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Engagement in public sector IT projects

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Abstract

Public sector information technology projects are important for delivering government policy, and one reason for their failure is lack of effective engagement between stakeholders. But current literature is unclear on what engagement is. The study examined engagement in five cases of successful project development, collecting data though documentation and semi structured interviews with internal clients and external IT consultants. Thematic and template analysis was used. Findings identified six interacting components of engagement to be three conditions of environment, participants and expertise that afford three interacting and cycling behaviours of sharing, sense making and adapting. The research thus contributes an original model of engaged behaviour that draws attention to components that help enactment of engagement between participants on IT projects.

Keywords: engagement, IT projects, consultants, public sector, case studies

1 Introduction

This paper investigates engagement in public sector information technology projects. It is organised as follows. First, it explains the background to the research, then outlines the research method, with supporting data and analysis. It presents evidence from interviews and documents. Finally, the paper concludes with the implications and direction for future research.

2 The problem

The overall aim of the research is to investigate how engagement happens. This section by exploring alternative explanations of engagement in public sector IT projects reviews literature relevant to this aim.

IT projects are important to the public sector because they are a key means of implementing government policy often requiring rapid changes to how a public sector department functions and provides services. This puts public projects under greater scrutiny, and failure is publicised, (House of Commons, 2003-4 , House of Commons, 2005-06, House of Commons, 2008-09) (Craig, 2005, Craig, 2008, Craig and Brooks, 2006) hence putting more pressure on projects.

In the public sector, a common cause of project failure is lack of effective engagement with stakeholders (NAO, 2006b), and the National Audit Office (NAO), considering engagement is crucial for successful delivery of IT enabled change, exhorts clients and consultants to engage, with the implication that engagement will ensure commitment, improve performance

and add value to a project (NAO, 2006a: 3) because engagement demonstrates senior management is committed to the change. However, it is not clear how engagement happens or what good quality engagement is.

Previous research on engagement seems to have focused on outcomes and products, being mainly surveys or quasi-experimental (Gable, 1996, Saks, 2006, Schaufeli et al., 2006), and one-sided, focusing on for example, employee engagement with work (Saks, 2006, Schaufeli et al., 2006), student engagement with learning (Handley et al., 2007, Robinson and Hullinger, 2008, Arbaugh, 2000), or customer engagement with a brand (Mollen, 2010). These approaches view engagement as a one-way relationship, rather than a transfer and sharing of knowledge through communicating with other people. Saks (2006) attempted to explain employee engagement through social exchange theory, which holds that "a relationship evolves over time into trust, loyal and mutual commitments" (Saks, 2006: 603) that can be found through enriched and challenging jobs with positive consequences for organisations.

The sense in which engagement is a knowable phenomenon is a moot point because definitions of engagement are described in terms of metaphors. Hence engagement is a paradigm for change (Axelrod, 2001), "the art of bringing people together" (Block, 2000: 248), "a journey of sensing and learning" (Buckingham, 2005). It is also a management philosophy (Smythe, 2007) and "a process of communication" (McMaster, 1996). Mutual engagement is a dimension of a community of practice that involves processes of community building (Wenger, 1998). In summary, engagement is variously seen as a paradigm, a journey, a relationship, a philosophy, an art or a process, thus indicating the various conceptualisations of engagement.

Writers seem to conflate engagement with other phenomena like involvement, participation, commitment or collaboration, which I will now explore with the intention of clarifying some concepts of engagement.

Involvement

First, how does engagement differ from involvement? Involvement often refers to user participation in systems development processes. In the 1970s, user involvement was assumed to be a good thing, although Ives & Olson's (1984) review of the research found that only seven out of twenty-two studies showed a positive relationship between user involvement and project success. Barki and Hartwick define user involvement as a psychological state when

the user considers a system to be both important and personally relevant (Barki and Hartwick, 1989: 53). Barki et al distinguish involvement from participation by suggesting involvement is a separate construct that refers to a psychological state although they do not elaborate on what that state might be. Hartwick et al (1994) later define involvement as an intervening variable between user participation and system use, their evidence for this being a model that they tested on a number of information systems projects. In conclusion, in the sense that involvement is working with other people, it is highly relevant to engagement.

Participation

Barki & Hartwick (1989) define and examine user participation and user involvement (Barki and Hartwick, 1994, Hartwick and Barki, 1994). Barki and Hartwick (1989) define participation as "a set of behaviors or activities performed by users in the system development process" (Barki and Hartwick, 1989: 53). They suggest that participation leads to involvement (Hartwick and Barki, 1994).

This research on participation does not appear to relate engagement to participation. However, Kappelman and McLean (1994) see participation as behavioural, and involvement as attitudinal. Kappelman and McLean define users as those whose work is influenced by the IS system, categorising users separately as those who engage in the process of development and those who engage in the use of the developed system. Such users need not be the same as the senior managers that the NAO exhorts to engage. When clarifying terms with regard to users of information systems, they include engagement, proposing it as "a general term of the total set of user relationships towards IS and their development, implementation and use" (Kappelman and McLean, 1994: 514). Assuming an IS project is a process, then some of Kappleman and McLean's taxonomy is useful, but needs to be extended to categorise managers of the users of the process of development. Participation of users might be a consequence of senior level engagement in a project.

Marcum, comparing motivation with engagement, points out that people choose to be engaged. He reviews literature on engagement from learning theory, information management and philosophy, concluding that "... engagement is based on learning and involvement" (Marcum, 1999: 46). Marcum's perspective concurs with Hartwick and Barki's findings that participation and involvement depend on whether IT system use is mandatory or voluntary (Hartwick and Barki, 1994).

