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INFORMATION TECHNOLOGY AND BUSINESS STRATEGY: A SYNTHESIS OF THE CASE FOR REVERSE CAUSALITY

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ABSTRACT

The need for a link between information technology use and organizational strategy has been identified and discussed for a number of years. The thrust of this work argues that the motives for investment in IT should derive from firm objectives and, more particularly, from the strategic plan which the organization wishes to pursue. This paper argues that, often, mere lip service is paid to the strategic nature of IT. Further, strategy justification has become a tool for securing investment in IT by circumventing established organizational policy on investments. Many IT investments labelled “strategic” appear to be operational in nature. This paper discusses the nature of strategy and relates it to the literature on information technology as a strategic tool. The extent to which the relationship between IT and strategy has altered over recent years is subsequently investigated. Evidence of IT investment activities and the returns available to investing organizations are reviewed and the use of IT as a strategic weapon analyzed. The conclusion seeks to draw together the disparate strands in the IT-strategy arguments.

1. INTRODUCTION

The need for a link between information technology (IT) use and organizational strategy has been identified and discussed in the literature for a number of years. The thrust of this work argues that the motives for investment in IT should derive from firm objectives and, more particularly, from the strategic plan which the organization wishes to pursue. While not denying the implicit sense in this relationship, this paper argues that, in reality, often mere lip service is paid to the strategic nature of IT. Further, strategy justification has become a tool for securing investment in IT by circumventing established organizational policy on investments. Many IT investments labelled “strategic” appear to be operational in nature.

It would be difficult to deny that there is, or should be, a link between corporate strategy and information technology activities. But having said this, the statement is almost a truism which could be applied to any facet of business. One might similarly argue for the need to recognize the link between corporate strategy and advertising policy. For instance, an advertising campaign promoting a product line soon to be divested would clearly be a waste. So, far from denying the strategy-IT linkage, it is argued here that this is sound business practice — but is not revolutionary. The problem is, however, that the implicit concept that all IT, by its very nature, is strategic, blinds and constrains organizational decision taking.

This paper is structured as follows: first the nature of strategy is discussed and this is related to the literature on information technology as a strategic tool. The extent to which the relationship between IT and strategy has altered over recent years is subsequently investigated. This section investigates if the “difference” of IT is an historical accident and also how the strategic planning process may be operationalized. Evidence of IT investment activities and the returns available to investing organizations are then reviewed and the use of IT as a strategic weapon analyzed. If returns on IT investment are poor, then it follows that the investments are sub-optimal. One of the causes of this might be the classification of IT as strategic, thereby evading the usual evaluation processes. Finally, the conclusion seeks to draw together the disparate strands in the IT-strategy arguments. It is hoped that by synthesis the commonalities and inconsistencies in the various arguments can be highlighted.

2. THE NATURE OF STRATEGY

Most texts on business policy, following Anthony (1965), view management activity as lying on a continuum from operational, through tactical, to strategic; the differentiating factors being such aspects as time horizon, longevity and broadness of impact, the concreteness of the plan and the organizational level at which the decisions are commonly made. It is also possible to consider these activities as
hierarchical; that is, strategy guides tactics and tactics provide boundaries and direction for operational issues. "Strategy is a framework within which tactical moves are made," "strategy comes first, tactics implement strategy" (Steiner 1979). For Jauch and Glueck (1988), strategic decisions are means to achieve ends. That is, they "encompass the definition of the business, products and markets to be served, functions to be performed, and major policies needed for the organization to execute these decisions to achieve objectives." However, Brealey and Myers (1986) see no difference between strategic planning and capital budgeting. In their, perhaps purist, financial world, the former is merely the latter on a grand scale. This is an important point that organizational strategists concerned with IT evaluation would do well to bear in mind. Indeed, the focus of the current vogue, value-based strategic management, is on capital budgeting driving strategic management (Ilander 1992). Twiss (1986) suggests that the need for strategy flows from the inadequacy of the firm's profit maximization goal. Strategy is a longer term aim, allowing investment in long lead time projects, recognizing the need to influence, not respond to, environmental changes, and as an inspiration to organizational effort. However, significantly, strategy is a framework not a straitjacket within which to work.

2.1 The Evaluation of Strategic Actions

The criteria applied to operational issues are not seen as applicable to strategic activities. Steiner (1979) views strategic decision making as very complex and being dominated by non-quantitative factors. The reason given is that "many strategic decisions are not readily amenable to quantification...the more important the decision and the higher up in an organization at which it is made, the less quantitative data influence the outcome." This poses two problems when considering the labelling of information technology as strategic.

