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Achieving Rigour and Relevance in Information Systems Studies: Using grounded theory to investigate organizational cases

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Abstract

This paper builds on the belief that rigorous Information Systems (IS) research can help practitioners to better understand and to adapt to emerging situations. Contrary to the view seeing rigour and relevance as a dichotomy, it is maintained that IS researchers have a third choice; namely, to be both relevant and rigorous. The paper proposes ways in which IS research can contribute to easing the practitioners' burden of adapting to changes by providing timely, relevant, and rigorous research. It is argued that synergy between relevance and rigour is possible and that classic grounded theory methodology in combination with case-based data provides a good framework for rigorous and relevant research of emerging phenomena in information systems.

Introduction

Information technology (IT) practitioners work in a frantic business world, facing new and complex socio-technical arrangements. New technologies enable companies and people to interact in ways which were simply nonexistent just a few years ago. Practitioners' knowledge, mainly gained through previous experiences, is often an imperfect tool as the changing environment challenges previous assumptions or common wisdom. These practitioners need relevant IS research that can guide their sense making and their actions. In this context, Information Systems(IS) research has been accused, rightly or wrongly, of being irrelevant to practitioners.

Therefore, it is not surprising to find that the topic of rigour and relevance is an ongoing concern in the IS research community (Benbasat & Zmud, 1999; Fernández,

Lehmann, & Underwood, 2002; Gray, 2001; Lee, 1999; Nissen, Klein, & Hirschheim, 1991; Robey & Markus, 1998; Senn, 1998). Recent evidence of this concern include the March 2001 edition of the Communications of the Association for Information Systems, dealing with IS research relevance in response to a very "hot" discussion between members of the ISWorld community (Kock et al., 2001), and the full-house attendance at a panel debate on this topic during the premier conference in the information systems field, ICIS 2001 (2001).

While many researchers perceive rigour and relevance as opposite paradigms, Stokes (1997) argued that the quest for fundamental understanding and the considerations for practical use can be attained simultaneously. To achieve this dual and simultaneous goal, Robey and Markus (1998) proposed the adoption of three research models: (a) *applied theory*, where existing theoretical models are used to study real and relevant problems from the practitioners' world; (b) *evaluation research*, where researchers evaluate a particular intervention against a set criteria based on objectives and consequences; and (c), *policy research*, where alternative solutions are evaluated against a set of criteria usually including cost, efficacy, or practicability; where the main objective of policy research is to understand the policy-making process. While these three research models are suitable for rigorous and relevant studies, an important research model has been neglected, as we argue next.

Adding to Robey and Markus' work, we propose a fourth methodological alternative: *grounded theory building research,* where the emerging theory helps explain, in conceptual terms, what is going on in the substantive field of research. As mentioned earlier, this alternative is of particular importance when the focus is on *emerging* socio-technical IS phenomena because it avoids the risk of transferring incorrect theoretical assumptions to emerging phenomena. When dealing with emergent socio-technical organisations, it could be argued that by adopting Robey and Markus' model of *applied theory* we could be forcing preconception into the emerging phenomena, this

preconception could potentially render the study irrelevant to the practitioner as it may fail to address the concerns of the people involved. In other words, the use of such preconceived theoretical models to study real and relevant problems from the practitioners' world does not necessarily result in relevant research. Furthermore, two risks must be mentioned:

- forcing the optic of existing theoretical models into the research of new problems will only produce relevant research if the model selected a priori both fits with what is going on in the substantive field and addresses the emerging concerns. This is the risk of producing irrelevant research products (from the practitioner's viewpoint).

- given that forcing is possible, since we can use many optics to analyse a particular problem, preconception can stop researchers from finding the most important concepts at play from the perspective of the people involved. This is the risk of minimising the "relevance" outcome for the research project (from the practitioner's viewpoint).

Thus, this paper aims at researchers simultaneously pursuing rigour and relevance in studies of *emerging* IS phenomena, usually in response to dual academic and industry objectives (Fernández & Underwood, 2001). By aligning these objectives, researchers can engage in 'mode 2' research (Gibbons, Limoges, Schwartzman, Scott, & Trow, 1994); that is, achieving synergy between academy and practice by producing relevant theories that can advance the academic knowledge and, at the same time, can be applied in practice.

