

Rags or Riches: Ensuring Benefits from IT Investments

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Abstract

The paper will describe and analyse a framework to achieve adequate linkage between IS/IT planning, evaluation of investments on an on-going basis, and also active realisation of benefits to the organisation over time. This framework is called the IT Evaluation and Benefits Management Life Cycle, and shows how to integrate planning, evaluation and benefits management activities. We would argue that this mix of planning, evaluation and benefits management is vital, as each of these components adopts a somewhat different (albeit important) focus to the other, and the position adopted in this paper reflects our belief of a need to meld or simultaneously juggle these three perspectives if more effective utilisation of the IT resource is to occur.

Keywords

IT evaluation, benefits management, strategic information systems planning

INTRODUCTION

Recent research suggests that an alarming proportion of companies (49%) are underperforming in both dimensions of efficiency and effectiveness of IT utilisation (Kempis et al. 1999), yet in many organisations, investment in IT represents a large proportion of capital outlay, and indeed, IT expenditures often represent the fastest growing category of investment for the organisation (Strassmann 1997). Thus it seems reasonable to conclude that IT assets (in terms of computer hardware, software, telecommunications facilities and human knowledge capital) are very significant, and therefore entitled to thoughtful management and careful attention to their value and contribution, and return to the organisation (Willcocks 1994). However, concerns are all too frequently voiced by senior management about the size of their firm's investment in IT, and more specifically, about whether the firm enjoys adequate returns on this investment (Willcocks 1996). For example, there is some evidence which suggests that large-scale IT deployment has resulted in replacing old problems with new ones, and that overall, introducing IT can be a huge disappointment since unexpected difficulties and failures are regularly encountered and expected business benefits are frequently not realised (Hochstrasser and Griffiths 1991). Furthermore, several studies point toward fairly static productivity in business despite the rising IT expenditure (Brynjolfsson 1993, Rai et al. 1997), giving rise to the notion of a 'productivity paradox' with respect to IT, and suggesting that despite large investments in IT over many years, it has been difficult to determine where the IT benefits have actually occurred, if indeed there have been any (Willcocks and Lester 1997). Some recent studies, however, indicate a strong positive correlation between IT expenditure and productivity gains, throwing doubt on the whole concept of the productivity paradox (Brynjolfsson and Hitt 1999). The situation remains

somewhat confusing for senior management, as there are conflicting results from research conducted in this area.

Further research will no doubt help to clarify the situation. However until such time, contemporary management faces some real dilemmas with respect to IT. Firstly, for competitive reasons, organisations can rarely exercise a choice *not* to invest substantially in IT, even when economically they cannot find sufficient justification, and current evaluation practice cannot provide strong grounds for making the investment. Secondly, as IT infrastructure becomes an inextricable part of the organisation's processes and structures, it becomes increasingly difficult to separate out the impact of IT (both positive and negative) from that of other assets and activities. Thirdly, it would appear that comparatively few senior executives feel that they understand IT adequately, despite high levels of expenditure (Willcocks and Lester 1997). The conclusion must be drawn, therefore, that despite misgivings about return on investment and limited understanding, senior management continues to feel pressured into significant investment in IT (McKague 1998).

A number of reasons can be posited as to why there are concerns and perceptions of an inadequate rate of return on investment in IT. Firstly, it could be that there has been an inappropriate investment in and use of information, information systems (IS) and IT in organisations, and hence concerns about the value of such investments. One often cited example of this stems from a failure to link IS/IT investments with business objectives and strategy initiatives (Edwards et al. 1995, Hochstrasser and Griffiths 1991). Alternatively, it could be symptomatic of a lack of, or ineffective, business and/or IS/IT planning. Over time, a failure to achieve alignment of IS/IT strategies and business strategies would be argued to contribute to disappointing perceptions of IT's contribution to business performance.

