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Johansson, Björn

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Björn Johansson
Informatics, Jönköping International Business School
Jönköping University
SE-551 11 Jönköping, Sweden
+46 36 15 75 81
bjorn.johansson@jibs.hj.se

Abstract

This paper discusses the role of theory and how the concept theory is perceived in different communities. It does so by discussing an ongoing research project analysing the decision-making concerning the choice of an application service provider (ASP) for the provision of information and communication technologies (ICT) in small and medium-sized enterprises (SMEs). The initial question is whether examine the decision can be said to be theory testing or theory building. The answer is that it depends on what meanings are attributed to the word theory and in what context the research is presented.

Keywords: Role of theory, information system research, natural sciences, application service provider.

1. Introduction

This paper discusses the role of theory and how the concept theory is perceived in different communities. In social science the role of theory is often disputed. However, the role of theory is a key question for any researcher. Independent if an inductive or a deductive research approach is used. The issue you has to deal with is what role theory has. In this paper the question of what role theory has when examining the decision to choose an application service provider (ASP) for the provision of information and communication technologies (ICTs) is used to express this. The paper does so by discussing different perceptions of the word theory. The aim of the paper is to show various problems in the use of the word theory. It is also to describe the difficulties you have as a researcher to present your findings in different settings. To illustrate this the paper refers to an ongoing PhD candidate research project trying to explain the decision-making in small and medium-sized enterprises.

As a researcher as well as a PhD candidate you have to deal with a number of various issues. One of these issues is what your contribution to the scientific community will be. The aim or the result of the PhD studies is to finally present a thesis. The thesis should show that you have deserve a doctorate. Hart (1998) presents a list of eight main requirements that he maintains are generally agreed upon in the academic profession. One of these is that a PhD thesis should make a new contribution to the area of knowledge. Hart defines a PhD thesis in the following way, *"It is a document divided into parts that expresses, not necessarily in linear form, a coherent argument or investigation...it must say something that is based on existing knowledge, developing that knowledge using reasoned argument, sound evidence and a critical and reflexive stance."* (p.172).

The question is then how this new knowledge should be presented and related to the word theory. In some communities the result in a PhD thesis should be expressed as building "new" theory and in other communities the result should be expressed as building on and developing existing theories. Alvesson & Deetz (2000) explain this as a difference in how various communities see and think about theory. In other words, in some communities a PhD thesis has to develop a new theory and in other communities is it enough for a PhD thesis to describe a phenomenon and explain that phenomenon in depth. This description and explanation is then seen as the expansion and development of existing theory.

Based on the discussion above the question in this paper is whether exploring the decision to choose an Application Service Provider (ASP) is theory testing or theory building? The answer to that question is dependent on the semantics of a few constructs. It is dependent on the meaning of decision as well as the concept ASP. It is also a question of what the aim of the study is, to explore, explain or describe. To decide if it is to test a theory or to build a theory, the first question you should ask yourself is, what is theory?

Before going into that question a short explanation of the abbreviation ASP is needed. The abbreviation ASP could be and is used in several different ways. ASP is used as a concept, a product, a business model, a strategy, or as an enterprise. In this paper ASP should be seen as an enterprise providing delivery and customer support of software applications. It is an enterprise not selling software applications but facilitating their customers' use of the software applications. One definition of ASP is, *"a supplier that provides access to centrally managed applications on a rentable or pay-as-you-use basis. Applications are then delivered in a one-to-many arrangement by suppliers to (multiple) users from a shared data-center over the Internet (or other networks) and are accessed from the customers' desktop via an Internet browser."* (Kern et al., 2001, p.10). ASP can be seen as something new. But, it can also be seen as something old and related to outsourcing and service bureaus. This indicates that an examination of the decision can be theory testing as well as theory building. The paper does not describe the decision as such. Instead is the purpose with the paper to discuss if examine the decision-making should be seen as theory testing or theory building.

The remainder of the paper is organized as follows: the next sections describes and discusses the term theory. It does this by presenting a few authors' views of the question 'what is theory?' The following section describes the intended outcomes of a thesis discussing the differences in exploring, explaining or describing. The third section deepens the question of theory, by discussing and presenting different views of how to use theory in research. The final section presents some conclusions and discusses the initial question.

