Stakeholders and IS innovation

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Stakeholders and IS innovation

Designing something for someone requires as much attention on someone as on something. (Albinsson, 2004)

1. Introduction

The root of the word stakeholder comes from Middle Low German *stake*[1] that means pole[2]. The stakeholder is one who claims a certain piece of land by marking it with poles.

The concept that the *values of certain people in some relation to a system* could, should or would influence that system is ancient. For instance Aristotle, in the Nichomachean Ethics, introduces a stakeholder model in discussing how to decide whether someone's life is/was happy or not. He suggests that even a person's children's lives could be considered when evaluating the person's happiness (Aristotle, 2004, p. 22).

This essay will present and discuss some models of which relations between people and IS that can constitute some people as stakeholders. In general the term today do not only encompass people who have actively "staked their claims", but *all those who can be viewed to have a potential claim to stake* (C. f. Mitroff, 1983, p. 4).

This points to three issues: *what is the "area" the claim refer to*, *what are the views that make someone a stakeholder or not* and *who says so?*

The developments of Stakeholder Models in IS design

Börje Langefors is generally recognized to have coined the very term "information systems" [ref?], and therefore it can be fair to take some of his writing as a starting point. In 1980 he comments on the developments in the field, posing important challenges. (I am indebted to (Ivanov, 1995) for finding some these passages.)

Langefors presents a shift from viewing IS design as adapting data to a common "community view", something that could be done by a "data administrator", to realizing that different stakeholders[3] will have different "views". These views are dependent on the stakeholders' world views. "The information is described in terms of the views of the world that the information [stakeholders] hold. Information modeling, thus, is world modeling." (Langefors, 1980, p. 17) A consequence is that the "one community view" should be replaced by a system of views, and that this cannot be designed by the data base administrator; there needs to be a process "governed through learning and negotiation among all relevant [stakeholders]." (Langefors, 1980, p. 31) He acknowledges that these stakeholders' views may be irreconcilable and incompatible. He also notes that stakeholders' views may change: "as a result, any IS will tend to lose some of its relevance over time". (Langefors, 1980, p. 25)

Another conclusion is that: "it will also be pointless to try to cater for formal consistency testing among distinct subsystems. Recognizing this fact (if it is a fact) will save a lot of useless analysis, formalization, and verification work as well as a lot of gathering of testing data." (Langefors, 1980, p. 32)

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[1] In Swedish the word stake is still having the same meaning.

[2] From Merriam Webster online (080318)

[3] Langefors' Uses the word "users" that refers to people that *use the information directly or indirectly*, not necessarily interacting with technology. In 1980 actual users of IT were still often a small group of experts.

My interpretation of Langefors first stakeholder model: The data base administrator is adapting the data to <u>one</u> community view.

My interpretation of Langefors' 1980 model: Stakeholders needs to negotiate their different world views.

Ivanov claims that Langefors already in writing (Langefors, 1970) "was touching upon value-problems that were akin to those attacked in the USA by C. West Churchman." (Ivanov, 1995). I take the following quote to be an example of this:

> *…effective systems design is depending on the ability to over the whole system, in spite of our limited ability to overview. (Langefors, 1970, p. 117) [my translation]*

Langefors' claim that a complete overview in any sense in impossible, a reasoning that is, in my view, similar to Churchman's principle "any worldview is terribly restricted" (Churchman, 1968b, p. 231).[4]

Discussion

Langefors presents developments that I would characterize as the step from a rationalistic view of IS design being a task for an expert, to the notion of IS design as a *continuous social constructive process, with uncertainties.* This have far reaching consequences as the stakeholders' worldviews may not only differ concerning the data models, but also the limits and scope of an IS. Different stakeholders may not even agree on who else is a stakeholder.

The need for negotiations between different stakeholders, in a learning process I will take as the definition of a co-design situation in this essay, and methodologies aiming at these situations I refer to as co-design approaches.

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[4] Langefors is citing Churchman as a reference, but not (Churchman, 1968b)

Langefors notion of the need to include all relevant stakeholders is crucial to this essay, as it points to the need to *identify* possible stakeholders, as well as deciding *whom to consider* "relevant".

2. The research approach in the essay

Research question

This essay will explore models of stakeholders in different IS design approaches using the following research question: *How to identify and select which stakeholders to consider in the practice of IS design for innovation.* This question can be divided in several parts:

— What are the boundaries of IS design?
To explore the stakeholder models we need to take into account what view of IS design they represent, that is; in which "claim" are people regarded to have "stakes"?

— What are the different views that make someone a stakeholder or not?
Different worldviews may arrive at different criteria, even when regarding the same "claim".

— Who will identify and select the stakeholders?
If we follow Langefors reasoning we can argue that the people who suggest answers to the questions above are also stakeholders.

I will also present some valuable contributions to the field of IS innovation that I find the studied approaches to have made.

The research method

The primary research method for this paper is literature study. This also is part of my doctoral project, which aims at developing useful knowledge for design practices, where the stakeholder is a core category. The category has been emerging since the early 90ies is my work. Therefore this essay is also part of an MGT (Goldkuhl & Cronholm, 2003) development, more specifically the theoretical grounding.

As we will see, many approaches to IS design can be viewed to contain, explicitly or implicitly, some stakeholder model. To discuss them we need some apparatus. One of the studied researchers, Ian Mitroff, is particularly concerned with the identification of stakeholder and suggests seven different strategies for this (Mitroff, 1983). I will use these strategies to classify the different stakeholder models. I am aware that other models could possibly be used as well, but I choose Mitroff's as his particular focus is a direct response to the research question. Therefore the studied IS design approaches stakeholder models will be classified using Mitroff's categories.

I will also introduce examples to illustrate my understanding of the different models.

The contributions I present the studied approaches have made, are in some cases substantiated by other research and in some cases my own reflection from the literature study.

Limitations

This essay is primarily concerned with the deliberate design of innovative IS. That is, someone is taking on an effort to create what (Lyytinen & Rose, 2003) calls "disruptive innovation", especially innovation of the types "systems development innovations" and "service innovations". These innovations are similar to that of "dominant designs" by (McKenney, Copeland, & Mason, 1995). "[creating] an IT design that [become] a necessity in their industry" (McKenney et al., 1995, p. x). The basic idea is that the innovation results in a *pervasive change in an industry or class*

of organizations, thereby also pervasively affecting *the way IS/IT is developed* in that industry. The World Wide Web (the html and http protocols) is an often cited example of such an innovation.

Ian Mitroff's seven strategies for identifying stakeholders

In "Stakeholders of the Organizational Mind" Ian Mitroff presents seven different strategies for identifying stakeholders (Mitroff, 1983, pp. 33-34). The area he is studying is "policy making", and can refer to organizations, society and even individuals (ibid p 32). This is my interpretation of his strategies, in the context of organizations:

— The Imperative Approach; where the people who feel strongly enough to actively try to shape an organization (often from the outside), including enemies, are identified.

— The Positional Approach; where the people who occupy the formal positions that can affect an organization are identified.

— The Reputational Approach; where knowledgeable or important persons are asked to identify stakeholders.

— The Social-Participation Approach; where the people participating in shaping an organization through committees, meetings etc are identified.

— The Opinion-Leadership Approach; where the people who are influencing others are identified.

— The Demographic Approach; where demographic data are used to statically identify key stakeholders.

— The Focal Approach; where an organization's relationships are investigated for stakeholders, for instance suppliers, customers, competitors, government etc.

Each of these strategies uses a *particular perspective* to generate stakeholders. The stakeholders can be inside and outside an organization or activity, having formal and informal relationships, being active or passive involved, being few or many, having influence or not, etc.

In this essay these will be used to indicate classes of stakeholder models, where a model can belong to several classes.

A **stakeholder model**, in this essay is:
— A suggested set of people or roles
— A method for identifying/selecting stakeholders
— A combination of the above

Studied approaches to IS design

The literature I will study come from two overlapping[5] movements in IS research: The Scandinavian School, starting with Langefors, and the American Social Constructive Pragmatism, here starting from Churchman.