The first question is whether or not top management has a preference for qualitative data. If this is so, then a business case formulated in terms of qualitative data may stand little chance of success. Perhaps then, the couching of IT activities in qualitative terms is merely an astute political move on the part of IT managers; so we might view the substantial literature on "strategic IT" as an exercise in attempted legitimation. Some support for this derives from Stone (1991), who looks at information system assessment models. Inter alia, two of the hypotheses tested are: relative to information systems students and professionals, senior executives will perceive strategic model methods as more useful in evaluating information systems; and relative to information systems students and professionals, senior executives will perceive political model methods as more useful in evaluating information systems. Stone comments that strategic and political models rely upon qualitative language while the other two models used — fiscal and clinical — employ predominantly quantitative language. A further hypothesis, found to be significantly empirically supported, suggests that as the work experience of senior executives increases they perceive lesser value in quantitative procedures and greater value in qualitative assessment procedures. Taking this a step further, Sutherland (1991) describes how information systems managers sought to develop the perception among their superiors of IT as "infrastructure." The purpose of this was to overcome the "seemingly insurmountable barriers" imposed by strict cost benefit analysis. Pinches (1981), meanwhile, identifies the importance of coalitions, interpersonal factors, bargaining and politics in the selection or rejection of capital budgeting projects. He also suggests that the reward and punishment system has an important impact on the process. Further supporting the non-quantification ethos, it follows that punishment might be more easily avoided if a "strategy" fails to work, rather than if an evaluated process fails to achieve its aims. In a similar vein, Lederer and Mendelow (1988) hypothesize that the concept of strategic information systems might be a convenient means whereby IS managers can intimidate top management into allocating desired resources; thus it might be viewed as a "gimmick for empire building." However, Runchen (1991) sees the lack of structure in information system planning as necessitating considerable creativity and some risk-taking in order to be successful. Thus both top management and information systems staff might rightly regard over-reliance on quantification as an inhibitor to creativity and success.

Further empirical evidence for the above conclusion is put forward by Freeman and Hobbs (1991), who find a high incidence of managers ignoring reject signals given by their capital budgeting techniques. The authors suggest that one likely reason for this could be that managers are using "other" techniques to evaluate the strategic value of potential investment opportunities. They claim that this is a valid procedure if the project is mandatory or if the costs of undertaking an explicit evaluation of strategic benefits is high. Likewise, Coulson-Thomas (1991), discussing the role of information technology directors, claims that the technology management issues perceived by this group to be important do not include any notion of return on IT investment. This may, in fact, be sensible since Haka, Gordon and Pinches (1985) give support to the non-quantification argument; they find no evidence that firms employing sophisticated (for sophisticated read quantifying) project evaluation techniques perform better than firms guided by more naive techniques. There is a short run beneficial effect but not a long run one. Twiss, however, argues for a more formal evaluation, suggesting "no company is going to invest heavily in technology solely as an act of faith in the hope that by backing the right people 'something will turn up'."

In contrast, Lincoln (1990) comments, "At strategic plan time, it is very difficult to develop a conventional business case with a comprehensive cost/benefit analysis." This, he feels, is primarily due to two factors: first, the difficulty in predicting costs and benefits and, second, the need to go with a hunch or strategic insight, due to the speed with which the policy must be implemented. Support for this view comes from Runge and Earl (1988), who claim that 80% of successful competitive-edge applications which they
surveyed completely by-passed the normal management approval process. Though later, Earl (1989) seems to view IT investment as any other, with the rider that where IT projects are truly strategic, discount rates within the normal NPV model may need to be modified downward "to encourage bold initiatives." Welln and Olson (1989) and Gunton (1988), among others, suggest the use of "gut feeling" as a method by which IT investment is considered.

The more substantive, but related, question, however, is that of the direction of causality between IT and quantification. Does the lack of ability, or desire, to quantify IT investments "cause" IT to be viewed as strategic?