The concept of achieving synergy is both important and practical; it facilitates the research and offers the potential to produce a more significant and valuable research product. Our experience shows that IS researchers preoccupied with rigorous, relevant, timely, and realistic studies of emerging phenomena will benefit from greater interaction between industry and academia. This interaction is important because it provides "appropriate

research topics, funding, and more importantly access to data for research" (Kohli, 2001:2). Access to rich sources of empirical data allows the observation of complex organizational environments where many important variables are at play. These variables are often difficult or impossible to replicate in experimental research—e.g., commercial arrangements, disparity of stakeholders' objectives, politics, culture, inter and intra-organisational issues, etc.

Obtaining access to rich data sources can be difficult, time consuming and frustrating. However, the relevance of the research to the industry can help achieve access to rich data and higher cooperation from the participants. Evidence from our own research suggests that the participants' perceptions of relevance (or benefit) can contribute to the scientific value by:

- Allowing access to research sites, events, historical data and actors that are critical to our understanding of the phenomena.

- Providing more open accounts and wider access to what is really going on in the field (i.e., e-mails, documents, access to meetings, workshops, negotiations, etc.).

Methodological rigour can then be applied to richer data resulting in academically sound research that is useful to professional practice. One extra problem often influences the researcher's probability to achieving access: organisations and people are often afraid of being described in a "bad light" or "loosing face". This certainly is a particular problem with description-rich qualitative studies; however, this problem is solved by conceptualisation. Conceptualisation of what is going on in our substantive area of research results in an abstraction (theory) that is useful and grounded on empirical evidence yet divorced from actors, organisations and time. Thus individuals and organisations do not need to fear identification and potential negative effects on their reputations.

To discuss how grounded theory building studies can contribute to the IS field, this paper:

- addresses the issue of studying emerging phenomena to produce relevant and rigorous conceptualisations,

- describes a rigorous research approach for these studies,

- shows how this approach can produce relevant research and indicates the particular demands and risks of taking this path, and

- concludes by suggesting a particular research agenda and approach.

Studying Emerging Phenomena

One of the challenges in studying 'relevant' topics is that what is perceived as relevant from the practitioner's perspective is often related to emerging phenomena. Such topics are usually new; with little or no prior theoretical studies and/or frameworks on which to base research questions and approaches.

While existing theories may be applicable to new phenomena, almost by definition, emerging phenomena lack theories grounded on empirical data obtained from real participants in the substantive field of the phenomena. For example, reviews of international information systems (IIS) applications in the literature tend to agree that past research into IIS is sparse, sporadic and diffuse (Lehmann, 2001). These characteristics can also be observed in the study of emerging socio-technical IS project structures like metateams or virtual teams (Fernández, 2003; Fernández & Underwood, 2003).

Obtaining a good appreciation of temporal processes is a critical requirement when researching new organizational phenomena (Van de Ven & Poole, 1989). To achieve this, researchers must (a) place the research in its social and historical context including people as active builders of their own physical and social reality (Orlikowski & Baroudi, 1991) and (b) seek to generate empirically valid theory by systematically exploring the new phenomena and its players in non-simulated environments aiming "to discover what is going on, rather than assuming what should go on"

(Glaser, 1978:159). The discovery aspect of this type of research is a critical success factor for its relevance.

Thus, researchers concerned with discovery must be able to conceptualise what is going on in their field of interest, and to do that they must allow themselves to become immersed in data and to follow a rigorous approach in the constant search for patterns, similitude and contradictions. In these cases, (a) selecting an appropriate research method to deal with the issue of lack of extant theories is a critical success factor in this type of research and (b) offers a proven way to constantly compare the data to discover useful and important patterns and concepts. The next section of this paper presents a rigorous research approach that effectively deals with studies of emerging phenomena.

