

Social Theories of Risk

ICT Project Risk as Pollution Belief

A Comparative Essay in Cultural Theory

Alexander Budzier

BT Centre for Major Programme Management

Saïd Business School, University of Oxford

The current debate of risks of Information and Communication Technology (ICT) projects is rooted in the engineering world of Computer Science. Most academic and practical analyses follow a very rational and optimistic notion of ICT project risk - namely that risks can be identified, classified according to their probability and severity, and managed. This essay, however, will seek to develop the thinking away from this rational view by: firstly – discussing the ideas in academia that are progressing towards contingent models of risk perception; secondly - arguing that risks of ICT projects can be conceptualised as pollution or a form of disturbance to a social order that is mirrored by plans and budgets; and thirdly - by showing that the states management of ICT project risks is a complex power that is exercised through institutions, procedures, and other ritualistic forms reflexivity.

1. Risk = Probability * Severity

Currently, the state of most political and academic debates about ICT project risks is comparable to the state of the debate about technological risks of the late 1960s. With the technological risks of nuclear power in mind, Starr (1969:1) argues that the decision about a technology should not only look at a performance-versus-cost but also the social-benefits-versus-social-costs relationship.

In the Computer Science literature the two most prominent conceptualisations of ICT project risks are captured by McFarlan and Boehm:

"By risk I am suggesting exposure to such consequences as: Failure to obtain all, or even any, of the anticipated benefits; Costs of implementation that vastly exceed planned levels; Time for implementation that is much greater than expected; Technical performance of resulting systems that turns out to be significantly below estimate; Incompatibility of the system with the selected hardware and software."
(McFarlan, 1981: 143).

*"Webster's dictionary defines risk as the possibility of loss or injury. This concept can be translated into Risk Exposure = Probability of an unsatisfactory outcome * Loss to the parties affected if an unsatisfactory outcome happens."* (Boehm, 1991:427)

Even more recent research studies into ICT project risks remain rather vague in their conceptualisation of 'ICT project risks'. For instance, Sauer et al. (2007) use the notion of underperformance or unsatisfactory outcomes to define ICT project risk: "Projects are about

change and inevitably carry risk. It is not surprising to find a base level of risk, regardless of size. " (Sauer et al., 2007:83)

A review of the traditional ICT risk management literature by Stahl et al. (2003) finds a strong focus on research to identify risks, to create checklists of risks, and to develop resolution techniques. The authors also underline the a-theoretical nature of most of the work but find that "recent work has gone beyond the traditional approach, but we demonstrate that the objectivist conception of risk is still implied. As a result, IS risk management relies on an untenable objectivist concept of risk. We argue that this assumption leads to the fallacious belief that risks can be comprehensively controlled by risk management." (Stahl et al. 2003: 16).

In a similar vein to Stahl et al.'s argument, Computer Science research finds that risk perceptions might differ between individuals. For instance Schmidt et al. (2001) find different perceptions of ICT project risks in different countries; Liu et al. (2010) show that the perception of ICT project risks differs between project managers and senior executives. This emerging body of academic thought parallels Slovic's (1987) research on technology risk perception. Slovic's psychometric risk assessment originated in studies of probability and utility perception and subsequent decision-making (Slovic, 1987: 281). His research objectives were to quantify and predict the risk perception of different groups (Slovic, 1987: 282), an objective that currently emerges in Computer Science with Liu et al. (2010) and Schmidt et al. (2001).