There are still some contradictory perceptions of participation. For instance, Axelrod (2001) writes that participation can increase bureaucracy when in a hierarchical top-down process, such as may exist in UK central government. Handley et al differentiate between participation and engagement in practice that involves "hearts and minds" (Handley et al., 2007: 181), which they see in the context of learning situations and Wenger's communities of practice (Wenger, 1998).

Wenger defines mutual engagement as a dimension of a community of practice, involving engaged diversity, doing things together, relationships, social complexity, community and maintenance. Engagement is a process of community building, social energy and emergent knowledgeability (Wenger, 1998: 237), knowledgeability being the ability to acquire and use knowledge and is a continual process of negotiating of meaning. Wenger writes that engagement "can be a vehicle for sharing ownership and meaning" (Wenger, 1998: 203). He further suggests the value of communities of practice because they are "organisational assets that represent investments in mutual engagement." However, communities of practice share histories, whereas projects are temporary.

In summary, engagement seems to be a term that embraces concepts both of participation and involvement.

Commitment

The term engagement has the sense of 'engagement *with*' someone, so implies some form of relationship that might require commitment and that may affect sense making and the social structure (Weick, 1995). Organisational commitment refers to a person's attitude and attachment to their organisation (Saks, 2006) rather than to a person although the idea of managerial commitment to a project or initiative has some resemblance. An organisational context with visibility (behaviour is public), volition (with an element of choice) and irrevocability (behaviour cannot be undone) "should generate stronger commitment" (Weick, 1995: 159). Nevertheless, commitment is "also a liability because it reduces flexibility, learning and adaption" (Weick, 1995: 161).

Government literature implies engagement with suppliers should happen. For example,

> *"A critical element of consulting projects is therefore engagement - both of the people who work in the organisation that hires the consultants (the client) and among the consultants themselves. Engagement here implies gaining their enthusiasm and energy to see the project through to its conclusion." (NAO, 2006a: 2)*

In this context, the term 'engagement' refers to commitment and understanding how government departments engage effectively with participants on public sector IT projects. The NAO developed a framework for building commitment (NAO, 2006a) with recommendations to improve engagement, suggesting that commitment and engagement are being viewed as the same concept.

In summary, engagement and commitment appear related.

Collaboration

Collaboration is what organisations do together and is closely related to cooperation (Huxham, 1993). Cooperation and collaboration both mean "something to do with working together," (Huxham, 1993: 5) with collaborative advantage (Kanter, 1994) arising from organisations pooling resources and expertise for a common aim, creating synergy. The NAO examined how experienced practitioners achieved significant improvements in the successful delivery of projects by developing collaborative relationships, concluding "strong collaborative relationships go hand in hand with good project performance" (NAO, 2006c: 5). This might be interpreted as the NAO equating collaboration with engagement.

A reason to discard Huxham's collaborative model is that it focuses on cooperative relationships that have complementary rather than shared goals. Public sector organisations require their consultants, contractors and suppliers to share the client's goals for the IT project, and collaborative relationships are about working together, rather than a supplier-client relationship. There is an overlap, but they are not the same concept because goals differ (Lacity and Willcocks, 2000).

Much of the academic literature on engagement stresses employee or work engagement rather than person with person engagement. Whilst consultancy practitioner literature advises on the importance of engaging with clients from a consultant's perspective, there is little on either the client's perspective of the need for engagement or what client-consultant engagement might be. It is not clear how engagement manifests itself, what its factors might be or what sort of engagement leads to effective projects.

2.1 An alternative framework

Engagement is rooted in relationships, but a conceptual framework is required for examining the formation of new relationships, explaining how productive work is done, how temporary communities of practice establish new knowledge and how engagement helps to create value.

In considering how value is created, Moran and Ghoshal argued that two generic processes are involved: combination and exchange (Moran and Ghoshal, 1996). They identified three conditions that must be satisfied for exchange and combination of resources to happen: the opportunity must exist to combine or exchange, parties must expect the available opportunities to create value and parties need motivation to combine or exchange. Nahapiet & Ghoshal (1998) identified a fourth condition: a combination capability.

It is therefore conjectured that engagement similarly involves combination and exchange, creating project value though creation of intellectual capital. In the context of temporary, IT projects where there are commonly no established relationships between consultants and clients, relationships need both to form and do productive work all at once. So, the following conceptual model of engagement focuses on two kinds of phenomena: (a) the conditions from which relationships emerge and (b) the engaged behaviours that may result. It is posited that certain conditions will influence the behaviours of the participants, allowing them to undertake what could be described as engaged behaviour. Therefore, the next section discusses extant literature to conceptualise in more detail possible components of engagement, recognising that some are interrelated.

2.2 Components of engagement

It may be useful to consider engagement in terms of communication that allows a process of emergent knowledgeability (Wenger, 1998: 237) since "communication is a complex process of human sense reading and sense giving (Walsham, 2002: 7) and thus a structure that allows communication of knowledge appears necessary.

Communication and knowledgeability are different but interrelated with some overlaps. Communication requires participants and an environment whereas knowledgeability is being able to acquire and use knowledge. Communication is about a context that allows communication of knowledge through participation and mutual networks. In IT projects, communication between project participants may be seen "as an analogue process that aims to share tacit knowledge to build mutual understanding" (Nonaka, 1994: 16-17). This process of communicating requires people, who send, receive and share information through dialogue and materials (Beers et al., 2006) shared in the context of the project, knowledge emerging from everyday activities (Orlikowski, 2002). Emergent knowledgeability is a process of engagement (Wenger, 1998: 237) within a context or situation. It implies people

need to know something that they want to use and apply in a new context, such as on a new IT project.