Rigour: Assembling the Research Approach

IS researchers facing a lack of applied research in their field need to employ research methods that do not rely on prior theoretical foundations. It seems prudent to derive the methodology by using the focus and nature of the research as a guide. There are three fundamental characteristics of research undertakings concerned with emergent IS issues:

- Information Systems are hybrids of human, social and technical research objects (Kroenke, 1992).

- The research objects are usually the interaction of technology, organisations, groups, and individuals; they do not always lend themselves to quantitative measurement and often require a qualitative mode of inquiry.

- Because the research themes are new, researching them will involve building new theory rather than deductively extending existing ones.

Qualitative research methods have become accepted in IS research (Walsham, 1995) and have been in use in the social sciences for some sixty years. Grounded theory, with its close relationship between data coding and

analysing, was new and revolutionary in 1967. However, by the mid-1990s a number of its principles had been assimilated into mainstream qualitative research methodology, such as in the data analysis steps suggested by Lofland et al. (1995), Miles et al. (1994) and Carney, (1990). Grounded theory, in the meantime, had developed into two main variants, namely

1. the original process and sequence of phases as exemplified by Glaser et al. (1967) and further augmented by Glaser (1978); this is labelled 'Glaser' in the following discussion;

2. the methodology as outlined by Strauss (1987) and then prescribed in procedural detail by Strauss & Corbin, (1990); this is labelled 'Strauss'.

In the table below, the two mainstream methodologies are set out in comparison with the steps in both schools of Grounded theory methodology.

Table 1. Comparison of data analysis steps and phases. *Italics* denote a method's proprietary nomenclature

Lofland & Lofland (1995)	*Miles & Huberman (1994)*	*Strauss (1987) Strauss & Corbin (1990)*	*Glaser(1978, 1992,1998,2001) Glaser & Strauss (1967)*
"Framing" (in Social Science Frameworks)		Formulation of the Research Question	
Coding: *Initial* Coding	Creating a *text* to work on	*Open* Coding	Open Coding
Coding: *Focused* Coding	Trying out coding categories to find what fits	*Axial* Coding	Selective Coding
	Identifying themes and trends in the data overall	*Axial* Coding and Applying the '*Paradigm*'	Memo Writing (ongoing throughout all phases)
Memo Writing; and Diagramming	Testing hypotheses and reducing the bulk of data for analysis of trends in it.	*Selective* Coding	*Theoretical* Coding

		Theoretical Sampling	*Theoretical Sampling* (iterating back to Open, Selective or *Theoretical* Coding)
		Identifying the *Process & Contingencies*	
		Setting out the Conditional Matrix	
Thinking flexibly: the final analysis	Delineating the *deep structure*	Theory Writing	Theory Formulation: *substantive* or *formal*

Lofland & Lofland's is the least prescriptive method outlined. It follows a traditional, positivist paradigm by starting with a pre-defined hypothetical position, anchored in a social science framework germane to the research area and object.

Miles & Huberman's 'ladder of analytical abstraction' is somewhat similar in structure to the logic of the Glaser version of grounded theory. The significant difference is, however, that there is no element of theoretical sampling continually to steer the investigation along a route of increasing conceptual and theoretical density. Furthermore, although some leeway for adapting categories to the data is provided for, theirs is fundamentally a non-iterative research design, more suitable for well-defined studies in the incremental tradition of Kuhn's *normal science.*

Strauss's procedural method compendium is the most elaborate and also the most prescriptive process of the designs under comparison. It seems to have developed into a set of "exceedingly complex processes" (Lofland et al. 1995, p192), trying to do two things at once. For one, it tries to preserve the richness of application and the elegant simplicity of procedure inherent in the 'Glaser' version of grounded theory methodology; at the same time, it attempts to avoid its reliance on the researcher's conceptualising skills and theoretical sensitivity – by

replacing it with a deeply structured process, trying to have a clear rule for every eventuality.

The original 'Glaser' framework seems to be the most suitable methodology for the study of Information Systems because it does not require a preceding theory (as Lofland & Lofland's), it is extensible (which is difficult in Miles & Huberman's methodology) and because it provides more freedom of interpretation than Strauss's multi-step analysis procedure.

