

MANAGING INFORMATION FOR ORGANISATIONAL LEARNING FROM THE PERSPECTIVE OF TACIT KNOWLEDGE DIFFUSION AND META-ABILITIES

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Abstract

The diffusion of tacit knowledge is pervasive in the organisational learning (OL) process. However diffusing tacit knowledge, a transparent and subjective form of knowledge, needs an individual's ability to externalise and share this knowledge. To undertake this, a conceptual framework based on diffusion theory and meta-abilities is proposed. The framework suggests that meta-abilities create individual influencing skills, sharing attitudes and asking habits. Alternatively, influencing skills, sharing attitudes and asking habits externalise tacit knowledge through the medium of ideas, actions, reactions and reflection. Knowledge stewards' document externalised tacit knowledge thereby making it measurable, tangible and available to systems analysts for future information systems (IS) development. The framework is tested using a case study in Malaysia. It is concluded that the future focus when managing information for OL should be toward an individual's meta-abilities development. There should also be an impetus towards creating the correct organisational culture and infrastructure that promotes tacit knowledge sharing and externalisation within and between employees.

Keywords: *Meta-abilities, Learning Organisations, Tacit Knowledge, Diffusion.*

1 INTRODUCTION

It has been found that to ensure a system's capability of promoting continuous learning within the organisation, the current knowledge that resides in an employee's mind needs to be externalised, embedded into the system and disseminated within an organisation (Meso and Smith, 2000, Beveren, 2002). This process is known as the diffusion of tacit knowledge (Haldin-Herrgard, 2000). However diffusing tacit knowledge, a transparent and subjective form of knowledge, needs an individual's ability to externalise and share this knowledge. Since tacit knowledge is transparent and subjective, the means of disseminating it are an issue of concern. This is because an individual's ability to externalise and share this knowledge is required and can pose to become a problem if not well applied.

The aim of this paper is to propose a conceptual framework of tacit knowledge diffusion based on the concept of meta-abilities that is proposed by (Butcher *et al.*, 1997). Meta-abilities were selected as they consist of competencies that enable people to use their knowledge effectively. The conceptual framework is tested using a case study.

A theoretical overview of OL, tacit knowledge diffusion, meta-abilities and the proposed conceptual framework are firstly dealt with. The research approach and the description of the case study are then presented. Thereafter the success and failure of the case are discussed in light of the conceptual framework and the lessons learnt are then highlighted. In the final section, the conclusions and suggestions for further research are dealt with.

2 THEORETICAL OVERVIEW

According to Saint-Onge (1996), an organisation consists of knowledge existing at two levels: (1) individual level; and (2) organisational level. Further, it was asserted that while organisations do not have minds, they do have memories through the utilisation of a database. This database is built on the externalised knowledge of individuals within the organisation and forms the basis for an organisation's values and its "ways of doing things." It is argued that by accessing the database, OL can be promoted. This is because an individual's behaviour can be influenced when internalising new knowledge and insights (Saint-Onge, 1996).

Tacit knowledge, also a form of knowledge prevalent within organisations is not easily diffused due to its transparent and subjective nature (Augier and Vendelo, 1999). Difficulties appear in expressing or documenting knowledge that appears obvious and natural to one (Haldin-Herrgard, 2000). Further, the difficulties in diffusing tacit knowledge are also linked to language, time, value and distance. Alternatively there are factors preventing individuals from sharing their

tacit knowledge or asking others for clarification including, lack of confidence, anxiety, unwillingness, confusion and being carried away by strong feelings (Butcher *et al.*, 1997).

This paper argues that systematic approaches of collecting individuals' tacit knowledge, such as metaphors or narrations, are inadequate. This is due to the nature of tacit knowledge being such that it will lead to the phenomenon where people often externalise and share it through creative and spontaneous conversations (Smith, 2001). Therefore, the creative and spontaneous diffusion of tacit knowledge requires research. To achieve this, the role of meta-abilities is essential. This is due to the development of meta-abilities resulted in individual belief, commitment, enthusiasm and perseverance to implement significant change within the organisations (Butcher *et al.*, 1997). These changes range from introducing specific initiatives to realigning the culture and values of the organisation. Implicit in these phenomena are the existence of individuals' capability, confidence and a sense of responsibility to influence, ask and share ideas with others in an active manner. These activities represent the process of creative and spontaneous tacit knowledge diffusion.