This discussion above identifies a need to consider engagement as composed of conditions that allow processes of engagement, and activities that might be engaged behaviours. These conditions and behaviours combine and are exchanged to the benefit of the project. From the literature, engagement appears to require an environment that allows communication, participants who have some expertise to contribute, and behaviours of sharing and sense making. It is conjectured that these may be components of engagement that interact. These components are shown in Figure 1: initial conceptual model for engagement, the conditions expressed as nouns and the behaviours as verbs.

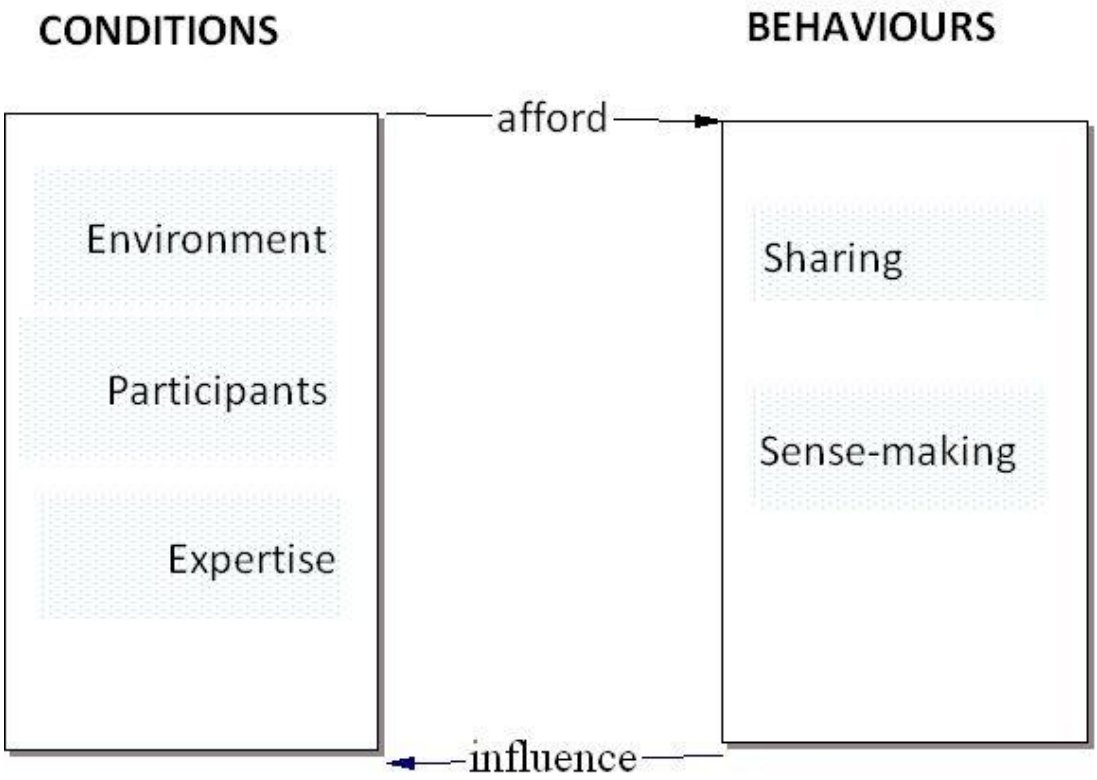

Figure 1: initial conceptual model for engagement

Communication, as a process of sense making and giving (Walsham, 2002), of people using dialogue and materials (Beers et al., 2006) and emergent knowledgeability (Wenger, 1998) may include components of a context or environment, participants who can share and make sense together, and expertise. These components will now be discussed.

Environment

Environment is the physical or virtual context in which people interact, including place, time and the material objects with which people interact. Nonaka described Ba (equivalent to "place" in English) as a shared space for emerging relationships, which can be a physical, virtual or mental space (Nonaka and Konno, 1998). A shared space for emerging relationships can be a physical, virtual or mental space (Nonaka and Konno, 1998). Skerlavaj (2006) found physical proximity enhances learning.

Context and materials provide affordance. Affordance (Norman, 1998: 9) is a design concept about what the structure of the context invites people to do. Orlikowski (2006: 465) suggests that "the materiality of infrastructures, spaces and technological artefacts structure […] knowledgeability" thus extending context to include other material objects. Materiality is the physical or virtual context in which people interact, including the material objects that they work with, such as site and documents as well as virtual or electronic environments, and intangibles such as time. Objects that are shared and sharable across different key parties are boundary objects (Carlile, 2002, Bechky, 2003, Star and Griesemer, 1989) and can help solve problems.

Context affords combination capability. Material objects "participate in the constitution of the social dynamics of organizations" (Bechky, 2003: 746). Beers' (2006) finding that using materials facilitated shared understanding raises expectations that materiality would ease and enhance sense-making behaviour and an appropriate context enhances participation.

Time, another aspect of environment, in combination with space, is crucial, to projects (Maaninen-Olsson and Müllern, 2009). Orlikowski, using a scaffolding metaphor, for knowing suggests that "Scaffolds are emergent [...] being built over time" (Orlikowski, 2006: 462) and such scaffolds of knowing afford a temporary stability (Orlikowski, 2006).

In summary, the aspects of environment in IT projects that are likely to be relevant to understanding engagement are shared space, time and material objects.

Participants

Participants are an essential component of communication because direct participation can be a driver for engagement (Marcum, 1999) and McMaster relates knowledge to participation (McMaster, 1996: 168). In addition, the literature on communities of practice suggests that widening the circle of participation helps to connect people and create communities, allowing access to key parties (Wenger, 1998, Wenger, 2000). Creating communities provides

networks and appropriable organisation. Participation assumes activity from people and anticipates value.