Secondly, it could be that current evaluation processes are either inadequate (or non-existent in some organisations), or that inappropriate evaluation techniques are being used (Willcocks and Lester 1997). Perhaps a lack of confidence in the tools available leads to less than satisfactory practices. Nonetheless, if evaluation practice and procedures are inadequate, this may lead to calls for improved tools, and improved practice. Indeed, this has been the case in the IS literature (Remenyi et al. 1997), and in recent years, a proliferation in the nature and number of tools available for evaluation of IT investment has been witnessed (for example, the Balanced Scorecard (Kaplan and Norton 1996, Olve et al. 1999), IT Investment Mapping (Peters 1994, Peters 1996) and the Evaluation Life Cycle (Willcocks and Lester 1997)). This would be hoped to lead to improvements in practice, and for managers to be endowed with much better information as to the economic viability of an IT investment proposal. However there could be dangers with this type of approach. It seems unlikely that the development of more appropriate methods, tools and techniques for evaluating IT investments alone will be sufficient to change practices and perceptions without being accompanied by substantial changes in managerial practices as well.

Thirdly, it may also be that an inadequate rate of return on IT investments arises because there are inadequate managerial procedures put in place to ensure the realisation of benefits from IS/IT (Ward et al. 1996, Remenyi et al. 1993). Expected benefits are nearly always identified pre-investment for new systems and technology, but rarely are proactive behaviours adopted and changes made to support the post-implementation realisation and evaluation of these anticipated benefits (Thorp 1998).

Arguably, therefore, there are at least three key issues which will impact upon perceptions of the value of IT investments:

- that appropriate levels of business and IS/IT planning are undertaken, with the express aim of ensuring that proposals and priorities for IT investment are aligned with corporate visions, strategies, and objectives;
- that wide-ranging, qualitative and quantitative evaluation procedures and techniques to assess performance on a range of measures are adopted throughout the life cycle of IS/IT, and that the outcomes of this evaluation are actively fed into managerial decision making and action about on-going investment in that IS/IT;
- and that organisations implement explicit procedures to ensure that adequate pre-investment consideration of benefits anticipated from IS/IT is undertaken, and more importantly, that post-implementation of that IS/IT, procedures are put in place to deliberately ensure that anticipated benefits are actively realised and managed over time.

The paper will describe and analyse a framework to achieve adequate linkage between IS/IT planning, evaluation of investments on an on-going basis, and also active realisation of benefits to the organisation over time. This framework is called the IT Evaluation and Benefits Management Life Cycle, and shows how to integrate planning, evaluation and benefits management activities. We would argue that this mix of planning, evaluation and benefits management is vital, as each of these components adopts a somewhat different (albeit important) focus to the other, and the position adopted in this paper reflects our belief of a need to meld or simultaneously juggle these three perspectives if more effective utilisation of the IT resource is to occur.

BACKGROUND

In his 1994 paper, Earl outlined a progression of increasingly mature and sophisticated thinking with respect to IT utilisation in organisations. Somewhat simplistically, Earl's argument is captured below in Figure 1.

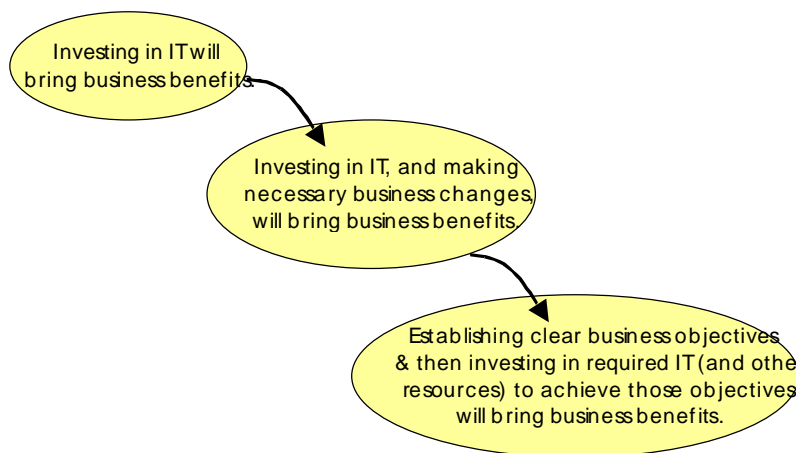


Figure 1: Increasing sophistication with respect to IT

Earl (1994) seemed to be arguing for a move from the “IT is good” mindset, to one that recognised (and practiced) the need for IT investments to be derived from clearly articulated business need(s). Indeed, it could be argued that this type of thinking underpinned much of the work with respect to Information Systems Planning (ISP) that occurred during the early 1990s. Thus it was not uncommon to read that “business strategy indicates what top management are trying to accomplish...the IS/IT strategy is derived from the underlying business strategy” (Peppard 1993). For the purposes of this paper, the definition of ISP from Wilson (1989) will be used, when he writes that ISP “brings together the business aims of the company, an understanding of the information needed to support those aims, and the

