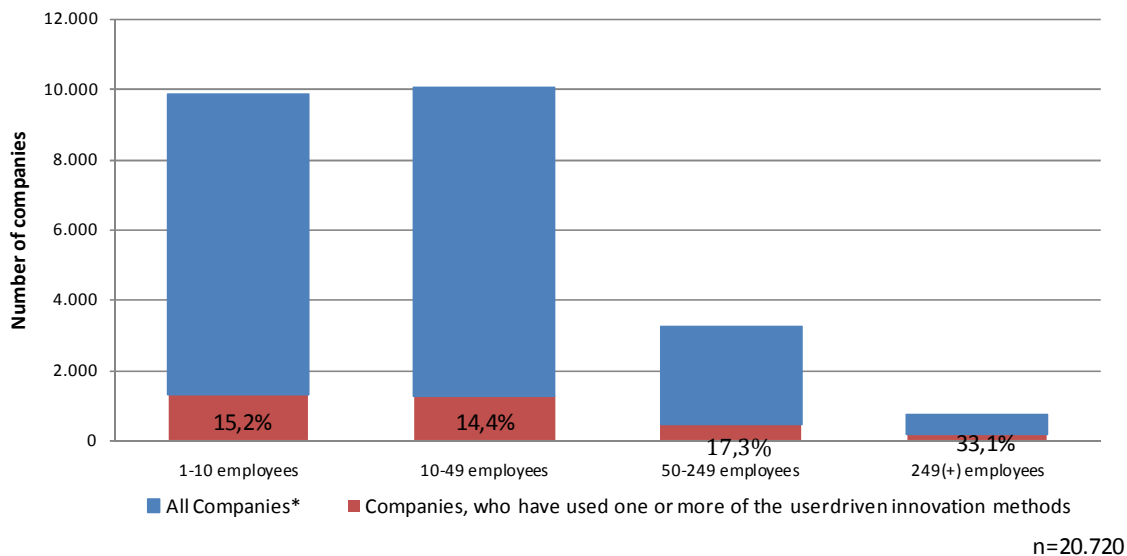
Any size company can work with user driven innovation

Companies of all sizes in Denmark are working with user driven innovation. The Danish business environment consists of mainly small companies, which has been reflected in the type of companies requested to participate in the CIS survey.

About 85 pct of the respondents are either micro firms (1-9 employees) or small firms (10-49 employees). Of the micro firms that participated in the survey, 15 pct of them work with user driven innovation, while 14 pct of the small firms work with user driven innovation. In total 2,565 of the 3,235 companies that work with user driven innovation, or 79 pct, are companies with less than 49 employees. This seems to indicate that user driven innovation is a popular source of innovation among smaller companies in Denmark.

Among the medium sized companies (50-249 employees) 17 pct of them are working with user driven innovation, or a total of 478 companies. There are only 579 large companies participating in the survey, and of them 192 work with user driven innovation, or 33 pct. (cf. figure 2).

Figure 2: Company size



Source: Statistics Denmark

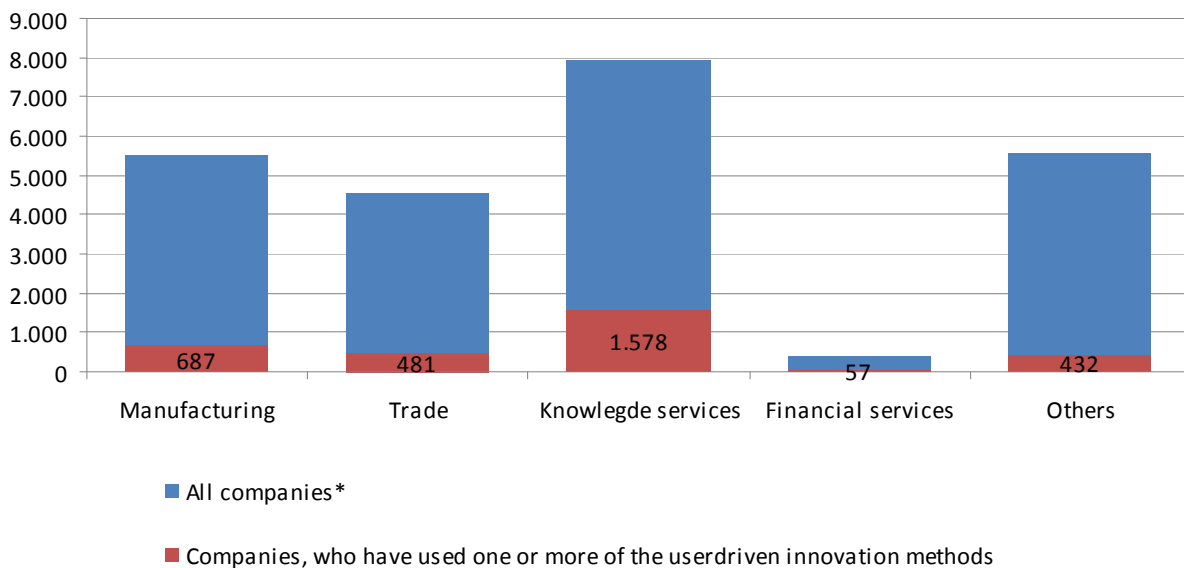
The share of large companies working with user driven innovation is higher than the share of SMEs. However, user driven innovation seems to be popular among micro companies and small companies, too.

