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Jensen, Torben Elgaard

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The Map *is* the Territory - Cartographies, Categories and Categorizers in the Danish user driven innovation programs

Torben Elgaard Jensen, tej@man.dtu.dk

Visiting research fellow, Saïd Business School / Associate professor, Technical University of Denmark

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Introduction

If we are to develop an account of the social and geographical distribution of innovation – an innovation cartography – then we need some basic building blocks. One building block may look like this:

In 2006 the Danish government announced that it would spend 420 mio Dkr supporting projects on 'user-driven innovation' (UDI). Four years later, the government issued a report containing the figure below (Bisgaard &Høgenhaven, 2010:85). From the figure text, we learn that four different approaches or methods would 'count as' user driven innovation. Furthermore, we learn that Denmark has more UDI projects than any other Nordic country.

Figure 33 Mapping of user driven innovation
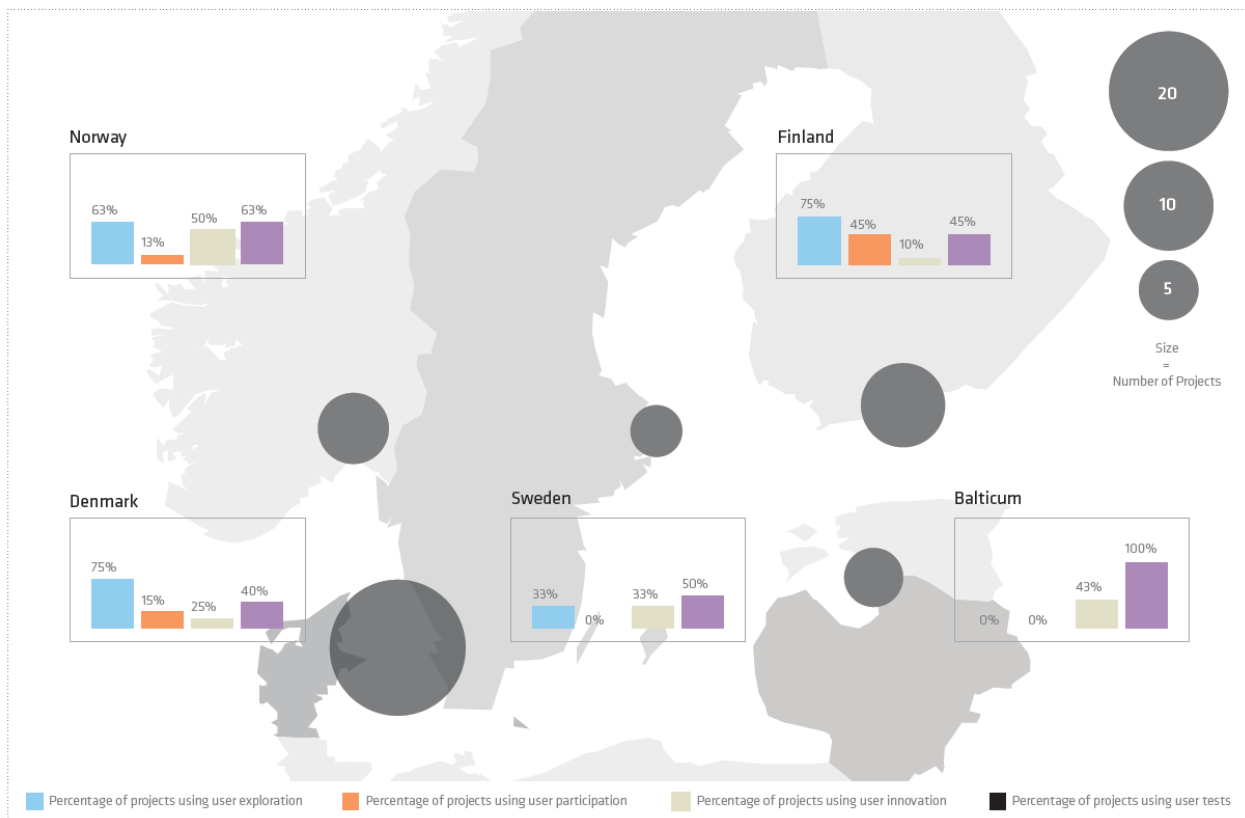
Figure 1. A possible element of a cartography of innovation? From Bisgaard &Høgenhaven, 2010.