Swann and O'Keefe (1990) observe that "if projects can be classified as 'strategic' they may be excluded from the financial appraisal at the outset rather than being treated in an unsatisfactory manner." The sense in which "may" is used is not clear, it appears to mean "should." Yet this begs the question though of who decides if a project is "strategic." The notion of deciding this at the outset of a project's life when the proposal is likely to be couched in broad nebulous terms is odd. A significant problem may also arise when a project has been labelled "strategic" if that strategic goal is then broken down into tactical and operational actions: are these sub-projects also strategic and unappraised? The likelihood is yes because they contribute to strategy, but none are, of themselves, strategic. Swann and O'Keefe support their assertion by arguing that there are problems with formal evaluation techniques. These tend to "support managers in choosing low risk, quick fix solutions because of suitable net present value/IRR/payback results and the difficulty of including benefits of a strategic nature." Surely, however, the inclusion of any sort of benefit, strategic or not, would only enhance the NPV. They return to one of the arguments discussed in Powell (1992): a sound investment should be viewed as one that contributes to agreed corporate strategy rather than satisfying criteria laid down by a set of accounting rules and evaluation. Strategic justification then can be technical (the project is a prerequisite for an important follow-on activity) for business objectives (e.g., corporate image), or for competitive advantage. This thought, in turn, raises two issues. First, if the strategic justification is technical, then the project should be evaluated as part of a package. Second, similarly, competitive advantage justification requires that the organization must ensure that it does not invest in sub-optimal projects.

Strassman (1985) views investment in IT as a business strategy designed to substitute IT capital for information handling labor. The improved effectiveness may be realized through increased quality, cost reduction, decreased use of resources, enhanced use of employee talents or improved customer service. The way to evaluate this substitution is not to look for specific justification of computer hardware purchases, but rather to link them to strategic goals. Lincoln equivocates on this point. On one hand he argues "no longer are (IT) expenditures seen as low, and investments 'acts of faith'. Now executives require that their IS are both profitable and can be shown to be profitable." However, he goes on to list the problems of formal quantification, including confused objectives, computer benefits and organizational benefits being closely coupled, the speed and nature of change being hard to predict and different measures implying different conclusions. Yet the conclusion is that "even detailed calculations of the return on investment almost always underestimate the eventual potential contribution of a project." Galliers (1990) finds that one of the barriers to successful information system strategy is measuring benefits, and yet assessments of benefits of strategic information system planning occurred in only 16% of his cases and formal benefit assessments only in 9%. This may reflect the problem identified by Reich and Benbasat (1990), who caution that there is evidence to suggest that, in evaluating strategic information systems, success at a given stage of development is not necessarily an indication of success at subsequent stages, the factors influencing success being different at each. Grindlely (1991) identifies a further difficulty with the strategic projects: that a generic strategy may highlight goals but does little to identify means to achieve them. Finally, among Wilcock's (1992) ten reasons for evaluation failure is, significantly, the failure to create a strategic climate in which investment in IT can be related to organizational direction. Clearly the evaluation of strategic information systems is problematic and few participants in the process derive significant benefits from attempting it.

3. VIEWING IT AS STRATEGIC

Strassman (1985) maintains that

Strategic aspects of IT are best explained in terms of their influence on business results, such as changes in market share, improved product quality, increased market penetration, higher profit margins and enhanced customer service.

The literature on the strategic nature of IT has a reasonably lengthy history, though Lederer and Mendelow (1988) feel top management still needs to be convinced of the strategic impacts of information systems. Over twenty-five years ago, Land (1975) talked in terms of the need to judge information systems on their effectiveness — whether or not the output meets the goals of the organization — rather than efficiency, which is merely the cost minimization of a given output. Similarly, Long (1987) comments

Rigid insistence on cost justification is a legacy of the earlier era of computing, when multimillion dollar systems were implemented specifically as cost-reduction measures, primarily in "transactions offices." It no longer fits, especially in non-procedural offices.

Instead the firm should concentrate on effectiveness not efficiency. Aris (1975) reiterates this view, commenting that a requirement for effectiveness is known and quantifi-
able objectives, and also that there is a need to differentiate between project oriented (the allocation of existing resources) decisions and resource level oriented decisions. There is also an argument for separating discretionary from non-discretionary requirements. The former is treated as an overhead while the latter is evaluated strategically, which could be viewed as investment in an option. Sheppard (1990) dichotomizes these investments into expenditure to maintain the status quo and expenditure that contributes to profit. Banker and Kauffman (1988) see the former as threshold investments, those needed to stay in the market. In a similar vein, Lincoln suggests there are three types of IT investment which need to be prioritized: essential business requirements — these are unavoidable; payback projects — costs and benefits are measured and compared; and opportunity investments — which are high risk/high return options.