I have chosen these schools as they have been highly influential in the development of the practices that form the empirical base of my dissertation. (Even though some argue for instance that the so called British Socio-technical design movement as well as Yrjö Engeström's work on activity theory have also been influential on these developments, I will not explicitly examine them (C. f. Baecker, 2008).)

Langefors work was the start of the so called Scandinavian school. Göran Goldkuhl, a student of Langefors has continued the work. Goldkuhl & Röstlinger offers a Theory of Practice

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[5] There are several cross references; for instance Börje Langfors cites West Churchman (Langefors, 1970) and West Churchman cites Staffan Persson (Churchman, 1971).

(ToP) including a stakeholder model that I will examine. ToP will also be used to explore the relationship between stakeholder models and worldviews. Participatory Design (PD) have been an influential strain of the Scandinavian School that will be examined and also contrasted with, what can be regarded (Carroll & Rosson, 2007; Greenbaum & Kyng, 1991) as its American sibling, User Centered Design (UCD)

I will then discuss the Systems Approach by West Churchman and some of his students and followers that has been highly influential in the IS field (Vidgen, 1997) (Davis, 2003); Russel Ackoff, Richard Mason, Peter Checkland. In this I include the work of Olov Forsgren who has worked with most of these researchers, as he in my view has made some valuable developments, which I will discuss.

3. Stakeholder models in the Scandinavian School

Goldkuhl's and Röstlinger's Theory of Practice

The Theory of Practice (ToP) will be both analyzed *from a stakeholder perspective* as well as be used to explore some *qualities of models in general*. When discussing the ToP I will generally refer to the stakeholder model of it. Most of the studied papers are in Swedish and the translations are mine.

Introduction

The Theory of Practice (ToP) is a suggestion for a generic model over practices or work practices. The purpose is to offer a theoretical support for change, development and evaluation of "business activities"[6] (Goldkuhl & Röstlinger, 2005, p. 1). "Business activity" is a scalable concept; it can refer to activities of a whole organization, but also be applied to any part of organizations as well as to groups of organizations (Goldkuhl & Röstlinger, 2005, p. 12). The ToP has a client focus; an activity's purpose is to serve an outside client. "It may have other purposes, but this purpose cannot be discarded when studying an organization" (Goldkuhl & Röstlinger, 2005, p. 4).

The ToP model is based on a *process* and *production* view of business activities: "an important dimension is objects that are refined" (Goldkuhl & Röstlinger, 2005, p. 8). "The primary result of and business activity is its product" (Goldkuhl & Röstlinger, 2005, p. 34)
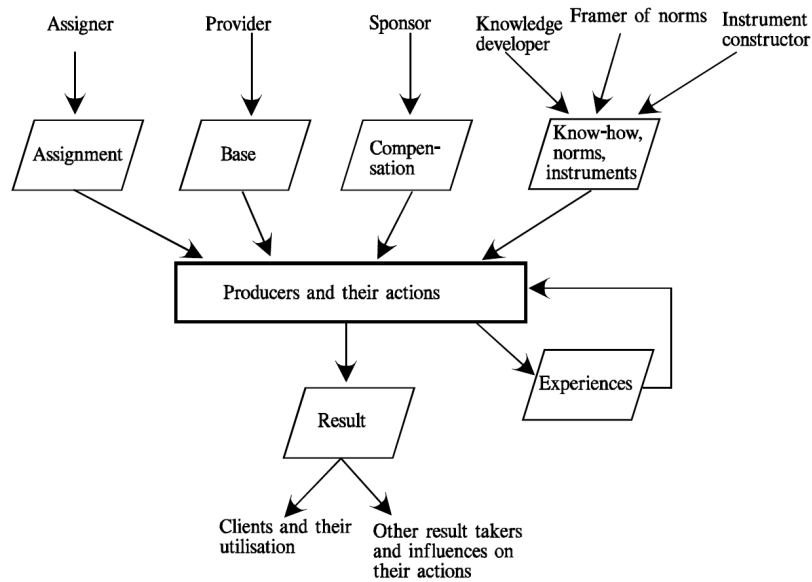
ToP is also based on the view that *business activities needs to be congruent*. "For a practice with more than one actor to function, the combined ability needs to be congruent. Different actors' abilities needs be unanimous. … Not only people's abilities need to be unanimous. The practice's accumulated ability needs to be unanimous. (Goldkuhl & Röstlinger, 2005, p. 30)

All models have built in perspectives

Goldkuhl and Röstlinger claims that any model for change has inbuilt perspectives (Goldkuhl & Röstlinger, 2005, p. 1). A way to understand this is to say that: A model will *draw the attention to certain phenomena*, and thereby *obscuring others*. A metaphor may be that a model is like a spotlight, if we use it to light up something the direction we chose will make different parts of the object shining and others dark or invisible.

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[6] The Swedish word is "verksamhetsutveckling". Goldkuhl & Röstlinger uses the term "business activity" in (Goldkuhl & Röstlinger, 1999)

The ToP model offer a set of classes of stakeholders. (Goldkuhl & Röstlinger, 1999, p. 6)

Even the generic

ToP aspires to be a generic model, which can be used to construct other theories as well (Goldkuhl & Röstlinger, 2005, p. 1). But even in the design of such a "generic" model, certain perspectives be built in. Goldkuhl and Röstlinger state that if ToP is to be used together with other methods there has to be a "certain correspondence" between the other method components and ToP (Goldkuhl & Röstlinger, 2005, p. 1). I take this correspondence to mean, among others, worldview. Even a "generic" model is dependent on, and represents, a particular worldview. For instance the argument that one model is "generic" to another, will be based on a particular worldview.

Can we avoid building in perspectives in models?

Could we then go on to design a new super-generic model, which incorporates all different worldviews? Following the arguments so far the answer is no, the new generic model will still have a bias and people will still change over time. For instance such a model would need a way to list and/or characterize worldviews. This characterization will be a perspective built into the new super-generic model.

To expand the spotlight metaphor the attempt may be likened to using a large number of spotlights in trying to light up an object. In this we still have decide where to put the spotlights, we might be blinded by some, the loss of shadows may give a curved object the appearance of being flat, the color of the lighting may affect the view etc, etc.

A conclusion which consequences are difficult to grasp

I find this to be a conclusion which consequences are difficult to grasp, and one that many wishes to negate or overcome. For instance, in his key note presentation at ISSS[7] 2007 in Tokyo, Michael Jackson, suggested a meta-model for dealing with the so called hard-soft systems conflict[8]. His meta-model implied that different models were suitable for different kinds of situations. One factor was problem complexity. But his model assumes that *everyone would agree on*

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[7] International Society for the Systems Sciences

[8] A long debate on views of knowledge. This will not be discussed here, for more on this debate; see for instance the works of Peter Checkland.

which problems are complex and not and that this will not change over time. This is also reflected in his writing:

> CST [Critical Systems Thinking] has supplied the bigger picture, has allowed systems thinking to mature as a discipline and has set out how the variety of approaches, methodologies, methods and models, now available, can be used in a coherent manner to promote successful intervention in complex organizational and societal problem situations.(Jackson, 2003 p 276-278)

The phrase "*the* bigger picture" is illustrating the problem; there are other possible worldviews where CST is not the "biggest" picture of system thinking. CST also has perspectives built in, for instance the view of complexity. (This also implies that the reasoning in this essay is also based on a restricted world view. I will return to this in the epilogue.)

Discussion of ToP

The ToP is a development of earlier generic focal stakeholder models (C. f. Ackoff, 1981, p. 31) in two aspects. The first is that the "customer" is divided into three roles; client, assigner and sponsor. This allows the model to deal more effectively with government and other public organizations, where the citizen is not directly paying, and where the sponsor may be detached. For instance a doctor may *assign* an alcoholic *client* treatment *produced* by the council and *sponsored* by the government.