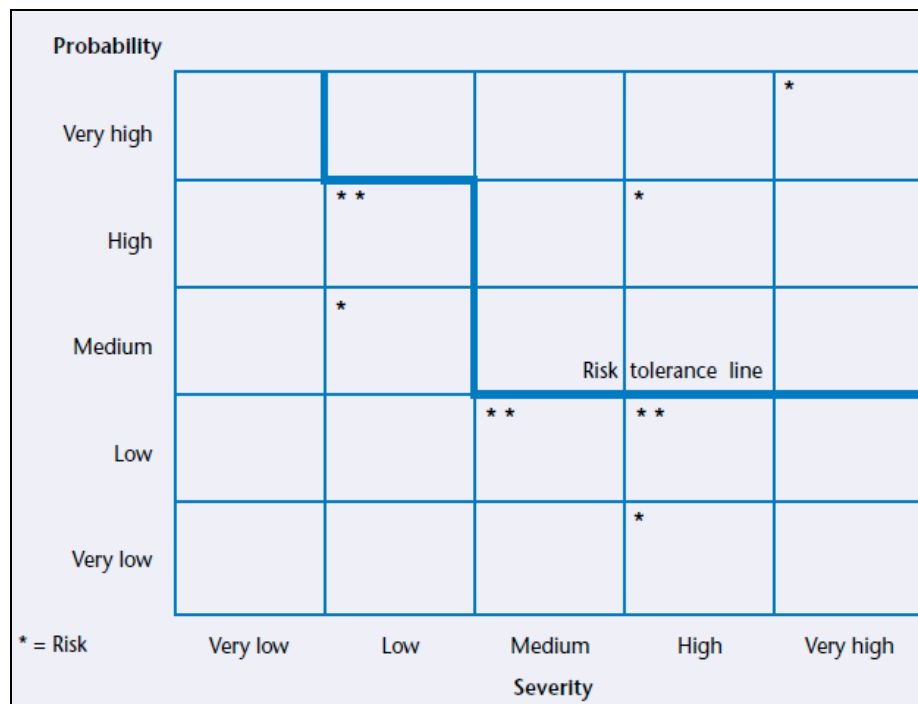
On the practitioner's side of the risk management of ICT projects, these emergent academic developments of risk perception research are pushing commonly accepted knowledge frames. Two of the most prominent project management methodologies, OGC's (Office of Government Commerce) Prince 2 and PMI's Project Management Body of Knowledge (Fortune & White, 2002), frame risk as:

"... a major factor to be considered during the management of any project. Project management must control and contain risks if a project is to stand a chance of being successful. Risk can be defined as uncertainty of outcome ... The task of risk management is to manage a project's exposure to risk (that is, the probability of specific risks occurring and the potential impact if they did occur). The aim is to manage that exposure by taking action to keep exposure to an acceptable level in a cost-effective way" (OGC 2005, p. 77)

"Project Risk is always in the future. Risk is an uncertain event or condition, that if it occurs, has an effect on at least one project objective ... A cause may be a requirement, assumption, constraint, or condition that creates the possibility of negative or positive outcomes" (PMI 2008, p. 274).

In 2000, the UK Cabinet Office published the McCartney report - a report which reviewed Government ICT projects and existing project management guidelines from the Treasury and the OGC. The report found that the current "guidelines emphasise the need for risk analysis to identify all risks, the likely impact on the project and the probability of the impact occurring" (McCartney, 2000:27). The McCartney report championed the use of Summary Risk Profiles (cf. Figure 1) to manage ICT project risks (Cabinet Office, 2000:29). A tool to compare "the combination of impact and probability ... against the project's tolerance for cost, time and functionality. For all risks that fall outside the project's tolerance, either mitigating or contingency actions ... must be identified" (McCartney, 2000:27).

Figure 1 - Summary Risk Profile (Cabinet Office, 2000: 29)



These three management tools and methodologies view ICT project risks as a tame puzzle that can be identified, measured, and managed. Currently there is no practitioner's reflection on contingent approaches of risks or even psychometric perceptions of risks. The methodologies represent an optimistic and positivistic philosophy of risks and are very much comparable to Starr's discussion of technology risks (1969).

2. Cultural Theory of Risk

Cultural Theory provides a "forensic approach that uses dangers, taboos, and risks to reveal the internal structure and systems of accountability and responsibilities of cultures" (Tansey & Rayner, 2009:57). Although positivistic and optimistic state-of-the-art discourse in practice and academia might improve the actual performance of ICT projects, a discussion of Cultural Theory contributes to the debate by strengthen and widen the theoretical foundation of the discourse. As Cultural Theorists have argued, the first step is to broaden the focus of attention from individuals to social organizations. By doing so, the discussions around ICT projects can overcome Durkheim's deterministic notion that social institutions map patterns of individual cognition (Tansey & Rayner 2009, Douglas 1999). Cultural Theory allows for the fusion of the cultural processes of categorisation and contention with functional implications for agency and power, particular in cases where collective action emerges as a reaction to risks (Tansey & Rayner 2009:55). Cultural Theory brings in a dynamic view of power, focusing on its ability to distribute, organise, negotiate and exchange accountability and responsibility for risks (ibid, p. 56).