implementation of computer systems to provide that information. It is a plan for the development of systems towards some future vision of the role of IS in the organisation”.

Improving ISP was thus viewed as a serious concern for non-IT and IT managers in industry (Galliers et al. 1994), and much of the focus of ISP was in successfully achieving alignment between business imperatives and IT investments. Methods, tools and techniques were articulated to support this focus (see Ward and Griffiths 1996, Tozer 1996, Earl 1996, for example). While there was a great deal of sophistication with respect to the argumentation and approaches articulated, at times there seemed to be an assumption implicit that desirable outcomes would be achieved if only alignment could be achieved. Thus, in terms of our diagram in Figure 1, moving beyond stages 1 and 2, and embracing the thinking and actions implied by stage 3, seemed to be a way of overcoming disappointments with respect to IT investments, as a failure to achieve satisfactory linkages between business and IT initiatives has been cited as a contributing factor to a perceived lack of business benefits from IT (Edwards et al. 1995). Organisational reality, we would argue, has proved to be much more complex than this, and that other important factors serve to mitigate the delivery of benefits from IT to the organisation.

One such factor that seems to have emerged is that of evaluation of IT investments. For the purposes of this discussion, a managerial perspective is adopted in defining IT evaluation as “about establishing by quantitative or qualitative means the worth of IT to the organization” (Willcocks 1992). Concerns have been voiced, however, which suggest that the most frequently used approaches for IT evaluation such as cost-benefit analysis, may be unsuited to application to some IT projects, and hence may fail to reveal benefits that have been derived from a particular investment (Willcocks and Lester 1997). In addition, some research indicates that formal IT evaluation processes occur all too infrequently in many organisations (Farbey et al. 1993), that formal evaluation is too often limited to project management-type measures of success (Willcocks and Lester 1997), and that inadequate or no evaluation is carried out in a number of cases (Farbey et al. 1993).

Given these and other concerns about IT evaluation, and in particular that considerations about the “worth” of an investment needing to be more dynamic in nature and take account of changing requirements throughout the whole life cycle of an information system, rather than being based simply on pre-investment assessments and project management metrics, Willcocks and Lester (1997) proposed an evaluation life cycle. While IT evaluation on its own typically identifies costs (with a view to establishing some sort of control) and benefits as the counterbalance to costs in an attempt to justify the investment, the evaluation life cycle attempts to bring together a diverse set of methods and approaches to evaluate the entire extended systems development life cycle from a number of differing perspectives. Thus the concept of the evaluation life cycle is that evaluation should become an on-going component of IT management, from planning, through systems development (or acquisition), operations, until finally decisions are required on when to “kill off” an IT investment. A range of interlinked measures are proposed which take into account the diversity of the potential benefits and costs of an IT investment (see Figure 2 below).