So there we have it. A thing called 'UDI' was supported by Danish government from 2006, and later the distribution of that 'thing' could be mapped.

Cartographies , categories and the documentary method of interpretation

It is tempting to think that the mapping of UDI, essentially, is a rather trivial business of conducting surveys 'did you use a user-driven innovation method?' and of accounting 'did you receive funding from the UDI programs?' However, as many social scientist have argued, these mundane counting and categorization activities relate to very fundamental questions of social ordering. For instance, Mol & Law (1994) have argued that ontologies of the social, the entire sense of when a 'thing' is an 'object' with a certain 'constancy', depends on particular social topologies. The social world, they argue, is composed of a multitude of topologies, which do not to fit nicely together. Similarly, Bowker & Star (1999) have argued that the whole business of categorization (a necessary first step for any cartography) is inherently unstable. Not only do categories tend to be fuzzy and overlapping, they also create forms of marginalization and invisibility; the ease, control and predictability produced by sets of categories are not shared by all.

In my opinion, however, the most vivid discussion of the problem of categorization, can be found in the so-called counseling experiment, described by Harold Garfinkel (1967, chapter 3)[1]. In the 1960's Garfinkel and McHugh conducted a series of experiments where, in each case, a student was asked to ask a series of questions (at least 10) to a 'counselor in training', who was in fact a confederate. The student was told that the counselor would only answer with 'yes' or 'no'. The counselor was placed on the other side of a wall, and the studens would plug in a microphone to ask the questions and receive the answers. Between the exchanges the microphone would be unplugged and the student would explain his reasoning and motivation for the next question to the experimenter. What the student didn't know was that the counselor on the other side of the wall would read out the same, arbitrary list of answers, during each experiment. As the student began asking questions and receiving answers, they demonstrated an extraordinary willingness to make sense of the (senseless) answers. They were willing to assume that there was a pattern to the counselor's answers and that this pattern would become clearer over the course of the exchange. They were also willing to manage inappropriate answers by imputing lack of knowledge to the counselor ('he is giving me this advice, because he doesn't know how my dad would normally respond'). And they were willing and able to 'select and order past occurrences so as to furnish the present state of affairs its relevant past and prospects' (ibid: 95). In reflecting on the experiment, Garfinkel, calls the work done by the students 'the documentary methods of interpretation'. They interpret answers as documentation for an underlying pattern. This method of interpretation, Garfinkel argues, can be found everywhere. When a social scientist conducts interviews, he must determine what the respondent had in mind, or whether he was actually answering the question. It is also common place in social science, to describe a complex situation with the aid of excerpts, which are used to epitomize events. A selected material is thus used to depict the entire underlying pattern. In all these cases, Garfinkel argues,

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[1] Garfinkel (1917-2011) is recognized as a highly innovative sociologist and founder of the sociological approach known as Ethnomethodology. He was affiliated with the sociology department of UCLA for more than half a century. My use of Garfinkel in the present context is inspired by fruitful discussions in an STS discussion group organized in Trinity term 2011 by Tanja Schneider, Steve Woolgar and Tim Webmoor at the Institute for Science, Innovation and Society, Saïd Business School, Oxford University.

interpretative work is done to interpret particular observations as parts of or indicative of underlying patterns. Since these patterns are entirely dependent on the use of the documentary methods of interpretation, Garfinkel concludes that the structure or the pattern of the social world is a situated, socially constructed phenomenon rather than a 'given' and 'discovered' quality. Garfinkel thus argues that "correct correspondence [between observation and pattern] is the product of the work of the investigator and the reader as members of a community of cobelievers".

Inspired by Garfinkel's brilliant exposition of the ubiquitous and necessary interpretative work, I will explore the 'simple' cartographic fact with which, I introduced this paper. I will attempt to discover how this cartographic pattern could be established. The case of UDI is of course not entirely like the counseling experiment. The government did not only wish to 'find' a pattern of UDI, it also wanted to stimulate UDI, and it wanted to legislate or define which UDI projects were sufficiently good cases of UDI of be worthy of funding.