Lincoln sees strategic IT as supporting the fundamental business goals and objectives, hence investment should be in those IT-based applications and services which are likely to yield the best return in support of these. This, though, smacks of strategy as a preliminary screening device for investment considerations. The same author adds a further dimension to the methods by which return on IT investment is measured. The first concerns staff reduction, the second gaining competitive edge, while the third is by “act of faith.” This even more abstract and unquantifiable metric can only reinforce the non-evaluation ethos. Perhaps, for information technology applications, to NIH (not invented here) can be added the notion of NEH (not evaluated here).

Well and Olson suggest a range of metrics to be used for different IT investment types. Transactional systems can be evaluated using indirect labor measures, informational systems by return on assets, while those seen as strategic use revenue growth rates as a measure. The unanswered question is, of course, who defines the system type and, hence, the measurement criterion? Revenue growth rates are certainly a long run, subjective, hard to quantify metric, while labor savings may be an easier windmill to tilt at. In terms of the strategy-operational continuum, Peters (1990) argues for the need to evaluate overall investment in IT in terms of strategy, but individual investments in terms of objectives. The workability of this is unclear. It seems to be an argument for setting total IT budgets in terms of competitive equivalence (for instance, as a percentage of turnover related to industry norms, as in advertising and R & D), but then it is not clear within this how capital rationing is applied to individual projects.

Neo’s (1988) case study summary of factors facilitating use of IT identifies alignment with business planning as an important factor. Similarly, Broadbent and Well (1991), in a banking study, present six indicators which are important in aligning business strategy and information strategy. Yet only one of these relates to information systems in any way. The remaining are merely good business practice which are equally applicable to any strategic situation.

Information systems for competitive advantage are those that reflect the fundamental objectives of the firm and that may have a significant impact on its success (Bergeron, Buteau and Raymond 1991). The nature of this impact is via delivering lower cost production, differentiating the firm from its competitors and identifying suitable market segments. The authors, following Porter (1985), feel that these are achieved operationally by raising entry barriers, altering the balance of supplier/client power, creating dependencies for clients, offering new products or changing the grounds of competition. If the information system performs any of these tasks, then it can be argued to be strategic. Huff and Beattie (1985), however, differentiate between true strategic information systems and those which, although flowing from corporate strategy, are designed to support the operational and tactical levels of the organization. The former systems support the strategic planning process while the latter enable implementation. Liang and Tang (1991) provide three characteristics of strategic information systems: they link multiple parties, provide direct benefits to those parties, and affect competition. They are also felt to be environment-oriented. These characteristics provide a good test of system type investigated later in this paper. Clemons and Row (1991), however, state that a resource should be considered as strategic when it is a significant portion of the investment base of the firm and it is not freely available on a competitive resource market.

3.1 Shifting Views

There is an argument that views on the operational or strategic nature of technology have shifted over time. Dixon and John (1989), for instance, suggest that “Management and planning of the use of technology will shift to being based on macro financial business-wide measurement concepts and considerations rather than cost-benefit analysis of industrial applications and application enhancements.” Similarly, Sheppard reports that although most companies...employed IT to cut costs, leading companies are moving towards long term effectiveness, even though such IT investments were harder to justify quantifiably.

Anecdotal evidence comes from Madden (1992), quoting the CEO of a major power utility who says his organization is moving from mandatory projects to “more glamorous competitive initiatives.” Bergeron, Buteau and Raymond argue that the focus of information systems has moved from internal to external, that is, from within the organization’s boundaries to without. It is this focus which makes IT an important competitive weapon. Earl’s view is more simple: data processing was tactical, information technology is strategic. Along the same lines, Cragg and Finlay (1991) feel that there is likely to be more value-added for IT used to support unstructured activities than structured. The reason is the organizational specificity of the latter.
which is presumably located at higher rather than lower organizational levels.

Eason (1988) suggests that the simple cost justification models based on straightforward resource reductions or productivity gains are no longer applicable. Strategic application of information technology depends, he argues, on conceiving of ways in which the technology can be harnessed to serve major organizational objectives. This process requires that senior management must be involved in setting objectives and judging ways of meeting them.

