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## Building Better Business Cases for IT Investments

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# Building Better Business Cases for IT Investments

Professor John Ward  
Cranfield School of Management  
Cranfield University  
Bedford MK43 0AL  
United Kingdom  
Phone: +44 (0)1234 751122  
Email: [j.m.ward@cranfield.ac.uk](mailto:j.m.ward@cranfield.ac.uk)

Professor Elizabeth Daniel  
Open University Business School  
Walton Hall  
Milton Keynes MK7 6AA  
United Kingdom  
Email: [e.m.daniel@open.ac.uk](mailto:e.m.daniel@open.ac.uk)

Professor Joe Peppard  
Cranfield School of Management  
Cranfield University  
Bedford MK43 0AL  
United Kingdom  
Phone: +44 (0)1234 751122  
Email: [j.peppard@cranfield.ac.uk](mailto:j.peppard@cranfield.ac.uk)

*John Ward is Professor of Strategic Information Systems at Cranfield School of Management.*

*Elizabeth Daniel is Professor of Information Management at the Open University Business School.*

*Joe Peppard is the Professor of Information Systems at Cranfield School of Management where he is also Director of the Information Systems Research Centre.*

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## Abstract

*While most organizations today demand a robust business case justifying investments in information technology (IT), our research finds that few are satisfied with their ability to identify and quantify the expected benefits from their IT investments. Surprisingly, we found that many organizations don't demand rigorous evidence to support the justification for investment – thus allowing benefits to be overstated and projects oversold.*

*Based on our work with organizations over a number of years we have developed a new approach for building a business case. It differs from conventional approaches in that different types of benefits are recognized, measures are identified for all benefits and evidence is gathered for the size of the expected benefits. A benefit owner is identified for each benefit, to ensure commitment and aid benefit delivery. Benefits are explicitly linked to both the IT and the business changes that are required to deliver them. Responsible individuals are also identified for ensuring these business changes occur.*

*We also recognize a wider role for the business case. Typically, the main objective in building the business case for an IT project is to obtain approval for the financial spend. However, a comprehensive and robust business case is also necessary to: enable priorities to be set among different investments for funds; identify how the combination of IT and business changes will deliver each of the benefits identified; ensure commitment from business managers and to create a basis for review of the investment when it is complete.*

*Recently we undertook a survey of over 100 European organizations to understand current practice in developing business cases and to identify how those practices relate to the success of their IT investments. The results show that organizations which adopt our suggested approach to building business cases are more successful in delivering value from their IT investments.*

**KEYWORDS:** IT investment, business case, investment appraisal, benefits management, change management

Studies consistently demonstrate that investments in information technology (IT) are failing to deliver the expected benefits. The ‘success-rate’ has hovered around 30% for many years, although recent research suggests that even this disappointing figure may be optimistic.<sup>1</sup> What is not clear from the project failure data is whether the benefits claimed in the business cases were even achievable. Although implementation issues frequently reduce or eliminate the achievement of the intended benefits, our research suggests that the benefits described in the business case were often never achievable in the first place. These benefits were often either exaggerated, so as to obtain funding,<sup>2</sup> or there was insufficient understanding of the business changes needed to harvest these benefits.<sup>3</sup>

Our research with major public and private sector organizations over a number of years has resulted in a new approach that produces more rigorous and robust business cases (see Appendix 1 for details of the research process). To explore which aspects of the approach made the greatest difference to the business value actually realized from IT investments, we recently conducted a survey of over 100 European organizations.<sup>4</sup> This paper presents both our approach to building a better business case and the findings of the survey.

Not surprisingly, we found that developing a business case for IT investments is common practice; 96% of respondents reported they are required to produce some form of business case when justifying IT investments. In addition, 68% believed that developing such a case was an important part of delivering value from IT investments. However, despite it being common practice, 65% of the organizations surveyed indicated they were not satisfied with their ability to identify all the available benefits, with 69% reporting that they do not adequately quantify and value the benefits for inclusion in the business case. Perhaps most worryingly, 38% of the respondents believed their current approach led them to frequently overstate the benefits in order to obtain funding. Other research suggests that management does not demand rigorous evidence to support major investment decisions<sup>5</sup>, which can lead to ‘delusional

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<sup>1</sup> R. Ryan Nelson, ‘IT project management: infamous failures, classic mistakes and best practices’, *MIS Quarterly Executive*, 6/2 (2007): 67-78; J. Procaccino, J. Verner and S. Lorenzet, ‘Defining and contributing to software development success’, *Communications of the ACM*, 49/8 (2006): 79-83; *The Challenge of Complex IT Projects*, (The Royal Academy of Engineering, London, 2004); National Audit Office *Delivering Successful IT-enabled Business Change*, Report by the Comptroller and Auditor General, HC 33-1, Session 2006-2007, London, November, 2006.

