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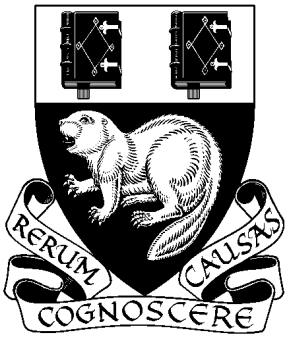

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"Strategy Sort Of Died Around April Last Year For A Lot Of Us: CIO perceptions on ICT Value and Strategy in the UK Financial Sector

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Strategy Sort Of Died Around April Last Year For A Lot Of Us

CIO perceptions on ICT Value and Strategy in the UK Financial Sector

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Abstract

The role of the Chief Information Officer (CIO) is one of facilitating executive decisions regarding the innovation, provision and use of state-of-the-art Information and Communication Technologies (ICT). The aim of this paper is to investigate CIO perceptions of strategy and ICT investment through qualitative interviews with CIOs from leading UK financial sector organisations. We were keen to find out how these executives strategise while coping with the increasing ubiquity and complexity of ICT on one hand and hyper business pressures on the other. As the title suggests, we found that recent changes in the market conditions, as well as in the trust bestowed technology as an agent for radical change, have had serious consequences for the perceptions of risk, strategy and ICT investment. CIOs expressed the dot-com boom to bust transition in terms of a shift from a higher-risk, top-down technology led strategy centred on killer applications towards a lower-risk, bottom-up, organic approach to strategy with the purpose of providing open, user driven enabling infrastructures for competitive advantage. We also note the implications of these trends for the value assessment activity and the enhanced value skill base which information age professionals would increasingly need.

Introduction

Information and Communication Technologies (ICT) are now vital to many aspects of human interaction, for the exchange of goods, services, information, ideas, competence and contacts in our global society (Dahlbom, 1996; Castells, 2000b). Indeed the role of ICT in contemporary organisations has been actively debated through the last decade. One of the key debates has been: whether or not ICT can provide 'strategic advantage' (Benjamin et al., 1984; Ciborra, 2002). This aspect has been explored through numerous studies focussing on ICT value, its assessment and articulation, and has yielded paradoxes. Over the last few years this debate has taken some interesting and unexpected turns influenced largely by rapid technological and business developments, such as the wide diffusion of Internet technologies in the early 1990s, the emergence of mobile phones, e-commerce services, and in particular the few explosive years generally known as the "dot-com" era. In the shimmering realm of this Internet era there was no finer gold than the 'killer app'. There were many analyses, which advocated investments in ICT for leveraging competitive advantage, creating new markets and opportunities for brand new

industries. There was also a wide-spread emphasis on "first-mover advantage" which resulted in vastly inflated share prices and explosion in the number of Initial Public Offerings (IPO's). The "dot-com" era took no prisoners – it declared all old companies without an e-strategy dead and praised a new 'e' world order. Then the bubble burst and there were as many failures as the number of dot 'cons'. However the new economy did not end with the bust, it left many survivors, and now of course business continues almost as usual.

The world of ICT use is messy, complex and an ever changing combine of people, technology, ideas, organisational structures and processes. Moreover, contemporary political, economic and social conditions have heightened the demands placed upon organizations to formulate strategies designed to manage uncertainty. In highly competitive industries, it is crucial to understand the nature and speed of ICT-enabled change to exploit opportunities for innovation and manage potential threats. As if sensing this need, recently many academics and practitioners have called for broader and deeper interdisciplinary conceptualisations of ICT (Orlikowski and Iacono, 2001; Mathiassen and Sørensen, 2002).

Situated amidst this 'runaway' world of ICT, our research focuses on the CIOs of very large organisations within the UK's highly developed Financial Sector (DTI, 2002), for their perceptions on ICT Strategy. We were particularly keen to find out: *How do CIOs strategise while coping with the ever-increasing ubiquity and complexity of ICT on one hand and hyper-business pressures on the other?* We accomplished this through a theoretical analysis and discussion of semi-structured interviews with 10 such executives. A rigorous selection procedure identified organisations, typically FTSE 500, with a turnover of more than 500 million pounds and with ICT spends of more than 1 million pounds.

Although quantitative, economic analyses focusing on the value of ICT can provide useful input to decision-making; this data necessarily reflects a limited calculative rationality that cannot encompass contextual business issues at work within corporations. This is particularly so in the profoundly uncertain environment in which financial services is currently operating. Hence we attempted to capture perceptions using a qualitative approach, which revealed several interesting findings. It demonstrated, as the title states, that economic and technological uncertainty has re-defined the role of strategising within organisations to such an extent that one of the respondents expressed it as the "death of strategy". It revealed the extent to which strategising is perceived as an essential activity, and a dramatic change in its horizon from long-term to short term. Moreover the value of ICT was perceived as a low-risk yet flexible 'enabling' platform established in alignment with business units in order to ensure better organisational performance. ICT was deemphasized from ICT Strategy, and infrastructure issues assume significance yet again. Our study also clearly demonstrates that perceptions of the strategic value of ICT investment are highly contextual.