User driven innovation is popular across industries

The CIS survey is grouped into four main industry categories; manufacturing, trade, knowledge services and financial services. However, only 75 pct of companies were able to place themselves within one of these four categories, leaving about 25 pct of companies unclassified in the *others* category.

Of the 20,000 companies that participated in the survey, the largest group were categorised as belonging to the *knowledge services* industry, amounting to 31 pct of all companies. Of this group of companies, 25 pct of them work with user driven innovation. Manufacturing is the second largest industry represented in the survey, where 23 pct of companies reply that they belong to this category. Among the manufacturing companies, 14 pct of them work with user driven innovation. Trade companies account for 20 pct of the respondents, where 12 pct of companies work with user driven innovation, while financial services is the smallest category with only 2 pct of companies, but where 18 pct of them work with user driven innovation (cf. figure 3).

Figure 3: Industry group



Source: Statistics Denmark

The effect of working with user driven innovation

So what kind of results do companies working with user driven innovation achieve? In the CIS survey, questions were asked regarding companies' turnover as well as growth in turnover. These data have been matched with data on whether companies work with user driven innovation or not. In addition, data has been compiled regarding the type of innovation a company has achieved and the share of turnover generated from the different types of innovation.

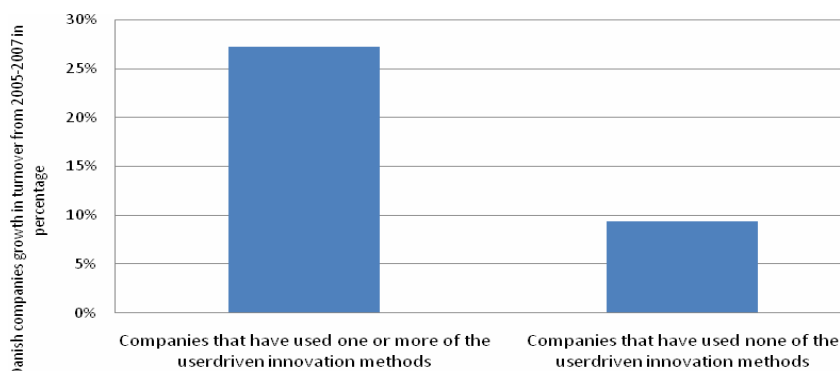
High growth in turnover

Companies working with user driven innovation in the period between 2005 and 2007 have experienced a higher growth in their turnover than the rest of the companies participating in the Danish 2007 CIS survey.

The average growth in turnover for companies working with user driven innovation was 27 pct while the growth in turnover for companies that have not been working with user driven innovation was 9 pct during the same period.

The significant difference between growth in turnover for Danish companies working with user driven innovation compared to the rest of the companies, could indicate that user driven innovation can have an effect on the innovation outcomes. The causality between companies' growth in turnover and user driven innovation is difficult to prove, and it is important to underline that some of the difference might also be explained by a range of additional factors. For example, it would be reasonable to assume that companies that experience growth will be more likely to invest in innovation than companies struggling with a low growth - if any - in turnover, even though it could be argued that those are the companies which should be focusing on innovation and investing in user driven innovation projects (cf. figure 4).