<sup>2</sup> This is not a new phenomenon. In the early 1990s Kit Grindley reported that 83% of IT directors that he surveyed admitted that the cost/benefit analysis supporting proposals to invest in IT were a fiction. He wrote about the “conspiracy of lies”. See K. Grindley, *Managing IT at Board Level*, (Financial Times, London, 1995). A survey of the 200 largest UK companies reported that 47% openly admitting to overstating the benefits to get approval for IT investments. See also J. Ward, P. Taylor and P. Bond, ‘Evaluation and realization of IS/IT benefits: an empirical study of current practice’, *European Journal of Information Systems*, 4 (1996): 214-225.

<sup>3</sup> J. Peppard, J. Ward and E. Daniel, ‘Managing for the realization of business benefits from IT investments’, *MIS Quarterly Executive*, 6/1 (2007): 1-11. For a study of organizational requirements to achieve the benefits of investments in IT in support of customer relationship management (CRM) strategies see S. Maklan, S. Knox and J. Peppard, ‘The missing link in CRM profitability: building marketing capabilities’, *California Management Review*, forthcoming.

<sup>4</sup> Some of the findings from this research have been published in J. Ward, S. De Hertog and S. Viaene, ‘Managing benefits from IS/IT investments: an empirical investigation into current practice’, *Proceedings of the 40<sup>th</sup> Hawaii International Conference on Systems Science*, Hawaii (2007).

<sup>5</sup> J. Pfeffer and R. Sutton, *Hard Facts, Dangerous Half-truths and Total Nonsense*, (Harvard Business School Press, Boston, MA, 2006)

optimism', due to an overestimation of the benefits and underestimation of the costs of achieving them.<sup>6</sup>

Prior research has found that disappointment in IT projects is more often related to the expectations established at the outset, than events that occur during the project<sup>7</sup>; thus, over-inflated benefit figures in business cases are likely to perpetuate the reported low success rates. Those exaggerated benefits may also weaken management's commitment to IT investment; 64% of the respondents believed that the problems in constructing a convincing and robust business case reduced the interest and commitment of senior management to ensuring the investment is successful.<sup>8</sup>

In this paper we present an approach to developing a business case that is based upon a rigorous and systematic exploration of the benefits expected from the investment. While many organizations describe their business cases as being based upon the expected costs and benefits of the investment, the approach we describe differs from most business cases in the following ways:

- Non-financial benefits are also recognised
- Measures are identified for all benefits, including subjective or qualitative benefits
- Evidence is sought for the size of the benefits included
- A benefit owner is identified for each benefit
- Benefits are explicitly linked to both the IT and the business changes that are required to deliver them
- Owners are identified for ensuring the business changes are achieved.

In order to understand the extent to which our suggested approach is related to the success of IT investments, we divided the organizations in our survey into two groups: those which are more successful (defined as more than 50% of their projects deliver the expected benefits) and those which are less successful (defined as less than 50% of projects deliver the expected benefits). The two groups were of similar sizes – 43% were in the more successful category and 57% in the less successful. The results showed there are marked differences in the approaches taken to developing and managing business cases in the two groups, so we were able to identify the practices associated with higher levels of success.

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<sup>6</sup> D. Lovallo and D. Kahneman, 'Delusions of success: how optimism undermines executives' decisions', *Harvard Business Review*, July (2003): 56-63.