The following section situates our work within related research and outlines essential concepts

for the subsequent analysis. Section 3 presents the research methodology. Section 4 describes the main results, which are subsequently discussed and contextualised in Section 5.

Related Research

Strategy has been a very well debated concept of our times, fuelled partly by the belief in analysis as a precursor for success. Peter Drucker (1993) defines strategy as an organisations theory of business which embodies its set of assumptions, its objectives, its desired results and its customers thereby allowing the firm to be purposefully opportunistic.

In this quest for competitive advantage the strategic value of ICT for a firm has been actively debated through the years. This aspect has been widely theorised, albeit mostly from an 'IS effectiveness' or an 'IT evaluation' perspective driven by businesses needs to measure and justify the performance or productivity related benefits of ICT to either individual users or management (Seddon et al., 2002). There have been conflicting views on whether ICT provide direct value to a firm. This is amply demonstrated by the debate on the 'productivity paradox', i.e., no apparent direct productivity effects of ICT investment, which flourishes at either end of the spectrum. For instance, while Strassman (1997) found little correlation between ICT expenditure and corporate profitability, Brynjolfsson and Hitt (1993) argue that the '*shortfall of evidence is not evidence of shortfall*'. However, most scholars tend to agree that parameters linked to evaluation such as: mismeasurement, time lags, redistribution and mismanagement help in explaining this paradox. From a qualitative perspective, it also seems likely that the nature of the relationship between IT professionals and business user groups may significantly affect the degree to which ICT adds value to an organisation. Several researchers have put forward the concept of 'psychological ownership' to describe the relationship between the two while suggesting that IT and user ownership are important factors contributing to the perceived value from ICT (Remenyi et al., 1998; Avital and Vandenbosch, 1999).

A successful ICT strategy should harness the ICT resources for optimum value based on key driving principles (Venkatraman, 1997; Willcocks and Lester, 1999). Venkatraman (1997) uses the term 'value center' as an organising concept to differentiate the management approaches needed to realise these sources of value, characterised as per the two analytical dimensions; purpose and risk propensity (See Figure 1). The analytical distinctions between a) the risk propensity of minimising risk versus maximising opportunity, and between b) the pursuit of operational efficiency as opposed to business capability, yields four characterisations of the ICT function in terms of value centres. These are the cost, service, profit, and investment centres respectively. The cost centre reflects an operational focus that minimises risks with a predominant focus on operational efficiency. The service centre, while still minimising risk, aims to create an ICT enabled business capability to support current strategies. The investment centre implies a longer-term focus and aims to create new ICT-based business capabilities. Finally, the

profit centre is designed to deliver ICT services to the external marketplace to realise incremental revenue. Venkatraman (1997) argues that deriving optimum value from each value centre requires a *distinctive approach to managing the IT resources*, and importantly requires a *distinctive evaluation regime*. Thus the corporation should seek to balance the four sources of value, although it is understood that the relative emphasis on these values could change over time.

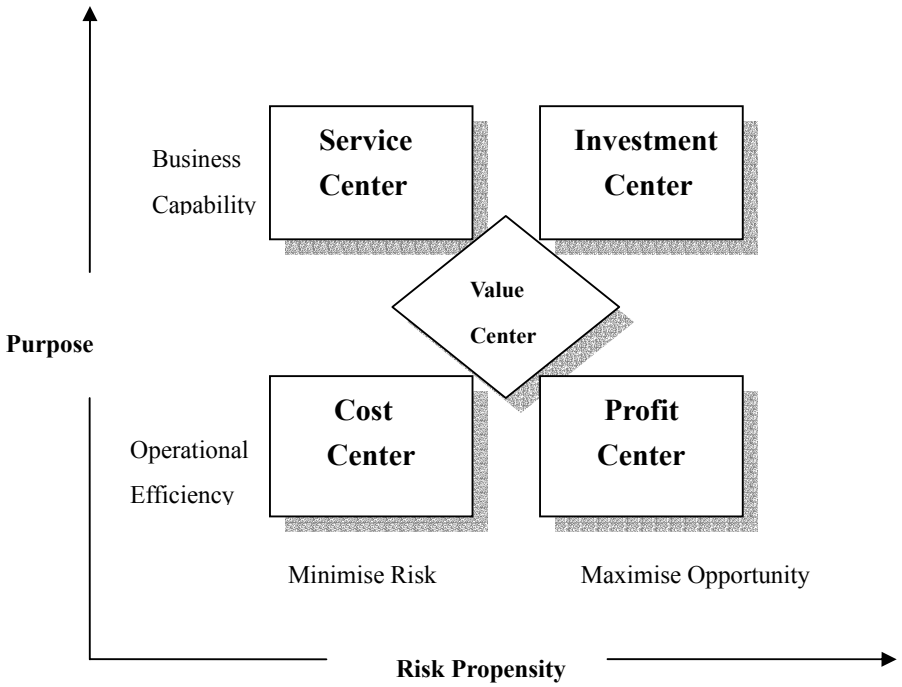

Fig 1: Venkatraman's (1997) framework characterising the kinds of IT Value conceivable for Firms