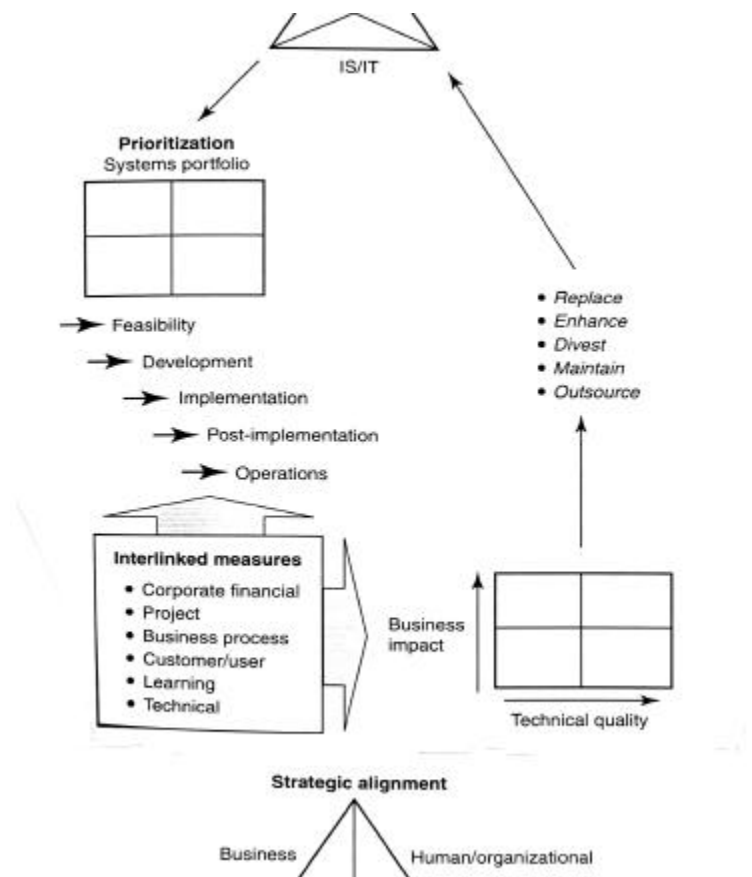


Figure 2: The IT Evaluation Life Cycle (Willcocks and Lester 1997)

One of the strengths of this type of approach is its recognition that notions of cost and value are not static, but rather change throughout the life of a particular investment. Secondly, there is a recognition that IT may contribute to an organisation in ways other than that which is easily taken into account by traditional financially-based measures. Thus, the evaluation life cycle encourages evaluation from a customer or user perspective, from a learning perspective, and so on. It may help in cases where financial justification is hard to make, but where other non-financial or intangible benefits suggest that the investment overall would be beneficial to the organisation. It also seems to promote a view of evaluation not as a static “snap-shot” of worth, but as something which needs to permeate management thinking and reflection, and motivate decision making and action almost on a day-to-day basis. Evaluation thus viewed becomes part of a management culture, rather than a highly politicized, legitimizing activity. It is our view that the contribution of Willcocks and Lester (1997) helps to move our thinking with respect to IT management to another level of sophistication.

One difficulty with all evaluation is that while it may be helpful, indeed essential, to the identification of costs and expected or perceived benefits from a particular perspective, it does little to implement processes and procedures to ensure the management and realisation of those benefits over time. Hence we see the emergence of benefits management approaches which typically institute procedures to ensure the realisation and management of expected benefits throughout the life cycle of an IT investment (Remenyi et al. 1993).

Thus procedures for the active realisation of the benefits from IS/IT investments should, together with procedures for the evaluation of such investments, be built into the routines and rituals of organisations, enabling an informed adaptive response to the problems of achieving ongoing value from IS/IT investments. An ongoing programme of IT evaluation and benefits management very naturally “closes the loop” on the careful evaluations, reviews and

adjustments that typically take place before IS/IT investments are committed to, never to be repeated or followed up as systems are developed, implemented and move into operations and maintenance phases. We believe that such a programme is a natural outcome of a fully-fledged business oriented view of the application of IS/IT. Adoption of a benefits management perspective, therefore, will move us to yet another stage of sophistication with respect to management of the IT resource in an organisation.

Benefits management approaches excel at identifying and managing the achievement of benefits but have few explicit means for linking these procedures to on-going decision making about further investments needed for modifications and enhancements, or actions to terminate, divest or outsource the investment, for example. Thus, consideration of Figure 3 leads to a conclusion that there is a need to bring together evaluation and benefits management into an integrated, seamless approach to thinking and acting with respect to IT in organisations. Whereas IT evaluation is concerned with methodologies and processes used to measure the costs and the potential and/or achieved benefits from IS/IT investments, benefits management is concerned with the management and delivery of actual IS/IT benefits to the organisation. However, there is a need to merge or meld these two approaches into a single and effective evaluation and benefits realisation approach, in order to reduce the inconvenience of going through the separate processes for evaluating, and managing and realizing the benefits from IS/IT investments.