<sup>7</sup> J. Procaccino, J. Verner and S. Lorenzet, 'Defining and contributing to software development success', *Communications of the ACM*, 49/8 (2006): 79-83. To quote Paul Strassmann 'the approval of a proposed investment is only the starting point for a continually widening gap between the stated objectives and the capacity to deliver results'. See P. Strassmann *The Squandered Computer: Evaluating the Business Alignment of Information Technologies*, (Information Economics Press, New Canaan, CT, 1997) p.5.

<sup>8</sup> J. Ross and P. Weill, 'Six IT decisions your IT people should not make', *Harvard Business Review*, 80/11, (2002): 84-91.

## The Role of the Business Case

Typically, the main purpose in building the business case for an IS/IT project is to obtain funding approval for the financial investment. However, in addition to obtaining funding for the IT investment, a comprehensive and robust business case is also necessary to:

- enable priorities to be set among different investments for funds and resources
- identify how the combination of IT and business changes will deliver each of the benefits identified – a benefit realization plan
- ensure commitment from the business managers to achieving the intended investment benefits, and importantly
- create a basis for reviewing whether the expected business benefits are actually realized.

While over 75% of the respondents in our survey agreed with the importance of these additional motives for developing business cases, less than 40% were satisfied that their approaches adequately address them.

## The Dangers of a Purely Financial Focus

Many organizations have a strong or even exclusive focus on the financial returns from their information systems and technology investments.<sup>9</sup> The aim of any business case is to express as many of the benefits as possible in financial terms. However an exclusive focus on such benefits can result in a number of issues, for example:

- encouraging 'creative' calculations of financial benefits based on inadequate evidence
- making unrealistic assumptions to claim sufficient financial benefits to provide the necessary return in relation to the costs
- limiting the financial benefits to only those necessary to offset the expected cost of the technology
- discouraging innovative uses of IT since the financial benefits of innovation may be less certain
- focusing on purely efficiency gains from IT, which improve individual processes, but often at the expense of overall organizational effectiveness
- minimising the costs of the technology either by reducing functionality, especially that which is not deemed immediately essential (e.g. integration of processes or information resources)
- understating the organizational costs of implementation, such as process redesign and training.<sup>10</sup>

The results of our survey confirm that the more successful organizations include a wider range of benefits in their business cases than the less successful, especially

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<sup>9</sup> J. Ross and C. Beath, 'Beyond the business case: new approaches to IT investment' *MIT Sloan Management Review*, 43/2 (2002): 51-59.

<sup>10</sup> A. Chircu and R. Kaufmann, 'Limits to value in electronic commerce related IT investments', *Journal of Management Information Systems*, 17/2 (2000): 59-80.

benefits associated with innovation and improved co-operation, both internally and with trading partners. Although these benefits are more difficult, but not impossible, to quantify they provide a more complete view of the business value that many investments produce. The less successful organisations tend to limit the benefits included to those associated with efficiency improvements and cost savings. While senior managers are often only interested in the financial benefits, many other stakeholders, such as customers and staff within the organization are often more interested in the ‘softer’ or more subjective benefits. It is these benefits, rather than the financial ones that are likely to lead to greater commitment from those stakeholders to making the investment successful.

## **Building the Business Case**

From our research we have developed and refined a six-step approach to building more rigorous and robust business cases.

### **Step 1: Define Business Drivers and Investment Objectives**

A convincing and robust business case starts with a statement of the current issues facing the organization– the *business drivers*. Senior management will quickly recognise these issues and will be looking for ways to deal with them. The business case then clearly states what the proposed investment seeks to achieve for the organization – the *investment objectives* – in a way that shows it can clearly address some or all of the business drivers. Drivers can be both external and internal. For example a mobile phone company (see Box 1 for more details) was experiencing increased customer defections, due to a combination of service failures and the extended product and service offerings of competitors. While its strategy was to differentiate itself on the quality of service rather than compete on price, it was suffering a lower than expected acceptance of its new services. It had also made large investments in network access and infrastructure which it needed to recoup. Management decided to invest in new call center systems to reduce customer problems and enable operators to increase sales of new services to existing customers.

The objectives set for the project were to: significantly improve the services provided by the call center and reduce service failures; increase the take up of new services and collect customer profiling information to target new services better. This was intended to be achieved without increasing the number of staff in the call centre through improved efficiencies in call handling. The improvement in service objective addresses the external business drivers relating to reducing defections and competing on service quality rather than price. The second objective addresses the internal driver of needing to recoup the high investment costs in the network through increased sales and identifying new market opportunities.

