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Understanding IS Evaluation as a Complex Social Process

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Abstract

There is an increasing concern that information systems (IS) are not delivering anticipated value and benefits. There is a push for the development and adoption of improved evaluation metrics in an attempt to better quantify IS benefits. This has led to a growing number of well-developed methods for assessing returns. In this paper we take stock of the current situation and ask whether improvement lies not with the development of better quantitative methods, but rather by better understanding the experiences of multiple IS stakeholders. Using case material and current literature in IS/IT evaluation we draw predominantly upon the work of Heidegger and Suchman to explore the concept of IS evaluation as a highly complex social process. The analysis leads to an understanding of situated (context dependent) IS evaluation which suggests that interpretive evaluation methods may play a key role in helping practitioners and academics understand the complexity surrounding this area.

Introduction

Current research indicates that the significant global expenditure on Information Systems (IS) is increasing and that organisations will continue to invest heavily in IS (Willcocks and Lester, 1999). However, against this trend, there is widespread concern that investment in IS does not deliver value and that many IS projects do not meet business objectives (Walsham, 1999). IS expenditure is regarded as both costly and risky, however, many IS investments appear to go ahead without the use of investment appraisal and risk management techniques. When methods are used there is widespread disagreement over their usefulness and over which model to adopt.

To address this the paper begins with a brief summary of the current thought pertaining to IS evaluation and outlines the state of current IS evaluation practice. It contends that formal, traditional approaches to IS evaluation, when employed, have failed to satisfy the concerns of top executives. The paper goes on to suggest that it is time to review the prevailing situation and re-assess the IS evaluation process. An interpretive evaluation approach based upon hermeneutics and

situated action is tentatively suggested and the ideas explored through a case study in which the appropriateness of this approach is considered. Finally, the paper concludes with a brief discussion of the salient issues and with a call for organisations to review their current evaluation processes.

The Problem Domain

There is an ever-increasing demand for organisations to become more efficient and effective. To assist with this process organisations have invested heavily in IS. The deployment of IS has been heralded as the solution to many organisational and business problems (Hammer, 1991; Introna, 1997). There are many well documented examples to support this, such as the analysis of the American Airlines reservation system (Copeland and McKenny, 1988) and Xerox (Remenyi, 1991). However, Wisemann (1995) suggests that for every claim of IS delivering value there are seemingly an equal number of claims of poor return on IS investment. According to Willcocks and Lester (1999) "despite the massive accumulated and rising investment in information technology, on the whole these have not contributed to significant rises in productivity". Strassman (1997) puts the scenario more succinctly, "IS investment is everywhere, except in the productivity or profit statistics". Any investment in IS should be examined for its business value and benefit to the organisation. However, many organisations have no management processes to govern and measure the achievement of the desired outcome and what benefits were actually achieved (Willcocks, 1996). IS evaluation therefore, has not been given a high level of importance in organisations, and indeed is often overlooked (Willcocks, 1996).

The sheer size of IS expenditure, its pervasiveness in everyday organisational and domestic life, and the uncertainty of its value, has led to growing concern, especially amongst top executives, about the casual approach to extremely high levels of investment. (Remenyi, Money and Twite, 1997). Many Chief Executives are uncomfortable about IS expenditure and increasingly frustrated by the inability to find appropriate means to evaluate its effect (Willcocks and Lester, 1999).

Traditional Evaluation Methods

Walsham (1999) maintains that where organisations have evaluated IS, attention has been given to formal, overt, quantitative methods that attempt to define and measure IS investment, value and benefit. There are many formal IS appraisal models of this type and they include popular techniques such as the traditional cost benefit analysis (CBA) which are based upon economics (Remenyi and Sherwood-Smith and White, 1998). These methods are usually employed by IS professionals, and other non-user stakeholders such as functional management, company accountants, management consultants and IS suppliers. Hirschheim and Smithson (1999) have argued that most IS evaluation undertaken by IS professionals concentrates on the technical aspects – answering questions such as ‘does it work?’ - , rather than on the social aspects, such as ‘is it used well?’, or business aspects, such as ‘does it deliver value?’. Typically then, formal IS evaluation, when employed, is conducted via formally documented and often mechanistic quantitative processes. In addition, the implementation and operation of the IS is monitored and measured in terms of broad costs, technical aspects and perceived, accrued benefits. It would appear that such formal evaluation approaches have considerable legitimacy. Indeed, there appears to be a continuous striving from academics and practitioners to develop and adopt better positivist, mechanistic methods to improve the situation. Recent contributions include the IT Scorecard (Willcocks, Graeser and Pisanias, 1998).