The concept of meta-abilities was initially widely applied in the psychology area and defined as an emotional intelligence that guides the use of other kinds of intelligence and skills (Goleman, 1995). In the organisational development area, meta-abilities are ground in the view that an individual's effective performance is inextricably linked to his or her psychological development or maturity (Butcher *et al.*, 1997). This is because individuals' psychology influences judgements, which in turn affects the decisions made by them (Goleman, 1995). Four main meta-abilities were identified in the organisational development area and they are summarised in Table 1.

Meta-abilities	Description
Cognitive skills	Includes the ability to notice and interpret what is happening in interpersonal situations; to entertain multiple perspectives and integrate them; to envision

	strategic futures; and to sort and analyse data. These skills allow organisational members to “read situations, understand and resolve problems.”
Self-knowledge	Seeing oneself through another’s eyes, knowing one’s own motivations and values and distinguishing one’s own needs from those of others. These skills allow organisational members to consider a range of options in their own behaviour and to make better judgements of what to do. They allow other skills and knowledge to be used more flexibly.
Emotional resilience	Includes self-control and discipline; the ability to use emotion well to cope with pressure and adversity; and balance feelings about oneself. These skills allow organisational members the personal robustness to direct their energies, deal with intense situations and manage challenges healthily.
Personal drive	This involves self-motivation and determination, a willingness to take responsibility and risks. This helps organisational members to persist, motivate others and meet targets.

Table 1. The description of meta-abilities

Initially the development of meta-abilities resulted in improved personal influencing skills, such as communication, assertiveness, dealing with conflict, persuading and developing others (Butcher *et al.*, 1997). Then, it was argued that meta-abilities offer a substantial contribution by making individuals more astute and insightful, able to make better judgements and to envision more alternative actions. As such, they are better equipped to navigate the difficult and dynamic organisational reality and influences effectively within the organisation. In this case, individuals are able to extend their personal sphere of influence and provide a more critical perspective. They provide greater insight and are more direct in focusing attention and asking significant questions. As a consequence, they could influence subordinates, colleagues and management, serve as role models and be more challenging. This type of interaction could develop cohesiveness in the working place. In short, they act as a spur to organisational development by influencing others – questioning implicit assumptions, exploring new possibilities and directing energies toward higher standards.

Based on the above discussion, it is argued that meta-abilities assist in building a capable and confident individual who can face the difficulties in the externalisation and sharing of tacit knowledge and in obtaining opinions from colleagues using three humanistic elements: (1) influencing skills; (2) sharing attitudes; and (3) asking habits. By utilising these humanistic elements, individuals

generate creative ideas, actions, reactions and reflections. Documenting this externalised and shared tacit knowledge can develop synergistic inputs for continuous IS re-examination and modification. Due to its updated content, that type of IS can assist in promoting OL. The way in which these dimensions relate to each other are illustrated in Figure 1.

By obtaining access to the embedded knowledge (information) and internalising them, employees can improve actions through better knowledge and consequently can undertake their tasks effectively – learning process. This in turn enables organisations to improve daily operations and as a consequence, increase their competitive edge in a highly volatile market.

