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The Politics of IS Evaluation: A Social Shaping Perspective

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Abstract

A considerable amount of research has already been conducted in the IT/IS evaluation arena, yet rewards remain elusive. This has been variously explained and in this paper we aim to realize two objectives: first, to examine some particular political and social aspects of evaluation processes in organizations and, second, to show the potential contribution of a social shaping approach to information systems research. A social shaping approach is attractive because it emphasizes a view of technological development as a social process as well as providing a framework for understanding the context in which technologies are displaced. Social shaping approaches encourage a concentration on the social and political processes through which terms such as failure, disaster, benefits, or successes come to be ascribed to technological systems. By highlighting the subjective element of evaluation procedures that produce such terms, we hope to contribute to the evaluation literature. A case study approach is used to illustrate the process and role of IS evaluations and emphasizes the dual exercise of evaluations for the purpose of user enrolment and to justify decisions in hindsight.

Keywords: IS evaluation, politics, SST, *de facto* decision making, nursing information system

1. INTRODUCTION

A considerable amount of research has already been conducted in the IT/IS evaluation arena, yet rewards remain elusive. This has been variously explained and in this paper we aim to realize two objectives: first, to examine some particular political and social aspects of evaluation processes in organizations and, second, to show the potential contribution of a social shaping approach to information systems research. A social shaping approach is attractive because it emphasizes a view of technological development as a social process as well as providing a framework for understanding the context in which technologies are displaced. Social shaping approaches encourage a concentration on the social and political processes through which terms such as failure, disaster, benefits, or successes come to be ascribed to technological systems. By highlighting the subjective element of evaluation procedures that produce such terms, we hope to contribute to the evaluation literature.

Concentrating on areas of potential conflict that underpin evaluation procedures, we emphasize one particular aspect developed by social shaping of technology, namely: relevant social groups and the attendant concepts of enrolment, translation, and problematisation. The priority here is to operationalise these concepts specifically to illustrate how they play out in practice by means of a detailed case study, as opposed to an erudite discussion of the terminology.

The structure of this paper is as follows. We begin by providing a political overview of the evaluation literature in preparation for the next section which discusses the possible contribution of a social shaping approach to the field. The proceeding section contains the case study intended to highlight the process and role of IS evaluations and illustrate the dual exercise of evaluations

for the purpose of user enrolment and in order to justify decisions in hindsight. Finally, we conclude with a summary of the points made in the case study and a review of the argument presented.

2. A POLITICAL VIEW OF THE EVALUATION LITERATURE

A large amount of research has already been conducted in the IT/IS evaluation area (Farbey et al. 1995; Hawgood and Land 1988; Hirschheim and Smithson 1999; Venkatramen 1999; Willcocks 1994) and it seems that increasing numbers of organizations are engaging in the routine conduct of evaluations and appraisals. Yet in spite of this abundance of academic study and an increase in the organizational practice of evaluation, it appears we are nowhere nearer to finding a solution to the problems surrounding it (Ballantine et al. 1999) and there is little indication that the "hard academic, foundational questions are being widely addressed, let alone answered" (Farbey et al. 1998, p. 156).

Regardless of this situation, there is a preoccupation with evaluation, which comes high on the list of key issues for IS management (Galliers et al. 1994; Niederman et al. 1991). Taking a political perspective (Markus 1983), it could be argued that the recent increase in research into evaluation issues has been spurred by managerial concerns to justify capital investment. Such attention to evaluation is closely linked with the "productivity paradox" (Willcocks and Lester 1999), which is concerned with the need to show returns on investment. The contribution of this paper is to argue that it is precisely this need to show returns that underpins the whole evaluation process, and means that it is slanted from the outset to showing benefits over disadvantages—and, if true, would appear to put a question mark over the possibility of an objective evaluation. In sum then, the productivity paradox is important in relation to the process of evaluation because there is a need to prove returns on investment; it causes the evaluation process to be biased in favor of benefits over disadvantages; it privileges the interests of those sponsoring investment over others in the organization; and it affects evaluation research, which tends to mimic this privileging, thereby producing uncritical managerialist accounts of this research area. The conclusion is that no matter what measurement is used, evaluation aims to prove the benefits of IT and, therefore, cannot be considered objective.

