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# Building Systemic Practice Into Evaluation Of Knowledge Management Tools

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## Abstract

In the absence of any truly systemic approach to IS evaluation, an approach to evaluation of knowledge management tools is described. This uses co-operative inquiry as a participatory action research framework. Evaluation of knowledge management tools is seen as problematic due to the close coupling between the technology and the social system that is attempting to manage its knowledge. The paper first explains the rationale for why co-operative inquiry may be a useful framework for structuring a systemic evaluation. Finally several barriers to implementing the framework at the level of the individual and the group are discussed.

**Keywords:** Knowledge management, IS, Co-operative inquiry, action research, participation, community of practice

## Introduction

This is not a paper about how systemic practice is being used in the area of knowledge management tools but more about how systemic practice is blocked by structural elements in the area. Evaluation of information systems (IS) has been highlighted as not only inadequate in the IS industry but also specifically problematic (Farbey, Land et al. 1999). This is an issue that has been brought into focus as more complex types of IS are built. The focus of this paper is IS used to support knowledge management and so the will be referred to as knowledge management tools (KMT). These tools are computer based systems that when used as part of a wider socio-technical system can be used for facilitating the management of knowledge. A common example of a KMT would be company intranets. Offsey (Offsey 1997) lists a number of other potential KM enabling technologies including document management systems, information retrieval systems, relational and object databases, electronic publishing systems, groupware and workflow management systems, push technologies and agents, help-desk applications, brainstorming applications, data-warehousing and data mining tools

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The use of a form of action research called co-operative inquiry ((Heron 1996), (Reason 1994)) is suggested as providing a suitable model of evaluation for KNT. This is for several reasons. First of all it provides a potentially systemic AR based approach. Second it promotes a significant level of participation from the community of practice that is using the tools. This allows the evaluation group to evaluate the KNT through a series of learning cycles throughout the life of the project.

## Evaluation of Knowledge Based IS

Evaluation is a much used word in the context of IS. As pointed out by Hirshheim and Smithson in (Bjørn-Andersen and Davis 1988) IS evaluation may take the form of specific stages in the development lifecycle or may be an ongoing process. It may also have different emphasis perhaps on technical or quantitative criteria such as measures of efficiency or may be more concerned with human and social issues drawing more on qualitative data. A useful definition of IT evaluation is given by Farbey et al (Farbey, Land et al. 1999):

*"A process, or group of parallel processes, which take place at different points in time or continuously, for searching and for making explicit, quantitatively or qualitatively, all the impact of an IT project and the programme and the strategy of which it is part."*

Serafeimidis and Smithson (Serafeimidis and Smithson 2000) summarise several writers providing seven roles of evaluation:

- Establishing the worth of IT to the organisation or its growth
- Ranking alternative IT projects
- Forming a central part of an incremental planning and control process
- Acting as an input to business and IT strategy formulation
- Acting as a feedback function to support organisational learning
- Provide a deeper understanding of the interaction between the technology and the underlying organisational processes, culture and politics

From this list the purpose of IS evaluation is shown to be wider than to assess whether a project is to go ahead or continue or to check that the objectives of the project have been achieved during handover to the users.

Walsham also highlights the motive for evaluation. At one level evaluation is seen as a systematic process of comparing an IS project against a set of agreed criteria. He also suggests that the process of evaluation has taken the form of an organisational ritual that serves to benefit certain stakeholders for example with managers joining the "evaluation party" to gain political representation rather than to provide a particular set of knowledge or skills (Serafeimidis and Smithson 2000). For this reason the change towards a wider basis for evaluation needs to be treated as a change project in itself. Walsham ((Walsham 1993) p. 184) concludes that the process of IS evaluation should be an ongoing and continuous process. He suggests that within this process there will be a mix of formal and informal activities making up the multi-stage process. Walsham suggests this process will benefit from an interpretative standpoint though he does not give any precise guidelines on how this process is put into practice. This suggests that evaluation should not be based only on the planned objectives of a project. The experiences of relevant individuals and groups are also relevant to evaluation. Different aspects of a project will carry different levels of significance for various groups. Evaluation will be about giving these individuals a voice to evaluate in both quantitative and qualitative terms. This may be despite various groups having different epistemological grounds for validating their perspectives.