This approach is aimed at ensuring that the organisation would properly plan and evaluate its IS/IT projects, while, at the same time, feel confident that the maximum expected benefits would also be articulated, achieved and delivered. The IT Evaluation and Benefits Management Life Cycle discussed in this paper will justify why planning, evaluation and benefits management activities should be integrated, and how they can best be integrated.

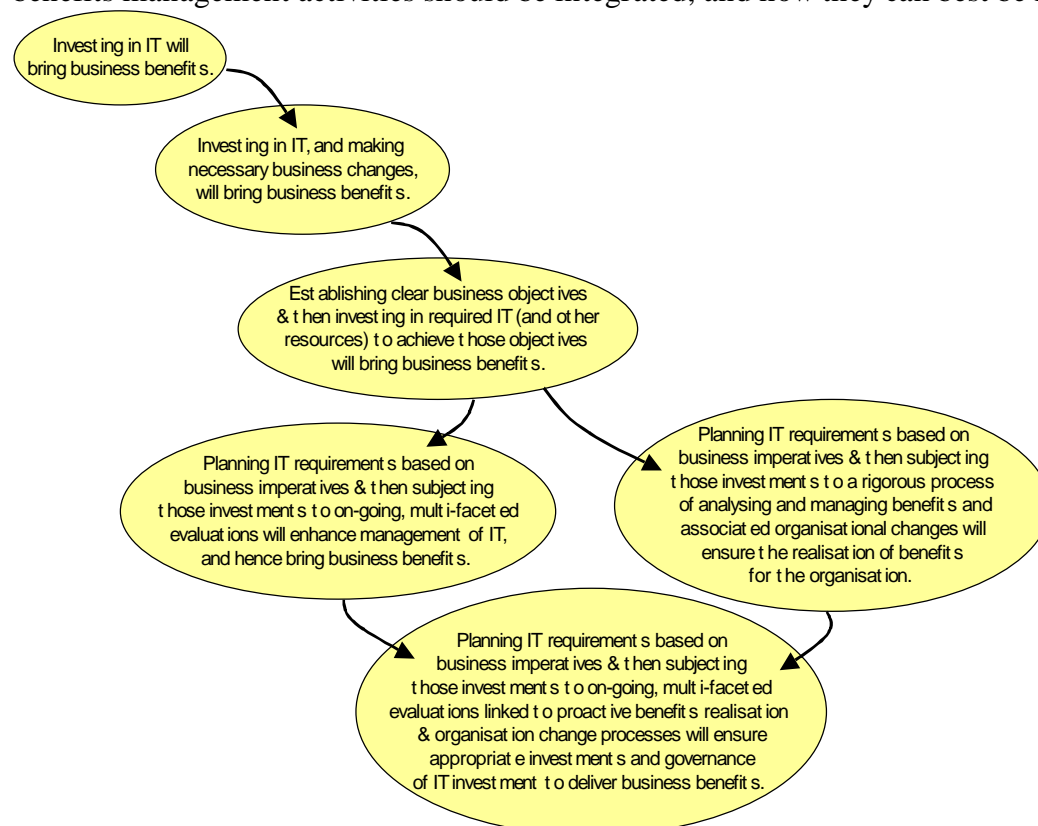


Figure 3: Integrating planning, IT evaluation and benefits management

Thus, the key to effective investment in IS/IT that is optimal in an ongoing sense is an integrated programme of IS/IT planning, evaluation and benefits management that is embedded in the day-to-day routines and rituals of the organisation. Such an integrated life cycle of activities should not only assure sensible and rational commitments to IS/IT initiatives, but also assure that such commitments remain viable, worthwhile and relevant.