A number of different theoretical and methodological approaches to IS evaluation have been developed, but aside from a couple of notable exceptions (vis, Smithson and Hirschheim 1998; Walsham 1999) the social and political issues that are inherent to this process have been consistently neglected. We concur with Smithson and Hirschheim that the concentration on the means of evaluation (better tools) has detracted attention from its end (what to measure and why). By taking an overly rationalistic approach, it also fails to recognize the possibility that the outcome of evaluation processes can be decided in advance and devised to support other managerial decision making—a phenomena known as "*de facto* decision-making" (Vroom and Yetton 1973). Therefore, in this paper, while we are not attending explicitly to *what* to measure (though, implicitly, we posit user satisfaction as a valid object of study), rather we attend to the issue of *why* evaluate. One conclusion in this respect is that evaluation is a highly politicized process that is employed to justify investment and decisions already made—no matter what rhetorical disclaimers such as objectivity, rationality, or quantitative measurement are proffered. The implication for IS researchers and practitioners (which some may already silently acknowledge) is that, when employed to carry out evaluations, we are engaged in a political game that is skewed from the outset in favor of the sponsors. "*He who pays the piper calls the tune,*"as the saying goes.

3. AN ALTERNATIVE, SOCIAL SHAPING OF TECHNOLOGY (SST) APPROACH TO EVALUATION

Having indicated the need for a political perspective that could enable a more all-rounded understanding of the role of evaluations within organizations, we now go on to describe the contribution a social shaping of technology (SST) approach can make to IS evaluation research. This is achieved by a cursory glance at the recognition within social shaping approaches of the context and complexity of organizational life, followed by a discussion of some key notions that enable a political view of the innovation and stabilization processes entailed in (information) technology development.

We would argue that the assumed objectivity of evaluation techniques is part of a broader set of technologically determinist notions. They entail an assumption as to the "neutrality" of technology. However, the conventional wisdom of not questioning this neutrality must be rejected if we are to come to a more sophisticated understanding of socio-technology. In seeking to do precisely this and move away from the tendency to treat the technology as though it were separate from society and not amenable to social analysis, the SST approach has gone beyond the limitations of analyzing "social impacts," that is, the adjustments of society in response to "technological progress." As Williams (1997, p. 300) explains:

> *SST emerged through a critique of the technological determinism inherent in this [post-Enlightenment] tradition, with its presumptions that particular paths of technological change were both inevitable (perhaps reflecting an inner technical logic or economic rationality) and required particular kinds of social change. Instead, SST studies show that technology is a social product, patterned by the conditions of its creation and use.*

Of significance is the recognition that there are choices (although not necessarily conscious ones) in the design of artefacts and technological systems for, at all stages, a variety of technical options are available but their selection is shaped by a broader range of social, economic, cultural, and political factors. For our approach, this implies analysis of such factors at a number of different levels: put crudely, the macro, the meso, and the micro (Williams and Edge 1996). After all,

> *SST is conceived as a "broad church" encompassing a variety of scholars, with differing concerns and intellectual traditions, including for example, industrial sociology, evolutionary economics, economic history, sociology of science (Williams and Edge 1996).* (Williams 1997, p. 300)

Monteiro (2000), in discussing the history of this broad church, summarizes the approaches as follows: systems thinking, as developed by Hughes (1983) looking at infrastructures; the social construction of technology (Bijker et al. 1987) emphasizing interpretative flexibility and relevant actors; and actor-network theory (Akrich 1992; Callon 1991; Latour 1987, 1991) dealing with networks, inscription, translation, and irreversibility. According to MacKenzie and Wajcman (1999), although the SST approach had been novel in the mid-1980s, it has now become almost an orthodoxy in the treatment of technology in general. However, it is evident that aside from a few exceptions (such as, Kubiceck et al. 1997; Webster 1996; Williams 1997), this is far from the case in IS research. Hence, in this paper we try to initiate the broad project of utilizing concepts from SST in order to shed light on the IS field.

We now return to the issue of IS evaluations in organizations. In order to more fully understand this phenomena, it has been suggested that we need to appreciate and account for the way in which measures and analyses of success/failure operate within specific social and organizational contexts and are both an influence on, and shaped by, the cultural beliefs, norms, and values that surround them (Bloomfield and Vurdubakis 1995; Wilson 1999). So, for example, a key omission in much of the writing on IS failure is some recognition that not only do evaluation tools and criteria vary widely, but also that failure/success and value may not be universally agreed within organizations. This is due in part to the existence of differing interests and perspectives which give rise to distinct subjects of study (as to what is examined regarding evaluations), as well as the way in which that study takes place.

Although the IS literature tends to use the term "stakeholder," this has been deemed inappropriate in this case study, given its political slant.[1] Instead, in order to provide further understanding of this, Pinch and Bijker (1987) draw upon the notion of different "relevant social groups" that will not only define a technological problem differently but also disagree over definitions of what constitutes success and failure. From the social constructivist approach (Bijker and Law 1992; Bijker et al 1987) we may infer that organizational politics are played out not only during the initial creation and implementation, but also in the evaluation process and the way that certain stories of these events come to dominate.