The second is that other *result takers* than the *clients*, are pointed out. In my example the alcoholic's family may also be a *result taker* in the treatment.

The ToP's worldview share some characteristics with Michael Porter's Value Chain (Porter, 1985), one being the focus of *refinement of objects.* This focus has been criticized for putting too much emphasis on *the product.* For instance Normann & Ramírez state:

> When the customers buy a 'good' or a 'service', they are typically less interested in what went into what than what it helps them achieve. (Normann & Ramírez, 1994 p 56)

This is a criticism *not of the ToP itself*, but of the *worldview that is built into* the ToP. The point is exactly the one Goldkuhl and Röstlinger is making; the ToP is focusing the *refinement of objects*, which is the inbuilt worldview. If we are working with another worldview, for instance the one suggested by Normann & Ramírez's, the ToP may not serve us equally well.

The congruence and unanimous criteria's of ToP also have an impact on the stakeholders. The requirement that all activities should work together using congruent and unanimous abilities appears, given the arguments by Langefors and Churchman to be difficult, if not impossible to achieve. Therefore I will view them as an *ideal.* This ideal can be regarded as a criterion for operational quality. For instance using the ToP to *map processes* can reveal problems (Lind, 1996). This ability to aid problem identification in broad classes of activities is in my view the strongest contribution of ToP.

In disruptive innovation, however, the requirements of congruent and unanimous stakeholders become more complicated. For instance (Lyytinen & Rose, 2003) argue that:

> A disruptive IT innovation embraces a radical shift in how adopting organizations must view, operate, and utilize IT so that their subsequent use of computing capability will be different after adopting the IT base innovation. … This implies that IS developers must unlearn and drop their cognitive schemata. They must experiment, engage in bricolage, and negotiate what the technology signifies, and how it can be exploited (Lyytinen & Rose, 2003, p. 564)

An example of this was the introduction of internet banking, when banks spent a lot of money on developing a potentially cannibalizing channel, which would at times deliver services that was incongruous with those of the existing branch office channel. The launch of the internet banking

services was also far from undisputed, and their potential and effects were to a large degree unknown at the time (C. f. Albinsson, Work in progress). The so called metaphor wars reported in for instance (Grönlund et al., 2000) is also indicating that people with different background often will have perceive each other's views and abilities as in incompatible. Incompatibilities, while causing problems, are also regarded to be to contributing to innovation.

    Also Churchman argues against too much focus on congruence: "too quick a decision in favor of consistency may lead to totally unsatisfactory results… vagueness and conflict of ideas may become more desirable than precision and consistency" (Churchman, 1968b, p. 169)

There are at least three ways (probably more) we can regard ToP in the context of this essay:

— IS is regarded as an "instrument" in a business activity: The guiding view is that practices *refine objects in processes to serve clients*. The stakeholders who have immediate impact on these processes will primarily be selected, and regarded in their formal capacity. Applied like this the ToP will focus the business activity that possibly needs to be changed. The IS design is then the responsibility of the "Instrument constructor".

— IS is regarded as the "result" of the process: The guiding view is that practices *refine objects in processes to serve clients*. The clients will then be the users of the IS. (There are also "other results takers", which may be other stakeholders of the IS in use). Given focus on the "clients" in ToP, this application seems to advocate a user centered IS design.

— Another possibility is that the "client" is a business activity that needs a new IS an instrument. Then the "instrument constructor" becomes the "client".

The classification of people as stakeholder in the ToP model is depending on the view of the situation.

Analysis

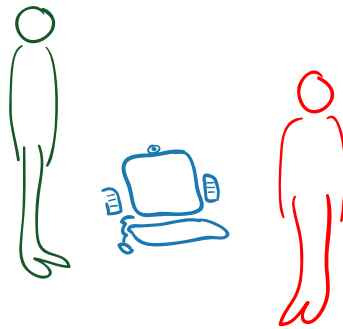| View of IS design	Offers several possibility to view IS design in several situations, for instance as its own activity or as the design of instruments for another activity. Presents ideal of congruence among stakeholders.
Stakeholder approach	The ToP stakeholder model belongs to the Focal Approach category. The Business activity is investigated for relationships with external stakeholders. It suggests *a fixed set of classes* of stakeholders, which are role based and a single person may belong to several at the same time. Explicitly biased towards the clients of an activity.
Who selects stakeholder?	Depending on the application: The person or persons who are *applying* ToP and choose how to model the situation. Or the person *designing a method* based on ToP.
Contribution	Aid problem identification and analysis in broad classes of activities. Aids researchers and method developers.

Participatory Design

According to (Greenbaum & Kyng, 1991, pp. 10-14) the roots of PD emerged in Scandinavia stemming from new legislation giving increasing power to the workers and the unions in

corporations[9]. (For instance unions were allowed to appoint representatives to the boards, major changes in organization and work procedures became mandatory to negotiate with the union. This gave workers a certain power over the introduction of new technologies.) But turning these rights into practice was not easy:

> *Whereas the workers had a legal say in workplace technology, the laws did little to shift the balance of power from a managerial perspective. (Greenbaum & Kyng, 1991, p. 11)*

PD aimed at developing support for workers to assert their influence over technology design. PD can then be taken to suggest a stakeholder model with two roles:

Manager, IT and Worker user

In its originating form, PD also toke a clear political stance in favor of the worker user. According to Pelle Ehn the goals were:

> *The first is Industrial Democracy, the attempt to extend political democracy by also democratizing the workplace – the social life of production inside the factory gates and office walls. The second is Quality of work and product, the attempt to design skill-enhancing tools for skilled workers to produce highly useful quality products and services. (Ehn, 1988 p 4)*

A key element is the active participation of the users. As noted by Suchman:

> *"..work has a tendency to disappear at a distance, such that the further removed we are from the work of others, the more simplified, often stereotyped, our view of their work becomes (Suchman, 1995, p. 59)*

By focusing the need to bring the workers into the design process, PD has made many contributions in the areas of mock-ups, prototyping, and design languages. (I discuss some of these in my writings on Scenarios and Design Languages).

Recent developments in PD

The political agenda as the basis for PD is debated among researchers. (Kensing & Blomberg, 1998) argue that changes in the politics of work, lessening the influence of workers have forced PD to shift focus. Some writers suggest that PD has expanded to include more stakeholders in the design, for instance direct users, users' managers, co-workers, customers, suppliers, and others whose practices would be affected by the design (C. f. Carroll & Rosson, 2007). On the other hand there is still support for the democratization agenda of PD (C. f. Kanstrup, 2003).

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[9] Although some authors cite the works of Christopher Alexander, especially his pattern language (Alexander, Ishikawa, & Silverstein, 1977) I have found no explicit reference to Alexander's Oregon Experiment, which was a PD effort with several thousand participants in the early-mid 70ies (Alexander & Center for Environmental Structure., 1975). PD in IS may have emerged unaware of Alexander's work.

There are also attempts at addressing users who have traditionally have had difficulties in participating, for example children (Pardo, Vetere, & Howard, 2005).

Some argue that PD has to a large degree joined forces with the field of User Centered Design (UCD) (Carroll & Rosson, 2007; Greenbaum & Kyng, 1991), but the UCD field has not in any greater majority acknowledged the ethics of PD, i. e. its political agenda. In UCD it is primarily the *participative qualities* of users that are sought from PD.

I also find that the term participatory design may also be used without knowledge of or reference to the PD tradition presented here. The methodologies for involving non-experts in design also seems also to have spread outside the IS field.

Discussion

The PD research is arguing that IS design in organizations implies changes in power and that IS development therefore is also political. "Participatory design clearly entails some reallocations of power in design collaboration" (Carroll & Rosson, 2007). An example of the difference between user and managerial perspectives can be found in a report on the Swedish Insurance Office[10], a government agency handling major parts of the Swedish welfare system, giving support to those who are ill, disabled, parents or pensioners. They report that changes in their information systems were received favorably by the users. 83% of handling officers claims the new system improves their work to some or large extent. The figure for the previous year was 66%.