In what follows I will trace the establishment of the phenomenon of UDI alongside with the categories and cartographies within which this phenomenon could be recognized as UDI. I will attend to three time periods. First, an agenda setting phase where the government established the need for UDI and a special UDI effort in Denmark. Second the announcement of two large funding programs to support UDI. Thirdly a phase of evaluation, where the work done and results achieved were summed up.

Throughout these periods, the actors involved were first of all the Ministry of Business and the Ministry of Science. The list of actors also includes a large number of UDI project, which were carried out by ad hoc coalitions of actors. Each of these coalition involved 'knowledge institutions' (often universities) and practitioners (private or public enterprises).

Roughly speaking the government set in motions funding programs, which they then 'populated' with projects, which were later interpreted as evidence that UDI had somehow been distributed. Similar to the counseling experiment, an actor (the government) had to interpret responses (project proposals and projects) as more or less evident cases of UDI. However, in contrasts to the counseling experiment, the government had the opportunity to instruct the responder (project applicants) on how to answer (make appropriate projects).

In the following, I will explore the three time periods mentioned above. I will look at how UDI (the pattern) was *defined*, how it was *epitomized* by means of exemplary success stories, and finally how UDI was 'furnished with prospects', i.e. arranged as meaningful part of a stream of action.

Setting the agenda for UDI in Denmark (2003-2006)

In Scandinavian countries, the involvement of users in design and participatory design has a long tradition among trade unions, IT developers, engineers, designers and others. Some commentaries would argue that parts of this Scandinavian tradition, dating back to the 1970's, were either forgotten or turned into old wine on new bottles by the key protagonists the ministry of business. But rather than exploring the long prehistory of the UDI programs, I will focus on the cartographic fact mentioned in the beginning of this paper. I will therefore turn the attention to a series of reports and analyses from 2003 and onwards produced by a highly influential unit for business policy analysis (FORA) within the Ministry of Business. To understand the perspective in these reports, it is necessary to bear in mind that FORA is concerned with

business policy analyses. The issue at stake is what the national government should do to enhance the competitiveness and innovativeness of Danish businesses in the global economy. Addressing this overall concern, FORA made the case for user driven innovation in the following way. First, FORA defined user driven innovation as one out of three distinct forms or sources of innovation (Rosted 2003); Innovation, it was argued, may be either price-driven (competing for low costs), technology-driven (competing for new technological breakthroughs), or user-driven. Although Denmark in principle might pursue any or all of these sources of innovation, FORA argued that in practice we could not. Due to the high Danish wage levels we cannot compete on price, due to Denmark's limited size we can rarely afford the necessary investments to make technological breakthroughs, which leaves us with the third possibility: to compete on in-depth and up-to-date understanding of the users' needs. With this argument in place, FORA turned to international case studies of fashion, medico and electronic industries (Jørgensen et al 2005; Riis 2005; Høgenhaven 2005). From a number of cases, which were predominantly North American, FORA suggested that leading companies have developed a capacity to systematically investigate user needs and to relate this knowledge to product development. The key to this capacity is the employment of anthropological expertise and methods. The third and final part of FORA's argument returns to the conditions of business in Denmark. Based on a survey, FORA argued that the higher education system of Denmark provides the companies with plenty of candidates with technical qualifications (e.g. engineers), but very little is offered by means of candidates qualified in the systematic investigation of users' acknowledged and unacknowledged needs. For this reason, FORA concludes that a concerted national effort was needed to develop research and education in user driven innovation (Rosted 2005).

As can be seen from this brief account, the ministry of business formulated a quite distinct account of UDI. UDI is *defined* as a particular source of innovation, which can be harnessed through the systematic efforts of social scientists. UDI is *epitomized* by cases collected from industrial clusters (fashion, medico, electronics), where leading companies study users and their preferences systematically. And finally, UDI is depicted as part of particular *stream of action*; UDI is a national effort, which is necessary to improve (or rescue) the competitiveness of Danish companies.

Funding UDI programs (from 2007)

In 2007, the ministry of business and the ministry of science initiated two major funding programs. The two programs invited applications and issued reports and other materials, which once again defined UDI and explained its purpose.

The purpose of these documents was on one hand to inspire applicants to take part in the development of the UDI efforts, on the other to lay down criteria for proper UDI.