Trust

Trust has been defined as

> *" the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party"(Mayer et al., 1995).*

Trust was considered as a facet of the communications component of engagement because when assessing project stakeholder relationships, Pinto et al (2008), indicate that trust enhances critical stakeholder relationships and is valuable for managing inter-organisational relationships. Fukuyama (1996) relates trust to culture, considering networks as a means of trust generation that can save on transaction costs.

However, the concept of trust is not included in the initial model of engagement because it is assumed that trust cannot exist until the relationships are built. In fact, Saks (2006) has pointed out "trusting relationships evolve over time," so trust cannot be something that exists to start with. Secondly, trust does not seem to be a factor of great importance in the review of engagement literature. As trust seems to add little additional value to the framework, it is omitted in the interests of building a parsimonious model (Whetten, 1989).

Expertise

Expertise comes with people who have expert skills, or interpersonal skills or information or experience to share (Axelrod et al., 2004). A participant must have expertise or knowledge and contribute it. Expertise on IT programmes includes technical and management expertise. Technical expertise is the foundation for consulting skills but interpersonal skills are also needed to function with people (Block, 2001: 5). Engaged behaviour requires sharing expertise in both directions in a relationship and socialisation is a factor that helps the transfer process (Nonaka et al., 2000). With time, members become more active and engaged within a community, and assume the role of expert (Lave and Wenger, 1991). Learning systems require expertise and contributions to practice (Wenger, 2000).

Behaviours of engagement

The researcher proposes that conditions afford certain behaviours. These behaviours will now be outlined and discussed.

Sharing

Sharing sustains relationships as long as it delivers mutual value to participants (Wenger, 1998: 184). Increased sharing of tasks, facilities, language, experiences and commitments results in a sense of mutuality or independence (Cropanzano and Mitchell, 2005). All parties on a project need to participate: contractors, developers, users, client side and consultants, so participation must be mutual. Mutual engagement or cooperative interaction that members of communities develop together helps learning (Wenger and Snyder, 2000:8). Participants might share materials (Star and Griesemer, 1989), knowledge (Nahapiet and Ghoshal, 1998), and meaning (Wenger, 1998). Participants that share knowledge enable others to become more knowledgeable (Orlikowski, 2002).

Sense making

When sense making occurs, members of, and across, communities get clear understandings of each other and how issues are being seen, negotiating meaning together to make sense of each other's experiences and can co-construct knowledge (Lave and Wenger, 1991).

> *"Participation is always based on situated negotiation and renegotiation of meanings in the world. This implies that understanding and experience are in constant interaction – indeed, are mutually constitutive"* (Lave and Wenger, 1991: 51).

The diverse experiences that draw people to a project mean groups may not have shared representations, interpretations and systems of meaning so meaning must be continuously negotiated in order to get those shared understandings before key parties can co-construct knowledge (Lave and Wenger, 1991). Negotiation "conveys a flavor of continuous interaction" (Wenger, 1998: 53) where members engage in dialogue. Weick views "people interacting to flesh out hunches" (Weick, 1995: 133) as cyclic sense making behaviour.

Summary

Figure 1 implies that environment, participants and expertise are interacting conditions that afford behaviours of sharing and sense making. Hence, the arrows in the figure imply actions that might arise from the conditions, not caused by the conditions, and allow the possibility that behaviours influence conditions.

The resulting conceptual model is simple enough to provide themes and deductive codes for engagement, and this model, used as the starting point for the analysis allows exploration of interactions between conditions and behaviours to help understand engagement.

The research questions concern what behaviours are required for engagement, which conditions are important for producing engaged behaviours, and how conditions and behaviours interact.

3 Methodology

This study used a case study design that enabled multiple approaches to the research (Hartley, 2004: 325, Yin, 2003). Methods of data collection included observation, documentation and in-depth semi-structured interviews with key persons involved in the case projects, thus allowing the researcher to probe the particularity of the phenomenon under investigation (Stake, 2005: 447). The interviews were designed to elicit different perceptions of engaged relationships with each other and examination of printed and electronic documents was used to provide further insights.

A convenience sample of five cases was obtained of IT developments that were similar in terms of features such as public sector, having IT requirements, involving IT projects or programmes and using consultants, but they varied in size, budget, and number of people involved, procurement and systems development, the features shown in Table 1. This variety allows a spread of examples in different settings, helping to support emerging conceptual insights (Yin, 2003).

Case	A	B	C	D	E
Sector	Island government	Island government	Local government	Central government	Non-departmental public body
Requirements	IT strategy	Systems development	Appraisal of IT options	Systems development	Systems analysis
Programme or project	Programme	Project	Project	Programme	Project
Budget	Unknown	£450,000	£27,000	Unknown budget, but the programme was worth £30,000,000	£30,000
Number of people involved	Up to sixty in the IS department, at least one consultant, six or more contractors	Four or more users, plus unknown number of contractors, plus at least two consultants	Three clients plus the consultant's informants	Up to forty suppliers plus contractors plus client staff	Five clients plus the consultant's informants

Case	A	B	C	D	E
External professionals	Consultants, contractors	Consultants, contractors	One consultant	Suppliers, contractors	One consultant

Table 1: features of the case studies

The studies included two cases where the project required a single consultant, brought in for advice. Three other cases required software development and involved contractors, and suppliers or consultants.

3.1 Data Analysis

Analysis started as soon as data was obtained, and then continued iteratively as cases were written, so that writing formed part of the analysis (Richardson, 2005). The research process initially required developing codes deduced from the theoretical literature, for example, knowledgeability, that allowed the creation of an initial template for analysis of engagement. Thematic content analysis, using NVivo software, to identify key themes was carried out on the transcribed interview recordings (Braun and Clarke, 2006, King, 2004, Miles and Huberman, 1994) and documents.

The initial classification system related to the interview questions with themes for analysis from the proposed model of engagement, as shown in Figure 1.