Out of this interpretivist stance comes the recognition that for KMT the community of practice (Brown and Duguid 1991) (CoP) is a central group. Without gaining the participation of the CoP it is unlikely that the evaluation will adequately assess the use to which a KMT is used. More importantly the process of evaluation can provide a reflective group learning process for the CoP to discover and share its own experience of the use of the KMT.

The evaluation of KMT is different to evaluation of other types of IS. This is due to the high level of interdependency between the technical and social aspects of the KM system. Junnarkar and Brown (Junnarkar and Brown 1997) highlight the need to bridge IS and human resources as part of a KM strategy and that groups need to be formed that explore how to implement new ways of working in conjunction with the new desktop technologies. This seems to be a crucial point, many organisations will see potential for use of these technologies but there will need to be a process of mutual adjustment between the organisations and the technology ((Leonard-Barton 1988)). The purpose of the technology may be seen as fuzzy and uncertain. How it fits to the organisation or how the organisation fits to the technology will be placed in a state of co-evolution ((Walsham 2001) p.53). Technological frames (Orlikowski and Gash 1994) highlight the socially constructed nature of technology and more specifically information systems. Orlikowski and Gash indicate that it may be the misalignment between these technological

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frames held by developers and users of IS that contributes to the failure of some IS. This signals a potential task of evaluation to be as a means of facilitating this co-evolution.

Tsoukas (Tsoukas 1996) suggests that the task of management in relation to organisational knowledge is not to act as gatherers of knowledge, but as facilitators in creating links between people so that knowledge can be used through co-ordinated action. This suggests that the emphasis of evaluation in relation to KM tools is to assess the extent to which technological tools support the KM in an organisation and to develop learning about how the co-ordinated action can best be achieved in the future. The idea of co-ordinated action is supported in the communities of practice literature (Brown and Duguid 1991). The emphasis of this literature is recognising the role of groups and their importance in developing knowledge. In many cases the work of groups does not even follow espoused practice and the “non-canonical practice” is often a key factor in determining organisational performance. KM then is not a process that can be easily prescribed and embedded in an information system. The need to value how groups develop their own approaches to developing knowledge in conjunction with ICT is a key challenge when evaluating a KMT.

The current state of IS evaluation as described by the academic literature is much narrower than the ideal just discussed. For general IS projects evaluation practice is limited and so when implementing KMT it is unlikely that the methods used will be any better. For the process of evaluating a KMT to be truly systemic then it must address several issues:

- Carry out evaluation during complete lifecycle of the project implementing the tool
- It must cross functional areas and also management hierarchies
- Provide a process of reflection and learning at the individual and group levels
- It must value multiple perspectives of the tool and also a range of ways of validating knowledge about the tool.

### **Co-operative Inquiry applied to Knowledge Management Tools**

As outlined in Savory (Savory 2001) the use of an action research framework seems appropriate to evaluating a KMT. In particular the use of co-operative inquiry (CI) (Heron 1996) is likely to provide a model for the process that emphasises participation and also multiple perspectives. It also provides a model that will encourage organisational learning. The overall process of a CI is based on a Kolb learning cycle (Kolb 1984). The detail of the process is emergent with participants developing their own objectives for the evaluation and also the most appropriate methods of inquiry. The process is owned by the group of co-researchers and as such can be based in the context of the organisation.

Co-operative inquiry places emphasis on establishing for whom the inquiry is being done. It seeks to surface the motives for the inquiry at the level of the individual, the group and wider stakeholders in the context. This is in contrast to IT evaluation that is often seen as controlled and owned by specific groups such as senior management, IT departments etc. At the very least this provides a way of confronting some of the political pressures on IT evaluation. This perhaps addresses the issues of who is the evaluation for and links with the ideas of responsive evaluation (Guba and Lincoln in (Walsham 1993) p.166) and fourth generation evaluation ((Walsham 1993) p. 168).