While there exist many debates on strategy however it still remains bedded in confusion within firms, perhaps owing to confusions on what strategy actually is, the existence of a sheer profusion of approaches, methods and assumptions and finally the battle between analysis versus intuition. In this era of constant and unpredictable change we touch upon temporality and the approach to strategising within firms in particular here.

Strategy has strong temporal implications. While Mintzberg (1987) relates strategy to a firm's past pattern of organizational actions, its current position, and plan for the future, others, like Porter (1991) conceptualize strategy more dynamically as a flow or stream of organizational actions. Although temporality is a construct or variable that is fundamental to a variety of theories of organizational change and strategic planning, in virtually all these models time is assumed to be unproblematic, independent, 'out there' and 'unilinear' (Kavanagh and Araujo, 1995). Hidding (2001) surveys contemporary strategy literature based on a "control theory" view of strategy (Cyert, 1988). He reviews well known IT Strategy 'methods'(frameworks, concepts, models, theories) and classifies them as dynamic or static accordingly, if the inherent strategy logic incorporates 'speed of change' and/or 'competitive interaction characteristics' in explaining

how a firm can obtain a competitive advantage 'sustainable' for a certain period of time. Hidding (2001) explains how the Sustainability Analysis method addresses these concerns through the identification of key ecologies and adopting a product view of advantage for the firm. The three ecologies (long cycle, standard cycle and short cycle) embody the firm and its actors, and thus entail important differences in strategies and timelines for the firms to focus on while evolving strategic ICT applications and core IS capabilities.

With regard to the approach to formulating strategies within firms, the broader management literature often unveils the debate between the 'top-down' and 'bottom-up' approaches. For instance, while Ansoff (Ansoff, 1994) who first postulated strategic management described it initially as:

> *"a comprehensive procedure which starts with a strategic diagnosis and guides a firm through a series of planned steps which culminate in new products, markets and technologies…"*

Ciborra (2002) rejects this top-down perspective and instead argues that in order to escape from the paradox true strategic advantage must be based on capabilities that are imperfectly imitable, and that (p.31):

> *"To avoid easy imitation, the quest for a strategic application must be based on such intangible, and even opaque, areas as organizational culture"*

This in turn requires an organic bottom-up approach strategy method which focuses on actors engaged in situated "bricolage", and where developing a strategic information system is:

> *"…much closer to prototyping and the deployment of end-user ingenuity than has so far been appreciated: most strategic applications have emerged out of plain hacking. The capacity to integrate unique ideas and practical design solutions at the end-user level turns out to be more important than the adoption of structured approaches."*

Galliers & Newell (2002) attempt to bridge this divide by proposing a more inclusive framework for IS strategising. They stress a dual approach, which can be employed by firms as part of their information infrastructure strategy (socio-technical connotation). An *Exploration* approach (more bottom-up) which is inherently dynamic, open and emergent for example in promoting communities of practice and an *Exploitation* approach (more top-down) which represents the deliberate and codified dimension of using ICT in the form of rules and procedures.

Research Approach

Our choice of the UK Financial Services sector as the focal point for this study was based on this sector's dependency on ICT in mediating key business practices as well as the high standing of the City of London. The UK Financial Services sector is one of the world's leading employing around 1 million people and with a net overseas earning in 2000 or around 5% of the UK Gross Domestic Product (DTI, 2002). The City of London, New York and Tokyo are the

world's three leading financial centres and London is the largest centre for many of the international financial markets. It was recently estimated that the UK's expenditure on ICT amounted to at least £45 billion (€71 billion), and it is not uncommon for financial services organizations to devote more than 20% of their budget to ICT investment and operations (Willcocks and Lester, 1999). Moreover, recent years have seen significant changes on the landscape, for example the rise of Internet-based services, eBanking, eCRM, eProcess Integration (Straight Through Processing), consolidation, outsourcing and the emergence of new enterprises.