However the report also states that changes in the new IS support has led to *decreased production.* (*Socialförsäkringen - Årsredovisning för budgetåret 2004.*, 2005).

The report does not state what approach had been applied in the developments, but if the new IS is *evaluated from a user perspective*; it was clearly a success, as the users are happier. But from the *management* perspective it may be viewed as disastrous, as the investments in IS has lead to increased costs rather than the opposite, which was the aim according to the report. This illustrates well the conflict of interests that can arise in IS design, which was the origin of PD.

Can stakeholders actually have an impact on IS design?

PD clearly demonstrates that models have an inbuilt perspectives, and that the choice of stakeholders is a key issue in IS design, if the stakeholders actually impact the IS design. This ability to have an impact is a primary concern for the PD community.

In (Pilemalm & Timpka, 2008) the authors refer to (Tollmar, 2001), (van den Besselar, 1998), (Oostveen & van den Besselar, 2004) and state the PD is "seldom used in large, tangible, product oriented projects" and "so far had mostly resulted in 'small scale, stand alone IT applications'". A conclusion is that just identifying and inviting stakeholders does not guarantee that they have impact, which has been a major concern for PD over the years. (This will be developed in my writing on design languages).

Analysis

The PD stakeholder model belongs both to the Positional Approach category, as formal position in the organization can make someone a user, and the Social Participation Approach category, as unions may be involved representing the users. It is static in the sense that the ethics of PD is that the users shall have a dominating influence. Therefore the designers of PD itself can be regarded as stakeholders.

In the applications of PD it is possible to identify another stakeholder, the *PD designer* (C. f. Ehn & Sjögren, 1991). They relate their struggle to make the users active participants and try different methods. The PD designer is clearly influencing the design process. It appears that they themselves are deciding *what sufficient user participation is*, and therefore it can be argued that they become important stakeholders.
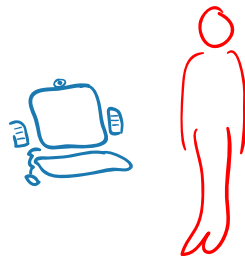
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[10] Försäkringskassan

View of IS design	IS design in organizations is torn between the perspectives of management and users.
Stakeholder approach	The PD stakeholder model belongs both to the Positional Approach category, as formal position in the organization can make someone a user or a manager, and the Social Participation Approach category, as unions may be involved representing the users. Explicitly biased towards users.
Who selects stakeholder?	PD designer decides level of sufficient user participation
Contribution	Tools for user participation in design

User Centered Design

User Centered Design (UCD) originated in northern America in response to problems with IS development, where IS could technically perform the tasks specified, but the operations required by the users were tedious, difficult to understand or organized in such a way that error became frequent. UCD represented a shift from focusing the technology to focusing people (Carroll & Rosson, 2007).

Introduction User Centered Design

User and IS/IT (based on figure 19. 1 the human-machine dyad (Norman & Draper, 1986, p. 400))

This is the situation in focus of User Centered Design (UCD), where the objective is to improve the user's experience of the IT or any artifact. Greenbaum and Kyng consider (Norman & Draper, 1986) as "one of the first American books to place the users in the foreground". Norman sums up the philosophy:

> *The emphasis is on people, rather than technology (Norman & Draper, 1986, p. 2).*

> *User Centred Design [is] a philosophy based on the needs and interests of the User, with an empathies on making products usable and understandable (Norman, 1990).*

The field of UCD has made major contributions, especially concerning *usability,* which has become a research field of its own, being part of Human Computer Interaction (Grudin, 2004).

Criticism and recent developments

The notion of a *single* user has been criticized later. Krippendorff write about "the myth of THE user": The point is that all people are different and that any model of people is a simplification (Krippendorff, 2006, p. 63).

Usability practices have also been criticized recently for being too limited in focusing the immediate use of the IS and not taking the users' contexts and situation into account. (Bødker &

Buur, 2002) They argue that too much usability tests and design is done laboratory environments that differ from the actual use situation in critical aspects. Per Levén claims that many UCD practices are limited to users inside an organization, whereas user outside to the organization supplying the IS/IT, for instance customers, never can be fully understood as a "user" (Levén, 1995, p. 18). Torbjörn Nordström expresses concerns that the very notion of "users" *reduces peoples roles to simply that of using a particular IS* (Nordström, 2003).

Some writers criticize UCD for being unclear as to the way users are considered in the process. Sometimes UCD dissolves into platitudes as "know the user" or users are given a passive role. (Bannon, 1991, p. 38)

There are also arguments for the need to expand the notion of stakeholders, to include for instance technical people. The division between a system and its user interface is seen as problematic. "Usability or user friendliness of the user interface gives the impression that the UCD approach and usability engineering methods are only for decorating a thin component sitting on top of the 'real' system" (Seffah & Metzker, 2004, p. 73). They among other things argue the need for closer collaboration between UCD experts and software engineers. They present miscommunication as a hinder to this, the lack of common languages being an important factor. (This will be developed in my writing on design languages).

Discussion

In many respects UCD is similar to PD. There are difference in the way the users' perspectives will inform the IS design, by direct involvement or though a designer. There are on the other hand also different views on this matter within the two fields as well.

Of course a major difference is that in most UCD models there appears to be no other stakeholders; the manager that is a key in the developments of PD is not present. A possible answer is that UCD focuses just *the immediate use of the technology*, implicitly assuming that the design of task and situation is done elsewhere, outside the UCD scope. Then the only ethics claimed is the ambition to make IS more useful. It assumes that design of user interfaces to IS only affects *the users*. In the early writings on UCD this is issue is discussed, for instance by Brown; in arguing "the extraordinary power of information tools to change our perspective on the world, and to bring about changes in social and organizational infrastructures" (Brown, 1986, p. 480). But in the early UCD this viewed as problematic and even dangerous:

> *we should be very cautious in making social commentaries or introducing technological artifacts designed for a particular social purpose. We risk tampering with the complexities of a delicate cultural process with insufficient knowledge and experience (Brown, 1986, p. 455)*

The conclusion seems to be an attempt to back down and view the human-computer dyad and claim that it is possible to work in that context without the need to consider the lager implications: "a responsibility to ensure that the users retain an sense of control"(Brown, 1986, p. 485).

Given our reasoning on built in perspectives and the goals of PD, this appears to be a rather naïve stance. The case presented in the discussion on PD above indicates that in the choice between two systems, the choice made by the users may have serious effects on other stakeholders. In the thinking in this essay there are no clear boundaries between the user and other stakeholders, allowing the design of the user experience to be independent.

This illustrates the importance of being clear about which perspectives are built into a model. PD explicitly state an ambition to drive the developments of IS in a certain direction, which they try to build into their model. UCD seems to claim that IS gets "better" in general way from UCD. In a survey of UCD practices in more than 100 organizations a key finding was the there is a lack of measurements of UCD effectiveness (Vredenburg, Mao, Smith, & Carey, 2002). Following the reasoning in this essay, *it is not at all obvious that there is any effectiveness in a strict UCD* from an organizational perspective.

Analysis

It is static in the sense that the ethics of UCD is that the users shall have a dominating influence. Therefore the advocates of UCD can be regarded as stakeholders. The design leader in UCD can be argued to be a stakeholder in a similar way as in PD. Also the people advocating UCD become stakeholders.

View of IS design	IS design in organizations is torn between the perspectives of technology and users.
Stakeholder approach	The UCD stakeholder model belongs to the Demographic Approach category as it identifies people by a certain characteristic; being a user. (In some notions it also belongs in the Positional Approach category in identifying IT developers, as representatives of the technical perspective.) Explicitly biased towards users.
Who selects stakeholders?	UCD designer decides how user perspectives are represented.
Contribution	The field of Usability.