2.   Theorizing the question "What is theory?"

Sutton & Staw (1995) propose one way to answer the question "What is theory?" They explain theory by describing what theory is not. They start with the basic assumption that there is little agreement in social sciences on what constitutes a strong and a weak theory. On the other hand there is a stronger argument that references, data, variables, diagrams, and hypotheses are not theory. Despite this Sutton & Staw say that these five elements are routinely used instead of theory by information systems (IS) researchers.

Sutton & Staw go through these five elements and explain why they are not theory:

- References are not theory, if the containing causal logic is not explained, if there is no discussion of the logic behind or if there is no support for the author's prediction. If the references are to be useful as part of a theory the author has to explain what concepts and arguments are adopted and why. This should be done in such way that the reader does not have to know or read the referred article.

- Data are not theory, because data intrinsically do not create theory. If data should become theory, the researcher has to develop causal arguments that explain why these findings occur.

- Listed variables or constructs are not theory, if there is no explanation about how they are connected and what they are all about.

- Diagrams without any logical explanations are not theory. Diagrams could be a bigger part of a theory, but diagrams rarely explain why the proposed connections occur. To explain this there is a need for verbal explanation.

- Hypotheses are not theory, because hypotheses are expected to make a concise statement about what is expected to occur, not why it is expected to occur. Hypotheses should serve as a crucial bridge between theory and data.

The conclusion at this point is that theory is expected to answer the "why" question. According to Sutton & Staw (1995) strong theory usually stems from one single or a small set of research ideas. Sutton & Staw also discuss method and compare method to theory. It is not very clear what the authors mean by method. I prefer to see method as a description of a process saying how you should act to achieve a certain outcome. The outcome could be a theory, which means that a method is a tool in the theorizing process. The theorizing process is further described by Weick (1995) who starts his argumentation for what theory is not by saying that most of the products from a theorizing process seldom emerge as a full-blown theory. He claims that Sutton & Staw get lost when they look at theory as a product and not as a process. Weick then focuses on the process of theorizing. Weick's main argument is that most products that are labeled theories are approximations of theory. This means that theory is more often approximated than realized. The conclusion of this is that theory is a continuum. So, to judge if a product is a theory or not, you have to know the context surrounding that product. According to Weick this context is the process of theorizing.

DiMaggio (1995) further develops both Weick's and Sutton & Staw's description of theory and what theory is not. He says that there are at least three different views of what theory should be. These different views are, theory as prescription, theory as enlightenment, and theory as narrative. According

to DiMaggio this means that a theory is developed by both the author and the reader. DiMaggio describes this in the following way,

"Theory reception rides on much more than scientific potential; in the short run, we tend to reduce theories to slogans; and in the long run, brilliant expositors can turn muddled theories into canonical masterpieces" (p. 396)

According to DiMaggio a theory should not only answer "why" and "how" questions but also "what" questions. Hatch (1997) expands this discussion, stating that theory is an explanation, which means that it is an attempt to explain something specific. The specific thing that the theory should explain is often called the phenomenon of interest. The theory consists of a set of related concepts with the aim to explain the phenomenon. Walsham (1995) argues that the role of theory in research is a key question for any researcher irrespective of what philosophical stance they have. According to Eisenhardt (1989) there are three distinct uses of theory. First, as a guide to the initial choice of data to be collected. Second, as part of the process in the collection and analysis of data. Third, as the product of the research.

Hatch (1997) discusses the nature of theory from four perspectives labelled classical, modern, symbolic-interpretive, and post-modern. These different perspectives give different views of what theory is. But, according to Hatch it is a mistake to see these different perspectives as a development of a sequence where newer perspectives replace older ones. Instead is it an accumulation of perspectives, where the perspectives influence each other. The result of this is that it is fruitful to adopt a multiple perspective. Another result of the existence of different perspectives is that it leads to different views of how theory represents truth (Hatch, 1997).

A problem with theory testing is that the phenomenon of interest is often not verifiable. This means that what we are interested in is not possible to measure and/or observe. Hatch (1997) gives the following example,

"Theorists cannot agree about what constitutes performance or how it should be measured. For instance, should performance be defined as efficiency in production, market share, strategic effectiveness, quality, social responsibility, ecological sustainability, or is it merely financial gain?" (p. 6).