As the framework developed, the coding structure was modified from the initial deductive coding and a more detailed tree structure of themes of engagement emerged. This approach led to template analysis, which requires development of a coding template that acts like a pattern. Such a pattern helps to organise and analyse qualitative data by themes, emphasising the use of hierarchical coding, such that themes are divided into sub-themes (King, 2004, King, 2008). The deductive codes, combined with data that had been collected from cases were used to extend the template, thus adopting two alternative routes (Waring and Wainwright, 2008) to analysis though both inductive and deductive coding.

4 Findings

The section starts with an analysis of emerging behaviours in order to identify which might be considered engaged behaviours. It then identifies conditions important for producing those behaviours and finally discusses how interactions between behaviours indicate the self-reinforcing nature of engagement where the emerging behaviours create additional, similar

behaviour-creating self-reinforcing cycles. Figure 2 shows conditions, emerging behaviours and the interactions between them that analysis of the case studies identified.

4.1 Behaviours required for engagement

Taking the lead from the literature, the interview questions asked about relationships and shared knowledge. Three behaviours in particular were noted: sharing, and sense making, which led to adapting; behaviours that may be sequential or iterative.

Sharing

Sharing entails communicating and cooperating, being a dialogical process "in which one builds concepts in cooperation with others" (Nonaka, 1994: 25). For instance, in case A, the consultancy CEO remarks on the need for business and information system departments (ISDs) to cooperate in order to focus attention on shared business aims, but

> *[the manager] doesn't work for me - he works for DoT so it's not always an easy conversation to have.*

Nonaka (1994) considers that it is hard to communicate tacit knowledge and that the process of creating tacit knowledge is through shared experience or socialization. Sharing time and space through board meetings is one way to communicate, though some informants thought that informal time and space might achieve this in a better manner:

> *We have lots of boards, whether they are really good ways of communicating and will get the business done, whether somebody actually says what they really need to say at the time. I think that's more about having one-to-ones with individuals and a cup of coffee probably but the business is, you know... when you actually sit in front of the public accounts committee it's there and the fact that I had coffee over there with Liz maybe doesn't always resonate so well in terms of formal meeting. [Case D, client]*

However, as the above quote shows, a disadvantage of informal communication in the public sector is the consequent lack of a trail of accountability. Communicating is necessary for engagement, but on its own is not sufficient, and may not be an engaged behaviour.

Sometimes, sharing seemed risky and participants required trust to share. Although, it is not absolutely clear which came first, trust or sharing, what seems to happen is that the external professionals, whether consultants or IT suppliers, first display credible performance, and that generates trust from the client, who then feels able to make the effort to share.

Sense making

When participants pick up cues of what is really happening, it is then also easier to make sense of others' decisions. Of interest, is the characteristic of enactment (Weick, 1995: 30-

38) that implies that participants have control of and can alter their environment. In these case studies, participants brought new artefacts into the environment, but they also changed participants and expertise, thus exercising agency (Orlikowski, 2006, Sturdy, 1997, Fincham, 2002). Hence, sense-making leads to adapting because having made sense of what is going on, new expertise is acquired, participants changed or adapted their environment.

There seems to be a sequence that sharing happens before sense making. Client-consultant interaction involved clients explaining requirements, and suppliers understanding and asking for elaboration when necessary:

> *"Is that what you meant? Absolutely. But, I want the bit map over there and I want the rendering to be on the screen, okay. Well, we'll come back with the next module. Great." [Case A]*

This process is negotiation of meaning, when participants ask for rephrasing and clarification to check each other's understanding, then suppliers can adapt and develop the software product.

In case D, the clients initially could not make sense of the supplier's values until they shared time and artefacts, and generated enough trust to share more, but these clients had difficulty articulating their requirements, maybe not understanding what knowledge they needed to share with their supplier. This concurs with academic literature that recognises difficulties in forcing people to share tacit knowledge (Janowicz-Panjaitan, 2009, Kellogg et al., 2006). The data suggests that sharing and sense-making behaviours iterate in attempts to address these difficulties.

In summary, sense making is central to engagement, cycling with sharing, requiring more sharing in order to make more sense and sharing materials helps sense making take place, which allows a smoother project process.

Adapting

Adapting behaviour emerged as a consequence of sharing and sense making behaviours, bringing its own consequences, such as changing expertise, increasing knowledgeability and generating more sense making. For example, in case D, three key parties had three separate plans for the one project. However, they did not adapt to share the plans until they shared time and space, beginning to trust until eventually they realised each party had a different plan. At that point, they shared plans, made sense of what they were sharing and adapted to create one shared plan.

Adapting seems to be a deeper form of engagement that only happens because of sharing and sense making. It is added to the developed model shown in Figure 2.

Summary of behaviours

Three emerging behaviours have been noted: sharing, sense making and adapting. First, sharing seems to create trust. Secondly, sharing allows sense making, and thirdly, adapting seems to be a consequence of sharing and sense making.

4.2 Conditions important for producing engaged behaviours

As part of a qualitative data analysis process, descriptive matrices (Nadin and Cassell, 2004) were used to augment the coding analysis and to display summaries. Table 2 summarises conditions that analysis of the case studies identified. This summary, indicates categories of the conditions that emerged from the analysis.

Environment

Categories of environment included place, artefacts and time, and emerging categories of culture and norms. Places were face-to-face office and informal spaces, or electronic spaces. Sharing a space such as an open-plan environment allowed behaviours to emerge.

Shared artefacts of importance included documents, methodologies, blogs or a logbook. documents that were not shared, such as three different plans hindered engaged behaviours.