IT EVALUATION AND BENEFITS MANAGEMENT LIFE CYCLE

Strategic planning and thinking about IT support finding answers for, or at least contemplating, key questions as business directions, objectives, considerations of how IT can either support or enable the achievement of objectives, and thus to considerations of whether a suite of coherent, strategic investments in IT is being proposed. Evaluation of IT enables greater certainty as to the “value” of IT investments, and by extending the evaluation process throughout the systems life cycle, the dynamic nature of the worth of IT can be established, and hence, managed. Establishing a sound business case for new and continuing investments is an important concern of evaluation. In managing benefits, our concern focuses more on harnessing potential benefits, ensuring they become realised benefits, and in so doing, recognising that the realisation of benefits needs to be considered in the context of a raft of organisational change initiatives. Our conviction is that management thinking and routine practice needs to link these sometimes disparate activities.

How does this work in practice? The first step in our integrated approach involves establishing strategic alignment between proposed IT investments and business strategy, assessing initial feasibility and identifying and structuring benefits. Arguably, bi-directional flows and relationships exist here (see figure 5(a)). Thus, demonstrably close alignment between business strategy and IT initiatives is likely to enhance perceptions of potential benefits from IT investments, and hence improve the likelihood that the project feasibility can be securely grounded in a strong business case. By contrast, doubts about feasibility may encourage reconsideration of potential benefits, or indeed, as to the extent of alignment, and so on.

This process of proactively ‘flickering’ between notions of achievement of objectives, possible benefits, possible costs and risk, arguably supports the prioritisation of a suite of potential investments, which must, in turn, be subjected to a more comprehensive feasibility study. Feasibility will be impacted one way or the other as understandings as to potential benefits are enhanced, with the potential existing that heightened sensitivity with respect to benefits could affect priorities for investments. Fluidity in investigating, considering and reviewing information regarding priorities, feasibility and expected benefits is expected (see Figure 5 (a) and (b)).

Assuming that a ‘go’ decision is reached, then the process of systems analysis (including the establishment of requirements) and design must proceed (arguably irrespective of whether a ‘develop’ or ‘buy and tailor’ decision is reached). Systems development (used here to include a ‘buy’ option) is itself a fluid process, and thus design decisions and changes need to be reviewed against whether or not alignment with business objectives has been undesirably affected (the problem of scope creep), whether decisions and changes impact expected benefits positively or negatively, and thus whether feasibility is in any sense compromised (see Figure 5(c)).

The IT investment must go through a process of implementation and testing, ultimately with the aim of becoming a fully operational system. A variety of perspectives or measures need to be adopted to enhance management of the realisation and delivery of business benefits, to

answer questions of the business impact and technical quality of an investment, ultimately leading to making decisions about the future of the investment (Should we continue to maintain the system? Does it need to be enhanced in order to continue to support the achievement of business objectives? Should it be replaced? Would it be beneficial to outsource its operations?). Any concerns about business impacts, technical quality, and/or a failure to deliver on-going benefits may well result in 'outsourcing' or 'replace' decisions. This, in turn, implies for renewed planning and assessment of the business requirements and drivers to take place (see Figure 5(d)).

The IT Evaluation and Benefits Management Life Cycle is thus complete, with one important omission. Earlier in this paper it was argued that benefits from IT would only be realised if appropriate organisational changes to support the technological change were planned, implemented and managed. To complete our cycle, therefore, this vital dimension of change management is added to the diagram (see Figure 5).

