18 CO-ORIENTING THE OBJECT: An Activity-Theoretical Analysis of the UK's National Program for Information Technology

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Abstract *This paper contributes to research on the success and failure of information and communication technologies (ICT) by focusing on the learning processes associated with the development of new ICT projects and the way they challenge and extend familiar organizational limits. Drawing on recent developments in activity theory, we provide an analysis of oral and written evidence taken before a House of Commons Committee in relation to the UK''s National Program for IT (NPfIT). Our preliminary findings point to the ways in which new objects of activity such as the NPfIT can emerge from the meeting of contrasting forms of discursive activity, as well as how new policy insights can be translated into new organizational practices. We conclude with some implications for further research.*

Keywords ICT success and failure, organizational limits, co-rientation, rhetorical strategies, activity theory

1 INTRODUCTION

This paper contributes to organizational analyses of success and failure in the development and implementation of major information and communication technology (ICT) projects (Brown and Jones 1998; Fincham 2002; Sauer 1999; Wilson and Howcroft 2002). A key theme emerging from this literature is that, given the scale of such projects

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and the stakeholders involved, almost any project is potentially vulnerable to the attribution of failure. Despite their flaws (e.g., over-run time scales, over-budget spending, poor consideration of user needs, etc.), however, many ICT projects are still deemed a success (Wilson and Howcroft 2002).

To overcome this paradox, we argue that, rather than focusing on critical success factors and causes of failure, it is more helpful to focus on learning processes associated with the development of new ICT projects and the way they challenge and extend familiar organizational limits (Farjoun and Starbuck 2007; Starbuck and Farjoun 2005). In exploring these dynamics we use the notion of *co-orientation* (Taylor and Robichaud 2004). Co-orientation points to the ways by which, through discursive activity, different groups and individuals work toward new understandings of their shared object of activity and of each other's roles and contributions. Such analysis needs, we suggest, to be located in a broader study of the cultural-historical and material mediations (Engeström 1987, 2004).

We develop this argument by drawing on a recent Committee of Public Accounts (CPA) report on the UK's National Program for IT (NPfIT). The focus is on the ways in which the CPA interrogated project leaders, and the responses of the project leaders to the committee's cross-examination. Our preliminary analysis suggests some initial implications for our understanding of ICT and changes in service organizations which point to further research priorities. Key issues include the ways in which new objects of activity can emerge from the meeting of contrasting forms of discursive activity and ways in which new policy insights can be translated into new organizational practices.

In the following sections, we outline the background to the case study and describe our methodological and analytical directions in more detail. We then provide a brief discussion of our initial analysis of the CPA's and the project leaders' activities of co-orientation, as well as the practical implications of those. We conclude with a discussion of some directions for further research and the expected contributions of the analysis we are developing for large-scale ICT development and changes in service organizations

2 BACKGROUND TO THE CASE STUDY

In 1998, the UK National Health Service (NHS) Executive set a target for all NHS trusts to have electronic patient records in place by 2005. The central vision of the NPfIT was to standardize the previously fragmented ICT delivery in all NHS organizations by introducing an integrated system (Brennan 2005; Currie and Guah 2007). However, the complexity of technological innovation and funding needed for this national program soon made it the biggest public ICT project ever undertaken, with considerable implications for the widespread and timely implementation of the different applications proposed. The complexity of the NPfIT can be summarized into several challenges including the turnover of senior responsible owners (project leaders); doubts about the capability of ICT suppliers to meet the program's demands, leading to some suppliers breaking their contracts; repeated announcements of delays with considerable cost implications and disruption of work to different NHS trusts; implementation problems in hospitals with implications for patient care; poor engagement of clinicians leading to their alienation; restructuring of the program; constant, critical commentary from the press and the CPA;

and, finally, the resignation of the director general of NHS ICT in June 2007 (Currie and Guah 2007; Sauer and Willcocks 2007).

In short, the national program has been moving slower than expected, with deployment plans becoming increasingly unreliable, and responsibility and accountability constantly disputed. The NPfIT has gradually become an object of great dispute and those involved in its development have found themselves struggling to defend their accountability and, in consequence, their project identity, while those responsible for scrutinizing the performance shortcomings demand new approaches to projects of this kind.