Figure 4: Average growth in turnover, 2005-2007

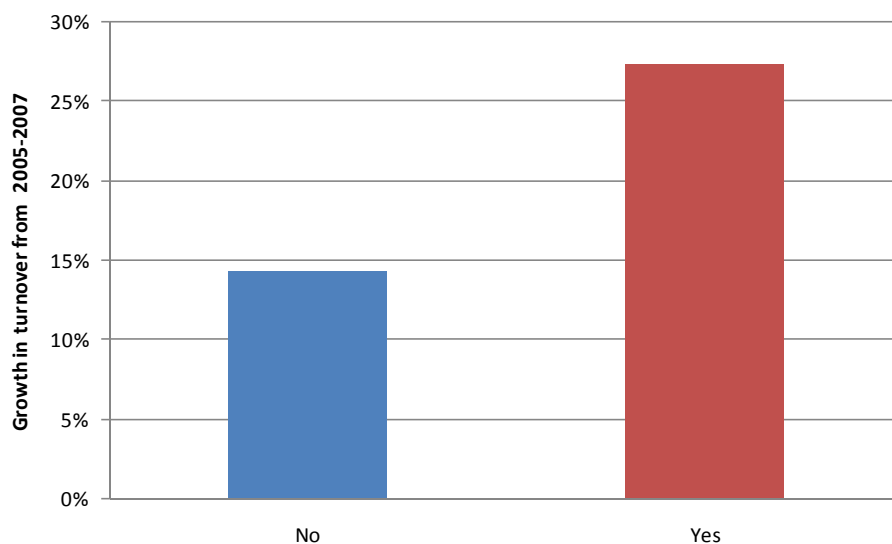


Source: Statistics Denmark

Looking at the different 2007 CIS survey groupings within user driven innovation, it turns out that companies that have developed/implemented ideas based on users unacknowledged needs and companies that have developed/implemented ideas by involving ordinary users have had a slightly higher growth in their turnover in the period 2005 to 2007 than companies that have developed/implemented ideas by involving lead users.

Figure 7 shows that companies that have developed/implemented ideas based on users unacknowledged needs during the period between 2005 and 2007 experienced a rise in turnover of 27 % while companies that did not use that method experienced a growth in turnover of 12 %. Please notice that the group *the rest* of the companies includes the companies that use the two other approaches within user driven innovation (cf. figure 5).

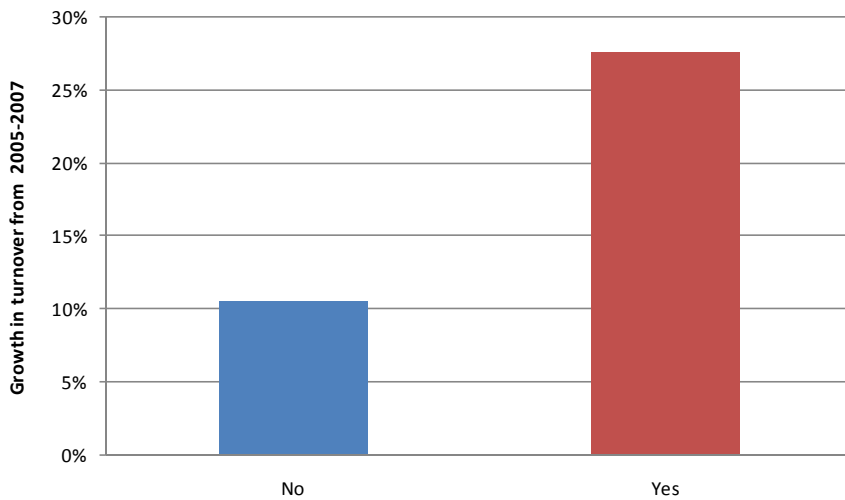
Figure 5: Average growth in turnover for Danish companies that have developed/implemented ideas based on users unacknowledged needs vs. the rest, 2005-2007



Source: Statistics Denmark

For the Danish companies that have developed/implemented ideas by involving ordinary users the picture is the same. The companies that used the approach experienced a growth in turnover of 28 % in the period 2005 to 2007 compared to the rest of the companies that had a growth of 10 %. Once again the group *the rest* includes the other methods of user driven innovation (cf. figure 6).

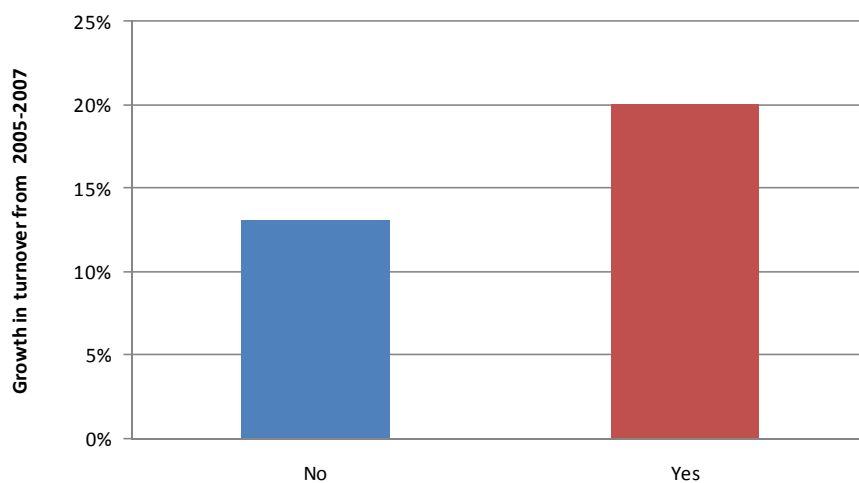
Figure 6: The annual growth in turnover for companies that have developed/implemented ideas by involving ordinary users vs. the rest, 2005 to 2007



Source: Statistics Denmark

For the Danish companies that have developed/implemented ideas by involving lead users the picture is quite similar to the other approaches, though not as clear. The companies using this approach to user driven innovation had an average growth in their annual turnover during the period from 2005 to 2007 of 20 % while the rest of the companies participating in the 2007 CIS survey experienced an average growth in their annual turnover of 13 %. The group *the rest* includes the other methods to user driven innovation (cf. figure 7).