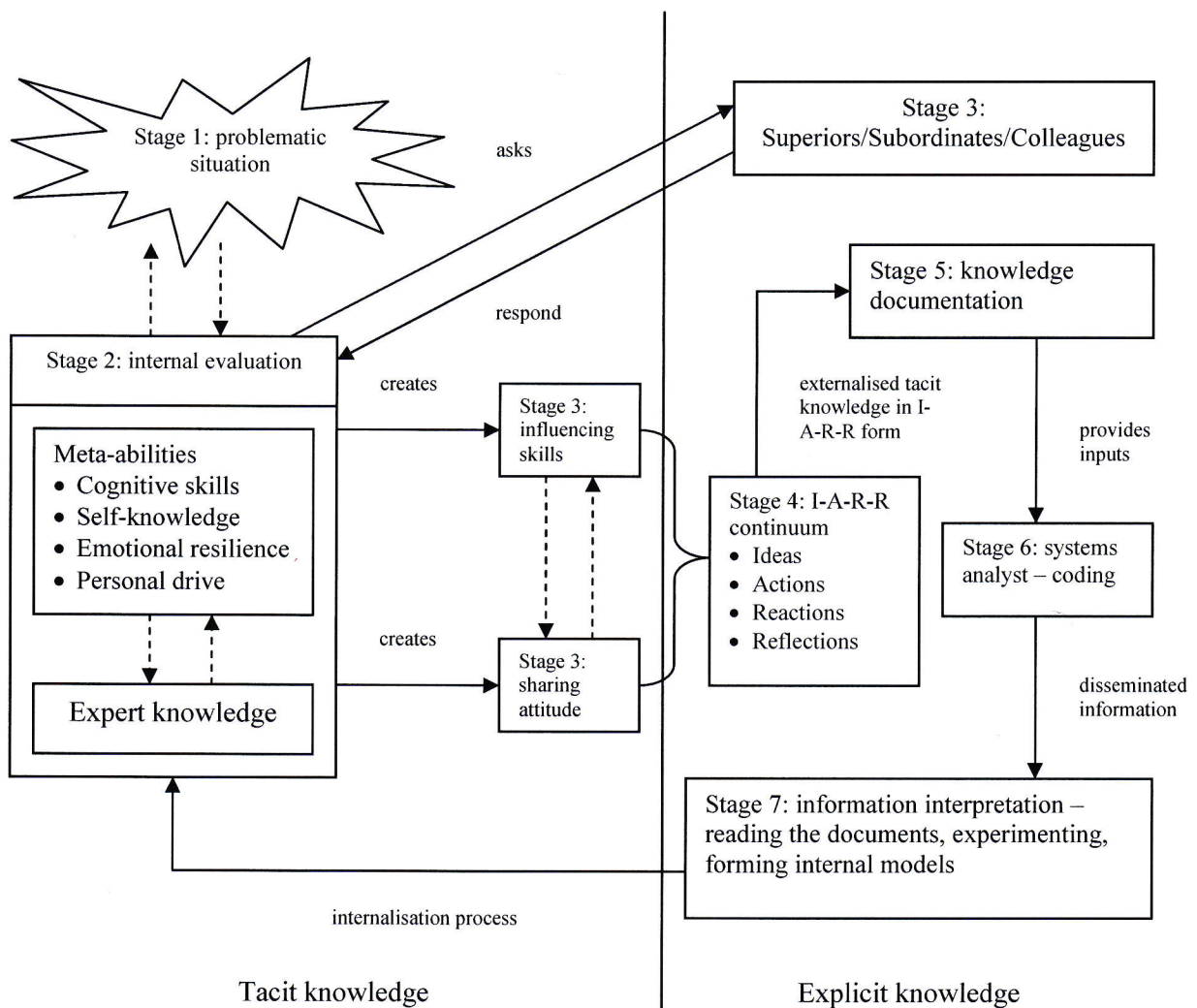


Figure 1. Meta-abilities for the learning-based information systems

The explanation for each stage is as follows:

- Stage 1 – situational problems consist of external pressures such as, economic and political issues or internal pressures such as, information flow and politics.
- Stage 2 – the integration of cognitive skills, self-knowledge, emotional resilience and personal drive enables individuals to produce rational solutions when facing problems.
- Stage 3 – an individual externalises the rational solutions to problems using three means; namely, influencing skills, sharing attitudes and asking habit.
- Stage 4 – when undertaking influencing, sharing and asking activities, individuals express their knowledge in the form of ideas, actions, reactions and reflections.
- Stage 5 – staff members or knowledge stewards, such as information officer, document the externalised tacit knowledge and transform them into explicit knowledge such as, a business report.
- Stage 6 – systems analysts study the documented inputs provided by knowledge stewards and codify them.
- Stage 7 – by accessing the “best practices,” individuals can experience new learning in the organisation.

The aforementioned discussion underpins the conceptual framework important for the diffusion of tacit knowledge and is the premise to the following discussions. In section 6, the authors analyse the feasibility of the above conceptual framework in a real life IS development scenario.