By employing a social constructivist approach, it becomes possible to identify who contrives things such that *their* perspective is recounted as **the** evaluation. "Correct" usage or prescription can have disastrous consequences for individuals and groups opposed to the ISD project. A concept advanced within the social shaping of technology school of thought that can be effectively applied to the issue of the evaluation of the success/failure of an IS is that of interpretative flexibility. Interpretative flexibility is useful for understanding how problems and solutions associated with a technology present themselves differently to different groups of people (Pinch and Bijker 1987). It sees the workings of technology as subject to radically different interpretations that are coextensive with social groups (Kline and Pinch 1999).

Pinch and Bijker explain that a technology can stabilize in circumstances where relevant social groups see the problem as having been solved by the technology in question. From the social constructivist approach (Bijker and Law 1992; Bijker et al. 1987), we may infer that organizational politics are played out not only during the initial spur to develop an IT system, during its creation and implementation but also in the way that certain stories of these events come to dominate. Yet, this is by no means a *fait accompli*. The notion of relevant groups can also be combined with a focus on power relations in organizations to suggest how and why a particular technology's successes and failings are open to more than one interpretation; and prompts us to ask why,

[1] Our objections to this term are concerned with the assumption of a level of shared objectives and the pluralist politic (Wilson and Howcroft forthcoming) it implies since it hides the differing levels of access to decision making and effecting policy within organizations.

in particular circumstances, one interpretation becomes the dominant account. The possibility that one person's success may be another person's failure, or even disaster, is rarely mentioned. "History," so the adage goes, "is told by the victors." In relation to evaluation, the victors are those empowered to carry out or sponsor the formal and legitimate evaluation process.

Further, from an actor-network perspective (Latour 1987, 1991), a process of problematisation and translation is the means by which supporters of a technology enrol allies and exclude dissenters in order to make the technology a success. Problematisation refers to the process of encouraging others to accept a given technological solution, while translation is the effective persuasion of pertinent actors, especially users, that it is in their interest to use the technology in the prescribed manner, and that the technology is the answer to their problems (Bloomfield and Best 1992). This translation might involve decrying an alternative technology and/or establishing that a certain technological development and organizational procedure is necessary or beneficial. Effective translation requires (as the term suggests) that a proposition be presented in a language that is meaningful to the intended reader or listener. In health care, for example, considerations can only be considered legitimate if they are seen to further patient care (Bloomfield and Vurdubakis 1997). One means by which this is formally constructed is through evaluations, sometimes known (in the UK National Health Service (NHS), at least) as benefits realization.

4. CASE STUDY: THE RISE AND FALL OF THE ZENITH NURSING INFORMATION SYSTEM[2]

The following case study is intended to provide a (relatively) full account of the rise and fall of a nursing information system (NIS) in its hospital context. The authors' hope to capture something of the rich detail and complexity of organizational life by concentrating on *process* rather than *outcome* in relation to the evaluation activities. The case study is presented with the intention of drawing out the analytical concepts provided by SST *in situ* rather than postponing them to a subsequent discussion. They are, however, summarized in the conclusion.

The focus of the case study is directed to the care planning function of the Zenith Nurse Management System and its users at the Eldersite Hospital in the North of England. The case study illuminates the issues discussed above and enables us to ask penetrating questions and capture the richness of organizational behavior (Gable 1994). Given the descriptive nature of the research, interviews were the primary source of data collection. These were identified previously as one of the most important sources of case study information (Yin 1989), enabling the respondents to propose their own insights as a basis for further enquiry. In addition to semi-structured interviews, the study also entailed informal evaluations of the NIS as well as an analysis of the various texts and representational practices associated with IS training and use. Indeed, much of the story that unfolds below was pieced together through 'benefits realization' and update reports and correspondence written by members of the Nursing Implementation Team or the IT manager.[3]

4.1 Background: Implementation Strategy

Given the emphasis of the paper, the case study focuses on the use of evaluation procedures to effect and justify decisions already taken elsewhere. The NIS in question is a database system comprising three main functions (Care Planning, Rostering, and Workload Assessment). As is the case with many tales of IS in the NHS, the story of Zenith had begun with the desire and perceived need for standardized health care practice and methodological financial management (Keen 1994). Since nursing costs accounted for over 40% of revenue expenditure within the acute hospital, four specific objectives were defined:

1. to improve the quality of nursing care by enabling the examination of quality, nursing audit and improved planning;
2. to maximize the time available for nurses to undertake the provision of nursing care to patients;
3. to enable nurses to be deployed in response to objective workload measures; and
4. to provide information which will facilitate more accurate costing of the nursing resource and provide data for CMMS (Case Mix Management System).

