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The role of socio-technical principles in leveraging meaningful benefits from IT investments

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ABSTRACT

In recent years there has been a great deal of academic and practitioner interest in the role of 'benefits realisation management' [BRM] approaches, as a means of proactively leveraging value from IT investments. This growing body of work owes a very considerable, but as yet unacknowledged, debt to the work of Ken Eason, and other early socio-technical theorists. Consequently, the aim of this paper is to demonstrate, using the literature, how many of the principles, practices and techniques of BRM have evolved either directly or indirectly from socio-technical approaches to systems design. In so doing, this article makes a further important contribution to the literature by explicitly identifying the underlying principles and key practices of benefits realisation management.

1. Introduction

Over the past fifty years the organisational world has grown ever more dependent upon a wide variety of information technologies, to deliver significant efficiency and effectiveness gains to their business processes and management practices. Unfortunately, despite this growing dependency upon information technology, a considerable amount of time, money, effort and opportunity is still wasted upon IT investments that ultimately fail to deliver meaningful benefits (Fortune and Peters, 2005; Peppard and Ward, 2005). Estimates of the level of failure may vary, but over the past forty years they have tended to remain uncomfortably high. For example, it was suggested that in the late 1970s only 20% of projects '*achieved something like their intended benefits*' (Eason, 1988), and by the end of the 1990s the situation was certainly no better, with Clegg et al. (1997) reporting that '*up to 90% of all IT projects fail to meet their goals*'. More recently, Shpilberg et al. (2007) reported that 74% of IT projects failed to deliver expected value, and a British Computer Society (BCS, 2004) study concluded that '*only around 16 per cent of IT projects can be considered truly successful*'. Consequently, understanding the determinants of systems failure, and finding more reliable ways of managing IT investments projects, to increase the likelihood of successful outcomes, remains an important and consistent theme in the literature (Eason, 1982; Willcocks and Margetts, 1994; Doherty and King, 2001; Nelson, 2007).

So what is the major cause of systems failure? Systems may underperform, or even be rejected, because new technologies are harnessed to existing business process designs, and traditional patterns of employee behaviour (Ward et al., 2008). As Eason (1988) observed, all too often systems fail, because system developers aren't aware that it is through organisational change, rather than through a technology's functionality, that benefits are most commonly leveraged. Systems also fail because they often trigger unintended human and organisational impacts that users may ultimately perceive to be unacceptable (Martinsons and Chong, 1999). Either way, it is now widely acknowledged that unless systems designers find effective ways of managing the human and organizational implications of their software products, the incidence information systems failure is unlikely to abate (Doherty et al., 2003; Clegg et al., 1997). One suggested remedy to this problem is through the adoption of socio-technical design processes (e.g. Eason, 1982; Mumford, 1995), as these explicitly address the need to redesign organisational processes and behaviours, and the need to identify and mitigate the risks of negative organisational consequences. Although the contribution of socio-technical theory is now widely acknowledged (Clegg et al., 2000), and many different socio-technical methods and approaches have been proposed (Mumford, 1995), there is little evidence these have succeeded in making the transition from research laboratory to widespread commercial usage. As Clegg (2000) notes, '*socio-technical principles and practices have not had the impact that their proponents might wish*'. This view is supported by Mumford (1997; 314) who notes that: '*management tended to regard these successful (socio-technical) projects as one-offs*' and, consequently: '*there was*

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no great enthusiasm or motivation to spread the approach through their companies'.

In summary, the information systems' literature is very clear on three points: general levels of system failure are unacceptably high; the primary cause of this problem is the failure to adequately predict and manage the human and organizational impacts of IT investments; and progress in the adoption socio-technical approaches has been rather too slow. Consequently, there is a pressing need for research into new ways of achieving a more effective relationship between information technologies and the social contexts in which they are intended to operate. One potentially important mechanism for ensuring that an IT project is focused upon improvements in organisational performance, and therefore better tailored to its organisational context, is through the establishment of a formal and explicit benefits realization programme. Benefits realisation management [BRM] has been defined as 'the process of organising and managing, such that the potential benefits arising from the use of IT are actually realised' (Ward and Elvin, 1999). Although BRM is still in its relative infancy, it offers real hope of a practical solution to the socio-technical conundrum facing systems designers. A number of studies have already demonstrated the role of formal and explicit '*benefits realization*' approaches, for improving the outcomes of information systems development projects, through the proactive management of organizational change (e.g. Remenyi and Sherwood-Smith, 1998; Ward and Elvin, 1999; Peppard et al., 2007; Ashurst et al., 2008).