3 METHODOLOGICAL AND ANALYTICAL DIRECTIONS

The research draws on data from the oral and written evidence presented before the CPA assigned to examine "the progress made by the Department of Health in implementing the Programme (NPfIT)" (HC 2007, p. 4) on the basis of a National Audit Office report (NAO 2006). The CPA is appointed by the House of Commons to examine "the accounts showing the appropriation of the sums granted by Parliament to meet the public expenditure" (Standing Order No. 148). Despite the general duties of the CPA, however, a closer examination of the evidence in the CPA report suggests that the meeting between the CPA and the NPfIT project leaders was more than a routine activity. Recent articles (Collins 2006; Hoeksma 2006), as well as oral (HC 2007, pp. 30-54) and written evidence in the CPA report (ibid, pp. 136-151), questioned the validity of the NAO report on the grounds that it "failed to ask key questions and to explore crucial evidence regarding [the] NPfIT" (ibid, p. 137); the NAO report was instead found to paint a very positive picture of the project's progress. To this end, the CPA meeting had a distinct agenda in questioning (and redefining, as we will argue later on) the limits of the NPfIT as those were presented in the NAO report.

The participants to the meeting included the CPA and the NPfIT project leaders. The CPA consisted of members of parliament, assisted by the NAO Comptroller and Auditor General and the Treasury Officer of Accounts from the HM Treasury. NPfIT project leaders included the acting chief executive of the NHS; the director general of ICT; the director of ICT and Service Implementation for the NPfIT; the director of Clinical Safety for the NPfIT; a primary care medical director for one of the NPfIT applications; a national clinical lead in the NPfIT; and three representatives from the Department of Health.

To develop an understanding of the evidence presented at the meeting, we asked the following questions: (1) How do different groups and individuals co-orient themselves both to an ICT project and to each other through their discursive activities? (2) What are the implications (products) of this co-orientation?

Our analysis, thus, builds on two themes. First, we undertake an analysis of the oral exchanges at the meeting. This work starts with the contention that discourse is structured in a way that not only describes the world in which it is part, but also categorizes it by bringing phenomena into sight (Parker 1992). We have concentrated on an analysis of the intentions by which the NPfIT has been and is being constructed, exploring ways in which the CPA and those presenting evidence to it co-orient themselves both to each other and to the project under investigation (Taylor and Robichaud 2004).

Second, we are assessing the likely implications of the CPA's analysis for the way such projects should be managed in the future. This work involves analysis of how those involved in the organization and execution of such projects come to collectively produce implications for those projects through their discursive activities. In a recent article, Engeström (2004, p. 97) argued that work meetings "typically not only reflect on the particular issue or case, they also include consequential decision-making. In other words, they are both reflective and practical." He added that, "such settings offer opportunities to capture how history is made in situated discursive actions" (p. 97). The meeting between the CPA and NPfIT project leaders was less dialogic and more adversarial in nature than the meetings to which Engeström was referring. Their aim, however, was the same: to be both reflective and consequential.

In summary, in analyzing large-scale ICT development and changes in service organizations, we focus on the whole activity system within which different groups and individuals try to co-orient themselves. The notion of the activity system is a way of conceptualizing distributed agency around particular objects of activity. These objects of activity, such as the NPfIT, are understood to be collective projects that are stabilized in particular communities of practice through a negotiated set of tools, as well as recognized procedures and a division of labor (Engeström 1987). Thus, by focusing on the whole activity system within which different groups and individuals try to co-orient themselves, we approach micro–macro instances of change as two sides of the same coin. For example, the (micro) discursive exchanges between the CPA and the project leaders (their co-orientation activities) later produce (macro) implications for policy on the organization, implementation, and management of the NPfIT, the object of activity. In other words, scale is enacted. By focusing on the object of activity we can develop an informed understanding of how this enactment unfolds and with what implications for both the object and the individuals participating in its co-orientation.