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[2]For the reader's information, the NIS discussed here had been implemented in other hospitals where it was deemed successful. All the proper nouns are pseudonyms.

[3]In relation to research methods used in IS research, the authors are very much in favor of interpretative studies. Nevertheless, the case study can be deemed to tell us something of the weaknesses of interpretivism since it illustrates the possibility of a cynical (mis)use of user perspectives. This would suggest that a critical realist approach is appropriate (Bhaskar 1975; Sayer 1999).

It was believed that evaluations of the project's success would employ these criteria. It is important to emphasize here that the objectives would not necessarily have been agreed by to all. For example, point four stipulates the need for accurate costing of nursing. Arguably, this is primarily a management concern. Of course, it could be "translated" as in the interests of nurses to assist in this process for the purposes of permitting better staffing, and so forth. Whether such decisions lead to improved conditions for nurses remains in the hands of management. A Nursing Implementation group, assisted by the IT manager, constructed an implementation plan that aimed to have full usage throughout the 100 wards of the Eldersite hospital within one year.

4.2 Sustained Enrolment: Benefits Realization

The UK Audit Commission report on Nursing Information Systems (NIS)[4] has cited a lack of commitment and involvement on the part of users of the systems as a key problem[5] and the case study views the evaluation process from within the context of a number of activities designed to gain commitment from users. Post implementation and following the initial enrolment activity of training, a series of evaluation sessions were inaugurated by the Project Nurse, whose role it was to persuade the nurses to use the system.

The process of encouraging a particular perspective of a technology through formal evaluations, is known in NHS parlance as benefits realization. As an aside, and to awaken the reader's attention to some themes already mentioned, we can note that (1) benefits realization constitutes an illustration of problematisation in the way they emphasize the *advantages* that will be delivered by the IS, (2) the formal evaluations can be construed to rationalize decisions already made, and (3) in terms of the relevant social groups involved, enrolment of the nurses forms the dominant problem for those implementing the Zenith system at Eldersite, especially the Project Nurse and IT staff who formulated this as entailing making nurses aware of the *information* as the product of the system. This in turn was because it was believed that enrolment in the system could only be achieved if the users were convinced that it was beneficial to them. Hence, evaluation sessions were carried out to "update" the users on the benefits of the system. The motivation for these sessions was to overcome the levels of hostility to the system on the part of users. Although such resistance is often motivated by fear of detrimental effects (Sauer 1993), in the Zenith case, the NIS Project Group estimated that the trouble was "not entirely technophobia":

> *The most difficult problem to overcome is the one of culture change, the bringing together of nurses and information technology.*

Implicit in this partisan view of the NIS is that a more rational view—unhindered by fear and prejudice—would lead to increased support. Resistance and hostility are perhaps understandable but nevertheless *irrational* responses to the system. By the time of the first benefits realization session, the users were to be encouraged by the fact that the worst aspects of training and change had been overcome. The emphasis now involved the education of potential users as to rewards as well as showing the benefits to existing supporters of the work so far completed. If it is the case that evaluations can be used to prevent the abandonment of a system that otherwise would be deemed as a flop—if not a failure—then there is an element of this recuperation strategy in the benefits realizations carried out at Eldersite. As a prelude to the session, the Project Nurse tried to persuade the nurses that the benefits of the Zenith system were undoubtedly there to be had, it was just that they were ellusive.

The organizational benefits of the Zenith care planning system were produced using the supplier's own benefits realization methodology (which is claimed to be in keeping with the NHS own guidelines). Within the supplier's methodology, it was believed that setting the wrong targets would result in failure. Hence, a number of generic benefits were classified and used as a means of achieving total coverage of potential benefits.[6] Further instructions were given by the suppliers on how to make soft (qualitative) benefits into hard (quantitative and financial) ones in addition to rating quantitative benefits in purely monetary terms. The lists of benefits were translated in the Eldersite case to the local application as follows:

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[4]Audit Commission, *Caring Systems: Effective Implementation of Ward Nursing Management Systems*, London: HMSO, 1992.

[5]This is a general problem in information systems development. According to Willcocks (1994), 44% of the organizations in his study did not include users in consultation: *"Despite the large literature emphasizing consultation with the workforce as a source of ideas, know-how and as part of the process of reducing resistance to change, only 36% of organizations consulted users about evaluation at the feasibility stage, while only 18% consulted unions"* (p. 370).