A different type of temporal shift is alluded to by McFarlan and McKenney (1983). They argue that excessive domination both by users and by the information systems department can lead to negative consequences. The move toward end-user systems, and hence expenditure control by users, results in, inter alia, users building networks for their own, not corporate, needs and few measurements and/or objectives being set for new systems. This may be a consequence of labelling end-user IT as strategic. Sheppard throws some light on this in terms of investigating the location of the IT decision maker, finding 20% in the finance department, 36% not in finance, and 24% of organizations having designated personnel for the task.

It might be the case that technology subsumes strategy. Mitchell (1990) views one of the issues in the coupling between business and technical strategy as that business strategies are seen (or should be) as driven to a considerable extent by the inexorable march of technical progress on a global scale. In this case, strategy would have to follow technology. Sheppard, however, disputes this, arguing that a successful use of IT as a strategic weapon requires an external focus for its use, technical excellence, value-added justification and a sharing of benefits between organizations. Further, she claims that market leaders have, or need to have, a sound IT investment policy based on their corporate strategy. Eason suggests that firms considering investments should now "examine how the development will serve and enhance the business objectives of the organization and try to value the expected improvement in the performance of the relevant socio-technical system as opposed to the technical system."

3.2 Operationalizing the Process

The discussion above assumes that the IT strategists know, either through participation in the process or through receipt of explicit information, the business strategy of the organization. More likely, especially if no IT executive sits at main board level, is that IT managers are in receipt of operational or tactical orders. Strategic plans are usually well guarded and IT implementors may only have the public relations part of the proposals, not the full picture. What is ignored in most of the IT-strategy studies is the extent to which actions and plans can be operationalized within the usual reporting and control structure of the organization. Ives and Jarvenpaa (1991) claim "IT can propagate new business strategies but a more common goal is to effectively harness IT to an existing global business strategy." The question is, are the implementors likely to know what this is? Earl's view that, for many firms, business strategy is incomplete without reference to IT is inarguable, but the filtering down to those who enact policy is vital as well. This takes us back to Powell's question of whether IT is different and Lederer and Mendelow's (1989) comment on whether the information systems function is different from other functional areas when it comes to attempting to link a specific functional plan to the business plan of the organization. The same authors claim earlier (Lederer and Mendelow 1987) that successful integration can only occur when IS managers are aware of top management's objectives. They identify twelve difficulties here, including the lack of an organizational plan, changes to the plan not being disseminated and confidentiality issues. Harris and Katz (1991), investigating successful and unsuccessful users of IT, suggest that the former have CEOs whose vision and strategy include the use of IT, while the latter "may not have the technical skills and infrastructure or cultural values and beliefs to use the information technology as a strategic tool." The unsuccessful firms also tend to be budget oriented and expense driven which may indicate that formal classical evaluation techniques, unless placed in a wider setting, do not lead to superior performance. Other recent researchers (see, for instance, Grindley 1991) have suggested that there is a constellation of factors that provide competitive advantage, it is rare for technology to be the only source. Indeed, it is not even technology that is the problem but the exploitation of that technology. Competitive advantage will only flow from those activities that competitors cannot easily copy.

A further oddity in the IT implementation process is the role of the champion. Although undoubtedly other functions within the organization have champions, the IT champion has attracted much comment. For instance, Gremillion (1984) finds that the intensiveness of IT use depends on the existence of a champion, while Beath (1991) feels a champion is vital in ensuring that IT projects are enacted, although interestingly, the second most important piece of information the champion needs is accurate cost and time estimates. This contrasts with the preference for qualitative data from senior management. Further, the whole concept of a champion, whose role is to "push" technology projects which would otherwise not get enacted, is at odds with the obvious benefits that technology is expected to bring. Indeed, if the concept of a champion becomes institutionalized, then political manoeuvring rather than rational analysis becomes the norm.

A concluding comment comes from Ciborra (1991), who turns the definition of strategic round, claiming that any system which confers significant competitive advantage can be regarded as strategic. From this definition flows the conclusion that what constitutes strategy can only be discovered ex post.
4. THE RETURNS FROM INVESTMENT IN IT

Evidence for information technology avoiding traditional evaluation procedures is, of course, difficult to uncover. However, two possibilities suggest themselves. These possibilities are addressed in this and in the subsequent subsection.

One way to shed light on the problem is to look at the returns available on IT investment. If firms continue to receive poor paybacks then this points to a poor decision process and, perhaps, a lack of use of rigorous investment criteria, although it is accepted that there are other candidate causes.