4. Stakeholder models in the American Social Constructive Pragmatism

The Systems Approach

Introduction

Churchman was a student of Edgar Singer, who was a student of William James (Mason, 1983). The systems approached (SA) was in his view a thinking developed for thousands of years, as the Chinese "I Ching" or "Book of Changes" presented a attempt at a systems approach (Churchman, 1968b, p. 32). Although much of his writing is concerned with discussing different systems approached he also presents his own suggestion for a systems approach, in which there are four principles. This is the first principle of a Systems Approach:

> *The systems approach begins when first you see the world through the eyes of another. (Churchman, 1968b, p. 231)*

In this principle he argues that we need to "burden ourselves with becoming convinced that *every important philosophy is right" (Churchman, 1968b, p. 231)*. I take this to argue the need to understand that a person's perspective *is that person's perspective*. In the systems approach one tries to understand a person's perspective by *seeing the world from the point of view when that perspective makes sense*. I find Suchman's argument, quoted in the section on PD; that work viewed from a distance, tends to be simplified and stereotyped, to be an example of this principle.

The second principle is:

> *The Systems Approach goes on to discovering that every world view is terribly restricted. (Churchman, 1968b, p. 231)*

This is the perhaps most important and troublesome part. There is no end to the number of possible perspectives and there are always possible, larger and/or different views of the situation. Any border is a human invention, derived from a perspective and purpose.

In the "Systems Approach and its enemies", Churchman presents his interpretations of Kant's antinomies. The second antinomy (Kant, 1787, p. 462) he puts like this:

Thesis	Antithesis
All (social) systems (at given moments in time) have real boundaries; it is not necessary to investigate beyond these boundaries in designing the system.	There are no real boundaries of social systems; those that are temporarily assumed must be broadened endlessly.

(Churchman, 1979 p 109)

In my view Churchman founded The Systems Approach on the *Antithesis* of Kant's antinomy #2. In the discussion on model in the section on ToP this was applied in the discussion of the idea of super-general model. The conclusion is that such a super-general model would only be valid under the *thesis* of the antimony, which is rejected in the Systems Approach. The UCD separation of the user from other stakeholders is also only valid under the *thesis*.

The third principle is:

There are no experts in the Systems Approach (Churchman, 1968b p 231)

I take this to mean that he doesn't think there should be any a priori or unquestionable ranking of the value, merit or importance of people's opinions. Again this has to do with which systems we choose to regard. In for instance an organization there may well be very strong and even explicit ranking of expertise and influence. Churchman's suggestion is of course that we in the process also question whether those hierarchies, or indeed the basics of the organization as such, are useful or not.

Churchman include the scientist as a non-expert stakeholder, arguing that a scientist "doesn't really understand how he is a component of the system he observes" (Churchman, 1968b, p. 45).

The forth principle is:

The Systems Approach is not a bad idea (Churchman, 1968b p 231)

Being aware of the risks of being misunderstood, misinterpreted and that people might fail in devising systems approaches, he still ads this fourth principle as his bias.

Churchman introduces a "management scientist" (Churchman, 1968a, p. 20) as a designer. The basic quality of the Management Scientist is to forever find new perspectives on whatever is the subject of the approach, often by enlarging the view of who is concerned by the subject and any plan to change the situation, using Singer's "sweep in" approach.

Churchman also discusses how we can be sure that any approach we believe is good leads to good results. There he introduces the category "guarantor" (C. f. Churchman, 1979, p. 106). The guarantor is the one that guarantees that if we try to do good using a philosophy, the results will be good according to this philosophy.

Discussion

The role of stakeholders and perspectives are central to the Systems Approach. The conclusion is that there an infinite number of perspectives and that these are always changing. Churchman's "management scientist" is the one leading an effort, to a large degree by sweeping in more and more people and perspective. Following Churchman's thinking it is impossible to *firmly exclude anyone* from being a stakeholder, whatever the situation. According to this principle the design will

never be complete. (Which is congruent with Langefors' notion of changing stakeholder worldviews.)

In my opinion the issue of when "enough" perspectives has been brought into the design process is, unresolved in Churchman's work. He doesn't, in the writings I have come across; suggest how one is to deal with this. (The "guarantor" category offers no practical help in this, it will mainly serve as basis to discuss and criticize important aspects of philosophies, SA being one.)

One way to view this is to say that *any actual application of the Systems Approach will be un-systemic and a violation of the approach itself.* In any actual case it is impossible to claim that *all stakeholders' perspectives* have been brought in. Another way is to follow the *antithesis* and say that *any design is temporary and needs to be continuously challenged.* (This is developed further in my writing on Maestros.)

Nevertheless attempts at applications of the Systems Approach has been made, a few will be investigated below.

Analysis

View of IS design	IS design is, like any design, viewed as a basic human activity. There is an infinite number of possible views on IS, organizational, instrumental etc etc. Any particular one is restricted.
Stakeholder approach	There are an infinite number of perspectives and peoples that can be viewed as stakeholders. The choice is ultimately a question of ethics. It belongs to the Demographic Approach category, in the sense that being a human is a sufficient condition for being a stakeholder.
Who selects stakeholder?	This is to a large degree unresolved. The "management scientist" is a candidate, leading the discussion on stakeholders, (forever) expanding it. On the other hand the principle that no one is an expert in the Systems Approach indicates that *no one should have a separate standing.*
Contribution	Stakeholder thinking in general, criticism of positivism and technical rationality.

Idealized Design

Background

Ackoff concerns himself with organizations. Ackoff suggest that the starting point of Idealized Design (ID) is a "mess". He recognizes that there is no simple "problem" or "requirement" to start from, but rather that *the first task is to formulate this mess.*

> *Every organization is faced with a set of interacting threats and opportunities. These form what we call a mess. The aim of formulating the mess is to determine how the organization would eventually destroy itself if it were to continue doing what it is doing currently – that is, if they were to fail to adapt to a changing internal and external environment, even if it could predict the course of this change perfectly. This process identifies an organization's Achilles' heel – the seeds of its self-destruction - and provides a focus for the planning that follows by identifying what the organization or institution must avoid at all costs.(Ackoff, Magidson, & Addison, 2006 p 5)*

The focus lays on stakeholders' ideals, where "stakeholders are all those inside and outside the organization that are directly affected by what it does" (Ackoff, 1981, p. 30). Ackoff goes as far as saying that the stakeholders themselves are the *only ones* who can design improvements. The argument is that since there are no ways to properly measure quality of life, there is no way to objectively know which ideas that represent improvements and not; therefore you need to engage people. The issue is not how to improve the quality of life of others, but how to enable them to do so for themselves and to learn continually how to do so more effectively. (Ackoff, 1981 p 44).

This corresponds to Churchman's third principle, that no one is an expert. But Ackoff goes further, claiming that as many people as possible should be involved.

All those who can be affected by the plan based on an idealized design should preferably be involved in the design process. … The greater the number of stakeholders who feel some ownership of an idealized design and the plan to implement it, the less resistance there will be, and the more likely it is to be implemented as intended (Ackoff et al., 2006 pp 27-28).
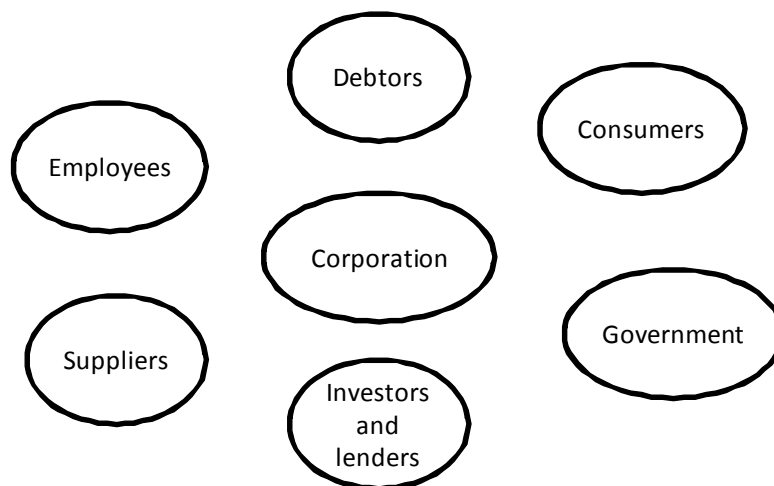
Ackoff does not suggest that any stakeholder group is more important than any other: the goal of an organization is "to serve all of [the stakeholders] by increasing their ability to pursue their objectives more efficiently" (Ackoff, 1981, p. 33).