The problem is that a theory suggests something that we sometimes cannot observe. And even if we can observe the theoretical concepts and relationships suggested by the theory. The result of the observation could always be questioned. This assumption is mostly proposed by the symbolic-interpretive perspective, which emphasizes that phenomena are matters of social convention, and not natural laws. The symbolic-interpretive view could be expressed as circularity. According to Hatch (1997), *"social scientists work with realities created by social forces that are themselves the subject of study"* (p. 6).

The explanation of theory that Hatch (1997) provides us with is helpful and clear. Her explanation means that "something" is a theory if it explains something. The same is implicitly expressed by Sutton & Staw (1995). By looking at theory in that way the ideas that Eisenhardt (1989) presents are easier to understand. This means that a theory could be used to help you know what data to collect and why you should collect those specific data. A theory could also be used during the process of collecting and analyzing the collected data. In that case the theory tells you when you have collected enough data and explains how you should analyse your data. And finally, if your result explains your initial question and also helps others to understand the answer to your question you have probably come up with a theory, which means that theory then is the product of your research.

This discussion can be concluded at this stage by arguing that research about the decision to choose an ASP could be both theory testing as well as theory building. What it is then that makes the difference

and is it a relevant question to ask? To answer these questions the paper will continue with the issue of the difference between exploring, explaining and describing.

3. The issue of exploring, explaining or describing

Hart (1998) classifies research into three groups according to its intended outcome. He states that the bulk of research in social sciences aims at exploring, describing, or explaining the occurrence of some phenomenon. The groups he proposes are, exploratory, descriptive, and explanatory. Exploratory research is, according to Hart, to satisfy curiosity, provide better understanding about a phenomenon, but also to examine the feasibility of further study and to indicate what might be relevant to study. This is done with the aim of clarifying a process or problem. Hart defines descriptive research as understanding a common or uncommon social phenomenon. This is done through an observation of the details of the phenomenon in order to provide an empirical basis for valid argument. Explanatory research is then to explain the cause or non-occurrence of a phenomenon. Explanatory research also aims at showing causal connections and relationships between variables of the type "if A then B" (Hart, 1998).

Hart lists seven different types of research: basic research, applied research, action research, ethno-methodology, and three different types of evaluation research. Of these, the illuminative evaluation research seems to be the best when the issue is to explore the decision to choose an ASP strategy. Hart describes the illuminative evaluation research as, *"to make key behaviours or attitudes in a given context visible for contemplation. The aim is to enlighten policy makers or practitioners to the dynamics of behaviours in comparable situations in order that those behaviours can be understood and attended to in a more appropriate way. A range of evidence, often qualitative, is employed"* (p. 46).

4. The use of theory

The use of theory has already been discussed to some degree above. This section will continue the discussion and a couple of more questions will be raised about the use of theory. Eisenhardt (1989) present three different settings where a theory can be used: collecting, analysing, and presenting data. These settings suggest three different ways of using theory. The same is expressed by Alvesson & Deetz (2000) but from a somewhat different angle. They describe and suggest three different functions of theory, to direct attention, to organize experience, and to enable useful responses. The use of theory is also dependent on how you look at theory in the first place. Alvesson & Deetz explain theory as a way to enable looking at the world in a certain way. According to Alvesson & Deetz there are different ways of how to look and use theory dependent on what research approach is used. This also means that dependent on what ontological and epistemological assumptions you have, theory is used in different ways, but also perceived in different ways. Your view of theory also depends on your use of an inductive or deductive approach to your research. The basic assumption about theory that Alvesson & Deetz have is that *"theory is a way of seeing and thinking about the world rather than an abstract representation of it"* (p. 37).

The use of theory is described by Alvesson & Deetz as something that is developed and accepted in communities with the ability to provide interesting and useful ways of conceptualizing, thinking and talking about events in life.

Alvesson & Deetz (2000) refer to an example by Austin (1961). The example discusses his analysis of the representation problem within a language analysis. Austin posed the question whether there is any difference between the question, "What is a rat?" and to the question "What is the meaning of the word *rat*?" (Alvesson & Deetz, 2000 p. 40). The conclusion is that there are great differences between these two questions. The question "what is" treats conception as a part of the human act of seeing. This act takes place in a context with a specific interest and from a specific point of view. It also raises implications for the use of theory, which means when you see something you use theory as a departure point. The question "what is" focuses on subject matter in the world (Alvesson & Deetz, 2000).