3 RESEARCH APPROACH

To identify whether the aforementioned conceptual framework is applicable in practice, an approach was required. This section describes it. A qualitative approach was used for this research. This was because this research requires a deep and rich understanding, which a qualitative approach allows. Further, the study has utilised a case study – a faculty in one of the Malaysian higher education institution – to investigate the research question for this research. This

approach allowed the researchers to ask penetrating questions and thus helped to capture the richness of the development problem from the perspective of the embedment of users' needs in the IS (Gable, 1994). The initial research action involved gaining approval from the dean of the faculty. Upon the approval, the research commenced in December 2003 and completed in April 2004. The research activity consisted of preparing the training module, conducting the training programme and collecting data.

The participants consisted of 11 lecturers and one resource centre officer. The lecturers were selected as they have the skill to evaluate the theoretical-based course due to their vast academic experience. This in turn enables the researcher to obtain input to evaluate the relevancy of the training module in developing the research participants' meta-abilities, influencing skills, sharing attitudes and asking habits. The resource centre officer, on the other hand, was selected because he provided a platform to evaluate the impact of those humanistic elements in IS development. One month after the training session, the questionnaires that contained open questions focusing on individual impact and tacit knowledge externalisation impact were sent to all participants. A one-month period was given to enable the participants to digest the elements that were discussed in the programme. To verify and validate the responses from the questionnaires, face-to-face interviews were conducted. The interviews were tape-recorded and transcribed on the same day. This approach was utilised to ensure that all the information and any further details were recorded and not missed out. The data were analysed by using manual statistical analysis due to the small number of pilot research participants.

4 DESCRIBING THE CASE STUDY

The case study used for this research was an academic faculty in one of the higher education institutions in Malaysia. As an academic institution, one of its main activities was promoting research among its staff. To assist its staff in

undertaking research, one resource centre was established in the year 2000. Besides becoming the source for academic material, the centre was also responsible for managing the database of the centre. One officer was assigned to manage the database. The database contained information relating to the academic material owned by the centre, borrowed and returned materials, approved research proposals, research in progress, completed research and publication of the working paper series. An interview with the officer revealed that there were many undetected academic materials. This resulted in havoc with research support process. In addition, the process of updating the faculty research could not be undertaken effectively due to the lack of cooperation from the academic staff.

Thereafter, one discussion was held with the dean of the faculty in order to determine the solution of the above issue. In the meeting, the concept of meta-abilities was shared and described. The researchers were also stressed the importance of meta-abilities within the organisation and tacit knowledge sharing and externalisation. The impact of that process for organisational development was also highlighted. After the meeting, the dean agreed to participate in our research programme. Due to the highly developmental nature of the programme, the number of the participants was restricted to 12 persons. In this way each delegate was able to receive the high degree of personal attention necessary for the development of meta-abilities.

The training programme was underpinned by seven competency sets: (1) influencing skills; (2) sharing attitudes; (3) asking habits; (4) cognitive skills; (5) self-knowledge; (6) emotional resilience; and (7) personal drive. The programme incorporated a variety of features and activities to enhance the learning experience and maximise personal benefits. These included: (1) interactive lectures; (2) syndicate group work; (3) work on live business and IS issues, (4) profiling questionnaires; (5) case studies; (6) one-to-one tutorials or coaching; (7) individual work; and (8) one-day follow up.

The programme was based on the acquisition of knowledge about an individual's competencies to deal with conflict within the organisation. The competencies can take the form, for example, of analysing one's role and evaluating one's performance; or of becoming clearer about the personal values and motivations which drive certain types of behaviour. The contents of the training module were presented to the participants by the researcher in explicit verbal form. The aim was to give the participants a unique opportunity to reflect one's behaviour as seen by others; particularly, in the absence of distorting processes such as, self-serving biases. The number of training days for each plant was limited to six days due to the policy of the company on industrial training.

On the final day of the programme, the research participants constructed a comprehensive two weeks action plan covering the personal development and organisational change issues. This formed the basis of the progress review. After two weeks, the researcher met the participants again in order to further develop their meta-abilities by discussing their achievement on the targeted actions. Any problems that arose during the meta-abilities development period was discussed and tackled at a face-to-face meeting. This meeting was held with the research participants. One month after the programme, the data collection commenced.