The material from the ministry of science emphasized that UDI projects should uncover 'the acknowledged and unacknowledged needs of the users'. This corresponds to the ideas of user knowledge as a hidden resource, which could be unearthed by the systematic effort of social scientists (particularly anthropologists and ethnologists). However, from 2006 and onwards the ministry of science also made reference to the so-called lead user method, which had been developed by MIT professor Eric Von Hippel. Von Hippel (2005) argues that certain groups of users have needs that are so much ahead of the market that no commercial product will fulfill their needs. This might be the case for instance for computer game enthusiasts, who need particularly fast graphics. Users with such special needs will have a strong incentive to innovate for

themselves; They may tinker with existing products, they may develop entirely new ones, and they may discuss and develop their ideas in collaboration with other users with similar needs. Von Hippel cites a number of cases where lead users have developed artefacts that later turned into commercially successful products. Von Hippel has also developed a number of methods for businesses that want to 'tap into' the creatively of lead users. As mentioned the Ministry of Business adopted the notion of lead user as a part of what they meant by user-driven innovation. However, the Ministry did not share Von Hippel's interest in the conditions under which users, such as open source programmers, can develop and distribute solutions freely and independently of commercial interests (so-called user innovation). Instead, the Ministry emphasized the commercial potential in harnessing the creative potential of lead users.

The ministry of science, contributed a third version of UDI. The ministry made reference to the Scandinavian tradition for participatory design (Markussen 1996; Asaro 2000). This approach originated in the 1970's and was born out of the on-going struggles and negotiation between trade unions and industrial firms over the introduction of new technology in firms. In a number of projects, dialogues were established between workers and technology designers, the workers knowledge of existing processes where communicated to the designers, and attempt were made by the trade unions to avoid deskilling and intensification of labour. Later participatory design has come to signify the active involvement of users in the design phase, and has become fairly well-known as a development approach, particularly in the field of ICT.

Although the two ministries clearly had each their favorite versions of UDI, they both indicated that they would support a variety of different forms. However as a part of the funding programs, the two ministries made a number of more specific requirements. The projects should be transdisciplinary (including social science, design & technology, and business economy), and the projects should include 'knowledge institutions' (e.g. universities) as well as either private companies or municipalities. The funding bodies decided to disseminate the support in order to cover all regions of the country. They also decided to fund the creation of networks, competence development, master level education and new methods.

To sum up this phase, UDI is now *defined* and *epitomized* as three different types of projects (the uncovering of needs, lead user projects, participatory design). The stream of action, into which UDI is woven at this point, is a process that 'realizes' the national UDI effort by combining a relatively large number of relatively small groups of actors into transdisciplinary projects.

Evaluating and summing up UDI (from 2010)

In 2009 and 2010, yet another way of talking about UDI began to appear. In work done by 'Mindlab' a consulting unit shared between three ministries, and in similar work by the University of Aarhus (sponsored by the ministry of business), a systematic effort was made to give a comprehensive description of methods that may be used to compose UDI projects. Mindlab defined 26 such methods; the Aarhus university report listed 30 methods (Erhvervs- og byggestyrelsen 2010). Each of these methods were described, exemplified and illustrated on 1-2 pages. Almost all of the methods were well-know from other contexts; Some of the examples were 'brain storming', 'photo diaries', 'ethnographic interviews', 'observation'. However, the two method collections also gave advice on how to compose projects or project phases out of these 'building blocks'.

The method collections indirectly define UDI is an activity that may take place as a relatively small part of almost any kind of project. The intended audience of the methods collections is therefore managers on all levels, who are responsible for innovation projects. The methods collections are presented as tool boxes, which the managers should use to enhance the connection with or the information from users at various points in their projects. The exemplary case of UDI is therefore a manager, who is well aware of the available methods, and who inserts or doses these methods if and when they are relevant.

Mapping innovation

In the previous sections I have indicated some of the definitions, exemplary cases and streams of actions within which UDI has been located at various points in time. When comparing these accounts, it is striking that everything seems to be changing within a short span of years.

To gauge the rapidness of change, we might contemplate again the 'simple cartographic fact', which I presented initially (see figure 1).

First, Let us note that on the map there are four different types of UDI. This corresponds roughly to the types of projects described at the time of the announcement of the funding programs (2007). But by now, we also know that a few years earlier there was only one UDI (a particular source of innovation), whereas a few years later, UDI as was seen a widely available set of tools, which could surface momentarily in almost any kind of innovation project.