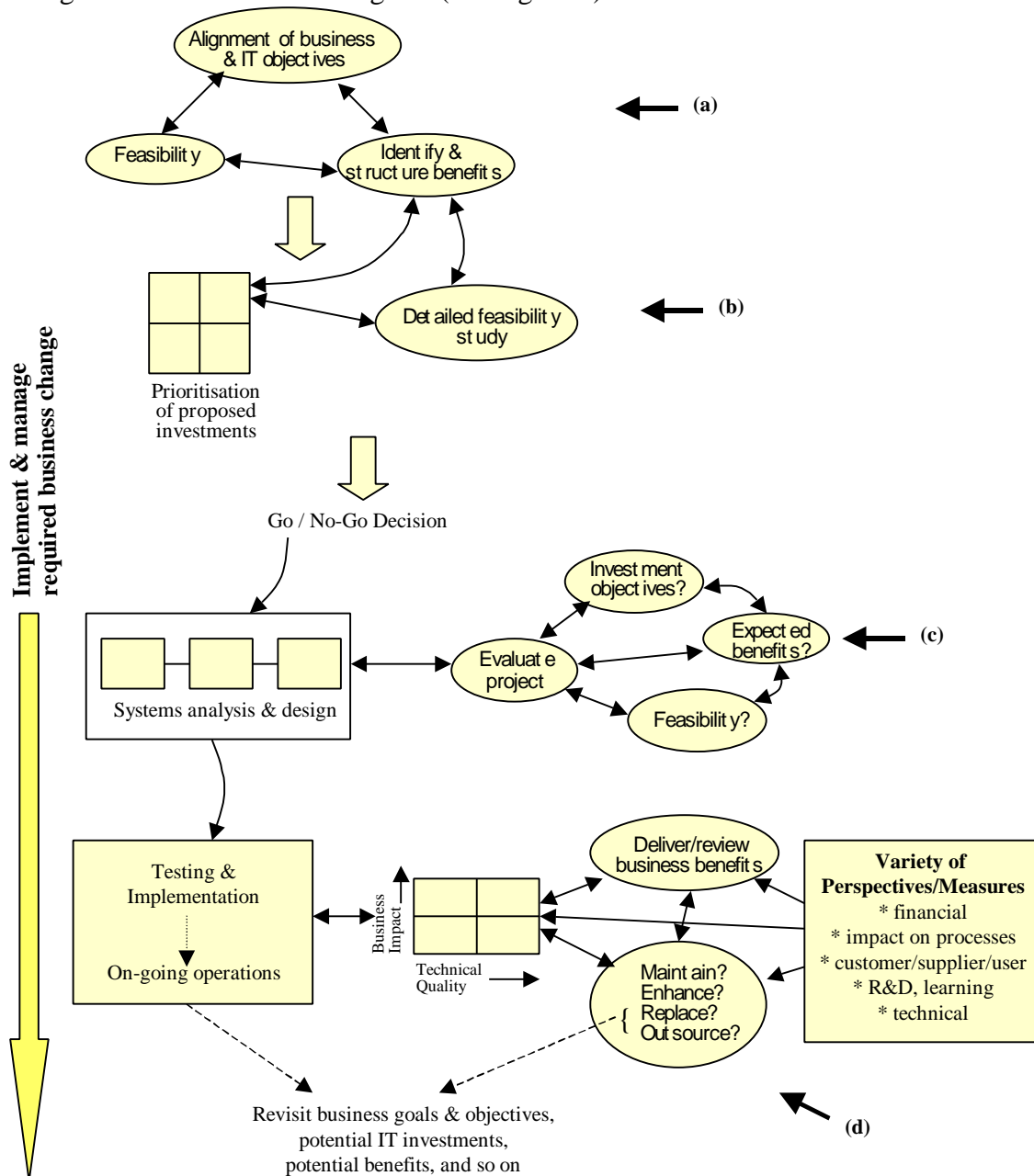


Figure 5: Identifying and managing required organisational change

There is always concern with graphics such as Figure 5 that the temptation exists to view this as a structured, step-by-step approach which must be doggedly executed in order to achieve a particular desired outcome. This could hardly be further from our intentions. Rather, we advocate flexibility and fluidity, incessant critical reflection, analysis and learning, almost to the point where this whole interplay of planning and alignment, evaluation and managing benefits permeate the consciousness and actions of those associated with IT decision making and management. Regrettably, we lack the skills to capture this pictorially!

ADDRESSING ORGANISATIONAL COMPLEXITY

There are some other important issues associated with complexities and realities of modern organisations that need briefly to be mentioned. Firstly, investments in IT are rarely made completely independently of either the existing IT legacy in the organisation or of other concurrent IT investment activity. Thus, issues of alignment, evaluation and realisation of benefits need to be considered in the context of a 'cross-system' or 'cross-investment basis' (see Figure 6). The point we are attempting to illustrate here is that in identifying a suite of potential IT investments and in proceeding to develop or purchase a number of this suite, inter-relationships and impacts need to be considered if we are to avoid the 'commons dilemma' (Phillips 1989). That is, if we are to maximize positive organisational impacts and returns, then making the best decision and taking the best actions overall should take precedence over deriving the best outcomes on a system-by-system basis. How often in the IT field do we hear of relatively isolated systems development processes (during which quite reasonable project management decisions are taken) becoming organisational nightmares when integrated at an operational stage with existing IT investments?