So what does co-operative inquiry bring to IT evaluation of KM tools. First of all co-operative inquiry is a process that can carry on indefinitely, possible over the course of several projects. This ameliorates the problem of evaluation being constrained to a single stage of IS development lifecycle or a single project. Secondly co-operative inquiry values and promotes the participation of users in evaluation of IT. Thirdly the extended epistemology provides a distinct change in focus for IT evaluation from being concerned with purely financial measures of performance. The extended epistemology does not exclude the use of objective financial measures of performance, but through the use of subjective forms of knowledge, a more complete view of how a project contributes to the development of a community of practice can be

gained. The fourth point is that co-operative inquiry provides a clear framework for how the IT evaluation may be treated as an intervention in the organisation. By providing guidelines for both the process and issues such as ethical considerations, IT evaluation may be viewed more completely as an intervention in the work of the organisation. This aspect has been missing from many accounts of how IT evaluation should be done. Finally the more holistic view of knowledge development should act as a means of drawing together both technical and organisational aspects of the KM process and the role of ICT in supporting it.

### Three Barriers to Systemic Practice

The first part of the paper has outlined an “ideal” process for evaluating KMT. The author’s experience of trying to put the process of evaluation into use has so far been varied. For the remainder of the paper it is useful to reflect on this experience. The discussion that follows will draw on the author’s experiences with a number of organisations. These experiences were the result of attempts to get several organisations to adopt the CI evaluation framework. The reaction of some organisations was to reject the framework, Others however were more enthusiastic and saw it as a way of actively supporting a learning organisation approach to IS.

It is suggested that barriers to developing systemic evaluation can be categorised in three groups. These groups are linked to the two forms of inquiry, 1<sup>st</sup> person action research and 2<sup>nd</sup> person action research, as described by Torbert (in (Reason and Bradbury 2000) p.251). 1<sup>st</sup> person AR is concerned with how the individual approaches and experiences AR in their own life. 2<sup>nd</sup> person AR is concerned with how a group of co-researchers approach and experience AR. For the purposes of this paper two types of 2<sup>nd</sup> person AR will be discussed. It is suggested that Type 1 is where a participatory inquiry is held with the co-researchers having a powerful position in respect of the context being researched. For example they have authority based on their position in the management hierarchy or they have power based on their expertise e.g. being based in the IT department. Type 2 is where the participatory inquiry is held with co-researchers having a lesser level of power in the context. For example many users invited into an evaluation project may have little authority based on their position in the company or their area of expertise. These two types of 2<sup>nd</sup> person AR will have their own problems.

#### 1<sup>st</sup> Person barriers

Within the realm of 1<sup>st</sup> person research the barriers to developing a systemic approach to KMT evaluation are based in the IS practitioner and how they see their role. The successful use of the CI framework proposed above, rests on a group of people developing awareness of their work and developing skills to explore their work. Before this can happen the facilitator of the process needs to have acquired their own skills that will allow them to play a constructive part in the process. This is at odds to the “traditional” role of the IS practitioner that has often required them to be technical experts and to lead the application of technology. In the traditional role the emphasis has been implementing a solution, sometimes despite the concerns of many stakeholders. The contractual basis of the work has also acted to IS projects being done in set time frames and with clear objectives based on the performance of implemented systems. In the case of contract based consultancy the pressure for a closed end process with a guaranteed outcome forces become even greater. On the contrary the use of the CI evaluation framework requires a different set of skills. First of all CI is based on a co-operative way of working and so to facilitate the process the practitioner must develop relevant personal skills such as active listening. Furthermore a level of humility and respect for the views of the group need to be developed otherwise the “expert power” held by the practitioner is likely to intimidate or swamp members of the group. CI is also an emergent process and this is at odds with the more strictly planned processes more familiar to the IS practitioner. The IS practitioner needs to develop a conviction for the use of a process and confidence in its value.