Walsham (1999) however, contends that the process of IS evaluation is extremely complex and difficult. Further, that formal, prescriptive evaluation is of little value. It is more likely to be a symbolic expression of objective and accountable management, to perpetuate an image of the rational manager, than an accurate method to aid decision makers. Introna (1997) maintains that the image of the rational decision maker is false and that decision makers have to be opportunists in-the-real-world in order to get the job done. Willcocks and Lester (1999) further argue that even when formal evaluation processes are in place, these processes are often not undertaken rigorously, and may even be ignored. Various reasons are cited by stakeholders including it is not necessary, it is too difficult, it is too time-consuming and it is too costly (Jones and Hughes, 1999). Formal evaluation therefore would appear to be ritualistic rather than substantive and whilst formal approaches have met with limited success the degree to which these methods are useful is cause for much current debate (Strassman, 1997b; Walsham, 1999). Perhaps it is now time to concentrate effort on alternative approaches.

Situated Hermeneutic Evaluation - a New Approach

Many IS observers have contended that IS are predominantly social systems and therefore the social aspects are significant (Mumford and Weir, 1979; Checkland, 1981; Walsham, 1993; Hirschheim, 1994; Introna, 1997). There are many examples of good technical solutions being introduced, only to find that anticipated benefits were not realised because the social elements were not fully considered (Sauer, 1993; Walsham, 1993; Introna, 1997). Could these social actors be in the best position to assess IS, to offer opinion, and to convince top executives of the value of the IS?

Recently, there has been the emergence of broadly interpretive methods of IS research (Walsham, 1993; Butler, 1998; Klein and Myers, 1999), based upon hermeneutics (Heidegger, 1976), aimed at understanding the subtleties of the social, contextual, situated and dynamic world in which IS is implemented. It is suggested that hermeneutic, interpretive approaches are an appropriate vehicle for many aspects of IS. Hermeneutics can be treated as both an underlying philosophy and a specific mode of analysis. It is a philosophical approach to human understanding which provides a philosophical grounding for interpretivism. Hermeneutics is primarily concerned with meaning. An attempt to make clear an object of study. This object would be in some way confused, incomplete, cloudy, contradictory. The interpretation aims to bring an underlying coherence or sense (Introna, 1997). Hermeneutic interpretation is the work of thought to decipher meanings.

The most fundamental principle of hermeneutics is that of the hermeneutic circle. This maintains that individuals come to understand their life-world, which is a complex whole, from preconceptions about meanings of its parts and their interrelationships. The hermeneutic perspective suggests that realities are constructed from multiple, intangible mental models. These are socially and experientially based, local and specific in nature, and dependent on their form and content on the individual person or groups holding the constructions.

Heidegger's (1976) notion of *thrownness* contends that social actors are thrown into their life-world, and that their existence is therefore 'situated', in that it is specific, individual existence with other beings within a specific tradition and history. Gadamer (1975) broadens this concept by proposing that tradition shapes an actor's understanding and prejudices. The concept of situated and lived experience describes the relationship between actors and the scenario in which they are embedded. This in turn provides the contexts for their understanding and contributes to the formation of prejudices. The social world is therefore composed of a network of interrelations

which are generated by actors' goals and objectives in the course of their existence. In social situations, actors often find themselves in situations where their knowledge and understanding is incomplete. They have to act. However, they often have difficulty reflecting on their actions and cannot predict the outcome of their actions. Context therefore, plays an important idiographic role. Applying this interpretive perspective to IS evaluation therefore must include the situated social actors utilising the IS, and not detached, accountants, economists, managers, IS professionals and IS suppliers.