4 PRELIMINARY ANALYSIS OF ACTIVITIES OF CO-ORIENTATION

Our preliminary analysis explores the activities of co-orientation of the CPA and NPfIT project leaders, as well as the practical implications of the reforms they have produced. Table 1 provides a summary of key themes in the oral evidence presented to the committee. As shown in the table, questions raised by committee members included:

- How is the central procurement of the project affected by local needs?
- Is the project linked to best practice?
- How competent are contractors and suppliers?
- Is the confidentiality of patient data being addressed?
- Are key users being engaged?

Project leaders responses to these questions included assertions that "procurement is national but implementation is local," "best practice elements have been incorporated in the efforts," "participants' competence is monitored." "patient confidentiality is addressed," and "clinicians have plenty of opportunity to get involved." For further details on key themes discussed at the meeting, see Table 1.

Table 1. Key Themes from the Oral Evidence on the NPflT

Key Questions Raised From Committee Members	Responses (From Project Leaders)	Co-Orientation of the NPfIR*	Practical Implications (New Forms of Discursive Action)*
1. **How is the central procurement of the project affecting local needs?** "Do you believe that there is one standard UK system that can deliver what the project is trying to deliver?"(MP)	**Procurement is national but implementation is local.** "Unless you test whether it will fit, how do you actually know" (DoH representative).	**Unclear responsibility and accountability of local implementation**	**Chief executives and senior management in the NHS to be given authority and resources for local implementation**
2. **Is the project linked to best practices?** "Are you doing something that no other country apparently is attempting?" (Chairman)	**Best practice elements have been incorporated in the efforts.** "It is at times uncomfortable being in a leadership position" (Director general of IT).	**Signs of possible inhibition on innovation, including the implementation of best practices**	**The Department of Health to modify the procurement process so that NHS trusts can develop their own strategy on system selection and implementation**
3. **How competent are the contractors/ suppliers?** "Is the network of suppliers robust enough to withstand the pressure that you are putting on them?" (MP)	**Their competence is monitored.** "There is a balance to strike between the inefficiency of having lots of suppliers and the efficiency of single supply and we are 3 years in a 10 year program" (Director general of IT).	**Suppliers' capacity to deliver unclear**	**The DoH to commission an urgent independent review of the suppliers' performance**
4. **Questions around (a) whether the project is meeting proposed time scale; (b) the total cost of the project; (c) the return on investments (ROI) made on the project.** "…the risk is in the timescale rather than the costs" (MP)	**(a) Some systems have already been installed; suppliers are challenged by the time scale; (b) largest and most ambitious program in the world; (c) currently unable to comment on ROI.** "Yes, because we have transferred finance and completion risk for the most part to the suppliers" (Director general of IT)	**(a) Electronic patient records module delayed extensively; (b) overall expenditure vague; (c) unclear ROI**	**(a) The DoH to develop more robust timetable with suppliers; (b) the DoH to establish more detailed estimations of the total costs and benefits of the project; (c) the DoH to commission an independent assessment of the business case so far**
5. **Is the confidentiality of patient data being addressed?** "How are you going to make sure that staff follow the rules so the security and confidentiality of patients' records is protected?" (MP)	**Patient confidentiality is addressed in the system.** "We deal with that at the design stage…and then we shall be monitoring when things are in practice" (Director of Clinical Safety)	**No concluding co-orientations drawn****	**No explicit discursive actions formulated, but possibilities for emerging trust and governance issues****