[6]These included benefits that save cash (or generate income), increase capacity without additional cost, improve quality, provide a marketing advantage, and strengthen control within the hospital.

(1) Saves time
(2) Compliance with UKCC (United Kingdom Central Council for Nursing, Midwifery, and Health Visiting)
(3) Ensures care and resources are planned
(4) Ensures care is structured and standardized
(5) Reduced litigation risks
(6) Standards implicit in care planning
(7) Prompted evaluation
(8) Professional care planning
(9) Realistic outcome measurement
(10) Quality measurement
(11) Immediate access to other libraries
(12) Enhances discharge planning
(13) Provides a basis for workload
(14) Supports training and education
(15) Assists research
(16) Enhances inward communication

It is clear in this instance that the evaluations themselves can be manipulated to downplay negative comments and promote positive ones. In this respect, they circumscribe the legitimacy of opinions—here claiming that if only nurses would open their eyes they would see these benefits awaiting them. This was deemed necessary to overcome feelings on the part of nurses that using the nursing system was not of immediate use to them and may even have been detrimental to patient care. For example, nurses did not feel they were the users of the information, data input was time consuming, duplication was a matter of course, it took them away from the patients, the system was inadequate and slow, planning (ahead) via the system was impossible, records were inaccurate, the previous manual system remained the mainstay of the nurses, and so forth. One bone of contention was *who* used the information and for what purposes. The Project Nurse admitted privately that the information was not really for the users who input the information into the system. The Director of Nurse Managers had the most use for it. Yet it is precisely the issue of who the technology is intended to serve and for what purposes that is at the heart of the benefits realization and evaluations, for users must be persuaded that it is in their interest to use the system.

In the following year's report, it is clear that the Nursing Information Team were fully in support of the Zenith system and through these reports and benefits realization show that it was the users who had a problem with the system, rather than the system being to blame.

4.3 Rhetoric of Retreat and the Achievement of Failure

The efforts made using the evaluation process to overcome resistance were not as successful as hoped. Despite the case made for the benefits of the system, the users persisted in their negative views: the system had a number of flaws. Essentially, it did not assist in the delivery of care, and in some case was deemed to detract from effective hands-on patient care. These negative aspects were for a long time not legitimate views and were excused as arising from a lack of understanding. But, during year three of the rollout of the system, there was a significant shift in opinion—a turnaround on what was deemed a legitimate view of the system, with the voice of dissent winning out in the end. The system was eventually withdrawn, with the retreat by advocates for the Zenith system being achieved and justified in three crucial stages.

4.3.1 Dissent Legitimized

A report prepared by the Project Nurse three years after implementation entitled "Evaluation and Future Implementation of the Zenith Nurse MIS," begins with a reiteration of the expected benefits of care planning. Now, however, the report includes a column for "actual benefits" perceived to exist on the wards, as opposed to those previously believed to be "out there" to be had. The great difference with this report as compared with any of the previous benefits realization ones is that the *problems* were actually listed and, at this point, outnumber the benefits. They were enumerated as follows:

- The quality of the care plan is not audited
- Saving of time is variable depending on previous practice on the wards
- Care plans not updated and evaluated on the system
- Staff state:

  - Insufficient time to use the system
  - All wanting to update care plan at same time
  - Require more than one PC on a ward
  - Prefer to use preprinted care plan
  - Continue to write detailed Kardex
  - Requires further work on Care Libraries
- Some staff remain negative toward the system—feel it detracts from nursing care
- Use of the system often left one or two nurses on the ward

Here at last, then, the nurses' opinions were reported, and thereby legitimized. There is also a good possibility that the looming decision of whether to carry on with the system (at significant cost to the National Health Trust Hospital) promoted a less partisan evaluation report from the project team. Whereas previous benefits realization reports were intended to convince the user of the need to continue with the project, this one raised the question of whether it was worthwhile to continue, and mobilized the nurses' views to do so. Included in the report were suggestions of what could be done to improve the situation. This entailed setting up a focus group of Clinical Nurse Specialists to meet bi-monthly and to carry out ward audits of the care planning system.

This report was also more explicit about the reasons for a re-evaluation of the benefits of the Zenith system

> *The Trust has financial pressures and as a result must evaluate all investment. Given that the annual payment for the support and maintenance of the system is now outstanding (£26,000), careful consideration must be given to the ongoing development of the system*

4.3.2 Dissent Mobilized

Two months on, a report for the Information Management and Strategy (IM&T) group at Eldersite makes clear that the impetus to make a decision about the continued implementation of Zenith arose from the supplier's demand for an outstanding support fee. The report was said to be based on a specially organized Zenith Workshop where users' views had been represented by managers and end-users. Increasingly, problems with the *system*, not just the users, were brought out.