Secondly, we might note that the mapping on figure 1 divides the occurrence of the UDI phenomenon according to nation states. This seems to correspond to the view of national innovation policy makers, particularly in the preparatory phases of UDI. But again this is a perspective of limited durability. In 2003 the ministry of business regarded UDI as something, which we could learn from the US. In this perspective, a UDI map of only Nordic countries seems rather senseless. The Scandinavian tradition for participatory design is precisely Scandinavian, i.e. larger than nation states. In the method collections, the ambition is to disseminate any small tool of the trade. However if UDI is defined as a more or less ubiquitous, then a comparison of nation states quickly looses its meaning. The frequency of brainstorming, personas and observation is simply too scattered and too small to be the object of comparative studies of nations.

The inescapable conclusion is that even this apparent simple map of UDI isn't really much of a map, just as a map of Lancaster would be rather worthless if the street names, the units of measurement, and the meaning of the symbols were constantly changing.

More generously, we might however call figure 1 a mapp*ing* to emphasize the dynamic nature of the exercise. There is no reason to think of this mapping as a stable and universal map, which can accumulate new observations and incorporate minor correction in order to become increasingly more precise and comprehensive (cf. Latour 1990). But the mapping is a specific vision or image of 'the universal' produced at one particular moment. It is, to use Garfinkel's terms, yet another result of the documentary method of interpretation; a pattern constructed on the fly.

The problem, however, is the heavy baggage that comes with the metaphor of the map. We tend to view maps as products of stable measurements par excellence. The entire game, as defined by geographers and cartographers throughout centuries is about immutable mobiles, metrologies and cartographic conventions

(Latour 1990). For this reason we also tend to be misled when 'maps' are really just highly historically specific mappings. We therefore need strong antidotes, such as Garfinkel. In an age where maps and visualizations are produced at an ever-increasing rate, his work is more relevant than ever.

References

Asaro, P. M. (2000). Transforming society by transforming technology: The science and politics of participatory design. Accounting, *Management and Information Technologies*, 10(4), 257-290.

Bisgaard, T. & C. Høgenhaven (2010) *Creating new concepts, products and services with user driven innovation*, Oslo: Nordic Innovation Centre (NICe) project number: H08214.

Bowker & Star (1999) *Sorting Things Out*. MIT Press.
Erhvervs- og Byggestyrelsen (2010) 30 Innovationsmetoder – en håndbog.

Forsknings- og Innovationsstyrelsen (2006) *Brugerdreven innovation - Baggrundsrapport til et strategisk forskningsprogram*.

Garfinkel, Harold (1967) *Studies in Ethnomethodology*, Prentice Hall.
Høgenhaven, C. (2005) *Brugerdreven innovation i elektronikbranchen*, FORA, Økonomi- og Erhvervsministeriets enhed for erhvervsøkonomisk forskning og analyse.

Jørgensen, S.H., Hansen, R.B., Høgenhaven, C. (2005) *Brugerdreven Innovation i dansk mode - den 5. globale klynge*, FORA, Økonomi- og Erhvervsministeriets enhed for erhvervsøkonomisk forskning og analyse.

Latour, Bruno (1990): »Drawing things together«, s. 19-68 i M. Lynch & S. Woolgar (red.): *Representation in Scientific Practice*. Cambridge, MA: MIT Press.

Markussen, R. (1996). Politics of Intervention in Design: Feminist Reflections on the Scandinavian Tradition, *AI & Society*, 10: 127-141.

Mol, A. and J. Law (1994). "Regions, Networks and Fluids: Anaemia and Social Topology." *Social Studies of Science* **24**: 641-671.
Riis, A. M. (2005) *Brugerdreven innovation i medicobranchen*, FORA, Økonomi- og Erhvervsministeriets enhed for erhvervsøkonomisk forskning og analyse.

Rosted, J. (2003) *Tre former for innovation*, FORA, Økonomi- og Erhvervsministeriets enhed for erhvervsøkonomisk forskning og analyse.

Rosted, J. (2005) *Brugerdreven Innovation – Resultater og anbefalinger*, FORA, Økonomi- og Erhvervsministeriets enhed for erhvervsøkonomisk forskning og analyse.

von Hippel, E. (2005) *Democratizing Innovation*, The MIT Press, Cambridge, Massachusetts