Non-technical pollution is a "contagious state, harmful, caused by outside intervention, but mysterious in its origins" (Douglas & Wildavsky, 1982:36). In more general terms pollution is the morally wrong disturbance of a carefully socially constructed order. Mysterious pollution beliefs are of special interest to Cultural Theory because, as Douglas & Wildavsky (1982) further argue: "Pollution beliefs trace causal chains from actions to disasters" (p. 36). They categorise concepts of a social organisation, whilst separating conceptual from physical categories. They are instrumental in defining the vision of a good society, dividing the moral from the immoral, the guilty from the innocent, and the absolution process from the blaming process (ibid., pp. 37-38). As Douglas & Wildavsky state, "pollution ideas are an instrument of control" (1982, p. 47).

To illustrate the power of Cultural Theory, a rough sketch of how ICT project risks were managed in NPfIT will be drawn by applying Douglas & Wildavsky's routine set of questions (1982:37):

- What is disturbed?
- Who disturbs the order?
- Who is to blame?
- And how is order re-established?

2.1. The Case – The National Programme for IT in the NHS (NPfIT)

In June 2002, the Department of Health launched the NPfIT. Two month later the Ministers appointed the first Director General for NHS IT. In April 2005 NHS IT was integrated into a new government agency called NHS Connecting for Health (NAO, 2006). To put it into context, the National Audit Office (2006) described the NPfIT's 'scope, vision and complexity (as) wider and more extensive than any ongoing or planned healthcare IT programme in the world... it represents the largest single IT investment in the UK to date' (NAO, 2006:1).

Unfortunately, or quite predictably, the NPfIT overran its budget and fell behind schedule. When the programme started in 2002 contracts of a total value of GBP 6.2 billion were awarded for a ten year lifespan up until 2013-14. By 2006 the cost increased to GBP 12.4 billion (in 2004-05 prices) and the programme progressed slower than expected: it only spent 654m of the expected 1,448m by March 2006. Furthermore, the responsible minister announced on May 30th, 2006 that the full costs of NPfIT was most likely to be GBP 20 billion (NAO 2006:4-5).

To illustrate the NPfIT case, five vocal actors will be used. These actors have concerned themselves with issue and have published press releases, analyses, and official reports:

- 1) The National Audit Office, who audited the NPfIT (report published in June 2006)
- 2) The British Computer Society, recognised experts in the field who published open letters
- 3) ComputerWeekly, the UK's leading IT newspaper in which journalist Tony Collins investigates public ICT projects
- 4) The Public Accounts Committee (PAC) in the House of Commons, a Conservatives dominated body, which conducted a public inquiry into the NPfIT (published in March 2007)
- 5) The Health Committee in the House of Commons, a Labour dominated body, whose own inquiry was published in July 2007.

2.2. What is disturbed?

The NPfIT overran its budget and schedule. Why does this matter? Budgets and schedules are instruments of command and control: "Budgets are well known for reinforcing the command and control culture, constraining freedom and autonomy" (Hope & Fraser, 1999:17). The authors cite Chrysler's head of global product development who called budgets 'tools of

repression' (ibid.). Budgeting typically follows a cybernetic philosophy of "setting goals, measuring achievement, comparing achievement to goals, feeding back information about unwanted variances into the process to be controlled, and correcting the process" (Hofstede, 1978: 451). Thus budgeting and scheduling are technologies to manage performance uncertainties in organisations and to establish accountability for performance.

Historically, a major break-through in budgeting was the line-item budget, where line-items organised organisational needs into measurable categories (Wildavsky, 1986). Wildavsky argues further that: "The more line-items there are and the finer the differentiation among them, the better they mirror the division of labour within the bureaucracy and, by extension, the roles and statuses the regime is trying to maintain" (1986:337). The 1960/70s shift towards programme budgeting in the public sector signified a cultural change from hierarchies towards markets. This shift illustrated a shifting focus from valuing and providing specific resources towards aiming for the most efficient provision of interchangeable resource (ibid, p. 338).

The usual procedural reaction to failing ICT projects in the UK is to commission a review by the National Audit Office (NAO), as occurred, for instance, with the Courts' Libra System or the Department of Work's Pension Scheme. NAO first tried to allocate the cost overrun to specific budget categories. It analysed the cost overrun and found five points of disturbance

- GBP 382m was to be spent on additional projects
- GBP 239m was for additional services
- GBP 1.9b was for other central expenditure
- GBP 337m was to replace the expiring contracts
- GBP 3.4b was for local NHS expenditures, e.g., training and compliance

The NAO concludes in their initial analysis that: "[The department and NHS Connecting for Health] successfully placed contracts very quickly, after securing large reductions in prices from bidders, and including contract terms that include important safeguards to secure value for money for the taxpayer." (NAO, 2006: 6). The report also stated that the central budget had been managed sufficiently (ibid, p. 24). This finding is noteworthy because it reflects one of the major trenches of the NPfIT: the distinction between central (Department of Health) and local (NHS trusts) organisations. The NAO reported that cost overruns mostly happened on the local level because local costs were not included in initial budget calculations (ibid, p. 24). However, almost the same amount of budget increases (GBP 2.9b) happened at the central level, which the report did not point out.