Formal and regular meetings were often part of the project methodology, but even more important were liminal transitional time-places (Sturdy et al., 2006). An example of an informal meeting time was in case D, when the engagement lead from the supplier met the group commercial director for lunch and a chat. In another case, a consultant and a manager accidently met in a medical waiting room, and took the opportunity for discussion.

Environment	
Physical environment	Offices, open plan offices, meeting rooms, cafe, corridor, off-site
Electronic environment	Blog, SharePoint
Shared artefacts	Project documentation, log book, blog, culture, methodology
Time	Time span of the project, and time to meet, whether formally or informally
Other	Culture is an intangible artefact, not necessarily shared, but the different parties might make efforts to understand the differences. Governance was shared. Governance and culture appear to be influential but may not be part of the environment.
Participants	Issues: choice of participants in case B, change of participants in case D, interaction of participants in cases B and C.
Specialists	Business, consultancy, procurement, technical (e.g. software development or systems analysis), management, interaction
Boundary spanners	Boundary spanners are people who specialised in more than one area such as project management and consultancy, or business and management, e.g. Case A: consultant, e-services manager, ISD CEO Case B: consultant (PM) Case C: consultant Case D: supplier account director, supplier engagement lead, client IT delivery director, client commercial director, Case E: consultant, head ISD, architecture manager, PM.
Expertise	
Managerial skills	All cases showed managerial skills from participants from ISD and the business side
Technical skills	In all cases, ISD participants had some technical skills, but liaised with the business side, often apparently as an intermediary between very technical software developers and business experts.
Consultancy skills	In cases C, D and E, listening was important for consultancy.
Business skills	Clients understood public sector business, had years of experience, e.g. Case A: tester Case B: licensing officer user, BSM Case E: architecture manager's evidence of organisation's culture
Project skills	Project managers in cases B, and E had project management skills, but also demonstrated softer skills when they talked about the business participants that they worked with and influenced. They seemed to span functional boundaries, understanding technical as well as business issues.

Table 2: components of conditions

Expertise

The analysis indicates that various types of expertise were contributed including: technical skills, business knowledge, software development skills, analysis skills, public sector IT

experience, understanding of strategy and vision, client and consultant participants differing in what expertise they contributed. In particular, consultants bring focus, and a counter-culture.

> *They bring focus they don't have any other tasks to do. This is their job. They have, they bring expertise – they're all experts in what they do and they bring a level of counter-culture to it. They [...] want to be part of the team but always in a different way, so you have your counter-culture [Case A, consultant].*

The quality of knowledge that participants bring, together with participants' willingness and ability to contribute it is necessary (Ostrom, 1996) for emerging behaviours. Demonstrated expertise influences perceptions of reliability and credibility and engenders trust.

Participants

To be able to contribute expertise, it is necessary to participate, and participants need to be the appropriate participants who can contribute required expertise. An interviewee indicated that incompetent supplier participants would be an issue.

> *There were one or two people who were brought in who were not competent. It became obvious within three days. So they [the suppliers] were told, "we think there's an issue here". That same afternoon, they took them off. The following day, they were replaced [client]*

In case D, there was evidence that clients had not participated:

> *Clients weren't, when they were working on projects, they'd never be on the project boards. "When we have the project boards, then we'll tell you what to do and we're not going to share the view that..." all the discussions, the rationale, which can even be instructions and, you know. [Case D, client director]*

This is an odd assertion, because PRINCE2, which is the government methodology, requires a client representative on the project board, and lack of client participation was symptomatic of initial lack of engagement. It seems reasonable to assume that a change in one component of the model might affect other components, and when participants changed, then the behaviours changed

Overall, clients initiated interactions with each other, and consultants interacted both with clients and with each other, becoming accountable to each other for their actions (Billing, 2009). However, occasionally clients missed opportunities to interact with consultants, as shown in Table 3. The case C IT manager had not realised she had given the consultant a get-out clause for part of the work, and the model implies that had she initiated further interactions, her organisation might have gained more value from the consultant.

(NAO, 2006a)	With client staff on project	With consultant staff on project
Actions clients take	✓ .... in order to ensure client staff are committed to the project ✓ Positive actions (cases A,B, C, D2 & E) ✓ Be clear about the aims of the overall project ✓ Positive actions (cases A,B, C, D2 & E) ✓ Prepare the ground for the use of consultants ✓ Positive actions(cases C & E) ✓ Maximise value employees can add ✓ ✖ some problems in B and D1	✓ …. in order to ensure consulting staff are committed to the project ✖ Opportunities sometimes missed in cases C, D1 ✓ Exchange information with key suppliers ✖ Opportunities sometimes missed in cases B and D1
Actions consultants take	✓ Actively involve client staff ✓ Positive actions (cases A,B, C, D2 & E)	✓ Change the attitude of consultants towards clients ✓ Positive actions (cases A,B, C, D2 & E)

A circle = neutral action, a tick ✓ = positive action, a cross ✖ = negative or lack of action.

Table 3: participant actions for engagement

Deliberate management of participants can result in a change in components of the environment and then a change in behaviours.

Summary of conditions

The conditions allow behaviours to emerge, as indicated by the arrows 1,2 and 3 in Figure 2. The environment encourages sharing, participants participate in sharing, contributing expertise that helps sense making. Participants can adapt their own environment, which indicates interaction between the behaviours of sharing, sense making and adapting. Conditions afford behaviours, but do not cause them, merely allowing engaged behaviours to take place.

4.3 Interaction between conditions and behaviours

Emerging behaviours arise from combinations of the conditions. Conditions and emerging behaviours interacted in combination to influence each other, so that cycles of actions were set in motion between participants. Also behaviours interacted, the interaction between sharing and sense making being of particular importance, as indicated by arrows 4 and 5 in Figure 2.