As the main research enquiry in this paper was concerned with Chief Information Officer (CIO) perceptions on ICT Strategy, the core of our research approach was comprised of a series of semi-structured qualitative interviews with CIOs (Patton, 1990). On the basis of a preliminary literature review, a set of interview questions was developed. These formed the basis for a series of feedback sessions with a steering group from the IS Strategy, Operations, and Business Development functions at SoftCo — a leading global software company employing several thousand systems developers, primarily developing mainframe-based enterprise systems. Continuous sparring with steering group members throughout the planning, design, data-collection and analysis activities of the study provided us with deep domain knowledge, helped refine our approach, and ensured the relevance of the research questions posed. The fieldwork design was directed at experienced Heads of ICT (we will in this paper refer to this role as CIO) within end-user financial services organisations. We, furthermore, included a number of independent ICT practitioners in order to serve as a further reference group for the study. These and the SoftCo experts were interviewed or participated in meetings discussing the research design and sample.

The identification and selection of interviewees was conducted in a systematic and rigorous fashion. We carefully selected a pool of 150 organisations to begin with and then narrowed down to 40 organisations, which had average annual turnovers of around £500 million (€790 million) and with reported ICT expenditures typically more than £1 million (€1,6 million). The companies had more than 250 staff and a well-established ICT function. The CIO for each of these organisations was contacted by a letter requesting an interview. This first part of the selection process resulted in a sample of 30. CIOs tend to be extremely busy people, for whom unsolicited research interviews with fixed date and time can be quite difficult to organise and perhaps even justify. We, therefore, did expect a low response rate for the interview requests. Much to our surprise, the response rate was more than 50%, which was encouraging and suggested that the scope of enquiry of this research was perceived to be very relevant. Interviews and discussions were conducted with 10 respondents across 10 organisations, June to August' 2002. Table 1 lists the respondents. All interviews except one (a telephone interview) were conducted face to face, and the interview time varied from 45 minutes to 1 hour and 45 minutes. The interviews were transcribed and subjected to content analysis where precepts of

intentional analysis were applied to the transcripts (Sanders, 1982). All organisations and individuals remain anonymous in the reporting of the results. Table 2 provides a summary analysis of responses from CIOs and representatives from the industry steering group. In the following sections, we present and discuss the basic themes investigated by means of an iterative dialogue between the responses received, and their implications in light of the broad literature on the research themes. While the validity of intentional analysis defies quantification, excerpts from the transcribed interviews have been freely included to help readers judge for them selves the validity of analysis.

Images Of Strategising

The interview data provides us with a considerable insight as to how CIOs strategise regarding ICT, and we have summarised the main findings in Table 2. The following section will draw out some of the most interesting results in terms of the role of strategy, conceptualisation of ICT, and perceptions on managing ICT value.

ICT Strategising is de-emphasising ICT

One of the dominant perceptions was that technology itself had a relatively secondary role to play in the process of ICT strategising as compared to the role played by the user perspectives and business mandates. Given that we sought the opinions of executives responsible for technology in organisations that use technology extensively, we initially expected that the views expressed in this regard would be centred mainly on the opportunities and challenges associated with technologies while charting the organisations journey forward, however this was surprisingly not the case. As stated by CIO A , Z and G:

> *"We have an IS Strategy, which doesn't talk of technology, but talks about our mandate, business drivers and the areas of initiatives."*(CIO A)
>
> *"In most cases technology is never the issue…its how does it influence the business which is important."* (CIO Z)
>
> *"Whenever IT tends to front run the business, they usually get it wrong. Often technologists don't seem to be able to ask the right questions"* (CIO G)

The dot-com bust has brought the ICT function much closer to discussions on business development. CIOs seem to avoid making strategic decisions on their own, based mainly on technological opportunities. They see themselves as an integral part of the business with a focus on relationships and co-ownership. The business front is seen as the driver for ICT investment, and not the other way around. This is possibly a reaction to the techno-hype of the dot-com era. As argued by CIO G:

> *"Technology relationship has changed in the last two years. We were transformers. We were off on our own.*

We were the chosen few. We were in great shape as long we had a Web Front end. Post-dot-com we became business partners again. And people said welcome coming back to our level. The partnerships are good now."

Conceptualisations of ICT

When we asked CIOs how they would describe their ICT, we found two common patterns emerging from the descriptions across a majority of firms. Firstly, the notion of ICT as a 'horizontal', 'generic' infrastructure, which contained the hardware and software elements, related to ICT use. This was seen as supporting standard corporate functions such as administration, human resource management, data collection, and risk analysis. Secondly the notion of ICT as deeply interwoven with business processes, emphasising the highly complex customised mesh of user groups and technological properties. These points are illustrated for instance by CIO E, who said:

"I would say that there are the generic systems and services …email, data storage and management, networks which are used extensively directly or indirectly by everyone in the organisation…beyond that you get into systems specific to user lines…systems that target our marketing and customer facing areas. The systems across each line are quite different…in some cases even within the same line but across different geographies are quite different."