He suggests, though, that this process can be facilitated:

Recall that the role of the professional planner in the interactive planning is not to prepare plans for others but to encourage and facilitate their planning effectively for themselves (Ackoff, 1981 p 124).

In his later writings he distinguishes customer from consumer, in a similar fashion as ToP, stating that consumer are the actual "users" of the product while the customer is the payer (Ackoff et al., 2006, p. 30). He also states that it is necessary to include "those who must eventually decide whether to implement the design-based plan" (Ackoff et al., 2006, p. 28)

Ackoff does not impose any particular method for identifying stakeholders, he rather sees that as a choice for the organization itself (Ackoff, 1981). But he suggests that *a company will be viewed by their stakeholders as*:

A stakeholder view of the firm (Ackoff, 1981, p. 31)

In his latest book his discusses many different examples of organizations and stakeholder analysis of these (C. f. Ackoff, 1981, pp. 63-82).

He suggests a certain strategy for making stakeholders reexamine the assumptions: The system was destroyed last night. The strategy is to have people not incrementally adjust the organization, but rather to assume that current organization is destroyed and that the task is to create a new one (Ackoff et al., 2006, p. 34). (This is further explored in my writings on scenarios, design languages and maestros.)

Discussion

Idealized Design can be viewed as a type of participatory design. In deed Pelle Ehn claims certain commonalities between PD and ID, especially concerning design-by-playing: "we could have

learned something similar from Russel Ackoff" (Ehn & Sjögren, 1991). Both for instance require the active participation of stakeholders. The major difference is that ID does not restrict or bias the selection of stakeholders in the same way as PD.

I find that Most of Ackoff's reasoning belongs to the Focal Approach category, although he does not state so explicitly. I also find that while he is exemplifying persons who lead the idealized design effort, he does not state how the selection is taking place. He recognizes that all stakeholders may not practically be involved as suggests indirect involvement (Ackoff et al., 2006, p. 28). So the maximization of the number of participating stakeholders is an ideal.

The major focus of the idealized design is the actual process and the qualities of idealized designs. This is also where the major contributions come from. (This is further explored in my writings on scenarios and design languages.)

Analysis

View of IS design	IS design is part of an organizational redesign.
Stakeholder approach	All directly affected should be involved. The greater the number the better. It belongs in the Focal Approach category, while investigating an organization for relationships.
Who selects stakeholder?	This is to a large degree unresolved, as in the Systems Approach.
Contribution	Stakeholder thinking, design languages.

The Soft Systems Methodology

Background

Peter Checkland developed the Soft Systems Methodology (SSM) in the systems thinking tradition:

> *Soft systems methodology can be seen to be an operationalization of Churchman's philosophical analysis of enquiry system. (Checkland & Checkland, 1999, p. 19)*

Checkland's work have, however, been more focused on IS development in particular than Churchman's and Ackoff's. In his thirty years retrospective, in the 1999 edition of "Systems thinking, Systems Practice"[11] (Checkland & Checkland, 1999, p. A15), Checkland presents the development of SSM and concludes that there are four activities of SSM.

— Finding out about a problem

— Formulating some relevant purposeful activity models

— Debating the situation, using the models, seeking to debate both
— Changes that would improve the situation
— Accommodations between conflicting interests

— Taking action in the situation to bring about improvements

In the first activity Checkland suggest amongst other things that one makes drawings to indicate the many elements in any human situation, so called Rich Pictures. Such a Rich Picture will include stakeholders, clients, IS, processes, activities etc. These have become a well known component of the SSM. (This will be discussed in my writings on scenarios.)

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[11] Over the years the SSM has developed and I choose to primarily take this latest and reflected writing as my source. Pages prefixed with an "A" indicate the thirty years reflection; other pages are the same as 1993 edition of the STSP originally published in 1981.

In the second activity Checkland proposes an acronym, CATWOE, representing the "elements covered in a well formed root definition." (Checkland, 1981, p. 225):

C = Customers, beneficiaries and victims, affected by the system.

A= Actors, Agents that carry out or cause to be carried out the main activities of the system.

T= Transformation process, the means by which defined inputs are transformed into defined outputs.
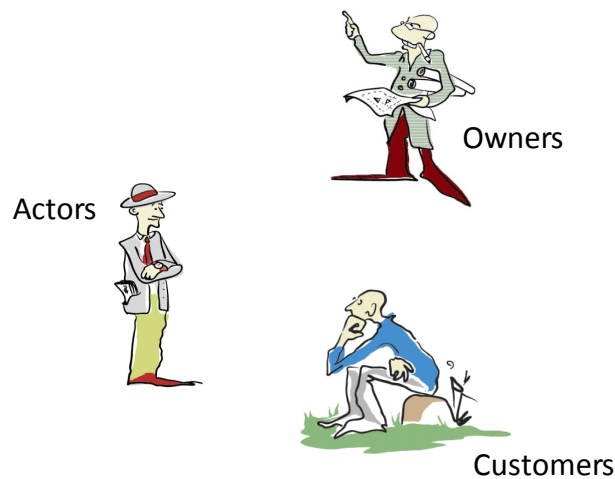
W= Weltanschauung, an outlook, framework or image which makes this particular root definition meaningful

O= Ownership, some agency having a primary concern for the system and the ultimate power to cause the system to seize to exist.

E= Environmental constraints, features of the system's environments and/or wider systems which it has to take as "given".

Checkland also reasons on the qualities of people applying SSM (Checkland & Checkland, 1999 p A36). He uses mode 1 &2 to indicate two types of people and how they will apply SSM:

Mode 1	Mode 2
Methodology-driven	Situation-driven
Intervention	Interaction
Sometimes sequential	Always iterative
SSM as an external recipe	SSM as an internalized model

My interpretation of Checkland's Stakeholders: the CAO of CATWOE.

Discussion

The CATWOE acronym has become widespread and Checkland has contributed to IS design approaches that includes stakeholder models. He also has contributed to design languages that allow these stakeholders to effectively communicate in the design.

CATWOE does not include the designer or person leading the SSM effort, although Checkland presents an important quality, the mode, of the persons using SSM. He clearly states that the perspective of the organization or activity under which the IS is to act is important; the Weltanchauung, but he does not include the perspective of SSM itself in CATWOE, although he is clear in the book about his attempt to operationalize the Systems Approach. Other stakeholders, for instance legal, government and unions appear to be regarded as outside the scope of the design.

Although he discusses how to apply SSM, he is not clear on the role of the person leading the design in terms of selecting who is a stakeholder and not. He seems to suggest that the process of debate will lead to a consensus or some other decision (C. f. Checkland, 1981, pp. 226-227).
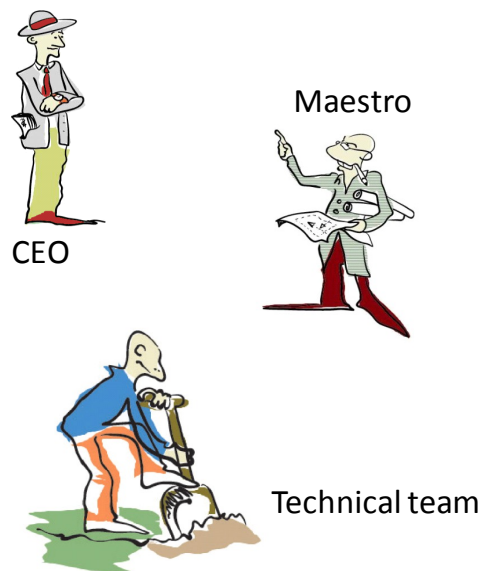
Analysis

View of IS design	IS design is part of dealing with problem situations.
Stakeholder approach	Customers, who may benefit or become victims, Owners, that could modify or demolish the system and Actors who carries out actions in the system. It belongs to the Focal Approach category.
Who selects stakeholder?	This is to a large degree unresolved, as in the Systems Approach. Dependant on debate in modeling the situation.
Contribution	Stakeholder thinking, design languages.