Figure 7: The annual growth in turnover for companies that have developed/implemented ideas by involving lead users vs. the rest, 2005 to 2007

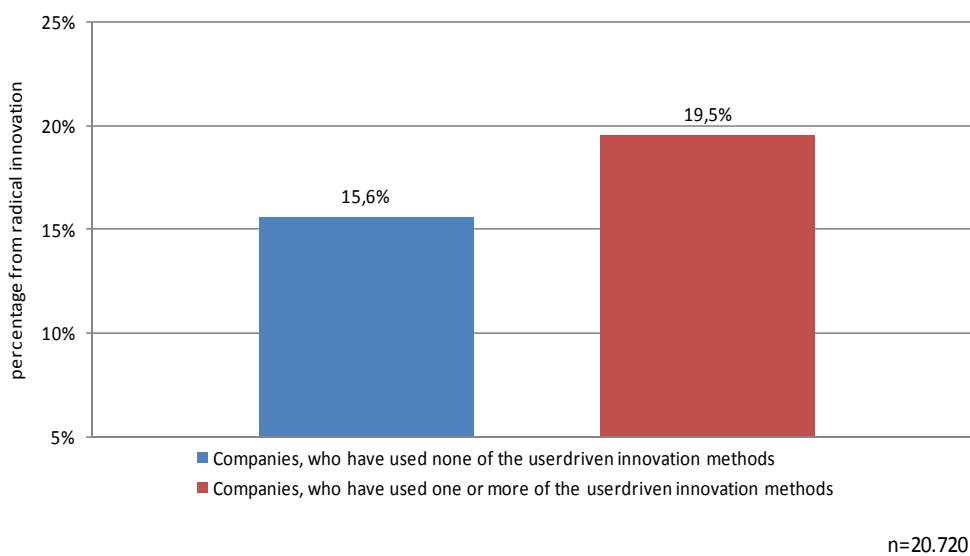


Source: Statistics Denmark

Innovative companies

Innovation outcomes can be divided into several categories and have been given many different names. In broad terms, innovation outcomes can be divided into radical innovations and incremental innovations. In the CIS survey innovation outcomes are grouped into 1) innovations that are new to the world, 2) innovations that are new to the company's market, 3) innovations that only are new to the company, and 4) incremental innovations. In this working paper we have combined the first and second type of innovation outcomes and refer to them as radical innovations (cf. figure 8).

Figure 8: Share of turnover from radical innovations



Source: Statistics Denmark

Suggestions for further work

The questions regarding user driven innovation which were included in the Danish 2007 CIS survey was the first attempt at measuring one of the new sources of innovation among companies and is welcomed as a necessary initiative. The first results from Denmark have been the focus of this working paper and it is our recommendation that questions that measure companies' user driven innovation activity should be implemented by CIS surveys in the remaining European countries. However, we identified some questions that would need to be modified in order to obtain answers that might be more useful regarding the understanding of how companies work with innovation.

The first problem we identified is related to the distinction between incremental and radical innovation. The questions regarding incremental and radical innovation in the current CIS survey are put in relation to companies' sales. This causes some difficulties since sales of a product or service might be delayed compared to when the product or service was made. Thereby the picture of how much incremental and radical innovation a company produces in any given year might be distorted. We therefore recommend that the type of innovation should be related to the share of products and services a company develops during a given time period (e.g. two years).

In addition, the question regarding the type of innovation is divided into four parts in the current CIS survey: 1) Is the innovation new to the world? 2) Is the innovation new to the company's market? 3) Is the innovation new to the company? and 4) Is the innovation incremental? We recommend simplifying the question and dividing the type of innovation into incremental innovation or radical innovation.

We suggest four questions which could be added to the following CIS survey:

1. Incremental innovation: What share of the company's products or services has been improved during the last two years?
2. What source of innovation did the company use in developing the incremental innovations? Here the options might be user driven innovation, employee driven innovation, technology, partnerships and so on.
3. Radical innovation: What share of the company's products or services can be considered radical innovations which have been completed during the last five years?
4. What source of innovation did the company use in developing the radical innovations? The options would be the same as in question 2 above.