The shortcomings of the 'Strauss' process for the study of IS in organisations are manifold:

(a) It has been specifically designed for predominantly 'homocentric' research settings, i.e. with specific emphasis on human-to-human interaction[1]. This is, however, only one of the research objects in IS research, which also spans technology, social, and organisational objects.

(b) Strauss' strict rules for open, axial and selective coding were designed for research where the individual is the main unit of analysis and the individual interview or observation the predominant 'slice-of-data'. It is questionable whether they could be adapted for an investigation where the unit of analysis are cases about information systems in enterprises, i.e. multi-person, multi-layered (and eventually multi-organisational) settings with a strong content of inanimate technology;

(c) Strauss et al.'s (1990, p99) '*paradigm*' for constructing and linking categories is too restrictive for the open-ended research that information systems require. It forces the categories and their properties into a uniform, pre-defined causal structure. The relationship between facts is, however, a central element of the research questions about the use of information technology in organisations and its nature needs to be left to emerge from the investigation. The narrowness of the '*paradigm'* could thus preclude the correlative, 'covariant' relationships between facts expected in (multiple) cases of organisational IS;

(d) Moreover, Strauss's *'paradigm'* is fully contained in the first of 18 'coding families' set out by Glaser (1978, p74-82) to illustrate some possible frameworks[2] for 'theoretical' coding (which furthermore encompasses the 'axial' coding in the Strauss terminology);

(e) Similarly, Strauss *a priori* forces a '*process*' nature onto the underlying concepts (Strauss & Corbin, 1990, p143ff). This may or may not be justified, but in any case should be left to emerge from the data[3].

A further deciding shortcoming of the 'Strauss' procedure was the blanket refutation it received from Glaser (1992). His main argument is that it is "an over-codification of the basic grounded theory method", resulting in "conceptual fracturing… forcing preconceived notions on data", which, in the end merely produce "full conceptual descriptions", but not theories which are grounded in data.

The Grounded Theory Method

While case study methods have become far more widely accepted in IS research over the last decade, grounded theory research is still a distinct minority method for IS research. The method was born in the early sixties (Glaser, 1964; Glaser & Strauss, 1965). Since first introduced, as a general methodology for theory building, the constant comparative analysis method has been a key concept in the development and understanding of grounded theory. Constant comparison "makes probable the achievement of a complex theory that correspond closely to the data since the constant comparison forces the analyst to consider diversity in the data". (Glaser & Strauss, 1967, pp.113-114) Diversity is achieved by rigorous comparison between incidents and properties of a category, trying to observe as many underlying uniformities and diversities as possible. Furthermore, constant comparison "especially facilitates the generation of theories of process, sequence, and change pertaining to organizations, positions, and social interaction". (p.114) These theories are relevant to both IS researchers and organisations dealing with the processes under investigation.

It is critical to note that the constant comparative analysis method is used to rigorously produce conceptualisation *not* full description. Conceptualisation allows practitioners to easily re-apply and adapt the discovered concepts to their particular circumstances, thus making the research product *simpler and more consumable*, an aim also suggested by Robey and Markus (1998).

The classic grounded theory method was first described by Glaser and Strauss (1967) and subsequently extended by Glaser (1978; 1998; 2001). The procedures, intended to be used as a methodological 'package', are extensively articulated in Glaser's works and summarized in Glaser & Holton (2004). When applied as intended, the result is a **substantive theory,** which is applicable to the particular area of empirical enquiry from where it emerged. Classified as 'middle-range' theories; between 'minor working hypotheses' and 'grand-theories' , they carry inherent relevance only within the environment concerned, but can be readily enhanced, extended and/or modified.

Building Grounded Theories of Information Systems in Organizations

According to Eisenhardt (1989:546-547), theory building studies using case-based data have three major strengths:

1. Theory building from case data is likely to produce novel theory because "creative insight often arises from juxtaposition of contradictory or paradoxical evidence". The process of reconciling these accounts forces the analyst to a new *gestalt*, unfreezing thinking and producing "theory with less researcher bias than theory built from incremental studies or armchair, axiomatic deduction".