Apart from the cost overrun, the NAO report also located the schedule disturbance by investigating the NPfIT programme project by project (ibid, pp. 14-23). Again this approach mirrored the central-local split in management and control of the organisation as national and local products were organised along those lines.

2.3. Who disturbed the order?

The NAO, Public Accounts Committee (PAC) and the Health Committee made similar statements, identifying the hospital PAS, the electronic prescribing system and the detailed care records as the upsetting elements of the NPfIT (House of Commons Health Committee, 2007: 55-56; House of Commons PAC, 2007: 12-15; NAO, 2006:24). However, the Health and the PACs were not blaming any specific organisation for disturbing the order.

The journalist, Tony Collin, pointed out that the major causes for the NPfIT delays and cost overruns lay with the two software providers iSoft and Cerner. The disturbance went as far as lying to the Prime Minister. The software providers stated in the PM's briefing from February 2007 that "...much of the programme is complete with software delivered on time and to budget", when in fact (as the PAC later pointed out) the software was delayed by two years. (Collins, 2008b).

As argued before, the NAO and the PAC linked the upset of budget and schedule order to neglecting the costs for local NHS organisations. (House of Commons PAC, 2007:20-21; NAO, 2006:26).

2.4. Who is to blame?

To start,, for the central components of the NPfIT, the NAO report blamed the "heterogeneous nature of the NHS" for the delays of NPfIT (NAO, 2006:24). However the report was not blaming any other part involved in the programme. It explicitly stated that they were "satisfied with the central expenditure being managed within budget" (ibid, p. 24) and that "the Programme has strong ministerial and senior management support" (NAO, 2006:2). It further added that "the Department and NHS Connecting for Health have put in place best practice arrangements that will support the elements of the Programme and the Department has established best practice structures to deliver the Programme" (NAO, 2006:2). The NAO report highlighted that the Department of Health had created a rigorous competition for the contracts awarded, that the financial risks were mitigated to the suppliers by using payment schedules, guarantees, bonuses and penalties, and open book accounting.

For two of the NPfIT projects, the NAO report blamed the schedule overrun on the non-performance of two individual software vendors (ibid, p. 24), specifically linking the overruns to non-performance caused by a) not being co-located; and b) a lack of proper incentives to encourage delivery (ibid, p. 38). In the case of a third troubled project in the NPfIT, NAO blamed BT's lack of communication with the local NHS organisations regarding the roll-out plans.

Secondly, the local cost overrun of the NPfIT was blamed on a planning technicality. The initial estimates did not include local NHS costs, whereas the most recent cost estimates included local costs because of a Ministerial decision to provide the software free of charge to local NHS trusts (ibid, p. 24).

Thirdly, the NAO circumvented the benefits/risks discussion by stating that the impact had not been monitored systematically but rather, that the auditors *believed* in "local savings of a substantial scale" (ibid, p. 27). The report also blamed the local NHS for not providing the needed local staff to support the project (ibid, p. 49).

As a follow-up to the NAO report, the Health Committee's investigation more specifically uncovered where the blame was pointed. The hearing found that officials from the Department and the NPfIT blamed the delays, as recorded in the Detailed Care Record (DCR), on a significant enlargement of the scope. Furthermore, according to the Director General of NPfIT, the fixed budget did not allow problems to be resolved because it prevented the hiring of temporary staff, which further delayed the delivery. BT argued that a slow start was normal in ICT projects and delivery speed would pick up, while CSC blamed the sheer scale and complexity of the NHS. Outside experts blamed the NPfIT for having unrealistic and overambitious schedule goals, a lack of clear specifications, the failure to appreciate the need for changes to processes and working practices. Academic experts also blamed the NHS for taking an excessively centralised approach and for a lack of clinical and user engagements (House of Commons Health Committee, 2007:59-60).