The aim of this paper is to critically explore the extent to which the principles and practices of BRM have evolved either directly or indirectly from the established socio-technical approaches to systems design. The paper progresses by critically reviewing the work of Ken Eason, and other early socio-technical theorists, to see whether it still has implications for the problems affecting more recent generations of business IT. The core principles of the benefits realisation management approach, are then introduced, and it is argued that its explicit focus on benefits gives it perhaps the best chance of resolving the critical socio-technical dimension of IS projects. The paper finishes by showing how many of the cornerstones of the benefits realisation management approach can be linked back directly to the work of the early socio-technical theorists, and in particular Ken Eason.

2. The diagnosis of the socio-technical theorists

Despite its recognised tendency to act as a catalyst for change, information technology cannot be viewed as a deterministic artefact, as it does not generally behave in a well ordered and predictable manner (Grint and Woolgar, 1997). As Eason (2001; p. 324) notes '*many outcomes* (of IT projects) *are unplanned and unintentional*'. Organizational actors have the potential to interpret, appropriate and ultimately shape, through use, their information systems in a wide variety of ways (Orlikowski, 1993). This view of the world recognises that information systems have a high degree of inherent '*interpretive flexibility*' (Doherty et al., 2006), which means that, when applied in an organisational context, they become social, rather than technologically determined, constructs (Bijker, 1995). The implication of this '*social constructivist*' perspective (Leonardi and Barley, 2008) is that very similar organisations can experience radically '*different outcomes with the same technology*' [p. 69]. As any system may be interpreted and appropriated in multifarious ways, during the development period, as well as throughout its operational life (Orlikoski et al., 1995; Barley, 1986), a very significant problem facing the systems developer and the systems sponsor is that the impacts and outcomes of introducing a new information system, cannot generally be predicted at the project's outset.

The implication of this diagnosis is that systems developers must move away from their traditional, deterministic views of the IT artefact (Clegg et al., 2000), and embrace a socio-technical perspective that encourages systems developers to jointly design the social and technical elements of a system (Mumford, 1995). Whereas the socio-technical theorists recognized that information technology is both shaping of, and shaped, by its working environment, many scholars (Orlikowski, 2010; Leonardi, 2011) are now promoting the newer, '*socio-material*' perspective, which takes this state of mutual interdependency a stage further. For example, Orlikowski (2007) argues that the material aspects of organizational life, of which technology is a prime example, are '*constitutively entangled*' with the social aspects – '*there is no social that is not also material and no material that is not also social*' [p. 1437]. Against this backdrop, the need for approaches to systems development, implementation and operations that pay equal attention to the social and technological [material] dimensions of information systems has never been greater.

In his highly influential book – *Information Technology and Organisational Change* – Ken Eason (1988) recognized that it was not possible to design a system to support a particular organisational activity, which could be guaranteed to deliver the outcomes specified by the designer. He proposed a set of ten distinct propositions, based upon socio-technical principles, by which organisations could develop information systems that could be gradually tailored to serve both the needs of the host organisation and its individual employees. Whilst it is beyond the scope of this short paper to present a detailed critique of all ten propositions, the aim of the remainder of this section is to review the seven key propositions, which have the most obvious resonance with the types of the problems identified in the previous section. This is not to say that from a socio-technical perspective, the remaining three propositions are in anyway less valid, it is simply that the following seven propositions are the ones upon which the evolution of benefits realisation management approaches is most heavily dependent, as later demonstrated in Table 1:

Proposition 1. '*The successful exploitation of IT depends upon the ability and willingness of the employees of an organisation to use the appropriate technology to engage in worthwhile tasks*' [*p.* 44].

All new technologies have material properties, '*which afford different possibilities for action, based upon the contexts in which they are used*' (Leonardi, 2011; p. 153). Such '*affordances*' (Hutchby, 2001) are clearly based upon the unique set of features and functions, that a particular technology offers, but it is through the situated interaction of a user and a technology, that new goals can be achieved. In presenting this proposition, Eason (1988) was explicitly recognizing that meaningful benefits are typically leveraged through the interaction between the actions and capabilities of users and the inherent functionality and affordances offered by a particular software artefact. System designers must, therefore, resist the temptation to impose a particular configuration of information technology on a group of workers, just because they have confidence that it will deliver a pre-determined set of benefits. Rather, it must be recognised that new technologies will only deliver meaningful benefits if they are readily accepted and can be easily operated by members of the user community. To this end, the need to improve all forms of human-computer interaction, to ensure effective user adoption, has been a recurring theme of his work (Eason, 1991).

Proposition 2. '*The design target must be to create a socio-technical system capable of serving organisational goals, not to deliver a technical system capable of delivering a technical service*' [*p.* 45].

The acid test for any the systems development process must be: has it delivered a new technological solution that improves the