2. The emergent theory "is likely to be testable with constructs that can be readily measured and hypotheses that can be proven false." Due to the close connection between theory and data it is likely that the theory can be further tested and expanded by subsequent studies.

3. The "resultant theory is likely to be empirically valid." This is so because a level of validation is performed implicitly by constant comparison from the start of the process. "This closeness can lead to an intimate sense of things" that "often produces theory which closely mirrors reality".

Whilst theory developed from case study is particularly appropriate in research of IS innovation phenomena, the researcher must exercise care to ensure that some of the canons of case study research do not distort true emergence for theory generation. (Glaser, 1998:40-42) For example, Yin (1994:28) states that "theory development prior to the collection of any case study data is an essential step in doing case studies." This statement contravenes a key tenet of grounded theory - but reflects perfectly the traditional stance of case study research – which has sometimes been interpreted as a controlled, field experiment. (Lee, 1989b) It has traditionally followed the positivist, natural science model of hypotheses formulation from overarching theory and their subsequent verification or falsification in controlled studies. (Yin, 1989) The grounded theory perspective, on the other hand, also "reflects a naturalistic approach to ethnography and interpretation, stressing … observations, open-ended interviewing, the sensitizing use of concepts and a grounded (i.e. inductive) approach to theorising which can be both substantive and formal". (Denzin, 1994)

Despite differences in *Weltanschauung*, however, the grounded theory method as described above, can be designed to match closely the requirements of case study practice, as set out by Yin (1994) or Walsham (1993). This suggests that grounded theory can be used as an overarching methodology that accepts data from case studies as key building blocks but is not limited, or governed in any way, by traditional case study methodology.

A good example of the use of grounded theory with cases is a study of an Information Technology project in a multinational enterprise (Lehmann, 2002) where open coding showed that the categories influencing the systems'

development and implementation were the attitudes, beliefs and requirements of the relevant business people involved, characterized by the history and nature of the firm. Juxtaposed were the skills and attitudes of the IS people and their background, in a configuration of relations akin to a Force-Field in Lewin's (1952) terms. Theoretical coding of the case story built from both sides' individual texts led to the discovery of 'derivative' categories, which further explained the relations. Two groups of concepts (named Utility and Control) and constructs (Power Play and Capability) emerged. One had to do with the fact that the business people could not see that the proposed system would have any practical utility in operational terms. They therefore suspected that the IS people used the system as a deception to impose greater control from the corporate centre. Lacking in business understanding and international know-how (facets of Capability), the IS people reacted to this resistance with political Power Play – which further deepened the business side's suspicions.

The nascent theory of the previous example had thus two focal points. Firstly, the resistance to the imposed introduction of a new international Information System seems to depend on its '*net-utility*' over any control component, i.e. the less utility/the more control, the stronger the antagonistic tendencies and tensions in the force-field between business and the Information System. Secondly, the IS people's substituting inability with politics led to a cyclically degenerative cause-and-effect-loop (Weick,1979). At this point, the theory may be written up in the form of a hierarchical set of *theorems* or *propositions* for each relevant and significant focal point/area of the theory. This will point to areas of weak empirical support and therefore direct the researcher to further theoretical sampling. In the case of the multinational IS example, more cases were then needed to add data about factors in successful projects and, to extend the substantive area, firms of different size and nature were preferable.

Relevance: A By-product of the Grounded Theory Method

Qualitative research methods have become accepted in IS research (Walsham,1995), have been in use in the social sciences for some sixty years. Grounded theory, in particular, allows researchers to deal effectively with the important issues of bias and preconceptions, providing a systematic approach that takes into consideration extant theory but it is not driven by it. Triangulation is embedded in the methodology (Glaser, 1978, 1998); it values professional experience (Glaser, 1998; Urquhart, 2001); it can efficiently study emerging phenomena (Lehmann, 2001; Urquhart, 2001; Van de Ven & Poole, 1989); and, it helps IT practitioners to better understand their own environment (Glaser, 1998; Martin & Turner, 1986). In other words, the researcher can produce theory-building studies "which are useful, relevant and up-to-date" (Partington, 2000).