The delay in the Patient Administration System (PAS) implementation was blamed on the software providers because of the need to convert a US system to NHS needs in one case, and, in another case, because of the replacement of a software provider. These factors created uncertainties for other providers. Again the complexity of the system was blamed for the delay as well as unexpected difficulties in data migration (House of Commons Health Committee, 2007:62).

The Health Committee's report faced voices of opposition: three conservative MPs refused to sign the report because it followed the line of the government and gave up on the idea to conduct an independent audit of the programme (Collins, 2007). Thus, the less Labour-dominated PAC, started a separate inquiry into the NPfIT. Their report blamed cost overruns on the failure of NPfIT to monitor and plan the costs of local NHS organisations, which had to be substantially lifted and even shifted into the central budget to achieve buy-in from the trusts (House of Commons PAC, 2007: 21).

Regarding the schedule delays, the PAC blamed mainly the Department of Health for: creating a plan that the providers were incapable of delivering; not communicating with the local NHS organisations and clinical staff; being deficient in maintaining a detailed record of expenditures; and focussing on delivering IT systems at the expense of paying proper attention to changes needed in business. The PAC also attributed the delays to NPfIT's dependence on two sole software suppliers who failed to deliver (House of Commons PAC, 2007: 5).

The PAC report reiterated the argument that, because of the centralistic nature of the project, early decisions were made without a full degree of consultation (House of Commons PAC, 2007: 17). With a more aggressive rhetoric tone, MP Bacon stated that: "The crisis is a direct result of the original foolish decision made on a No 10 sofa - to allow the programme to be held hostage by a tiny group of Local Service Providers and their preferred software suppliers." (Bacon, 2008).

Media investigations, after the publication of the NAO, Health, and PAC reports, pointed out that the NPfIT blamed attitudes and behaviours for the delay. ComputerWeekly discovered the NPfIT's briefing to the Prime Minister in which the NPfIT said: "...the key challenges and risks of delivery are now not about the technology to support NPfIT but about attitudes and behaviours which need to be the focus of senior management and ministerial attention as we move forward..." (Collins, 2008b). Collins went as far as to blame the labour party for this outcome (Collins, 2007) and later (Collins, 2008a) he published an article proving that in a meeting on 18 February 2002, Tony Blair alone shifted the timeline of NPfIT forward so that the system would be ready by the general election 2005. Collins argues that this shift is what gave rise to the "hopelessly optimistic" time scale. However, Collins also cited experts who argued that it was not only Tony Blair who should be to blame, but also the Department of Health, which gave misleading briefings stating that the only constraints were: (1) funding; and (2) the need for more central control over IT spending (Collins, 2008a).

The Media also saw the DailyMail pointing the blame finger at "Tony Blair and his apparatchiks" for having created a programme that only provided consultants with lucrative contracts, and which led to the project manager, a former consultant who failed his computer studies course at university, to become the highest paid civil servant in the country (Brennan, 2010).

In short everybody blamed everybody - the NPfIT blamed suppliers, the vendors blamed the NHS and bad luck, the Health Committee blamed the vendors, the Public Accounts Spending Committee blamed the Department of Health, and the press blamed the government.

2.5. How to re-establish the order?

The NAO report detailed that the Department of Health and its suppliers had tried to re-establish the order by excluding the blamed, non-performing organisation. The report described that, in the beginning, BT and Fujitsu awarded their software contracts to a software provider called IDX. Two years later, the NPfIT became worried about the performance of IDX and audited the software vendor's capacity and capabilities. Then the NPfIT put increasing pressure on IDX to encourage them to deliver the Common Solution until finally Fujitsu requested permission from the NPfIT to exclude IDX and to start finding a new supplier (NAO, 2006:37).

In another project within the NPfIT, the order was re-established by re-organising BT's project organisation into separate development, support, and service roles and by establishing a user acceptance testing process. The new organisational structure was labelled as a 'best practice' by the NAO (ibid, p. 39).

The NAO (2006:2) concluded in their report that further corrective action was necessary. In particular they recommended that:

- The NPfIT should provide greater clarity to impacted organisations as to when different elements would be delivered, continue to manage suppliers' performance tightly, and report the achieved benefits annually;
- NHS organisations should communicate how this was going to affect them;
- NPfIT should study how local costs are impacted and how previous local NHS IT projects have changed the way the NHS works;
- NHS, DoH, and NPfIT should build project management capabilities.