There is some dispute over the returns available to firms which invest heavily in information technology. Markus and Robey (1988) suggest broadly that the "literature does not currently support reliable generalizations about the relationship between I.T. and organization change" (one type of change may be financial). Floyd and Zahra (1991) propose that there is an absence of a direct positive effect of IT on organizational performance; this, they conjecture, is due to improper implementation procedures, poor administration or abuse. They conclude that "overall using IT, per se, does not guarantee improvements in organizational performance. This use must be tied directly to company strategy, otherwise IT resources will be diluted." Orlikowski (1991) concurs, suggesting that previous research has relied too heavily on technological determinism.

Focusing on the financial aspects there is apparent disagreement. For instance, Bender (1986) finds an optimum level of investment in IT at 20% to 25% of revenue, although few commentators suggest that actual IT spending is anything near this amount (for example, IT spending is 14% of turnover [Price Waterhouse 1989] and for building societies, 20% of operations costs are IT). Others, such as Weill and Olson, suggest there is little evidence that IT investment increases organizational performance. While high performance companies allocate more to IT investment than low performance companies, there is little evidence of causality. Yet, Das, Zahra and Warkentin (1991) cite an A.T. Kearney study which shows that organizations with integrated business and IT strategic plans outperform those without. Both Boddy, McCalaman and Buchanan (1988) and Strassman (1985) point to instances where operational views of IT have resulted in gains in one part of the organization being offset by losses in another and where cost-benefit justification is favorable but firm-wide impacts are negative. Meanwhile Dos Santos and Peffers (1991) conclude from their banking study that only certain types of banks gained from technological investment — small and slow growth ones did not. Only certain types of early adopters gained market share and this gain was ephemeral, though efficiency gains were sustained. There is some disagreement on the gains available to initiators, however. Swatman and Swatman (1991) conclude that, in EDI, initiating organizations seemed to gain more. The cause may not be initiation, per se, but the types of systems constructed since Cragg and Finlay maintain that for unstructured activities — those hard for a competitor to copy — innovation is a good move, while, for structured activities, being a follower rather than a leader is preferable. However, in a formal duopoly model, Banu, Kriebel and Mukhopadhyay (1991) find both first and second mover firms benefit as compared to a simultaneous mover model.

The reasons why firms invest in order to gain competitive advantage seem to have been lost somewhere along the line. Competitive advantage is a means not an end in itself. Bergeron, Butteau and Raymond sum this up by suggesting that "gaining a competitive advantage should result in a long term added financial return for the organization." They add the rider that "even if, at times, benefits are difficult to quantify." This difficulty should not blind the organization's planners to the fact that they must, in the long run, achieve financial returns from investment in IT, superior to those available from other investment opportunities, otherwise the firm will not survive. Competitive advantage must be applied. However, the same authors and Powell argue that there is little evidence for the financial returns mentioned above. They suggest, inter alia, that imitators often outperform innovators, that IT may be a necessity, or, indeed, that IT may be beneficial but not deliver competitive advantage. If the latter is true, the IT system should not be regarded as strategic and should not be evaluated as such. This takes us back to the earlier point of Huff and Beattie and their suggestion that there is a need to differentiate between using IT as a strategic weapon and IT flowing from strategy. Much of the discussion has been on competitive advantage, although Cragg and Finlay caution on the need to remember competitive disadvantage, which accrues to a firm when all others in the industry invest and one does not.

The source of competitive advantage is in dispute, Eason (1988) reviewing work by Mowshowitz (1976) on the impact of IT systems remarks that only 20% of projects could be considered a success, there was marginal gain in 40%, while a further 40% were failures or rejected. Interestingly, Eason sees two of the main IT benefits as the expansion of quantity/quality of work done directly in pursuit of organizational objectives and the ability to seek new organizational objectives. However, he cautions that all benefits except cost reduction come from human learning, which may take time.

Weill and Olson conducted a number of case studies which shed some light on the process, rather than the outcome, of evaluation. For instance, in insurance Rol was used to "justify" investment where Rol was considered important, but there is evidence in some cases that investment was driven by a need to stay with competitors or by gut feeling. Perhaps flowing from the altering to strategic nature of the investment, there was felt to be increased "politicization" of the process. In banking, multiple measures were used,
although this may just have been an acknowledgement of the measurement problem not a solution. Nevertheless, consumer products leads the way knowing that there is an optimum level of IT investment. Unfortunately they don’t know what it is!

