153. The Four Enthusiasms of ICT Failure, Problems of Control and Information System Development in the Public Sector Work-in-progress. Not for proceedings.

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Abstract
A model of the Four Enthusiasms of ICT Failure is proposed. The Problems of Control are described. A research design to test this model and a series of research questions is outlined.

Keywords: e-government, computer failure, information system development, pessimism.

The Four Enthusiasms of ICT Failure
As a large body of research shows, the majority of ICT developments are unsuccessful, particularly 'large' ones over $10 million. Indeed, 20-30 percent are abandoned altogether, while around half are over time, over budget and/or do not deliver on expected applications or performance. This is true both in the public and private sphere (c.f. Georgiadou 2003; Heeks 2002; 2004; Royal Academy of Engineering and the British Computing Society 2004; SIMPL/NZIER 2000; Standish Group 2001; 2004).

Despite the decades of failure however, enthusiasm for large and complex investments in public sector IS continues. Indeed, the largest ever public sector project was initiated in 2002 by the United Kingdom's National Health Service at an estimated cost of $US11 billion and has already encountered massive problems and delays. To explain why large and ambitious projects continue to be initiated I propose a model containing four pathological enthusiasms. Each enthusiasm is linked to a key player or group within public sector ISDs. The first enthusiasm is 'idolisation' or 'technological infatuation' where public officials 'use computers and are over-aware of ICT's potential. They believe that ICT can transform the business of government. The public sector becomes awash with ICT driven reform projects, which place technology at the heart of the change process (Heeks and Davies 1999, 27)'. Indeed, public servants can be 'carried away' with the excitement of it all, providing reports and projections for the benefits of new developments that verge on the fantastic (Dale and Goldfinch 2002).

The second is technophilia or 'the myth of the technological fix' where 'the entire IS profession perpetuates the myth that better technology, and more of it, are the remedies for practical problems (Lyytinen and Robey 1999, 95).' Many of those entering the ICT industries are, in common parlance, 'geeks': they are 'enthusiasts' for computers and technology, excited by the possibilities new technologies offer and by the challenging intellectual puzzles that developing new technology brings. Technological development can become an end in itself. Programmers are also subject to bouts of enthusiasm for the new programming methodologies that come along every few years, again despite little evidence of their efficacy (Georgiadou 2003).

The third enthusiasm is 'lomanism', drawing on Arthur Miller's archetypal salesman Willie Loman in the *Death of a Salesman*. Lomanism is the enthusiasm, feigned or genuine, that sales representatives and other employees develop for their company's products and skills, and that company's ability to develop new products and technologies, whatever the objections or questions put forward by potential and actual purchasers and others involved in purchasing and developing the technology. ICT salespersons can be faced by an unusually responsive audience; often those involved in finally deciding on what systems to buy are those responsible for promoting new developments in the first place. Those salepersons or company employees with the temerity to suggest purchasers' expectations might be somewhat overblown are likely to find purchasers will simply go to a company that promises expectations will be met.

The fourth is managerial faddism. This is the tendency for consultants and managers to eagerly embrace the newest management fad, methodology or utterings of the Management Guru of the moment and to see problems as largely solvable (or prevented) through better or more 'rational' management, and the appointment of skilled managers. Indeed, problems are often framed as fundamentally a failure of management or management systems – success is similarly framed as due to successful management and/or management system. Such managerial faddism is also reflected in the belief that most problems can be fixed or prevented, and benefits created, by improving management structures along the lines of the new fad, with new IS projects often a key element. The orthodoxy of New Public Management, its inherent belief in the supremacy of the private over the public sector, and its innovative, 'entrepreneurial' focus, provides a ready ground for such faddism. The public sector must now compete with the private in terms of its adoption of new technologies, including management ones, or face being seen as behind the times and resistant to change. Despite the rhetoric of NPM changing, the structures and logics it put in place still exist.

Together these four enthusiasms feed off each other creating a strongly held belief amongst public servants and others that new IS projects will be a good idea. Doubters and skeptics can be portrayed as 'negative' 'Not Team Players', 'Not Helpful' or, particularly in a public sector influenced still by New Public Management and economic models of behavior such as public choice, as 'vested' or 'rent-seeking' interest groups. Together these pathologies make up the *Four Enthusiasms of ICT Failure* (Figure 1). When a project does enter difficulties, these four enthusiasms can also undermine attempts to curtail or abandon the project – a project can always be fixed with better management, or more technology, hardware or better programming; or just a reassuring 'it'll be right on the night'.