Traditional evaluation methods tend to overlook the fact that people are active makers of their real-world reality (Heidegger refers to this as *Dasein* - being-in-the-world). Individuals have opinions and consequently, evaluation occurs in everyday life. Individuals evaluate, based on their knowledge, experience, background, understanding and intuition. These are not formal, overt, evaluation processes but informal, covert processes. Nonetheless, they have significant importance to the individuals and peer groups concerned. With regard to IS evaluation, these opinions must also be of major importance to an organisation. Yet they are rarely, if at all, requested or valued.

Suchman (1987), an anthropologist, whilst not explicitly concerned with IS evaluation makes an important contribution to this area. In trying to understand fields such as cognitive science and human computer interfacing she is concerned with situated action and is "dedicated to constructing situated accounts of relations between people, and between people and the historically and culturally constituted worlds that they inhabit together" (Suchman, 1993, p 71). In using the word 'situated' Suchman is concerned with events that occur in some interaction which can only be fully understood in relation to the particular concrete situation in which they actually occurred.

The conjunction of hermeneutics and situated action would possibly involve specialist interpretive evaluators with the necessary skills to engage with social actors in order to evaluate IS and assist with the articulation process. The aim would be to offer feedback to top executives and to improve the understanding of the value, benefit, suitability and success of the particular IS from the subtleties of the users' contextual perspective. The interpretive evaluation would include discourse at the feasibility stage, development and procurement stage and post implementation stage. An organisation would therefore have an interpretive benefits management approach to complement the IS systems development, project management and implementation functions.

Adopting a more interpretive, situated, hermeneutic approach may be a vehicle for undertaking and understanding IS evaluation, and would seem worthy of investigation. As Hirschheim and Smithson (1999) state "it seems certain that IS evaluation will remain a key issue.... it seems likely that interpretivist approaches face an uphill struggle for acceptance. It can only be hoped that pioneering researchers continue to experiment with interpretive approaches and are able to demonstrate their validity". Earlier exploratory research has already led the authors to consider that interpretive evaluation may be more appropriate (Jones and Hughes, 1999). Could an informal, intuitive, hermeneutic, approach be desirable, useful, acceptable and credible?

The research project

The authors are currently undertaking research with regard to IS evaluation in the public sector. The research study is investigating the prevailing scenarios in several United Kingdom (UK) Local Authorities. One of the authors is currently an IS practitioner in a UK Local Authority and is regularly faced with issues concerning IS evaluation. This is an important area since recently, central government has introduced the Best Value (BV) initiative in the local government domain. The rationale underpinning BV is that all Local Authorities must ensure that their business processes and services are being delivered in a cost effective and efficient way. This in turn should demonstrate that BV is being obtained. Evaluating, benchmarking and comparing local government organisational and service delivery performance is a key component of BV. IS evaluation is an aspect of BV. Consequently, IS managers and senior executives are becoming increasingly concerned with IS evaluation. It must be considered and can no longer be ignored.

The study aims to understand, via multiple case studies, underlying IS evaluation practice within these organisations. It is exploring whether an interpretive approach to IS evaluation would be appropriate and whether it would be acceptable. Further, the research is investigating what this methodological approach would look like in theory and how would it work in practice. Finally, it is investigating whether an interpretive approach would offer advantages over conventional evaluation methods. A pilot case study has been undertaken and initial analysis has been completed. This is discussed below along with tentative pointers forward.

The pilot case study has been undertaken at one Local Authority in the UK. This organisation serves a population of 120,000 and has a staffing establishment of 5,500. It has an overall annual revenue budget of £135m, and an annual IT revenue budget of £2.5m. Interviews

were conducted with senior staff, including the Chief Executive, the IT manager and other IS staff, over a two month period. Qualitative methods of data collection and analysis, particularly informal, in-depth interviews, semi-structured questionnaires and participant observation were used. The data was transcribed and analysed using Grounded Theory (GT). (Glaser and Strauss, 1967)

GT is a field based, discovery, qualitative research methodology, which allows the researcher to develop an account of the research subject by empirically investigating the subject from a user orientated and organisational perspective. It enables the researcher to deal with non-standard data, and facilitates the collection, analysis and reporting of qualitative data. As such it provides a rich account of the area under study. GT assumes that the emerging theory is 'grounded' in the research data. GT therefore, allows the researcher to understand the general features, while simultaneously grounding the account in empirical observations. The analysis involves identifying emergent categories which are compared and then abstracted to produce a complex and a 'rich' view of the situation, together with emergent themes as described by the interviewees.