The Health Care Committee's report cites experts that recommended two approaches to re-establishing the order: (1) An independent technical review; and (2) An effort to increase local ownership (House of Commons Health Committee, 2007:66). However the commission of an independent review was fought down by the Department (ibid, p. 67). This behaviour reinforced the accusations that the NPfIT and the Department of Health were overly secretive – an accusation which was first raised by Conservatives in 2004 and also by the British Computer Society (Bacon, 2004, The British Computer Society, 2005, Collins 2007). Experts and politicians criticised that, although the NPfIT was regularly audited in Stage Gate Reviews and although the NPfIT commissioned external consultants to review the programme, the Department of Health never published those findings (Collins, 2007).

Furthermore, politicians and experts forced the NPfIT to shift more power to the local level in order to re-establish order, i.e. the structure and control of budgets and schedules. NPfIT had to allow GPs to select from a wider range of software solutions and NPfIT moved procurement to the local level, restricting its role to setting central standards (House of Commons PAC, 2007:68). The Health Committee concluded that the power shift was long overdue but needed to go further by shifting the overall responsibility for the NPfIT to the Strategic Health Authorities and their Primary Care Trusts, whilst empowering the local organisations to negotiate with Service Providers to create more local solutions (House of Commons PAC, 2007: 80).

Apart from action by NPfIT the PAC demanded that the Department of Health re-establish order by

- Developing a schedule that suppliers were capable of delivering against
 - Improving the record of expenditure and publishing an annual statement
 - Conducting an independent assessment of benefits and costs
 - Reviewing the suppliers capacity to deliver in terms of staff and economic situation
 - Improving communication to clinicians and considering the broader change needed
 - Clarifying responsibility and accountability on the local level
 - Prioritising the roll-out of functionality according to clinical benefits
- (House of Commons PAC, 2007:5-7)

2.6. Finally, a clumsy solution to manage a wicked problem

To put the NPfIT case in a nutshell – the NPfIT overran its budget and schedule. Thus, the ICT project caused upsets by introducing uncertainty into a carefully planned mission, and it

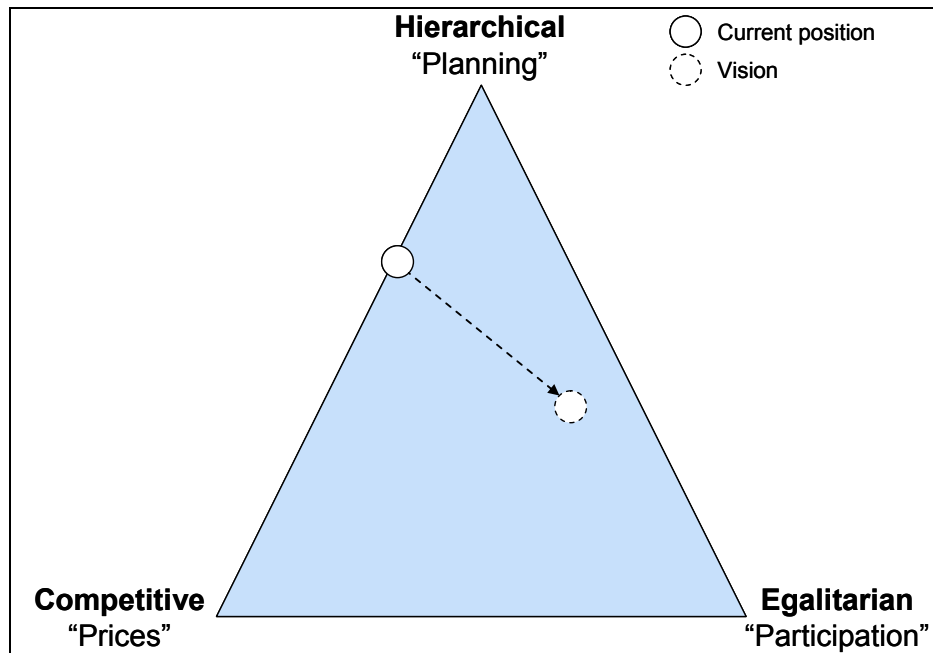
disturbed the central control, normally exercised by the state, over the public sector. The Department of Health and the NPfIT had relied on central planning and bundling of market forces, and had transferred most of the financial risk to the supplier side. However, when the delays and cost escalation occurred it became clear that the buying side still faced significant risks in scheduling and realizing benefits.