This same report presented for the first time an aggregated statistic for utilization assessment: while 27 wards were live using the care planning module, regular audits showed that 55% of patients were still not receiving an automated care plan. Also summarized were user perceptions of the care planning module:

- Overall no benefits identified
- Inhibits the care planning process
- The quality of the care plans has not improved with the introduction of Zenith and in some cases has deteriorated
- Creating a care plan is far more time consuming
- No time to update care plans on the computer
- Slow and laborious
- Produces neater, more legible care plans.

Finally, users' views of the system take center stage and point to the label of failure that will soon be attached to the system:

> *The overall opinion is that the Zenith Nurse Management Information System had failed to produce the expected benefits.*

The recommendations of this report were either to switch off the system or to shrink it to those areas where it had proven most popular and maintain it in-house.

4.3.3 Failure Declared

Later that year in a "sign off" report, the decided failure of the NIS was described as non-achievement and it was made clear that the decision to "switch off" the Zenith system did not rule out the replacement of the system by another, for "[t]he Trust will need to consider how far implementation of alternative approaches can satisfy these future requirements." Significantly, a competing NIS was already assumed to be the alternative.

Despite listed systems and supplier flaws, however, the report made clear that the user perception of and response to the NIS were major factors in outcomes. A lesson learned by those implementing the system was that obtaining the type of commitment necessary from nurses to make the system work is no mean task. Further, the same problems cited in this report had been brought to the attention of the systems project team three years previously. At that point, they were glitches that would be ironed out, or more negatively posed as unwillingness of the part of the nurses to "give the system a chance."

The sign off report presented the costs of the NIS to date and suggested the maintenance and enhancements cost for the NIS would have been double the original investment. Whatever the case that had been made for the benefits of the Zenith system, it was eventually withdrawn. Indeed, the report framework for "making people aware" of the benefits was now used in a negative way to show Zenith's shortcomings. Once a case was made that continuing would not be possible, and adoption of the contending system became the considered best option, then the weaknesses of Zenith were documented and the case against the system was made by the implementers. Their own words of criticism flooded back to the nurses while the case was made for a system they were said to have wanted all along.

5. SUMMARY AND CONCLUSIONS

We set out to demonstrate the applicability and value of SST to IS research. By going beyond the limitations of analyzing social impacts and through a critique of technological determinism, SST studies show that technology and, we would add, evaluation of that technology is a social product, patterned by the conditions of its creation and use. These social, economic, and political conditions constitute the context within which evaluations take place. We have argued that the assumed objectivity of evaluation techniques is part of a broader set of technologically determinist notions that we have attempted to critique.

The outcome of this is that the case study shows three important points as outlined in the introduction: first, it is an illustration of evaluation as *de facto* decision making in practice; second, it suggests that not all users of the system have an equal stake, if any, in the success of the system, even though they are usually described as stakeholders; and third, it reveals something of the way in which successes and failures, benefits and drawbacks, can be constructed through the process of evaluation. In relation to the latter point, we have shown the process by which this was achieved as well as suggesting some explanation for why this was so, and not otherwise. The implications for those of us involved in evaluations are a recognition of the highly political nature of the process, the imperative to align oneself with the sponsors of the system, and the difficulties entailed in producing a negative evaluation. For those interested in improving the record of IS failures, we recommend Sauer's (1993) observation that failure is a process rather than an event.

We believe the case study is of value in the following respects:

- **Construction of failure**. Although the activities described above are largely contingent on the situation in which the actors find themselves, nevertheless, if it is possible that failure and success be constructed in such a way in one situation, then surely researchers should be sensitive to similar possibilities in other, different contexts—even if this is later disregarded. In our case study, the evaluation process was eventually used to prevent further investment in the system described. Perhaps it is more usual for evaluations to be employed to justify further capital investment.

- **Differing interests**. The point is made that people have a lot to lose when associated with failure in organizations, so apart from the generally assumed intention of actors to meet organizational goals, there is also an individual level in which actors operate and some members of the organization have more of an interest than others in making the system "work."

- **Political frame**. While the case study may be seen as extreme by some (although this is a point we reject entirely), there is a political context to all development and implementation activities that affects, if not frames, the evaluation process.