Problems of Control

Once begun, IS project face problems of control. There can be considerable problem of agency in ISDs. Agency theory focuses on the problems faced by the principal (such as the manager or CE) in controlling an optimizing agent (such as a programmer or IS developer or project manager) in a situation of information asymmetry and problems of monitoring where the agent may have greater knowledge of problems and an incentive to conceal them. In many cases, reliable information is simply not available on the *actual* progress of projects (as opposed to *reported* progress) due to the intangible nature of software development, the often dynamic and changeable nature of the project itself, the large number of diverse participants involved in the projects who may well be working in different parts of the world, and the

sheer complexity and information overload faced in a large project. Reflecting this, in many cases progress and audit reports are largely exercises in hope and fantasy (Dale and Goldfinch 2002). Where problems are apparent, these may not become made known to management or monitoring agencies. That members of organizations are reluctant to be the bearers of bad news is a well-reported phenomenon. IS developments are no different, with bad news often under-reported, concealed and sometimes falsified in IS developments (Dale and Goldfinch 2002; Heeks 1999). In some case, public agencies have been reluctant to give information to monitoring agencies due to claims of 'commercial sensitivity'. Even if bad news is reported, it may not be listened too; indeed, bearers of bad news can suffer sanctions themselves (Keil et al 2000). Where a senior manager or CE is tightly linked to the project and identified with its success there can be a reluctance to admit to bad news or to curtail the project in the face of difficulties (Dale and Goldfinch 2002; Heeks 1999; Keil et al 2000). In any event, line managers can lack the ability to evaluate projects and there may be a tension between authority from expertise and authority from position, particularly in a highly complex fields as IS development where line management may be supervising people with highly specialist skills, which these managers do not necessarily understand. Appointment in bureaucracies is often made on seniority and successful political behavior rather than simply merit, which again can be dangerous in highly complex specialist fields as IS development. Management may simply be afraid of asking 'stupid' questions for fear of losing face.

Even without deliberate distortion, there can be miscommunication and misunderstandings and a considerable degree of tension between different players in public sector ISDs. Professional groups have their own languages, their own ways of doing things, their own understanding of the world – what is generally called a 'culture'. Bureaucratic culture can sit uncomfortably with the individualistic, heroic culture of the programmer and the faddish culture of the management consultant and NPM-influenced managers. Many note the individualistic and heroic nature of programming culture, where difficulties and possible failure are just further challenges to be solved by hugely talented programmers (Bronson 1999). This particular technological focus of many ICT and IS specialist adds to inattentiveness to problems of failure and appropriateness of technology to the organization, and, indeed, resentment of and resistance to management, personal and political factors and reporting requirements that might interfere with the technological puzzle at hand.

Even when problems are acknowledged, projects may continue because the forces encouraging abandonment are overpowered by the forces encouraging continuance – including a strong belief that 'it will be right on the night'. In particular, what is called the completion effect – which is the nearness to the successful completion of the project - is a strong driving force. In IS development, this is particularly relevant due to the '90 percent completion' syndrome where the proportion of the completed project increases readily to where it is estimated to be 90 percent completed, whereafter it increases very slowly. In some cases, projects are reported to be 90 percent complete for half the duration of the project; an obvious impossibility. In a survey of ICT auditors, it was found that the completion effect classified over 70 percent of runaway projects (Keil et al 2000).

Front-line staff can provide a 'reality check' on the overreaching ambitions of IS developers and management. However, critiques of bureaucratic structures have noted the tendencies of members to follow commands even if they are misguided, and for responsibility and initiative to be discouraged. In any event, 'front-line' grumbles may not treated as

carefully as they should, especially if the hierarchical culture sits (however uneasily) with public choice and New Public Management notions of management superiority and the treatment of professional groups as rent-seeking interest groups. Management hostility to even mild, and in retrospect, highly-justified, reservations front-line staff have expressed in IS developments has been noted in failures (Dale and Goldfinch 2002). On the other hand, a factor in failures can be the reluctance or inability of end users to adopt and adapt to the new technology, where the benefits of using the system are not seen as justifying the efforts in relearning skills so as to use the system, or in some cases, where end-users actively subvert the computerization process. As such, developing systems without the involvement and, at very least, tacit approval of staff and intended users, can be a high-risk proposition.