Mason's role model

In a study of IS developments that have disruptively changed industries, based on cases from 1950 to 1993 McKenney, Copeland and Mason presents critical roles in the innovation process. They are concerned with the type of disruptive innovation that this essay take as it focus.

They discuss a model consisting of three roles: the CEO, the Maestro and the technical team. "Only when all three are effectively filled is success likely" (McKenney et al., 1995, p. 4). Although there are several authors to this particular book I will refer to it as Mason's model, based on discussion with him and other earlier unpublished papers by him. Most of the jointly authored book is concerned with the cascading model of the innovations developing into dominant designs.

The three critical roles in innovation, according to Mason.

The maestro[12]

> *The person in this role must understand technology as it affects both the organization and the industry and must plan and implement new technology infrastructures and effect concomitant shifts in organizational processes (McKenney et al., 1995, p. 4).*

This implies that Maestro needs to have a view of how the IS design affects *the organization*, *the industry* and *the organizational processes*. In the overview of the cascade they list a number of stakeholders that is likely to be affected: Technical partners, users, other staff, the senior management, customers and competitors; all segments of the value chain. It is an assumption that the IS will affect the organization: "Ultimately, implementation of a system … exerts an impact on the structure of the organization, often by eliminating or redefining some staff positions and occasionally introducing new ones" (McKenney et al., 1995, p. 8). I conclude that the Maestro needs to explicitly or implicitly design a stakeholder model for the effort at hand.

(The Maestro role is explored in a broader perspective in my writings on that particular role.)

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[12] The term Maestro was coined by Arthur Squires (Squires, 1986) as "Maestros of Technology". Being from Sweden it is noteworthy that Squires begins the book with a case study of the "Vasa" warship, which sank on its maiden voyage in 1628, according to Squires owing to the lack of a Maestro in the construction.

The CEO

A firm's top-level executives must include a technology champion with sufficient power and prestige to drive technological innovation. Typically, though not always, this is the CEO.

…they [CEOs] demanded payback on these investments… (McKenney et al., 1995, p. 4).

The view of IS design is that it is part of creating competitive advantages for the organizations, measurable in increased revenues and/or lowered costs. In this I conclude that the CEO is explicitly or implicitly deciding which stakeholders to include.

The Technical Team

The technical team … is responsible for the managerial, technological, and systems analyses need to realize the leaders vision. A well functioning team unfreezes old thinking and develops new procedures and functions to take advantage of the speed, reliability and other attributes of emerging technology (McKenney et al., 1995, p. 5).

The assumption appears to be that any model used in or by the organization can be challenged. This echoes of the Churchman's statement on the restrictedness of worldviews. It can be interpreted as that an important part of disruptive innovation is to challenge the worldviews of the current organization.

They also argue that the technical team itself is an important stakeholder. "Falling behind a generation or two of technology atrophies … technical skill, losses key employees, and most of all entrenches existing systems as the answer to everything" (McKenney et al., 1995, p. 218).

Discussion

The stakeholder model can be viewed in two parts: the roles of the innovation process and the stakeholders of the organization in focus. The stakeholder of the organization in focus is implicitly and explicitly taken to be a broad set: "The driving force of either an innovative or follower IT program is a planning process that reviews the IT portfolio, state of competitor moves, likely impact on the organization, and market strategies" (McKenney et al., 1995, p. 218). There is no explicit way to identify these however. Their examples and reasoning include examples of all Mitroff's approaches, which isn't surprising as Mason has been a long time co-worker with Mitroff, on stakeholders, among other issues.

The assumption and the findings from their studies is that the role model has been static over the years. This claim is somewhat questionable, in my experience these roles are not always clear cut, for instance in the SEB internet bank case, which created the "dominant design" of European Internet banks, it is possibly to identify different maestros at different levels (C. f. Albinsson, Work in progress).
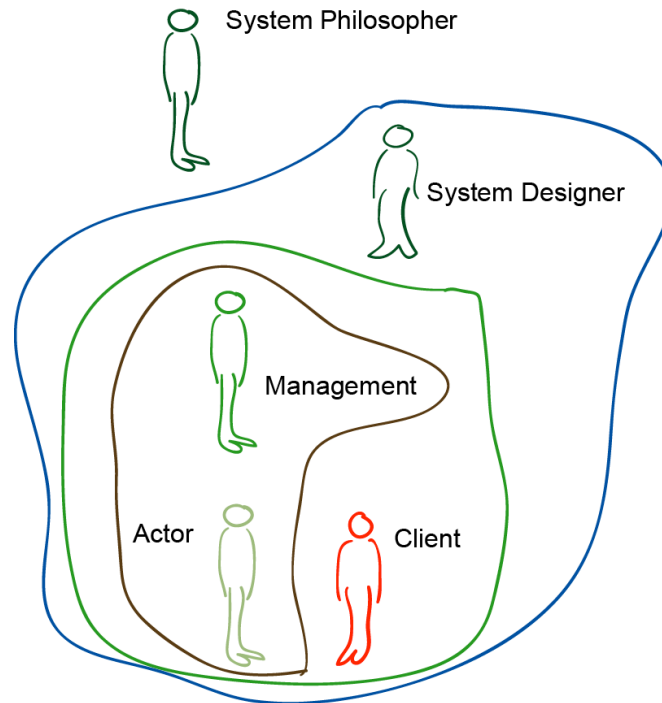
The model is based on the systems approach, but does not explicitly discuss this bias.

Analysis

View of IS design	IS design as part of the strategic development of an organization.
Stakeholder approach	A role model for innovation and a stakeholder view of the organization. Their reasoning includes examples of all Mitroff's approaches.
Who selects stakeholder?	The Maestro is suggesting the stakeholder model and the CEO is deciding.
Contribution	Innovation role model, innovation cascade model.

Forsgren's role model

Forsgren suggests the following view of IS design:

Forsgren's role model of IS design. (O. Forsgren, 1988 p 102)

Forsgren defines terms as(O. Forsgren, 1988, p. 109) [my translation]:

— *The Client is served by the activities. (The green border)*

— *The System Designer suggests activities (The blue border)*

— *The Management decides on which activities (The brown border)*

— *The Actors serve clients*

— *IS/IT can be viewed as actors*

— *System Philosophers suggests the use of this model*

Forsgren's model can be viewed as a development of for instance CATWOE, in that it explicitly includes both the System Designer and System Philosopher.

The basic assumption is that the setting for IS design is an organization wanting to serve its clients. This assumption is congruent with the view that organizations values are created in the relationship with its clients.

Forsgren also stresses the dynamics of stakeholder, people will change their views and worldviews over time, the IS is never finished (O. Forsgren, et al., 1994, p. 20). He also discusses the relationship between the stakeholder views of the current situation vs. the future, claiming that people constantly striving towards *ideal*, while also redesigning those *ideals* (O. Forsgren, et al., 1994, p. 20). He further suggest that the management is responsible for deciding which stakeholders' ideals should govern the organizational development and the IS design (O. Forsgren, et al., 1994, p. 21).

Discussion

It is the only stakeholder model explicitly including the designer of the stakeholder model as a stakeholder. Forsgren is clear on that the selection of stakeholder is a key issue, and that every stakeholder strategy implies a bias. Like Mason's model it focus both the stakeholders of the IS design process and of the organization in general. In this thinking at least some stakeholder's will

regard the introduction of worldviews as a critical issue of power as well as having a great affect on the IS resulting from the effort.