However, in both these descriptions we observe a marked shift from the traditionally dominant technological properties based perspective that focused on managing the development of specific, dedicated strategic applications to a more holistic use based perspective of ICT. This reflects, amongst others, the shifts in ICT challenges over the past decades, from emphasising the development of bespoke systems towards the use of technology (Dahlbom, 1996). We can view the change as a shift in the nature of ICT development from a bespoke process, to a commodification of products and services (Quintas, 1994; Sørensen and Cornford, Forthcoming). These interconnected products and services are now being related to business processes and together constitute enterprise infrastructures (Hanseth, 2000).

This suggests that information age professionals increasingly need to develop another set of skills in addition to the technical one. These 'value skills' as they are called, are needed to support professionals in connecting with customers and internal stakeholders (Denning and Dunham, 2001). Indeed it was interesting to note how this was manifested across the respondents surveyed. Contrary to what could be expected, the CIO's themselves came from very diverse and multidisciplinary backgrounds spanning Biochemistry, Finance, Economics and Technology.

Rise of the Infrastructure

While the predominantly expressed notion of technology as an infrastructure supporting business processes might seem to imply that ICT is not considered core to the business, but rather as an added support. However, the interviewees clearly express that the real value of ICT

is in providing a robust enabling platform, a central core around which users changing information and infrastructural needs can be actively supported. And while managing ICT for this value is crucial, at the same time it is quite difficult. As CIO E reflected:

> *Infrastructure is both a commonality and a facilitator. Makes sense to manage it very well and at low costs. There's a hidden value in getting it right, if you don't, its competitive disadvantage. It's an intrinsic part of an organisation now. Things like Web, Email and Connectivity. It's taken for granted, and very difficult to justify.*

The emphasis on open and flexible corporate infrastructures is perhaps sign-of-the-times. The rapidly moving financial sector must provide open and flexible infrastructures supporting improvisation. There is a need for the support of flexible working. This implies that embedding business procedures into technological arrangements as often done earlier in the quest for the 'killer applications', can create barriers for future flexible change. Latour (1991) argues that "technology is the social made durable". In fact when we conceive of technology as an enabling infrastructure we implicitly acknowledge that technology has limits and that it can lead to unintended consequences. In this respect, the provision of for example video conference technology, as reported by CIO A, did not stipulate behaviour, only provided opportunities. The company's Finance department suggested introducing video conferencing across 11 of its 30 offices worldwide with the objective of reducing travel costs by a quarter. However, the implementation of video conferencing technology realised only very trivial travel cost savings. This is possibly due to the fact that people still wanted to travel and that the technology was not empowered to mandate that people change their behaviour and travel less. One of the implications of ICT when expressed as infrastructures is that users expect simplicity, ubiquity of complex services, and yet take them for granted. CIO G argued:

> *"…at its heart technology has a lot of moving parts and trying to quantify and analyse the overall impacts is very tough. Especially for people who don't understand why it's so complicated. For them its dial tone... desktop dial tone and there's no difference between accessing your systems or picking up the phone."*

We observed that respondents perceived the firm's ICT infrastructure capability as crucial for its sustained competitive advantage. Indeed Broadbent et al. (1999) noted that ICT infrastructure expenditures accounted for over 58 percent of the organization's ICT budget, and were growing at 11 percent annually. An adaptive IS infrastructure enables flexibility, supports mass customization and quicker time to market, particularly important for firms in hyper competitive industries and for those with multiple business units or geographically dispersed operations.

Strategy is Dead: First or Second Mover Advantage?

There was as if a common message to the general question on how CIOs perceived the role of

ICT strategy in their organisations. Possibly summarised best by the following comment by CIO G, who might be alluding to the dot-com bust:

> *"Strategy is not a very strategic term now. Strategy sort of died around April last year for a lot of us, it's more of cost reductions."*

In an era of constant and unpredictable change, the practical usefulness of strategy is being increasingly and loudly questioned. The traditional view that strategy is concerned with making 'planned' predictions based on 'effective analyses' seems to have evaporated. Moreover the immense belief in the strategic value of ICT led business investments has diminished and the resultant time frame for ICT investment payback has been greatly reduced. As argued by CIO D:

> *"That's the ideal world* [that strategy is long-term]. *In the real world it's a different story. In Financial Services, business changes very quickly. If you think of a 5 year strategy at our front office, they'll probably laugh. It's no more than 3 months!"*

With a dramatically shortened outlook and with shorter and shorter technology life cycles, organisations may be finding themselves in increasingly difficult situations coupled with pressures to innovate fast, but incrementally. This has strong implications on the whole issue of first versus second mover advantage. As argued by CIO E:

> *"We are reasonably conservative and content with regards to our approach to technology. What we believe is we can watch the trends and see how they develop. We don't have a screaming need to be 1st, if we can be a close 2nd or 3rd on things that matter to us - that's perfect. […] This is because most of the hype around technology in the last decade hasn't delivered. We are therefore not looking at 'acts of faith' which you might say you are under pressure to do, since a lot of the competition is doing it. However our approach is let's see if that delivery occurs and if it does then to be in a position to replicate it fast enough."*

This quote is in strong contrast to the views expressed by many academics in the middle of the dot-com boom. Whereas the dot-com book dictated that first mover advantage (often associated with higher-risk acts of faith) was everything, the low-risk innovation strategy is more contextually determined. And though 'holy grail' technologies such as Knowledge Management and Customer Relations Management systems are marketed aggressively by consultancies and service providers, they are not automatic choices even within such large organisations who possess significant spending power. As two of the CIOs said:

> *"We are not clear as to how systems fit in between the relationships with our clients?"*

> *"Most promises about KM haven't really been delivered? We would like to watch it more clearly."*

Discussion

This paper attempted to explore *how do CIOs strategise while coping with the ever increasing ubiquity and*

complexity of ICT on the one hand and hyper business pressures on the other? We did not of course get a completely unified message, but there was still a surprising agreement on some key areas across organisations. The study provided one more view into the post dot-com world, where widespread technology led acts of faith have been replaced by careful incremental ICT investment processes.

While at a business level the value of ICT emerges from its ability in enabling business processes to be conducted more reliably, faster, with lower costs, providing information for better decision making, increasing revenues and so forth. However, if we adopt this 'proxy-view' of technology (Orlikowski and Iacono, 2001) in explaining perceptions of ICT value while relating it to Venkatraman's (1997) four categories of ICT value centers, we find that respondent perceptions concur with the view of ICT as minimising risk as opposed to maximising business opportunity. The value of ICT was perceived as primarily in optimising operational efficiency, i.e., a cost center, and in incrementally enhancing business capabilities, i.e., as a service centre. There were virtually no views expressed purporting the need for engaging in higher risk ICT investments that maximised opportunities, i.e., the view of the ICT investment as a profit or an investment centre, something perceived traditionally more strategic (Venkatraman, 1997). Although the distinction between the four value centres is analytical, implying that in any organisation a combination of all four centres are present at any time, however in actual situations there are bound to be dominant centres that reflect the strategic image of the organisation.

The simplistic capitalist doctrine implies that markets are built on the assumption of discontinuity and encourage new entrants to produce superior results and deliver value by remorselessly replacing weak performers that consume wealth. This fits well with the notion of IT strategising as a process by which investments in specific 'killer' applications with a clear purpose in sync with the technology vision are made, which allow the organisation to proactively traverse unexplored territory. How can we then make sense of the strategic imagery displayed by CIOs with executive powers to strategise, who seemed to focus on a much less proactive and risky role for ICT investment? Does this imply, as the title states, the death of strategy? What does strategy mean for these organisations and in what form does it exist? What can we learn about the whole issue of ICT strategising from this research?

One of the key lessons to be learnt must be that the whole issue of strategy and strategising is highly contextual and changes with a shift in the surrounding technological paradigm. The top-down notion of strategy implying proactive decision-making based on solid principles and methodologies stipulating strategic action was accentuated by the dot-com era. This was because the dot-com boom was very much informed by the strong belief in the radical power of good technology ideas. So much so that at the height of the boom, entrepreneurs not only set up companies, but also started incubator companies for the explicit purpose of mass-producing ideas, which in turn would lead to the mass-production of incubated companies, each with their

own strategic idea. Strategy is not dead; it is just assuming new forms under the influence of the prevailing context of a bear market and organisational backlashes caused by too many broken technology promises. Indeed when the future could be expected to follow neat and linear patterns, strategy had a clear place in the order of things. Now that the neatness has been upset, new and broader perspectives on strategy are necessary.

While Feeny and Ives (1997) argue strongly that that only the adoption of radical new business ideas can lead to business value, else we may be overtly focussing too much on operating an existing idea a bit more efficiently. However, the CIOs we interviewed expressed a clear intent for ICT investments to be incremental, user driven and open. Strategising now seems to be a more bottom-up short-term yet continuous organic activity focused on optimising organisational operations closely coordinated with users, and having to do with cultivating infrastructures, paradoxically the ones most difficult to value the strategic importance of (Dahlbom, 2000; Hanseth, 2000). This approach matches Ciborra's (2002) call for strategising based on improvised recombining of organisational capabilities and technological possibilities from a platform of capabilities and possibilities. These maybe the right conditions to deal with the seemingly opposing yet concurrent requirements of low cost, flexibility and competitive advantage. This apparent widespread shift in strategic approach doesn't necessarily imply a widespread conscious rational shift in the thinking of various stakeholders instead supports the viewpoint that markets are inherently irrational and infectious. We found that rather than each community working aggressively towards the most efficient outcome, much like Goldratt's (1992), 'Local Optimas', market communities are instead working towards digging themselves niches which happen to be fixated with cost containment and operations now. They are not engaged in pure competition and not interested in guessing what the customers want but rather acting purely in self interest based on close and constant observation of each others and mimicking them as 2nd movers. (White, 1981). This attempt to be in harmony with each other probably mitigates the effects of the turbulence which the environment inflicts on them.