Questions for Further Research: Operationalizing The 'Four Enthusiams of ICT Failure' and the 'Problems of Control'

This paper has proposed a framework for the study of information system development failure, based on models of the 'Problems of Enthusiasm' and 'Problems of Control'. These frameworks do not lend themselves to easy study and a simple hypothetical-deductive method of hypothesis testing. Instead, the incredible complexity of the issues would be better served through an interpretative use of case studies of large IS developments. These would allow a move beyond a simple reporting on specifications of systems, and allow the presentation of the incredibly complex processes of decision making, the planning of systems, the development of project specifications, the multiple policy makers and the broader policy and competitive frameworks and government monitoring regimes. Such studies could only be carried out by the extensive use of primary and government archival material and interviews with key participants in the processes. As such, such a study could compare and contrast key large (over $10 million) information systems developments, including a mix of successes and failures. This could include the various failures in the New Zealand public health system, and the largest public sector IS failure in New Zealand's history – INCIS in the New Zealand police force. These could be contrasted with an apparent success in the New Zealand public sector – the Land-on-line developed by Land Information New Zealand. The research questions would be as follows:

1. What factors encourage overblown expectations regarding ICT? Issues include design of tendering regimes, the relationship between purchasers, external consultants, managers and IT salespersons, the appointment of staff, skill shortages, personalities and political in-fighting.

2. Investigate the lack of fit of systems to actual needs – indeed, lack of clarity of aims of the system and the factors that lead to such outcomes.

3. Why projects continue in the face of continuing problems, and the ways mis-reporting of results could be reduced.

4. Solutions and dimensions of pessimism that might constrain the often over-blown expectations regarding developments, and better control projects when they do come off the tracks. In the face of continuing failure and problems of enthusiasm and control, a pessimism might be appropriate in ISD. This study will investigate how this pessimism might manifest itself. At its most basic level, pessimism raises the question whether new IS developments are actually of benefit. Then what systems be

appropriate will be investigated. Most studies so far suggest the most dangerous course is to invest in high-risk, highly ambitious 'bleeding edge' large developments, with long development time-frames, and very high probabilities of failure. Some skepticism about projected benefits, time completion and probability of success would also be useful, and of the often new and exciting development in programming and management technologies – such as risk management and rhetorical changes to new public management. Also important, is to examine the contracting, monitoring and reporting regimes and the often naive faith that public servants and others have in these to prevent and control problems.

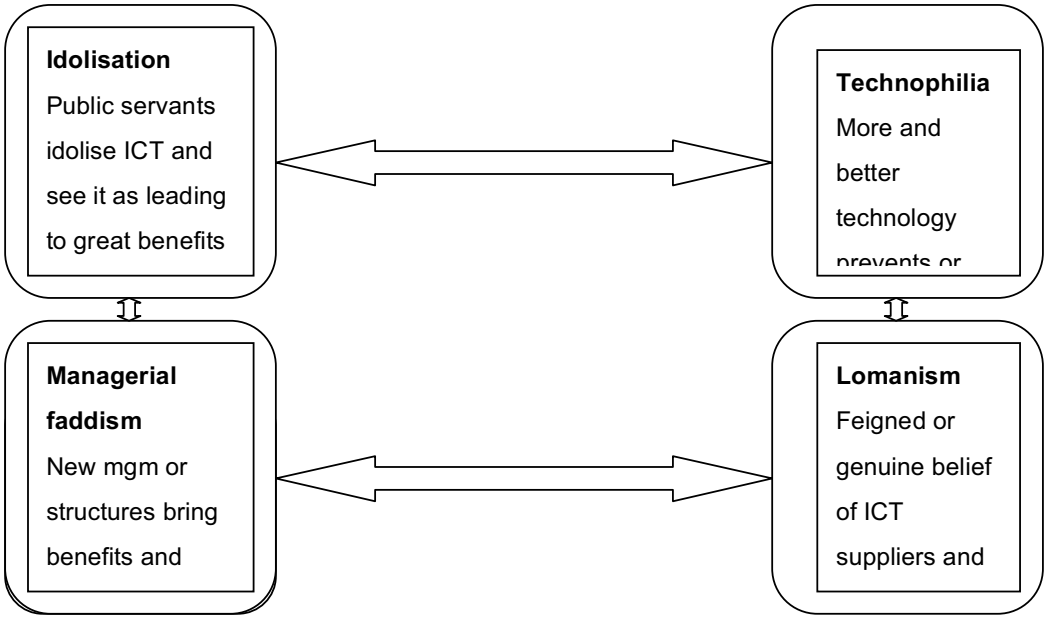

Figure 1. The Four Enthusiasms of ICT Failure

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