As a reaction, the NPfIT, NAO, the Health Committee and the PAC all conducted reviews of the NPfIT. These reviews applied two lenses to find the culprit: they reviewed the NPfIT's budget, item by item, with the results reinforcing the trench of local vs. central budget; and they reviewed the NPfIT's schedule, project by project, with the results leading to dispersed accusations and criticisms. The accusations saw the NPfIT blaming supplier performance for the risk and complexity for the disturbance, the vendors (not biting the hand that feeds them) blaming the NHS and bad luck, the Health Committee blaming the vendors, the Public Accounts Spending Committee blaming the Department of Health, and the press blaming Tony Blair personally for the disturbance.

To re-establish the order, the NPfIT identified, audited, pressured and then excluded the non-performing supplier from the project. Even though the Department of Health fought down the commission of an independent review, NPfIT was nevertheless forced to shift power towards stronger participation of clinical staff through better communication and by offering a choice of different systems to local NHS. Thus the disturbance pushed the initial solution of risk management, which relied on competition between suppliers and top-down planning, towards stronger inclusion.

As the NPfIT case shows, the risks of ICT projects should not only be managed according to a positivistic, optimistic, engineering view, but would benefit from applying a sociological perspective. The grid-group typology necessitates that risk management needs to be a clumsy solution, a working compromise between different actors. NPfIT programme took a strong hierarchical position with regards to their risk management, the Department of Health and Health Committee took a strong competitive position, and the PAC, the press and the British Computer Society adopted an egalitarian position. The initial solution incorporated hierarchical and market approaches but neglected participative elements. When two non-performing suppliers upset the budgetary and schedule order, egalitarian groups used official inquiries to push the NPfIT risk management solution further towards egalitarianism and markets by shifting power to the local NHS organisations (cf. fig. 2).

Figure 2 - Cultural Theory Development of the NPfIT Risk Management



3. Governmentality

Governmentality, according to Foucault (2009:102-103), has three aspects:

- (1) A complex form of power that targets the population, which is based on political economy as the principal form of knowledge and which is exercised by institutions, procedures, analysis, reflections, calculations and tactics;
- (2) The historic rise of the government apparatuses as dominant design of the governance of a population; and
- (3) The governmentalisation of the states of justice of the Middle Ages (Foucault, 2009: 102-103).

Central to his thoughts on governmentality are Foucault's Nietzschean arguments that power technologies are first applied to the fringes of society and later permeate society completely, and that the separation of body and mind leads to states controlling bodies, not minds, by creating apparatuses of discipline and power (Foucault, 1995).

Castel provides a reflexive historic analysis of the mental health profession. He traces how the notion of being a danger to self and others transformed into being in a risk group, which subsequently gave rise to risk factor analysis; which shifted treatment strategies from 'separate and confine individuals' to 'control and eradicate at risk groups' and lately to 'interventions as social action' (Castel, 2009). Because of the latter Castel argues that, contrary to Foucault, governmentality is "more coercive and reparative than preventive in

function" (2009:295) and that society has replaced the notion of discipline by the notion of efficiency where the state aims to project an order instead of imposing it (ibid.).

Surprisingly, the same development can be traced through the academic, practical and political discourse of risks of ICT projects. The academic discourse about the risk of ICT projects started in the late 1980s when several researchers applied the concept of success factor research from management studies to ICT projects (e.g., Baker & Fisher, 1988; Pinto & Slevin, 1987). As Pinto & Covin (1989) outline, the notion of critical success factors imply that certain causal patterns are essential to success in multiple types of projects - a notion which replaced the conviction that each particular projects pose entirely unique kinds of problems.

This line of thinking is also reflected in the UK Cabinet Office's McCartney Report (2000), which identified success factors for public project delivery, e.g. integrated change management, and improving responsibility, measurement and realisation of benefits. In line with Foucault argument, the state created an apparatuses of power as an outcome: the McCartney report specifically recommended the set-up of

- Institutions – Central IT Unit, Centre for Management and Policy Studies (CMPS), Senior Responsible Owner (SRO)
- Procedures – SRO must ensure the use of standard methodologies, commission periodic peer reviews, standardise procurement and gateway approval processes
- Analysis – Business Cases, Project Profile Model
- Reflections – CMPS shall identify the 'Skills For the Information Age', train ministers and staff; the projects need to reflect upon their communication with suppliers, and appraise their own project management capabilities
- Calculations – Summary Risk Profile, Evaluation of plans and bids
- Tactics – Checklists for roles and responsibilities, Modular delivery approaches