An even more potentially vexing situation occurs with interorganisational systems, virtual organisations, or in coordinated IT investment activity spanning a strategic business network (see Marshall and McKay 2000). Not only must all the complexities and interactions of a single organisation's IT inheritance and environment be addressed, but heed must also be paid to similar issues across a range of members of the business network (see figure 6(a) and (b)).

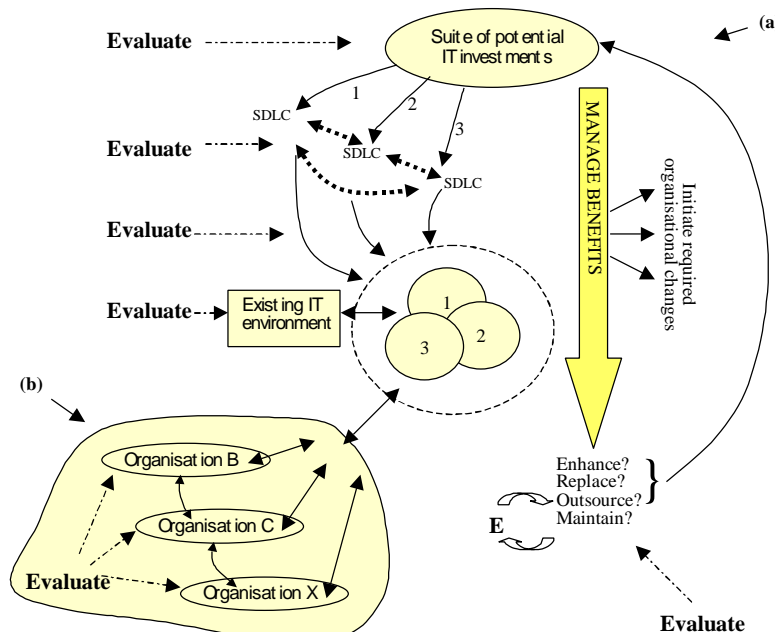


Figure 6: Considering the synergies and interconnections of IT investment spanning a strategic business network

Attempting to develop a step-by-step method to address these issues seems an untenable position to adopt. But arguing that perpetual musing and decision making, cognisant of the issues, should infuse the everyday behaviour of managers does not. This is our express aim in articulating the IT Evaluation and Benefits Management Life Cycle. We see its outcomes as much in terms of behavioral and cultural change, in changes to routines, as much as anything else. Neither do we envisage revolutionary upheaval in trying to make such changes. A strategically-positioned manager, quietly asking questions, gently probing the rationale of decisions and so on, can start to effect the changes we are advocating.

CONCLUSION

In an era of e-commerce, an information economy, and increasing connectivity, the pervasiveness of IT, and its strategic importance, seems to be growing at an unprecedented rate in most organisations. While this growth is clearly evidenced in increasing IT expenditures, assessing the value of that expenditure to the organisation and the contribution and benefits that IT delivers is not such a simple task. Indeed, there are clearly concerns expressed as to whether IT does make a reasonable contribution, given its cost.

This paper has discussed the interplay between the alignment of IS/IT planning objectives and business objectives, evaluation of IT investments, and realising benefits from IT investments. Arguments have been developed that synergies could be gained from achieving a close association and interplay between these activities. We believe that the importance of this paper is that it outlines an integrated approach to IS/IT planning, evaluation and benefits management that covers all stages of the information systems life cycle, including enterprise-wide planning. Further, the paper urges practitioners to embed this approach into the routines, rituals and practices of the organisation. In this way, the many tools and techniques of planning, evaluation and benefits realisation can be brought together and implemented in a way that really makes a difference to the deployment of information systems and technology in contemporary organisations.

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