According to Alvesson & Deetz the question "what is the meaning of" transfers us from the context of life and treats conception as an abstraction stripped off a specific domain. The issue of this question is to achieve correctness, clarify up the word, and sharpen the nomenclature.

5.   Conclusions

One conclusion drawn from the above is that you always use a theory when you examine something. This is also discussed by Alvesson & Deetz (2000) when they give examples of children, how they learn things, and why they explain things as they do. My analysis of this is that small children do not know the difference between a cat and a dog, but they learn to distinguish between them, as they get older. The way they learn this is by using a theory that says a cat looks like this and a dog looks like that. The conclusion from this is that you always use a theory when you explore a new phenomenon. The complicated question is then what theory is the right theory to use when exploring this specific setting. But as Alvesson & Deetz explain it, *"the greatest problem with a theory is not being wrong but with misdirecting our collective attention and hindering our assessment of where it takes us"* (p. 39).

This means that the main problem with theory is not whether the theory is right or wrong, but that the theory is often irrelevant. As such the theory then misleads us and does not help us to achieve the desired outcome of the study. The consequence of using one specific theory is that you notice specific things. Dependent on what theories are used you see different things when you look at the same phenomenon. This also means that you find what you expect to find. To handle this problem critical reflection is necessary. Alvesson & Deetz (2000) label this critical reflection a matter of de-familiarization. This means that as a researcher you should see things not as natural or rational, but instead look at things as exotic and arbitrary expressions of action.

The above stated conclusion that you always use a theory when examine something could certainly be questioned. This emphasizes the different meanings that there are about the concept theory. The implication from this is that you as a researcher have to declare your meaning with the concept theory. Stating how your perception of theory is should do this. You also have to show what theories you are using and in what way you are using it. By declaring your view of theory and showing how you are using theory the issue of what role theory has will be answered. Dependent on your view of theory you will then label your outcome in different ways referring to theory.

This paper has discussed what role theory has and done that in the light of natural sciences. But, as March & Smith (1995) state there are two kinds of scientific interest in ICT. The first is descriptive aiming at understanding the nature of ICT. March & Smith emphasizes that this is a knowledge-producing activity, which corresponds to natural sciences. The second is prescriptive research aiming at improving ICT performance. According to March & Smith is the label for this design science. The design science is then a knowledge-using activity. In this paper the question to understand decision-making in an SME should be seen as a knowledge-producing activity.

In the case of trying to understand the decision-making in an SME when choosing an ASP enterprise for its ICT, you have to question the decision and question it in the right way. You also have to question your own opinion about this and what you want your outcome to be. This implies that the question whether the research is exploratory, descriptive or explanatory depends on the researcher's intended outcome. It also depends on previous research providing useful theories on the subject. However, it is also a question whether the phenomenon as such could be compared to another phenomenon or not. In the case of the providing of ICT from an ASP enterprise this could certainly be compared to the outsourcing of information and communication technology. By comparing the ASP concept with ICT outsourcing you receive results from a number of already conducted studies and theories developed about the subject of ICT outsourcing. The question is then what distinguishes an ASP solution from ICT outsourcing. The main difference between an ASP solution for the provision of ICT and the provision of ICT from an ICT outsourcing solution is the diversity of knowledge about the organizations in the interorganizational relationship. In the case of the provision of ICT from an

ASP enterprise the provider of the ICT does not have knowledge of the customer's organization at the beginning of the relationship. This is usually the case in the ICT outsourcing solution, since the providing organization often has its origin in the customer's organization. The organization that provides its customers with ICT is often the outcome of a change in the customer organization, which means that the customer organization has developed or rearranged its organization. The result of this organizational change is then that a "new" organization has come in place or that the employee who works with ICT has moved to another organization. The result of both these actions is that the "new" organization has knowledge about the customer organization at the beginning of the interorganizational relationship.

The original question in this paper was whether examining the decision to choose an Application Service Provider (ASP) is theory testing or theory building. The answer is that it depends mainly on what interpretation you have of the concept theory. As I see it, exploring the decision is theory testing leading to the extension of an existing theory. How the existing theory or theories are developed depends on how similar or dissimilar this kind of decision is to other decisions in the same setting. If the result is seen as theory testing or theory building is then in fact a consequence on what view your stakeholders have on the word theory.

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