Analysis from the pilot case study has identified emergent themes for further research. Early indications suggest that these themes may support the development and adoption of a more interpretive approach to IS evaluation. Four emergent themes are of particular interest here. Firstly, that IS investment decisions are usually undertaken in isolation by information systems department management. Secondly, that evaluation methods, traditional or otherwise, are not utilised. Thirdly, that IS investment decision making is largely intuitive and political in nature. Fourthly, that an interpretive approach to IS evaluation, would be worthy of consideration. These themes are further explored below.

Discussion

One of the greatest IS challenges facing organisations is to ensure that IS implementations deliver value and, furthermore, that this can be demonstrated to top executives. This is certainly the case for UK local authorities who have recently been charged with the task of ensuring and demonstrating BV. Traditionally, where IS evaluation has been undertaken, formal approaches have been adopted. Senior management have delegated this task to specialist IS management, functional management, or consultants, not the IS user community. However, formal methods of planning, calculating, managing and monitoring IS in an attempt to prove best use, value and benefit is obtained from the investment have largely failed, certainly from the senior management perspective. Indeed, all IS evaluation methods, including

formal approaches, have been overlooked by the organisation in the case study. However, informal, situated, hermeneutic evaluation occurs within the IS user community and, although it is acknowledged by senior management in the case study that it takes place, it has not been requested or valued to date.

With regard to BV in UK Local Authorities, what is of paramount importance is not whether IS is efficient and effective in its technical operation, but rather to what extent it is useful and successful in practice. This cannot be assessed unless IS evaluation is both undertaken and articulated. In the case study, however, no organisational IS evaluation procedures exist, neither is stakeholder opinion canvassed, which makes it difficult to judge whether IS delivers value. In an era when organisations depend on the successful use of IS, where large costs are involved and where chief executives are dissatisfied with level of return on IS expenditure, this is no longer acceptable. It has been suggested that it is very difficult to effectively evaluate IS in organisations unless there is a clearly documented, systematic and formal approach to both IS investment justification and post implementation audits (Willcocks, 1996). However, there are inherent difficulties associated with quantifying estimates and the subsequent analysis. Moreover, there is still widespread and continuing disagreement as to the factors and metrics to include in any formal, quantitative approach to IS evaluation. Indeed, the interviewees in the case study have cited the difficulties in selecting a formal evaluation method as the main reason why a formal approach has not been adopted. To be more effective in understanding and gauging IS value and benefit it may be necessary for organisations to change their attitude towards IS investment. This is accepted as an issue requiring consideration by the case study organisation.

Summary and conclusion

In this paper we have argued that there is no formal model or template that fits well with IS evaluation. We would argue that evaluation is not an *event*, based upon grand design, rather it is a *process*, based upon experiential and subjective judgement. It is suggested that this process occurs in the IS user community, as part of *Dasein* - being-in-the-world. Perhaps, this situated evaluation process is worthy of articulation and analysis. The case study organisation are currently considering the merits of this possible approach. In our future research we would hope to further explore whether these situated evaluation processes occur and the extent to which these processes are articulated. We surmise that the former is true and the latter less so.

We suggest that it is now time to challenge traditional IS evaluation models based upon hard data, because they

have failed. An approach based upon more subjective, situated and, soft data may be more appropriate. A role could exist in this paradigm for an IS evaluation professional to facilitate discourse and undertake interpretive IS evaluation studies.

To conclude, IS literature and our own initial empirical research indicates that undertaking IS evaluation is a complex, multi-faceted, difficult and essentially a *social* process. It is a subject which traditionally has not been given significant attention, particularly in IS practice. This is all too evident in the case study. However, with the growing disillusionment of top executives with IS it is an area which is now attracting a growing level of interest, and where we suggest that interpretive evaluation of IS could play a key role.

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