5 FINDINGS

Based upon the following discussion, the researcher was interested in building a picture of the levels of development and found: (1) how the seven individual dimensions were affected by the programme; (2) what this development then allowed individuals to do with their tacit knowledge; and (3) how the IS was affected by the externalised and shared tacit knowledge. The discussion of the following paragraphs will reflect these three levels of development and follow the structure of the framework in Figure 1.

An overview of the responses indicated change across all the seven sets of the individual development process, as shown in Table 2.

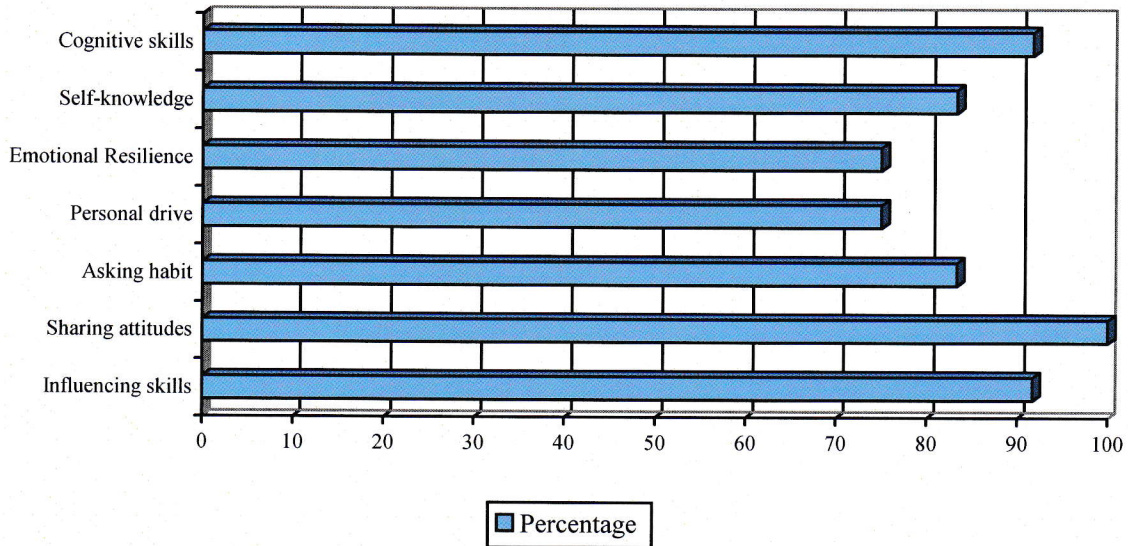


Table 2. Development Across the Seven Competency Sets

From table 2 it was evident that the programme could and did affect the development of participants across all four meta-abilities and, indeed, across all the seven dimensions. The participant level, however, depended on variations in the participant levels of development. Not every participant would be expected to cite examples across all seven dimensions. Some, for example, would already have a high level of self-awareness or a strong personal drive but needed to increase their cognitive flexibility. What was significant was that the design of the programme was capable of facilitating development across the full range of dimensions and that the researcher was skilled at using that design effectively in order to target the participants' needs.

With regards to the cognitive skills, 92% of the participants indicated improvements:

"Before the programme, I didn't know how to solve problems. But after the programme, I can now plan my work, know how to solve problems such as, 'we meet our colleagues, have a discussion and find the best solution. It was like giving us guidance in the workplace'."

“The programme has helped me to understand and appreciate the complexity of interpersonal relationships. I spend more time trying to identify common ground and seeking consensus for important decisions.”

Self-knowledge, another meta-ability was also evident. 83% of the participants described an increase in self-knowledge as a result of the programme. Self-knowledge improved the participants’ judgements about how to approach different situations by helping them to distinguish between their personal needs and the needs of the situation and of other people. For example:

“The programme helped me to gain a better understanding of my character in the workplace and how to be more effective.”

“The programme enabled me to always think positively when dealing with others and this is done for the sake of the faculty. It also instilled virtuous values and an ability to have a rational discourse with others in the faculty.”

There were also increases in emotional resilience. 75% of the participants described increases in emotional resilience due to the programme. For some the focus was on self-discipline:

“I feel my self-discipline and confidence have improved and I recognise the need to organise better when undertaking tasks in the faculty.”

“The course enabled me to be more professional in tackling any situation. As long as we are paid, within our scope of work, we must always be professional. Any dissatisfaction must be put aside so that it won’t affect our main aim to maintain productivity.”