Key Questions Raised From Committee Members	Responses (From Project Leaders)	Co-Orientation of the NPfIR*	Practical Implications (New Forms of Discursive Action)*
6. **Are the clinicians (key users) being engaged?** "Do you believe you do have a buy-in from clinicians?" (MP)	**Clinicians had plenty of opportunities to get involved.** "I will just say that GPs are very, very shrewd customers" (Director general of IT)	**Possible resistance from clinicians due to poor engagement**	**The Chief Medical Officers within the DoH to review whether the project has met the needs of the clinicians**
7. **How effective is the project's leadership?** "[There have been] changes, all of which took place in a very short time at the leadership level of this project. Why on earth was so much mobility and lack of continuity permitted?" (MP)	**Leadership has been effective in places but due to changes in the DoH and the scale of the project there have been some shortcomings.** "There was continuity through [the current Director general of IT] and his team on the procurement....[However] you are well aware of the changes which have taken place in the DoH over time." (Acting Chief Executive of the NHS)	**Focus too narrowly on delivery of ICT systems at the expense of broader processes of business and organizational change**	**The DoH to avoid further changes in leadership to improve links with clinicians and efforts to improve NHS services that the project intends to support**
8. **Is the report from the National Audit Office valid/true?** "Sources suggest that the NAO was ground down in a war of attrition with [project leaders] who fought a dogged rearguard action to keep back criticisms." (MP quoting a media article)	**The NAO Report is factual.** "I was not ground down…I bring my work to Parliament and I am satisfied that what I have brought to you is work of high quality, done by my staff." (NAO Auditor General)	**No concluding co-orientations drawn*** **	**No explicit discursive actions formulated*** **

KEY: Bold text represents general themes, whereas normal text represents individual responses.
*These are drawn from the formal conclusions and recommendations made in the report (HC 2007, pp. 5-7) and explored in more detail in the oral evidence.
**Patient confidentiality was brought up in the oral evidence (HC 2007, pp. 31-32) but not mentioned in the formal conclusions and recommendations.
***As with the issue of patient confidentiality, the validity of the NAO report was brought up in the oral evidence by all CPA members (HP 2007, pp. 30-54) but not mentioned in the formal conclusions and recommendations. This interest came out of considerable written evidence provided by various NHS staff, who questioned the findings of the NAO report, as well as the methods by which those findings were drawn (HC 2007, pp. 136-151).

In an initial analysis of the data, we found the project leaders' discourses to be implicated in two particular rhetorical strategies, namely, *synecdoche* and *metonymy* (Corbett 1990; Putnam 2004). Synecdoche is a strategy of representation, a means of expanding the meaning from a part to a larger whole or vice versa. Metonymy is a strategy of reduction, a means of presenting events, situations, problems, etc., in a way that requires alternative meanings and new patterns of association.

For example, using *synecdoche*, project leaders argued that responsibility as to the delays in the delivery of the NPfIT could not fall solely to individual actors, but to teams and their interconnected activities. Using *metonymy*, project leaders argued that, despite some shortcomings in parts of the project, other parts were extremely successful.

Further, these two rhetorical strategies were often used in an intertwined fashion, which made the task of the CPA to go after the evidence even harder. In one exchange, for example, the chairman asked why there had been no deployments of patient administration systems in the 172 hospital trusts, only to be provided with an answer by the director general of IT about the deployment of other systems in 33 trusts in the last 24 months (HC 2007, p. 29). This response points to a combination of synecdoche and metonymy as the director general of IT tried to convince the CPA that not only did they need to evaluate developments in the NPfIT as parts of a greater whole, but also that delays to the program were only relative in the context of the overall time frame of the program.

Certainly, the CPA itself employed its own rhetorical strategies in an effort to align their task to the NPfIT with the broader policy context of the NHS. In this sense, the CPA's preferred rhetorical strategy was that of persuasion toward compliance to outcome-based management. In classical rhetoric, resource deficient efforts to persuasion (i.e., when facts are unclear as in the meeting under focus) are thought to be enhanced by invoking common topics of argumentation, namely, definition, comparison, relationship, circumstance, and testimony (Corbett 1990). These topics represent a system upon which rhetoric builds in order to rise above the lack of clarity caused by resource deficiencies in classification, analysis, and synthesis of meaning.

First, *definition* is an effort to ascertain the specific issue to be discussed (i.e., to define the key terms in a thematic proposition) so that a given audience clearly understands what is being discussed. For instance, a repeated question posed by CPA members was around the costs of the overall program leading to the inference that these costs were wrongly defined, at least for some NHS trusts.

Second, *comparison* between things refers to arguments about similarity and difference, including the degree to which they differ. For instance, CPA members questioned the decision to go for a national, centralized solution when other countries are explicitly avoiding such a strategy.

Third, *relationship* refers to arguments around cause and effect. CPA members asked, for example, whether funding for the NPfIT would have implications for other services.