Thus we do not suggest at all, that it is only during good times that CIOs should invest for the long term and focus on innovation. There is far too much uncertainty in the 'short term ecology' of Financial Services to do that. In fact if the end goal is to create value, then the quest for innovation needs to proceed in good economies and bad. However while it is important to to take advantage of socio-demographic changes, significant discontinuities or new technologies, but creating successful businesses takes more than the ability to predict the future, and that is the ability to redefine the present. Strategy therefore needs to come closer to reality and move away from the self increasing loop of data and analysis. It needs to be a continuous process- a dialog rather than a monolog. Experimentation, hedging and betting were always there, it is just that now they are focussed on generic safe technologies versus specific risky ones. There is an implicit distinction between the low-risk provision of infrastructures enabling incremental change of existing practices, and high-risk provision of dedicated strategic applications offering

the potential for radical change. Perhaps there is realisation, that linking technology and business is a journey and not an event.

Identifier	FIRM INFORMATION Category/ Main Business Area/ Key Figures	RESPONDENT INFORMATION Designation/ Background/ Roles
A (m) End User Firm	- Project Financing for banks, industries and businesses. Support privatisation, restructuring and raising capital - > 25 Countries, 20 Billion Euros Capital	- IT Director. > 20 yrs Experience - BioChemist(Phd), Business Management, Technical -Software Dev/ Quality Mgr/ Project Mgr/Strategic Planning
B (m) End User Firm	- Regulatory, Analysis, Coordination with Financial Institutions - Stability of Financial Systems- Domestic & International - Maintainging Integrity& Value of Currency/ Effectiveness of Fin Sys.	-Head-Management Services(UK), > 15 yrs experience -Economist -Economic Forecasting/ Fin. Mkts/ Security Settlement
C (m) End User Firm	- Leading Stock Exchange - Company Services, Trading Services, Trading Environment & Information Services through >100,000 installed terminals in over 100 countries worldwide, Markets Regulation	-Head IT Operations, > 20 yrs experience -Technical -Software Dev/ Programme Mgmt/ Consulting/ Managing Operational Relationships
D (m) End User Firm	- Corp. & Markets, Real Estate Finance, Wealth Mgmt & Retail Banking One of the largest Banks in Europe. With > 50000 employees > 2,000 branch offices and over multiple million customers,	-Head of Systems, > 20 yrs experience - Technical/ Computing - Software Dev/ Project Mgmt/ Pensions& Insurance
E (m) End User Firm	-Corporate and resource banking, treasury, investment banking, fund management, private banking and trust services -amongst the world's largest privately-owned banks, > 30 countries	-Group Head of Information Systems, > 20 yrs experience - Technical -Group Director/ Expert Advisor to EC/ Strategy/Implemtn
F (m) End User Firm	- One the Worlds Leading ReInsurer, also in Primary Insurance, Asset Management and other Financial Services - 60 Locations Worldwide, > 5000 Employees. (study at UK Life Branch)	-Head IT Operations, > 22 yrs experience -IT & Finance(Insurance) - Business Support/ Bus. Planning/ IT
G (m) End User Firm	- One of the worlds largest Asset Management Co's, with £500Billion -funds in mgmt., for prestigious clients. Eg More than 50% of UK FTSE - 3300 employees across 19 countries	- CTO - Business & Strategy - IB/ Technologist/ Group Head E-Technology/Dot Coms
X (m) Independe Practition	Group Dir. Global Supplier of IT & Communications Support Services, ex Founder & Executive Chairman of CMG, ex Deputy Chairman FI Group PLC, Founder President UK & European Computing Services Associations. > 45 yrs experience pan Europe, USA, UK	
Y (f) Independe Practition	Director IT Strategic Consultancy, Start up member-Specialist Software Company, ex IS Director large Telecom Company, ex IS Manager very large Food Processing Firm. > 26 yrs experience across Strategy, Programme Mgmt, Budgetary Mgmt, Customer Service, Exploiting IT, Process Re-engineering. Phd Mathematics	
Z (m) Independe Practition	ex IT Director UK's Largest Retailer(Food) & also non food, worldwide 979 stores, 260,000 employees, across 10 markets. Turnover 23Billion £. Also into Personal Finance= 2.5 Million Customer Accounts. Set up one of the worlds most advanced On-line Grocery stores. > 35 yrs experience with Managing IT, System Dev etc. Computing Background	