The 'hybrid' nature of IS as the research object, however, makes it essential that any selected theory building methodology can be adapted to the specific demands of IS research. Denzin et al. (1994) point out that different qualitative methodologies are based on - and constructed from - different research paradigms and perspectives. These need to 'fit' the research object and, in IS research, its technical and social/organisational environment for the chosen method to be effective.

The aspects of the study of organisational information systems, however, do not align themselves conveniently behind one dominant research paradigm. Guba et al. (1994) analyse the constituent elements of the main paradigm positions in qualitative research[4] with a specific focus on practical research method issues. Using this as a framework, the table below shows the positions of grounded theory research with respect to selected issues and paradigm elements with relevance for the study of IS in organizations.

Table 2. Profile of paradigmatic positions (after Guba et al. 1994)[5]

Paradigm Elements	Spectrum of Paradigm Positions			
	Traditional Positivism	*Post-Positivism*	*Constructivism*	*Critical Theory*
'Voice'[*] *Epistemology*	Dispassionate observer			
Inquiry aim *Epistemology*	Explanation of the 'interaction' between the 'factors' that shape the 'nature' of the IS under research.		Understanding of the 'nature', 'structure' and 'attributes' of IS	
Nature of Knowledge *Ontology*		Hypotheses from 'facts', which are…	… 'mimetic' constructions, that may include…	… structural and historical insights
Accumulation of Knowledge *Methodology*		Possible cause-effect postulations	Generalisation by similarity of incidents	

(*) the position of the inquirer *vis-à-vis* the research subjects, especially with respect to the impact any research findings may have on the inquirer

The summary shows that the paradigmatic make-up of the grounded theory methodology with a strong orientation towards both a *post-positivist* and *constructivist* stance in Guba et al. (1994) terms. However, it is well anchored in *traditional positivism* because of the – at least initial - clear separation of observer and research object. On the other hand, the equally clear and continuing quest for 'insights' from which the theory will be crafted introduces a strong element of *'critical theory'*. In the broader scoped nomenclature of Orlikowski et al. (1991), the research paradigm profile most appropriate for the grounded theory study of IS cases would be *interpretivist* in its ontological

and methodological position, but with a strongly *positivist* epistemology.

Whereas Glaser (2001) elegantly bypasses the argument by stating that by covering all paradigms grounded theory should be viewed as "paradigmatically neutral", there is substantial discussion in the literature as to whether different paradigms can be accommodated within one study, or if they are 'opposed by necessity' (Myers, 1997). Guba et al. (1994) support the dichotomy view and mention specifically that "proponents of [critical theory and constructivism] join in affirming the basic incommensurability of [positivist and non-positivist] paradigms ... [which] are believed to be essentially contradictory".

On the other hand, there is material support in the literature for multi-paradigmatic approaches to qualitative research. First of all, there is a clear precedent in IS research: Lee (1991) had shown that an integration of positivist and interpretivist paradigms in one study is a practical possibility. Denzin et al. (1994), too, maintain that qualitative research *eo ipso* is characterised by "separate and multiple uses and meanings of [its] methods". They assert that there is "common acceptance of a multiplism of qualitative research methods. In a statement on qualitative methodology Nelson et al. (1992) observe that "qualitative research is interdisciplinary, trans-disciplinary and sometimes counter-disciplinary … it is many things at the same time. It is multi-paradigmatic in focus. Its practitioners are sensitive to the value of the multi-method approach". Finally, Guba et al. (1994) point to a possible avenue for reconciliation among conflicting paradigms by applying different research approaches to individual sets of research objects: "…one might wish to resolve the problem [of finding the right paradigm] differently in considering the physical versus the human realms". Using epistemology as an example, they suggest it may be preferable to select one paradigm befitting the set of inanimate objects and another one for the study of conscious research. The dual nature of information systems as technology/human hybrids would then justify

the use grounded theory as a methodology that unites two seemingly juxtaposed ontological paradigms in one method.