A similar development was triggered in the US with the Clinger-Cohen Act of 1996 (U.S. House, 1996), which reformed the federal spending on ICT projects in two important ways. Firstly, section §11317 made the head of each executive agency directly accountable for any major deviation from the cost, performance or schedule goals of the ICT project. In the UK, several politicians have argued for adopting a similar measure to hold ministers responsible for their ICT project risks. Secondly, section §11302 directed agencies to collect data and statistically analyse their project risks: "... the Director shall develop a process for analyzing, tracking, and evaluating the risks and results of all major capital investments made by an

executive agency for information systems." This development mirrors what Foucault identified as a historic shift from sovereignty to the society of government (2009:92) - a shift that was made possible by the birth of population statistics by Gaunt and Petty in the 1660s (Wilcox, 1938).

Similar to Castel's findings (2009), in 2008 the treatment strategy of ICT project risks moved from managing risk factors to managing at risk projects; whereby it was no longer necessary that the project showed the symptoms of the illness, it became sufficient to be exposed to a set of five risk factors. "High Risk Projects require special attention from oversight authorities and the highest levels of agency management because: 1) the agency has not consistently demonstrated the ability to manage complex projects; 2) of the exceptionally high development, operating, or maintenance costs ... 3) it is being undertaken ... [as] an essential mission program or function of the agency ... or 4) delay or failure would introduce for the first time inadequate performance or failure of an essential mission program or function of the agency..." (Executive Office of the President Office of Management and Budget, 2008:6). Currently investments are identified to be a high risk by evaluating five factors: risk management, requirements management, contractor oversight, historical performance, and human capital. These high risk factors form the OMB watch list (Executive Office of the President Office of Management and Budget, 2010).

To complete the circle, government institutions like the OGC have created project management methodology courses that are certified as a professional qualification, thus reinforcing the beliefs of how to manage ICT projects, how to identify at risk projects, and how to turn-around projects that have upset the order (OGC, 2009). Moreover, professionals taking these qualifications need to commit to a code of conduct. APM's example of such a commitment states: "Members are expected to exercise relevant competence in accordance with the association's professional standards and qualifications, as underpinned by the APM Body of Knowledge" (Association for Project Management).

These governmental and non-governmental institutions have converted the findings of the 1990s success factor research programme in project management into management methodologies, resulting in the creation of an education industry to accredit suppliers. Selection of their suppliers is based on those credentials. Thus, the state created apparatuses through agencies like the OGC and independent professional organisations such as APM, to fully internalise best practice conduct and punishing deviation from it.

Cultural Theory can advance our understanding of ICT project risks

This essay has shown that the majority of the practical and academic discourse of ICT project risks follows an engineering philosophy: risks can be identified, classified according to their probability and severity and managed. It has also shown how academia developed the first advances into contingent models of risk perception.

The NPfIT case was used to illustrate, how ICT project risks can be conceptualised as a form of disturbance to a social order comprised of schedules and budgets. Using the Cultural Theory grid-group model, it was further explained how egalitarian groups in society used an upset in the order of the NPfIT to grab power and to shift the ICT management of project risk to a clumsy solution.

Lastly, three critical transition points, in line with Foucault's concept of Governmentality were demonstrated: how research on risk factors of ICT projects has been converted into project management methodologies to tame ICT project risks; how legislation has introduced statistical management and identification and separation of at-risk- projects from the portfolio; and how apparatuses of power use professional education and accreditation to uphold those structures.

Space and time constraints have restricted this essay to a superficial theoretical discussion with only a very rough phenomenological analysis of only a single case that hardly penetrated the surface of the issue at hand. Also, the theoretical discussion had to be very limited and could not react to the criticism that the cited theories faced, e.g., for either their ontological perspective in Starr's case, Cultural Theory being functionalistic, or Governmentality for being historically simplistic and structurally over-deterministic.

Nevertheless, the essay showed that the academic discourse of ICT project risks would greatly benefit from broadening the currently dominant engineering and psychometric lenses to sociological analysis. Similarly practitioners and policy makers should realise that ICT project risks are socially and culturally embedded, which hides the risks from view, biases risk selection and assessment, causes ambiguity and contradictions in risk reviews, and makes politicises the discourse of how to deal with and communicate ICT project risk.

Succinctly, if academia and practice fathom that ICT project risks are a Collective Construct (Douglas & Wildavsky, 1986), it would improve the overall understanding of ICT project risks.

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