Table 1: Respondent Profiles

Identifier	Description of ICT	Management Approach to ICT
	Diversity of Services/User Roles Supported	**ICT Value, Strategy, Assessment & Articulation**
A (m) End User Firm	- Technical eg: Client Server Technologies, MIS, Data Warehousing. Generally in terms of capability of Systems - User Roles/ Tasks well defined. However a transition was observed with the maturation of Business. - Services mainly Networking, Computational, Adaptive	- Mainly Cost Center(Operational, reduce Risk) - Service Center (supporting business mandate & strategy) - Monthly report based on simplified Balanced Scorecard approach Fuzzy...mix of Financial & People figures. ROI & Business Case argument for new projects at personal level(relationship based) - No continous 'life cycle' evaluation approach. Only at beginning & end ...but not fed through any process to make value visible.
B (m) End User Firm	- Characterised by '4 focii of IT use' across business lines Supporting KW's, Financial mkts, Payment systems, central services & adminstrative supporting functions - User Roles/Tasks mainly well defined - Services Computational, Adaptive, Networking	- Mainly Cost Centre(maintaining & running Critical systems) - Service Centre-enabling Bus Change(remodel bus. Processes) - Benefits & Judgement focussed. Opportunity Costs & Risk Averseness consideration: Operational, Financial, Reputation Cross sectional team IT, Finance, Business Groups decide for new. - Review of Time, Cost, Benefits for new initiatives at start, quarter & end. No optimisation. For big projects 'Benefits Delivery Mgr'
C (m) End User Firm	- Characterised across business lines: Trading Sys, Info. Distribution Sys, Regulatory News Sys, Mkt Surveillance Downstream & Support systems -User Roles/tasks: described in terms of Internal users, operational users & external users for whom reqts change - Services mainly Computational, Networking	Cost & Service Center (IT Operations outsourced as a partnership) Managing delivery of services, relationships (SLA's) to support bus. - Benefits articulated in financial terms, based on CBA reports everything quantifiable' approach, link transactions to opportunity costs, customer satisfaction etc - evaluation predominantly at beginning, though the 'content' of projects in terms of meeting user needs is gauged at the end also.
D (m) End User Firm	- Description in terms of Architectures: Front, Back & Middle office & the applications lying within each layer. - user roles described in terms of Product groups - Services mainly computational, Networking	Cost & Service Center(Providing stable platforms upon which Applications supporting business be 'bolted' (IT Insourced here) supporting businesses can be 'bolted' on. - Articulate value in terms of KPI(key performance indicators) which have been agreed with different User Depts. Through SLA's - CBA approach supplemented with Project Assessment methods - Evaluation done regularly, ongoing basis by capturing process parameters(eg customer call handling data) matching it to KPI's
E (m) End User Firm	- as Business service sys. & Infrastructure service sys, which are generic & interact with all business lines: treasury banking, investment banking - Services mainly networking, adaptive, computational	- Cost,Service & Investment Center(Delivery & operation of services, understanding requirements, managing risk, provide comp. Adv. - simple CBA approach(costs & revenue focussed), also looking at opportunity costs, technical & operational risks - new projects look at proof of concept (testing) - review of projects done to see implementation against time, cost & benefits but not all components evaluated.
F (m) End User Firm	- characterised as according to different group businesses also whether systems are third party or developed in-house, client server architecture & technical description also - Services mainly computational, networking	Cost Center(It's a backoffice function/ infrastructure) -earlier based on CBA, now monthly reporting in terms of depicting ' control' - New projects consider opportunity costs & act of faith type-qualitat.
G (m) End User Firm	- in terms of 'vertical business lines' such as client facing division, investing platforms, operational platform, and at the bottom is 'horizontal common services' - user roles/tasks: described as users of executiveware, customerware, trading related & operational. Tasks to do with managing relationships & changing requirements also	- Cost, Investment & Service Center (provide world class tech. service ideas to the businesses to enable profit maximisation.) - Technology Portfolio method, well defined and reviewed at regular intervals. - each portfolio governed by separate set of qualitative rules - cross functional team evaluate business cases. - tendency to take average & compare with Benchmarks for evaluation
X, Y Z Independ Practitior	NA Note: Summary for respondents X, Y have been excluded to avoid redundancy as they were quite similar to Z	Cost , Service & Investment Center (Operations, Opportunities) - 'Factory' approach to operational elements, otherwise a Returns based approach which is tied in with Finance dept. - For new Proj. often 'capture' & present what customers are saying

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