A concluding comment comes from the same authors who suggest that there is little new or different about IT and its use. The converting of IT into useful output was “just another example of the familiar problem of resource management.” In similar vein, Earl views technical developments as enablers: they provide “new strategic options.” The management problem is to perceive and implement these options. Bodd (1988) goes further, linking favorable outcomes to how wide a range of management and organizational issues are dealt with. Both Grindle et al (1991) and Findlay (1991) agree, opining that it is the use and management of information, not technology, which determines benefits. However, the BIM (1988) find 40% of their sample had no clearly defined strategy for IT implementation and, while 43% felt that implementation of IT had not been well integrated with an overall corporate business strategy, 36% did. Although Neale (1991) finds six benefits of post auditing, he uncovers little actual use of this in investment appraisal, suggesting that, even ex post, firms are loathe to evaluate.

4.1 Examples of IT Investment

The second possibility in investigating the direction of causality in the IT-strategy argument is to look at available examples. These may highlight investment practices which use the “strategy” argument to promote non-strategic systems.

There are a multitude of examples of information technology investment decisions, yet a paucity of fully articulated business cases for that investment. For instance, Sheppard presents a case study of E-mail installation where there was “obviously a need for it” but the firm felt it too expensive to establish the business case. The same author found little formal evaluation of benefits in nine case studies undertaken. Similarly, Bodd, McCllan and Buchanan discuss a hotel management system where the investment was justified primarily on the grounds of customer service, yet implementors felt it was difficult to identify cost savings to justify the investment in conventional accounting terms. Buchan (1992) quotes a building society director. “Basically, it’s hard to get a payback from developing computer systems, but they allow you to build up a customer database for cross-selling purposes.” These justifications are “strategic” ones, but even from strategic actions there might be an expectation that senior management reviews investments after a period, if only to see if the strategic benefits predicted are being delivered. Yet, Currie (1989), like Neale, finds little evidence of post-implementation analysis of “success” of investments. Peters concurs, suggesting that few organizations measure gains after investment — either due to measurement difficulties or simply because it “didn’t suit their culture.” McKeen and Smith (1991) provide a further example in that they cite an insurance system which was part transactional, part informational and part strategic. It would be interesting to know how such a system was treated by senior management evaluators. Bergeron, Buteau and Raymond conclude that, from the cited work on competitive systems, most would be expected to support the operational and tactical levels of the organization rather than the strategic level.

One factor ignored by the above is the strategic elements of transactional systems. Although they feel organizations disregard transactional systems, Andreu, Ricart and Valor (1991) argue that any system can be of strategic value, since transactional systems may be used to gain competitive advantage and hence these have a strategic element. This is a theme also addressed by Beaumont and Walters (1991). These authors maintain that the hybrid nature of many IS investments allows new ways of doing business, and also often allows decentralization, in addition to their transactional purpose. Powell, Hall and Klein (1991), having developed what was planned as an operational decision support system, found the users employing it to tackle strategic problems, suggesting that system classification is a function of the users not of the system itself.

5. CONCLUSIONS AND IMPLICATIONS

This paper maintains that confusion exists as to the nature of the link between information technology investment and corporate strategy. The direction of causation in this linkage is not clear yet, although this confusion may be deliberate. Currie characterizes IT justification as a ritual of legitimacy, not one of really assessing benefits, while Baxter and Hirst (1986) warn of self-interested manoeuvres being masked in rational rhetoric. If senior management has a preference for rhetoric over quantification, then IS developers will exploit this to justify both strategic and operational systems; non-quantification does not imply that the system actually, is strategic. Evidence exists that the nature of IT has changed, yet evaluators lag behind this shift. Finally two instances shed light on the process. First, returns on investment in IT are, at best, mixed, and second, a number of case studies show what appear to be operational systems improperly evaluated because they are labelled “strategic.” Finally, lest it be thought that non-evaluation of systems is problematic only if they subsequently fail, Vitale (1986) points to the “catastrophic” unintended consequences of success on competition and the organization. He offers a number of examples to illustrate this. The message for investors in information technology is clear: linking business strategy and IT strategy is necessary, but IT is not strategy nor is IT necessarily strategic and in no case should sub-optimal investments be made merely because a strategy smoke-screen exists.

6. REFERENCES

Andreu, R.; Ricart, J.; and Valor, J. “The Strategic Dimension of Transactional Information Systems: Some


Floyd, S., and Zahra, S. “The Effect of Fit between Corporate Strategy and IT Adoption on Organizational