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### **2<sup>nd</sup> person barriers Type 1**

For this second group of barriers a dimension of 2<sup>nd</sup> person AR is identified. In attempting to implement a CI based evaluation there is need to engage sponsors and champions within the organisation. From this perspective the inquiry can be seen as a CI carried out by relatively powerful stakeholders. Their power stemming from either their position in the organisation or specific expertise. From the author's point of view gaining acceptance of the framework by this group was a key barrier. This process of gaining acceptance of the CI process is an inquiry in its own right as it involves these stakeholders negotiating and exploring their own enthusiasms for and concerns about a participatory evaluation process. Their enthusiasm stems from the hope that the process will help engage a range of people and provide new perspectives. They also hope that the CI may lead to a more ready acceptance of their own initiatives i.e. knowledge management initiatives. Their fears in contrast are often to do with losing control of the evaluation process or allowing unrealisable expectations to be developed. For some organisations the fears of losing control seems to be the predominant reason for not wishing to adopt the CI evaluation process, though the espoused reason was often given as the difficulty of resourcing the process.

For an organisation that did adopt the process, being able to mould the process into their own way of working was important in making it "safe". Though some motives for this were to improve control of the process, it also served to improve its cultural fit within the organisation. Overall this taking in of the process and customising it to fit the organisation produced stronger commitment from the sponsors of the process.

### **2<sup>nd</sup> person barriers type 2**

The final group of barriers are related to gaining the participation of the wider group of stakeholders in the organisation. In particular those that do not possess positional or expertise power. In many ways this is the group that can provide the richest accounts of how KMT are actually used and made effective. For the CI group this is likely to be a larger group than the Type 1 group. They will have least control of how the CI is initiated, as for this group even membership of the CI group may have been initially defined by the managers sponsoring the process. Having been given the opportunity to be part of the group, other barriers for the process stem from how the individuals see their roles. Ideally CI should be done by a group that has been invited into the inquiry. For commercial organisations the notion of "invitation" can mean anything from acting out of free will to a coercive expectation from a line manager. This may be seen to undermine the notion of CI actually being co-operative, but for many organisation cultures, true co-operative behaviour may be very rare. Having gained membership of the group individuals may also be uncertain of the benefits that they may gain from the process, especially as it may simply increase their own workload. Finally the process of CI encourages a range of different epistemological perspectives. This eclecticism can be uncomfortable for some individuals. For example an organisation with a strong scientific tradition may reject knowledge that is not shown as based on statistically significant findings.

## **Concluding Points**

This paper has introduced a systemic framework for evaluating KMTs. It uses co-operative inquiry as the basis for how the intervention of evaluation is managed, as it has potential to promote both a richer evaluation and also one that develops greater participation of stakeholders. The paper highlights however that having a systemic framework for evaluation is only a partial solution. Gaining the adoption of the framework in organisations requires several barriers to be addressed. Some of these are to do with structural issues within the IS industry that actively act against emergent and reflective processes. In particular the skills of many IS practitioners are unlikely to fit with the needs of the CI framework. Likewise the acceptance and adoption of any systemic framework for evaluation is dependent on powerful stakeholders in an organisation. Fears of unleashing unrealistic expectations in their staff may

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make management uneasy about adopting CI. In addition the amount of staff time needed for participatory AR may not be seen as cost effective or practical. Gaining management acceptance however can lead to the framework being tailored for the organisation's culture making the ultimate success of the process of more likely. Developing committed participation by wider stakeholders is the final challenge for the approach. Finally in introducing the evaluation framework then care should be taken of the barriers at the 1<sup>st</sup> person and 2<sup>nd</sup> person (Types 1 and 2) levels of inquiry. This is due to the expectations, motivations, hopes and fears of all of the stakeholders will impact on the whole process and only through confronting them will the process be able to proceed.

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