Sharing and sense making

By sharing materials in their environment, participants made sense of each other's requirements. One of the characteristics of sense making that Weick (1995) identifies is social contact. Through social contact, technical contractors and consultants elicited information from clients.

> *We're trying to get the requirements for this tax system and the way that we're doing it is I'm mocking up screens as to how things could look, and then I'll go to a meeting with them, sit down for two or three hours [...]. I'll do some more mock ups for the next meeting and then round and round it goes [Case A, contractor]*

The comment suggests a sequence that first the participant identifies knowledge required, then creates screens as artefacts to share with the client in a further meeting, implying gaining further knowledge of requirements then iterates through the process again the iteration strengthening the interaction.

Shared boundary objects facilitate sense making, such as the reports being created for the consultancy projects of cases C and E, and a new interactive blog in case D. These times, places and objects allowed participants to share and build knowledge iteratively, not only for the project but also of each other's objectives.

> *Try and hammer it out and agree on something and then it just repeats [Case A, contractor]*

This quote indicates the effort and repetition required to agree something.

Better relationships made it easier for participants to persuade each other of the relevance of their views, and sharing boundary objects helped participants to make sense of views.

This interaction between sharing and sense-making seems particularly important, because of the iteration between them. However, another important feature of these cyclic behaviours that emerges is the growth of trust.

Trust was not included in the initial model of engagement as it was assumed that trust could not exist until relationships were built, so could not exist in a situation where participants had not known each other before. Yet, as the projects were analysed it appeared that the dynamics that develop as sharing leads to sense making include trust. "Trust requires the presence of an element of risk and mutual interdependence" (Arino et al., 2001: 110). If project participants recognise mutual interdependence, then they may be able to act in each other's interests, and this reduces time required to build relationships (Arino et al., 2001). The case studies suggest that trust was essential in order for people to share.

> *What really makes these types of relationships work, because I'm dependent on [Supplier] to deliver a service, is the trust and the ways of working with your supplier [Case D, client]*

Organisational culture sometimes needed changing in order to get the trust throughout, and in case D, that was not an easy change.

> *I've worked in a number of programmes in the public sector, and it's been very difficult to get that mutual respect and honesty, and there's always been a mistrust on either side, [Case D, supplier]*

That sentiment echoes those of the consultancy CEO in case A. Openness was also necessary to build trust.

> *What's critical to the relationships is that we get it right, is that it's open [...] As soon as you lose that trust, as soon as you lose that ability to be absolutely open, [...] you're dead in the water [Case A Consultant]*

In some environments being an outsider helps build trust.

> *In a political environment, where the project you're working on, people might have a mistrust about that project from their viewpoint, and sometimes I use the fact that I'm an external consultant to my advantage [Case E, consultant]*

The clients might mistrust management's reasons for the project, suspecting internal politics, but trust the independence of an external consultant. Another apparent difficulty is that it is possible to build trust with only a limited number of people and the supplier engagement lead of case D, suggested that not everyone could build trust.

> *Unfortunately, you don't have that many people who can take it up a level, and really engage collaboratively and get, and build that trust. You have to start with someone, you have to start by showing you're building credibility, and that doesn't come overnight, [Case D, supplier]*

This is implies that sometimes it is necessary to change participants in order to find the right people with whom to build trust.

Credible performance was necessary to build trust, as the following users said.

> *You build up a lot of trust because they're experienced and they know what they're talking about [Case B client user]*

The consultant or supplier initiates this trust building behaviour, not the client. Once the performance is proved, then the relationship gets easier, because the client trusts the supplier. Building trust draws out sharing and sharing draws out trust, so there is a cyclic process of self-reinforcing behaviour (Vangen and Huxham, 2003) and indicated in Figure 2.

In summary, performance as expertise that is contributed to sense making seems to be a condition that allows trust to emerge; the parties expect the other will perform a particular action (Mayer et al., 1995). Trust can take different forms, meeting expectations of delivery, or providing an independent view.

Sense making and adapting

Sense making and adapting addresses the problem of the struggle that the business departments have to understand how IT strategy can support business strategy. IT strategy ought to support business aims, thus providing a competitive advantage (Porter and Millar, 1985), but understanding strategy seems to be a problem for some public sector business departments. In both large systems development case studies, A and D, the suppliers or consultants commented that the business clients did not seem to realise that their systems development ought to further the overall business aims.

> *We're all talking IT perspective about strategy yet the departments can sometimes struggle to understand strategically where they're going and that's clearly a problem [Case A, consultant]*

Adapting behaviour addresses the problem of a participant who cannot make sense of what another participant is explaining, so the other participant needs to adapt behaviour or environment in order to persuade and influence. Adapting follows sense making as consultants adapt to the local culture. Hence, in case D, the supplier adapted its performance after discussions with the client made expectations of both parties clear, that is, they made sense of each other's expectations. Sense making happens before participants adapt. Solutions require time, discussions and effort that demonstrate commitment.

Once sharing and sense making allow adapting, then there is the ability to alter conditions, which alters the behaviours, which in turn can alter the conditions, and implies that engagement is a dynamic, self-replicating phenomenon. Conditions seem to afford certain behaviours that may instigate other behaviours, creating an autopoietic system (Maturana and Varela, 1992: 43) where conditions and behaviours become inseparable.

Engagement seems to create and strengthen working relationships; participants can alter conditions to produce better relationships, as suggested by arrows 6, 7 and 8 in Figure 2, and thus control whether further engagement emerges or not, which implies that if senior management want engagement, then the behaviours to encourage are sharing and sense making. In a leadership role, this allows managers to assess participants' engagement, and

decide what can be done to improve it. Thus, participants have control over whether engaged behaviour emerges or not.