- **Relevant social groups**. The case study implicitly and explicitly suggests how techniques from SST may be applied to IS, in particular the notion of relevant social groups. This concept has been applied in order to identify the major concerns within the Zenith project and the potential for conflicting views on failure and success. These were particularly significant with regard to the sponsors of the information system, who were concerned with effecting RMI changes through the NIS, and the nurses, who saw the delivery of patient care as the clear objective. We have also identified the opposition's key concerns, which lead to differing perspectives on what constitutes a failure or a success in relation to the Zenith project. This is perhaps best summarized by St. Leger et al. (1992, p. 131): *"the use and evaluation of technology is governed by attitudes towards it."*

- **Non-objective evaluation**. With respect to research methods of the evaluation process and the evaluation techniques themselves, the conclusion drawn from the case study, which we believe applies more generally, is that no matter what claims to so-called objective methods are made, the evaluation process is skewed by those with the power to legitimize views of the system.

This paper has sought to theorize and illustrate by case study example the role of evaluations (1) in enrolling users to the information system and (2) to justify organizational decision-making. This was enabled by a critical stance to such notions as organizational benefits' and discrete success/failure categories as well as adopting a focus on the process of evaluation from a politically sensitive standpoint.

References

Akrich, M. "The De-scription of Technical Objects," in *Shaping Technology/Building Society: Studies in Sociotechnical Change* W. E. Bijker and J. Law (eds.), Cambridge, MA: MIT Press, 1992.

Ballantine, J., Galliers , R. D., and Stray, S. J. "Information Systems/Technology Evaluation Practices: Evidence from UK Organizations," in *Beyond the IT Productivity Paradox*, L. Willcocks and S. Lester (eds.), Chichester: John Wiley and Sons, 1999, pp. 123-150.

Bhaskar, R. *A Realist Theory of Science*, Leeds: Leeds Books, 1975.

Bijker, W. E., and Law, J. (eds.). *Shaping Technology/Building Society: Studies in Sociotechnical Change*, Cambridge, MA: MIT Press, 1992.

Bijker, W. E., Hughes, T., and Pinch, T. (eds.). *The Social Construction of Technological Systems*, Cambridge, MA: MIT Press, 1987.

Bloomfield, B. P., and Best, A. "Management Consultants, Systems Development, Power and the Translation of Problems," *Sociological Review* (40:3), 1992, pp. 533-560

Bloomfield, B. P., and Vurdubakis, T. "Risk, Blame and Agency: Deliberating IT Failures in Organizations," Unpublished Article, CROMTEC (Center for Research on Organizations Management and Technical Change), University of Manchester Institute of Science and Technology, 1995.

Bloomfield, B. P., and Vurdubakis, T. "Paper Traces: Inscribing Organizations and Information Technology," in *Information Technology and Organizations: Strategies, Networks, and Integration*, B. P. Bloomfeld, R. Coombs, D. Knights, and D. Littler (eds.), Oxford: Oxford University Press, 1997.

Callon, M. "Techno-economic Networks and Irreversibility," in *A Sociology of Monsters: Essays on Power, Technology and Domination*, J. Law (ed.), London: Routledge, 1991.

Callon, M., Law, J., and Rip, A. *Mapping the Dynamics of Science and Technology: Sociology of Science in the Real World*, London: Macmillan, 1986.

Farbey, B., Land, F., and Targett, D. "A Taxonomy of Information Systems Applications: The Benefits Evaluation Ladder," *European Journal of Information Systems* (4), 1995, pp. 41-50.

Farbey, B., Land, F., and Targett, D. "Editorial," *European Journal of Information System* (7), Special Issue on IS Evaluation), 1998, pp. 155-157.

Gable, G. G. "Interpreting Case Study and Survey Research Methods: An Example in Information Systems," *European Journal of Information Systems*, (3:2), 1994, pp. 112-126.

Galliers, R. D,, Merali, Y., and Spearing, L. "Coping with Information Technology? How British Executives Perceive the Key Information Systems Management Sssues in the Mid-1990s," *Journal of Information Technology* (9:4), 1994, pp. 223-238.

Hawgood, J., and Land, F. "A Multivalent Approach to Information Systems Assessment," in *Information Systems Assessment: Issues and Challenges*, N. Bjørn-Andersen and G. B. Davis (eds.) Amsterdam: North-Holland, 1988, pp. 103-120.

Hirschheim, R., and Smithson, S. "Evaluation of Information Systems: A Critical Assessment," in *Beyond the IT Productivity Paradox*, L. Willcocks and S. Lester (eds.), Chichester: John Wiley and Sons, 1999, pp. 381-410.