The more significant aspect of grounded theory's broad paradigm coverage, however, is the fact that this makes it optimally suitable for the investigation of all the divergent elements that constitute organisational IS, i.e. technical, social and individual units of analysis. This, in turn, inherently assures the highest possible degree of relevance of the resultant findings and theories for IS researchers – which then directly translates into usefulness for practitioners.

Relevance to the practitioner's concern, however, requires also that the research method generates conceptual accounts that are meaningful for them. With grounded theory methodology, the researcher "can contribute a great deal by providing the [person] in the know with substantive theory" (Glaser, 1978:12). By doing this, the researcher avoids stating the obvious to the expert; providing categories based on many indicators and showing ideas based on patterns. These conceptual ideas allow practitioners to transcend the limits of their own experience, adapting and applying the substantive theory to other situations. According to Glaser (1978:13-14), this provides the expert with six breakthroughs:

1. The ability to anticipate additional consequences, conditions and strategies of an act besides what is empirically known to him or her.

2. The ability to expand the description and meaning of incidents, placing them in greater scope and transcending his or her experience.

3. As fewer concepts based in a multitude of incidents can be integrated in a theory, this makes the concepts easier to remember than incidents, increasing the expert's capacity to know.

4. The new theoretical knowledge allows the expert to expand his capacity to deal with new, more complex situations. This is done by progressive transference of

conceptual knowledge to new situations, broadening the expert power by allowing faster organization of the unknown by using the ideational tools provided by the substantive theory.

5. The theory can emancipate experts from the restriction of their specific expertise, freeing them from the status quo. Theory allows experts to become more open to change as they begin to see the change process and how their ideas can be modified to handle new knowledge and new situations.

6. Seeing the empirical knowledge in a theoretical light allows experts to capitalize on the theory. The theory becomes part of the experts' common sense, sharpening his or her judgement by making visible the many variations in strategies, conditions and consequences.

Relevance for the grounded theorist means bringing tangible benefits to the experts. As Glaser said, when the field experts can understand and use a sociological theory by themselves "then our theories have earned their way. Much of the popularity of grounded theory to sociologists and layman alike is that it deals with what is actually going on, not what ought to go on". (Glaser, 1978:14) The authors experienced a high level of participant cooperation while conducting grounded theory studies. We attribute this partly to:

1. the open nature of the interviews — while having a substantive focus in mind, the interviewers followed the accounts of the participant rather than a predetermined set of questions.

2. our focus on experiences *as perceived by the actors* — doing our best to avoid (a) judgemental attitudes and (b) trying to influence the conversation to follow our knowledge of the topic.

3. the methodology forcing us to act as very active listeners — constantly asking ourselves "what is going on here" and "what is the important concept behind the participant's account."

More importantly, we provided practitioners with opportunities to articulate their thoughts about the issues *they* considered important. This articulation allowed them to reflect on particular events, gaining further understanding of past actions and acquiring new insights. Because they perceived our interviews as positive events, their attitude towards the research was more generous, resulting in better data acquisition. For example, at times participants invited us to "have a chat" and all we have to do then was to listen to their articulations of the relevant problems they were dealing with at the time, and to take good notes afterwards. As a result, we were intellectually stimulated by our interaction with rich data, by the positive attitude of the participants towards to the research, and by a sense of contributing with our work to a wider audience.

Demands of Grounded Theory

Every methodology poses particular demands and grounded theory is not an exception. The authors concur with the advice provided by Glaser (1978; 1998) that the grounded theorist must:

1. tolerate confusion—there is no need to know *a priori* and no need to force the data;

2. tolerate regression—the researcher might get briefly 'lost' before finding his or her way;

3. trust emerging data without worrying about justification—the data will provide the justification if the researcher adheres to the rigour of the method;

4. have someone to talk to—grounded theory demands moments of isolation to get deep in data analysis and moments of consultation and discussion;

5. be open to emerging evidence that may change the way the researcher thought about the subject matter, and to act on the new evidence;

6. be able conceptualise to derive theory from the data; and,

7. be creative—devising new ways of obtaining and handling data, combining the approach of others, or using a tested approach in a different way.