In terms of personal drive, 75% of the participants described changes equated to it. The development of personal drive was evident in the participants’ responses in two ways: in how they viewed their personal approach to tasks; and in what they were able to achieve in their organisations. For example:

“The programme strengthened my belief in the approach I used in the workplace.”

“I have more personal impact than I thought I had and I have become more comfortable with that fact.”

The specific skills identified from the undertaken research for influencing skills, sharing attitudes and asking habits are: (1) communication skills; (2) assertiveness and dealing with conflict; (3) persuading others and managing organisational politics; and (4) developing others (delegating, coaching and counselling). Improvements in communication skills relating to all four of these areas were widely reported by all participants. 92% reported changes in general communication skills; 75% improvement in assertiveness and dealing with conflict; 83% changes in persuading others and managing organisational politics; and 75% improvement in their skills of developing others.

From the above results of the empirical work it can be seen that the first, second and third stage of the conceptual framework have been fulfilled. This highlighted that, on the one hand, the first level of development of this research had been achieved. Contrastingly, the second level of development of this research was triggered and that is: "what did this development allow individuals to do with their tacit knowledge?"

Improvements of the seven competency sets had helped participants to formulate their ideas, actions and reactions more clearly, while being much more aware of how these related to others. Improvements in emotional resilience and personal drive helped participants to gain a good reflection by being more assertive, more able to deal with conflict and more objective, yet empathic in coaching and counselling. This situation was experienced by 83% of the participants. For example:

"A friend of mine and I are not shy to express our ideas and feeling in the unit meeting anymore. We just say what need to be said and we did it. In fact, most of the unit members appreciated our ideas. Gosh, thanks for your advice."

The above empirical results demonstrate that the participants were able to externalise and share their tacit knowledge effectively. This in turn fulfilled the criteria of the fourth stage of the framework. When relating all these issues with IS development, 100% of the participants agreed that there could be a basis for

establishing learning-oriented information. In this case, the impact that participants were able to have through documenting their experiences, providing inputs to the systems analyst, sharing the information with others and motivating others to participate in the IS continuous re-examination and modification processes. The statement made by the centre's resource officer was the best example:

“Before the programme I was quite reluctant to do the follow-up process for any overdue borrowing or unclear research status. However after the programme I became more responsible to check the database and do the follow-up if necessary. I'm not shy anymore to ask for the research status or information relating to the completed research. Thereafter I'm able to update the database effectively.”

The lecturers were also motivated to share their research status or prepare the new research proposal in collaboration with others. In this case they were not shy to ask the resource centre officer for any specific academic materials. All the lecturers who participated in this research felt that there had been between 70% and 100% success in implementing the personal level of their research plan and all of them shared their research information with others especially with the centre's resource officer. All these enabled the database to get new inputs and as a result, to be able to promote OL within the faculty. This result showed that the fifth, sixth and seventh stages of the research conceptual framework were fulfilled. This in turn answered the third level of development of this research, which is that the externalised and shared tacit knowledge led to continuous IS development. This type of IS ultimately provides a good basis for OL due to its always updated and progressive contents.

From the above discussion it is clear that the development of the seven competency sets can assist in developing OL-based IS. This is because they create a basis for an effective and continuous IS re-examination and modification processes.

This research developed a conceptual framework based on the concepts of tacit knowledge diffusion and meta-abilities that provides the basis of a new perspective on promoting learning within the organisation. The processes undertaken in the conceptual framework will ensure that the contents of organisational IS are subject to continual re-examination and modification given the changing environment. Continuously challenging the current "company norm," such systems are expected to prevent the core capabilities of yesterday from becoming the core rigidities of tomorrow. By internalising a system's operations individuals can improve actions through better knowledge and understanding. Therefore the main focus of IS for OL should be toward an individual's meta-abilities development that develops creativity and interpretivity. There should also be an impetus towards creating the right organisational culture and infrastructure that promotes tacit knowledge sharing and externalisation within and between employees.

The future directions for this research include the study of the concept of meta-abilities in other IS research areas such as IS effectiveness and implementation. Further areas where this can be used are human-computer interaction, issues pertaining to group coordination and communication and managing the impact of information technologies on organisations planning and control strategies.

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