Hughes, T. P. *Networks of Power: Electrification in Western Society, 1880-1930*, Baltimore: John Hopkins University Press, 1983.

Keen, J. "Evaluation: Informing the Future, Not Living in the Past' in *Information Management in Health Services*, J. Keen (ed.), Buckingham, England: Open University Press, 1994.

Kline, R., and Pinch, T. "The Social Construction of Technology," *The Social Shaping of Technology* (2nd ed.), D. MacKenzie and J. Wacjman (eds.), Buckingham, England: Open University Press, 1999, pp. 113-115.

Kubiceck, H., Dutton, W. H., and Williams, R. (eds.). *The Social Shaping of Information Superhighways*, New York: St. Martin's Press, 1997.

Latour, B. *Science in Action*, Milton Keynes, England: Open University Press, 1987.

Latour, B. "Technology is Society Made Durable," in *A Sociology of Monsters: Essays on Power, Technology and Domination*, J. Law (ed.), London: Routledge, 1991.

MacKenzie, D., and Wacjman, J. (eds.). *The Social Shaping of Technology* (2nd ed.), Buckingham, England: Open University Press, 1999.

Markus, M. L. "Power, Politics and MIS Implementation," *Communications of the ACM* (26:6), 1983, pp. 430-444.

Monteiro, E. "Actor-Network Theory and Information Infrastructure," in *From Control to Drift*, C. U. Ciborra and Associates (eds.), Oxford: Oxford University Press, 2000.

Niederman, F., Branchaeu, J. C., and Wetherbe, J. C. "Information Systems Management Issues for the 1990s," *MIS Quarterly* (15:4), 1991, pp. 475-499.

Pinch, T. J., and Bijker, W. E. "The Social Construction of Facts and Artifacts or How the Sociology of Science and the Sociology of Technology Might Benefit One Another," in *The Social Construction of Technological Systems*, W. E. Bijker, T. P. Hughes and T. J. Pinch (eds.) , Cambridge, MA: MIT Press, 1987, pp. 17-50.

Sauer, C. *Why Information Systems Fail: A Case Study Approach*, Oxfordshire, England: Alfred Waller, 1993.

Sayer, A. *Realism and Social Science*, London: Sage Publications, 1999.

Smithson, S., and Hirschheim, R. "Analyzing Information Systems Evaluation: Another Look at an Old Problem," *European Journal of Information Systems* (7), 1998, pp. 158-174.

St. Leger, A. S., Schnieden, H. and Walsworth-Bell, J. P. *Evaluating Health Services' Effectiveness*, Milton Keyes, England: Open University Press, 1992.

Venkatramen, N. "Managing Information Technology Resources as a Value Center: The Leadership Challenge," in *Beyond the IT Productivity Paradox*, L. Willcocks and S. Lester (eds.), Chichester: John Wiley and Sons, 1992, pp. 217-246.

Vroom, V. H., and Yetton, P. W. *Leadership and Decision-making*, Pittsburgh: University of Pittsburgh Press, 1973.

Walsham, G. "Interpretive Evaluation Design for Information Systems," in *Beyond the IT Productivity Paradox*, L. Willcocks and S. Lester (eds.), Chichester: John Wiley and Sons, 1999, pp. 363-380

Webster, J. *Shaping Women's Work: Gender Employment and Information Technology*, London: Longman, 1996.

Willcocks, L. (ed.). *Information Management: Evaluation of Information Systems Investments*, London: Chapman and Hall, 1994.

Willcocks, L., and Lester, S. "In Search of Information Technology Productivity: Assessment Issues," in *Beyond the IT Productivity Paradox*, L. Willcocks and S. Lester (eds.), Chichester: John Wiley and Sons, 1999, pp. 69-98.

Williams, R. "The Social Shaping of Information and Communication Technologies," in *The Social Shaping of Information Superhighways*, H. Kubiceck, W. H. Dutton, and R. Williams (eds.), New York: Campus Verlag/St. Martin's Press, 1997.

Williams, R., and Edge, D. "The Social Shaping of Technology," *Research Policy* (25), 1996, pp. 865-899.

Wilson, M. *Gender and User Resistance: the Failure to Stabilize a Nursing Information System*, Unpublished Ph.D. Thesis, School of Management, University of Manchester Institute of Science and Technology, 1999.

Wilson, M., and Howcroft, D. "Participatory Design: 'Bounded Freedom' or Hidden Constraints on User Involvement," *Information Technology and People*, forthcoming.

Yin, R. K. *Case Study Research: Design and Methods*, London: Sage Publications, 1989.