We also believe that, in adopting grounded theory methodology, the IS researcher has to confront two further risks.

First, due to the minority status of grounded theory in IS research, it is likely for IS researchers, specially Ph.D. candidates, to experience what Melia (1996) described as *minus-mentoring*—that is, learning from books, employing grounded theory for the first time without the guidance of a supervisor with practical knowledge of the methodology. Minus-mentoring could result in methodologically unsound studies (Glaser, 1998; Stern, 1994). For example, studies claiming to be grounded theory when key tenets of the methodology have been breached (one of the risks of using grounded theory within a second, overarching, methodology). However, '*Minus mentees'* can reduce this risk by (a) networking with researchers conversant with the methodology, i.e., members of the Grounded Theory Institute; (b) reading the wide grounded theory bibliography, not just one book; (c) participating in relevant discussion groups (i.e. IFIP WG8.2, the Grounded Theory Institute, or the Grounded Theory mailing list; and (d), attending seminars and trouble-shooting workshops on classic grounded theory.

Second, grounded theory seems to be easier to use when the researcher is sensitive to the field under study. However, the precise meaning of "being sensitive" is not simple to explain, it may involve maturity, knowledge, ability to decentre (seeing things from others' perspectives), etc. The authors, for example, have substantial experience as practitioners in the field of IS project management. This was perceived as a distinct advantage in eliciting information from participants in the same field and in understanding some of the more subtle issues in their respective studies. While we cannot provide an easy answer to what sensitivity really involves, we believe that without this sensitivity or '*verstehen'* (Weber, 1968), the fitness of the method to the researcher will

need to be evaluated carefully and honestly in the light of the seven requirements above.

Conclusion

Grounded theory provides the benefit of conceptual reflection based on real life accounts without being obscured by distracting descriptions. Practitioners with frantic schedules often consider reflection a needed and yet unaffordable luxury. Therefore, it is not surprising to see that concepts presented in the form of theory appeal to IS practitioners. The expert can relate immediately to the theory and add examples from his or her own experience, reflecting on its use and devising new ways to take advantage of the substantive theory. When substantive theories are operationalized by the experts, their regard for the role of IS research in industry is likely to be enhanced; and thus contributing to future research collaboration between industry and academia.

In response to the renewed calls for relevance and the continuous need for rigour in IS research, grounded theory offers a valid alternative. We suggest that the application of grounded theory to cases with a hybrid social/technological focus can be constructed with a solid philosophical foundation. Furthermore, designing methodological processes can be done without violating the underlying grounded theory principles.

We believe that the potential of the grounded theory method for IS research is under-explored. More importantly, we suggest that, when the demands of the method are taken into account, grounded theory methodology can help researchers investigating emerging phenomena to simultaneously achieve rigour and relevance and, by doing so, benefit both academic and industry interests.

Endnotes

[1] Strauss & Corbin's (1990) delineate the objects of the qualitative research they apply their version of Grounded Theory to as "persons' lives, stories, behaviour, organisational functioning, social movements, or interactional relationships" (p.17).

[2] Another set of frameworks are the relationships between 'basic social processes' and 'social structural units', Glaser (1978, p109-113)

[3] This restriction would fatally limit the Strauss method's use for the 'fact' finding part of the study. In contrast, the Glaser method explicitly covers both 'variance' and 'process' constructs: "[it] can…be used to generate static theories [and also]…facilitates the generation of theories of process, sequence and change" (Glaser & Strauss, 1967, p114).

[4] The nomenclature and definitions of these paradigms in the literature are often overlapping and sometimes similar terms denote different definitions – for this reason the terms and definitions used are specifically referenced to their source

[5] Guba & Lincoln (1994) also compare the paradigm position with respect to Goodness criteria, Values, Ethics Training, Accommodation and Hegemony (of one paradigm over the others). These have been left out in the table because they are not relevant to its purpose, i.e. to select the research approach to be taken for the study of organisational IS.

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