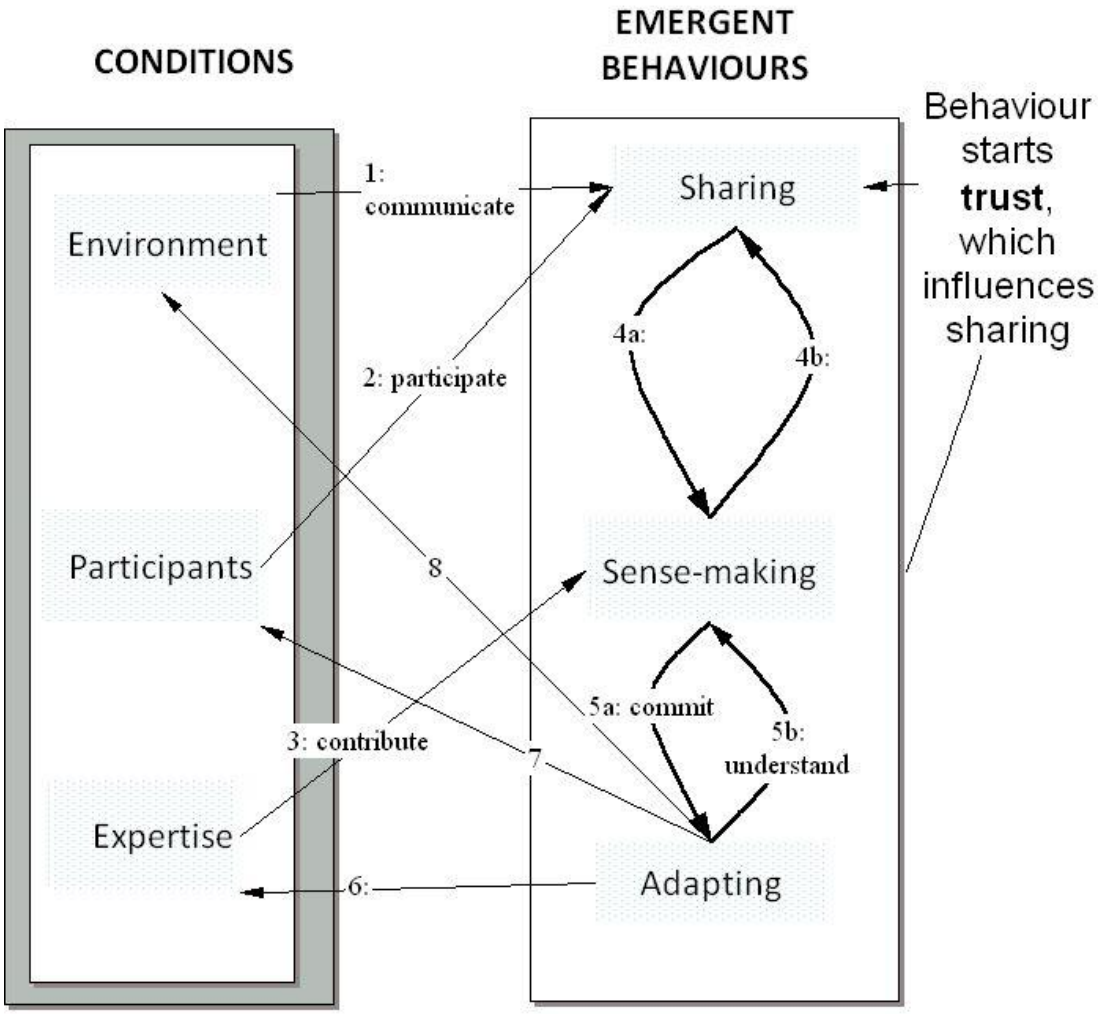

Figure 2: developed model

4.4 Summary of behaviours, conditions, and interactions

Engagement needs sharing and sense making behaviours that lead to consequential adapting. Senior management and the external consultants are mediators who can help the process by navigating through internal politics, the consultants bringing a counter-culture that helps mediate between clients so that they continue engaged behaviours that change conditions.

These conditions of participants contributing expertise in a shared environment are necessary although not sufficient on their own, although liminal and informal time-spaces were highly important for sharing behaviour and creating trust.

5 Conclusions

This paper has identified components of the phenomenon of engagement in public sector IT projects, showing that crucial behaviours are sharing and sense-making that lead to adapting. Conditions in combination afford (not cause) behaviours that emerge when project participants interact with their environments, and with each other. A practical implication of these findings is that informal time and space is required to initiate sharing between participants.

This research contributes to practice by providing a model that draws attention to components that help enactment of engagement, and that practitioners can use to address issues of engagement between participants on IT projects.

There remains a question of who is responsible for engagement, the model implying a requirement for leadership. If developing a software product, it seems better for participants to recognise their similarities in order to work together and achieve their mutual goal. Outsiders can bring a counter-culture that balances the client's culture, and so if providing strategic advice, it seems better for consultants to emphasise their counter-culture. Whatever the goal, it must be shared.

This research is original in looking at how clients and external IT consultants produce project work effectively. In particular, this is the only academic empirical research as far as the researcher is aware into engaged relationships in public sector IT. Some researchers have looked at consultants in the public sector (Seddon, 2008, Fincham et al., 2008) and some have looked at engagement in learning situations (Handley et al., 2006b, Handley et al., 2006a, Handley et al., 2007) but few, if any, have looked at the combination of engagement and consultancy on public sector IT projects .

A factor that limited the research was access to case study organisations in the public sector, case studies being obtained through clients who were happy to let the researcher in. Consequently, all the case studies are of projects where the clients are pleased and proud of the process and outcome. Few organisations will admit to failure, so it was unsurprising that organisations amenable to opening themselves to the researcher believed they had a successful project. Further work needs to be done to establish how engagement manifests in less successful projects.

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