Fourth, *circumstance* concerns the subdivision of arguments into the possible and impossible. Some CPA members, for example, asked whether the NPfIT was perhaps "too ambitious," showing strong determination on one hand, but being aggressively self-seeking and perhaps self-centered on the other (HC 2007, p. 35). In other words, a program that is not just facing risks, but more so, facing the very likely possibility of failure.

Finally, as in all public committee inquiries, the CPA employed the topic of *testimony*, which, unlike the other topics, does not derive its material from the nature of the question under discussion but from external sources, such as different types of evidence, maxims (i.e., statements about universal matters such as moral and ethical codes) and precedents (i.e., previous decisions and actions taken in similar cases in the past).

In the end, the rhetoric of the CPA in conjunction with the amassing evidence on the different issues raised resulted in a blaming exchange between the project leaders. As noted in Table 1 in their final recommendations, the CPA members not only required that the project leaders follow a completely different strategy (e.g., empower local chief executives for a bottom-up approach), but also asked the NAO to report on the progress of those implementations in another CPA meeting. It remains to be seen, of course, whether or not such general policy dictates will be realized.

5 PRELIMINARY ANALYSIS OF THE PRACTICAL IMPLICATIONS OF CO-ORIENTATION

Concerns expressed by members of the CPA that the project was unmanageable resonate with a recent discussion in the organization studies literature about projects which may push an organization beyond its limits, a concept first explored in Starbuck and Farjoun's (2005) collection of papers reviewing the causes of the 2003 Columbia space shuttle catastrophe and elaborated in their later work (Farjoun and Starbuck 2007). Reviewing lessons from the disaster, Starbuck and Farjoun emphasized the need for NASA to navigate mindfully in conditions of ambiguity and uncertainty, to improve organizational learning and unlearning, to manage complexity systematically, and to keep the organization within its limits. They emphasized too that the Columbia episode needed to be understood in the context of a range of historical, social, political, organizational, and technological factors affecting NASA; nonetheless, lessons from the Columbia episode are, they suggested, directly relevant to other large organizations that are based on distributed knowledge systems, face complex dilemmas, serve multiple constituencies, seek to meet contradictory demands, and that need to innovate, use risky technologies, and are confronted with extreme time and resource pressures.

Elaborating on the idea of organizational limits, Farjoun and Starbuck defined them as "the range, amount, duration, and quality of things they [organizations] can do with their current capabilities, and these limits may originate in their members' perceptions, in their policies, in the technologies they adopt, or in their environments" (p. 543).

What emerges from our initial analysis of the CPA's review is the possibility that the NPfIT is an impossible project because it is pushing the whole activity system to its limits, but that by pushing the limits it holds possibilities for change and improvement. What is interesting in the CPA meeting is that it is in the efforts of the project leaders to exceed previous limits that the limits of the NPfIT are constituted. In other words, while being assigned to organize and execute a project that by definition is bound to exceed any previous limits, because of its scale and possible impact, any mishap or error by the project leaders is immediately interpreted as another step outside the limits of the project.

Certainly, some limits were defined in advance such as the budget and the timescale of the project. These limits were set to serve certain functions; however, they were ill-defined and their implications not well understood. These were limits set at an early stage by people that are currently distanced from the organization and execution of the project itself. Most importantly, these limits were set in isolation from key communities of practice such as the clinicians and the chief executives of the hospitals and primary health centers that represent the key users of the technologies being introduced.

Previous research has pointed to the ways in which complex technologies like the NPfIT compel organizations like the NHS to develop complex structures and complex management processes (Perrow 1999). However, these complex structures and processes involve gaps in coordination and communication with the consequence that organizations have more difficulty managing those technologies effectively. Farjoun and Starbuck discuss the example of NASA's space shuttle, which, because of its multiple and diverse technologies, has inhibited NASA from replacing unreliable and legacy components. Instead, this technological complexity has pushed NASA to add "hierarchical layers and occupational specialties that have narrowly defined functions," which have, in turn, resulted in poor and inappropriate responses to even small, incremental changes (Farjoun and Starbuck 2007, p. 551). This example illustrates the learning limitations that many organizations experience as a consequence of their technological choices, management structures, and processes. Learning limitations may involve a narrow understanding of environmental and organizational changes, as well as difficulties in analyzing those, but also difficulties in adapting to changes in their personnel and technologies. Very often, these learning limitations are a direct consequence of contested political agendas.