While taking steps towards an operationalization of the Systems Approach, it does not give any practical guidance on how to conduct the process of stakeholder selection and design. (It seems fair though to point out there is writings co-authored by Forsgren and me on such practical guidance, as I have been a long to co-worker of Forsgren.)

In later writings Forsgren have suggested the expansion of organizations to include a committee who oversees the use and development of IS from a broad perspective (Albinsson & Forsgren, 1996). This can be regarded as way to deal with the endlessness of the Systems Approach, discussed above.

There is a clear bias towards the clients of the organization (C. f. O. Forsgren, et al., 1994, p. 21).

Analysis

View of IS design	IS design is viewed as part of the development of an organization.
Stakeholder approach	A role model for IS development and a stakeholder view of the organization. Bias towards the client. The model belongs in the Focal and Positional approach categories.
Who selects stakeholder?	The management.
Contribution	Expansion of the stakeholder concept.

5. Discussion and Conclusion

Biasing IS Design

The analysis of stakeholder models demonstrates that the choice of stakeholders to be considered and the way they are prioritized clearly affects the IS-design. This choice implies a bias of the IS design from the very beginning. Therefore it can be said that *the choice of stakeholders is an important part of the ethics of IS design.*

All the studied methods and approaches to IS design explicitly or implicitly suggests a stakeholder model, indeed we discovered that *any IS design method implies a stakeholder model.* At least the person suggesting a method or model will be a stakeholder.

It is possible to see a development in the stakeholder models, which I think mirror the developments in society. In the 50-60ies the focus was on making companies more competitive, therefore the management was the key stakeholders. In the 70-80ies the focus was on users and workers, reflecting the ideologies of the time and also the strengthening of individualism that took place. The current era of global economy has turned the "customer" into the center of attention, both in private and public organizations.

Will this be a final "bias" built into methods and approaches? I don't think so, for instance even as this is being written the debate on climate change is beginning to affect IS and IT design[13]. In a near future "customers" may not at all be the "kings", and for instance researchers on environmental effects may introduce models that needs to be considered.

Of course in some cases it can be argued that this only affects the definition of "client", but even so this would imply that people not "near" the IS design in any sense of the word, will be regarded as "clients", which is bound to affect the IS design processes.

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[13] An example comes from Exait AB, where I serve on the board of directors. The company is getting frequent questions on "green IT", and there are even discussions on how software architecture affects the power consumption of the servers it runs on.

There may also be a difference between changing an existing business, activity or organization and designing a new. In the later cases there is little, or nothing, to *analyze*. I think it is fair to say that most applications of the studied approaches have been in changing existing activities and in these the stakeholder identification may be more of a straight forward analysis. In disruptive innovation there may be a need to also more actively choose the stakeholders, in the sense that the new activity can be the result of the wishes and needs on certain stakeholders, rather than that the stakeholders set is a consequence of the activity in focus.

Even more stakeholders

The overall focus in the studied IS design approaches are on "who needs to be considered", that is which stakeholders is discovered in the analysis of the *situation*. If we go back to Mitroff's approaches we can discover other stakeholder categories, for instance (and these are overlapping):

— *Outsiders actively trying to affect the IS Design.* There are often companies offering goods and services that could be utilized in the design or in the IS to be designed. These are actively trying to affect design processes to make choices in their favor. These will be discovered using the Imperative Approach. (Mason's discussion addresses such companies explicitly)

— *Outsiders that could bring value to the IS Design.* Especially when attempting disruptive innovation, there could be people outside the IS design situation that could bring value to it. It may be experts with useful experiences; it may be thought leaders that could affect opinions etc. These could be discovered using the Reputational Approach.

Stakeholder models from other fields of research

Stakeholder models also appear in other fields of research. Within Design Research[14] for instance Jones already in 1970 (Jones, 1992, p. 8) suggested a stakeholder model for design[15]: Sponsor and financier, Suppliers, Distributor, Consumer and sales organizations, Other sponsors, Large scale systems operators, Political institutions and pressure groups. This model belongs to the Focal Approach and the Imperative Approach categories. Jones work on design methods is only cited by writers in the PD field, (Ehn, 1988) and (Greenbaum & Kyng, 1991). Jones also in 1970 elaborates on the uncertainties of design, for instance in producing designs satisfactory to all stakeholders. A reasoning similar to that of Langefors in 1980 (C. f. Jones, 1992, p. 9).

The need for further developments

At least five areas of further research questions can be identified:

Will stakeholders impact the IS design along the intentions of the method designer?

As the discussion on stakeholders is often secondary in the methods and approaches studied, they do not discuss how their implied model affect the IS design. For instance several approaches bias the development towards the "client", but do not discuss the consequences of the bias, nor do they supply arguments for *how the approach guarantees that the clients are actually served by the results* of the design.

The problems reported in experiments with PD indicate that simply thinking about the client or asking the clients what they want, is insufficient.

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[14] Here taken to mean the academic study of design practices.

[15] Jones takes a wide meaning to design and includes managers, planers, applied researchers and engineers among designers.

Why not include the discussion on stakeholders in the method?

Mitroff argues that different approaches to stakeholder identification should be employed, some of them involving other people. I see a need to explore whether the choice of stakeholder can be made into an *explicit part of the IS design process*, to allow a more dynamic and explicit establishment of the ethics of that particular effort. This would complement the studied approaches that build the ethics more rigidly into the method.

I also see a need for this based on the reasoning on existing vs new activities. Could the active choice of stakeholders, before the choice of the activity to design an IS for, possibly bias the IS design approach towards innovation?

This may also allow the stakeholder model to expand beyond "who needs to be considered".

A wider image of people as stakeholders?

In sales and marketing, it is not unusual to consider many facets of the people in the target group, for instance personal interest like playing golf, political preferences, where the person lives, if s/he has a family, etc etc. This was touched upon in the section on UCD above; people may be more that just users of IS.

If we accept that IS design can have far reaching consequences for stakeholders we need to be able to explore these *in the context of these peoples' lives*, not only in the context of the IS.

How do we practically decide which stakeholder to consider?

While offering strong theoretical arguments, few of the studied approaches suggest *how to identify and select stakeholders in practice.*

Stakeholder research in other fields?

It seems reasonable to also look for answers to the questions above in other research fields, especially in Design Research as that field appears to have been touching on important stakeholder issues earlier than they seem to have appeared in the IS research.

6. Epilogue

The perspective of this essay

It appears reasonable to investigate the assumptions of this essay. It can be said to belong to the social constructive pragmatism, and more specifically the Systems Approach, as it recognizes the principles of this, especially "any world view is terribly restricted". People subscribing to other views of knowledge, for example positivism, may not accept the findings here. They could for instance argue the possibility of an objective super-general model.

The stakeholders of this essay

Given the subject and content, it seems unavoidable to discuss the stakeholder model of this essay itself:

— The author, who regards himself as stakeholder in several capacities, is a Ph D candidate at the University College of Borås and Linköping University.

— The essay is written at the explicit request of the main supervisor Göran Goldkuhl, who has also suggested some directions of it. He is a client of the essay.

— Prof Goldkuhl has pointed out the research community as a client; this essay is to address the researchers of IS and related fields.

— The other supervisors Prof Olov Forsgren and Ass Prof Mikael Lind are also clients, both in their supervisor capacity and as fellow researchers.

— The supervisors are also contributors, as their research and guidance will form part of the dissertation. But they are only doing this indirectly, meaning they are not responsible for the content of the essay.

— My research in general is aimed at developing a practical approach to co-design; therefore the practitioners are clients, to the results, if not the text.

— There are also others that have stakes in the essay, although more distant, for instance people who long for my doctoral project to be finished.

I arrived at this model using the Imperative, Positional, Reputational Social-Participation and Opinion-Leadership approaches. For some readers this exercise may seem absurd. A conclusion of this essay is however that the stakeholder model chosen have great impact on many design efforts, if not all.

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