From its inception in 1998, the NPfIT has been characterized by unclear and confused priorities because the politicians that controlled its funding demanded that the senior responsible owners (project leaders) pursue performance targets that took for granted the limitations of the project in relation to the complex structures and processes of the NHS, as well as its existing legacy information systems (see Brennan 2005). These politicians had to face reelection campaigns and, therefore, had little patience for goals that required long time horizons. In contrast to this activity, the project leaders were driven to try to exceed those limitations and pursue unrealistic goals out of both their insecurity of potentially losing their job and their ambition to become heros (cf. Hayward and Hambrick 1997). In consequence, the limits of the NPfIT were being exceeded at multiple levels in the activity system, and "even talented and intelligent people with plentiful resources and laudable goals… [found] themselves incompetent to deal with their challenges" (Farjoun and Starbuck 2007, p. 542).

The NPfIT has, thus, become an increasingly contested object both in the ways in which it is constructed and on the possibilities it holds for change. In this view, the NPfIT is neither a failure nor a success; rather, its limits are constantly being reexamined, reconstituted, and exceeded.

6 FURTHER RESEARCH AND EXPECTED CONTRIBUTIONS

A key area for further research becomes how this, presumably hesitant, uncertain and conflicted process can best be understood and managed.

Our preliminary analysis suggests that it may be necessary to open up the activity system around the NPfIT as the appropriate unit of analysis. In addition to examining how participants reconceive of their priorities, this would involve paying attention to emerging technological and organizational arrangements, rules and performance targets, and the extant division of labor (Engeström 1987). We argue that such an analysis would support the analysis of the process of co-orientation and enable a more in-depth analysis

of the tensions and conflicts in the discursive actions of the two groups (i.e., the CPA and the project leaders) than has hitherto been possible, while also shedding light on the possible trajectories of change and continuity around the NPfIT.

In this effort, we will pay attention to the limits of the NPfIT as they are defined in the co-orientation of the object by the politicians and project leaders. As evident from our analysis of the discursive actions of the CPA and project leaders, rhetoric and organizations mutually co-orient one another; by engaging in various rhetorical strategies, these key actors not only question issues of responsibility and accountability about the current state of the object, but also, proactively, focus on the creation of new opportunities and capabilities. In this sense, new ICTs and organizational changes are enacted in terms of the expectations and visions that have shaped their potential. Such expectations and visions can be seen to be fundamentally generative in that they give definition to roles and duties, while offering some direction of what to expect and how to prepare for opportunities and risks (Brown et al. 2000). However, these generative outcomes give rise to a number of unintended consequences, which may potentially lead to new meetings and reports to evaluate what went wrong, resulting in new activities of co-orientation. Further research would need to dig deeper into the history behind these rhetorical strategies to unearth the ways by which patterns form to shape organizational roles and relationships, but also to enable or constrain the process of organizing the object.

In conclusion, our research is intended to contribute to organizational analyses of success and failure in the development and implementation of large-scale ICT projects (Brown and Jones 1998; Fincham 2002; Sauer 1999; Wilson and Howcroft 2002) by examining the historical trajectories of such projects, and featuring the importance of collective development as a result of them. Research reported here examined one critical aspect of this process, the interrogation by a House of Commons Committee of Public Accounts of project leaders responsible for a very large and apparently failing ICT project. By focusing on activities of co-orientation and its practical implications it is possible, we suggest, to begin to understand the limits and the limit violations of large-scale ICT and change in organizations. This approach would overcome the analytical paradox of ICT projects as objects vulnerable to attributions of both failure and success. Instead, objects of activity and the limits of the activity systems through which they are enacted would be understood to be constantly open to redefinition and reconstitution. The research challenge, we propose, is to recognize examples of when limits are being extended, to analyze associated processes, and to translate such insights into practical support for those involved.

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