### **Step 2: Identify Benefits, Measures and Owners**

Having agreed on the objectives of the investment, management must now identify the expected benefits that will arise if those objectives are met. Investment objectives

and benefits differ in the following way: the objectives are the overall goals or aims of the investment, which are agreed by all relevant stakeholders. In contrast, benefits are advantages provided to specific groups or individuals as a result of meeting the overall objectives. Provided the benefits to different groups or individuals do not give rise to conflict, there is no need for all stakeholders to agree each benefit. For most investments, meeting each of the objectives will provide benefits to a number of different stakeholders, so while an investment may have only three or four objectives, it may well produce a large number of benefits. For example, a major UK supermarket chain developed a new electronic point of sale (EPOS) system. This provided management and merchandisers with the benefit of being able to monitor near real-time sales. Staff working at the check-outs did not see this as a benefit, but the new system was considerably easier to use, which they did view as a benefit. Finally, the customers were not aware of either of these benefits, but did benefit from both improved product availability and reduced check out times.

Once the expected benefits from the investment have been identified, it is then important to add two essential pieces of information to each benefit: first, how it can be measured and second, the individual who will own the benefit. Identifying how the benefit will be measured often increases the precision about what was meant by a particular benefit. For example 'increase in sales' may have been identified as an expected benefit. However, in considering how this may be measured, and in particular, how it can be differentiated from the sales that would have been made anyway without the investment being made, it is clear that the benefit must be expressed more precisely. If the investment is intended to result in a new product or service, or if it is expected to increase sales to a new customer segment or geographic market, then the expected benefit needs to be re-worded accordingly and the measure set as 'sales of new product or service' or 'sales to the target segment or market'.

An owner needs to be assigned to each benefit. This owner is an individual who gains the advantage inherent in the stated benefit, and is therefore willing to work closely with the team undertaking the project to ensure the benefit is realised. This may either be personally or through the resources and influence that he or she has. A benefit owner cannot necessarily be described as 'making the benefit happen', since, as will be discussed later, realization of the benefit may rely on changes to business practices or ways of working that are outside their control or influence. But it is his or her job to provide a 'value' for that benefit in the business case and to ensure a plan is in place to make certain the benefit is realized.

The more successful organizations in our study were twice as likely to assign ownership of the benefits and develop specific benefit realization and organizational change plans, compared with the less successful. Making individuals, particularly senior managers benefit owners not only builds commitment to the project but also demonstrates the importance of the investment, adding weight and reputation to the business case.

### **Step 3: Structure the Benefits**

Figure 1 shows the framework we suggest for structuring the benefits expected from meeting the investment objectives. This framework differentiates or structures these



benefits according to two factors: the type of business change that gives rise to the benefit and how much is already known or can be determined about the benefit before the investment is made - the *degree of explicitness*. Each of the benefits expected from the investment are placed within one column and one row of the framework, resulting in a spread of benefits across the framework. This clearly shows the mix of financial as well as more subjective benefits and the types of business changes necessary to deliver these benefits. Full definitions of the dimensions of this framework are discussed below.

We have found that the use of this framework for structuring the benefits, rather than simply compiling a list of benefits as found in most business cases, encourages greater discussion and evidence gathering about the expected benefits, producing a more robust business case. Use of this same framework across all business cases also enables comparison across investments and assists prioritisation. The application of the framework is described in Steps 4 and 5.

Degree of Explicitness	Do New Things	Do Things Better	Stop Doing Things
Financial			
Quantifiable			
Measurable			
Observable			

FIGURE 1 Framework for developing a business case

#### Step 4: Identify Organizational Changes enabling Benefits

The first stage of using the suggested framework is to classify each expected benefit according to the main type of change that will be needed to realize it, as shown in the columns in Figure 1. It may seem simplistic to relate each benefit to one of only three causes, but benefits arise because:

1. The organization, its staff or trading partners can *do new things*, or do things in new ways, that prior to this investment were not possible; or
2. The organization can improve the performance of activities it must continue to do, i.e. *doing things better*; or
3. The organization can *stop doing things* that are no longer needed to operate the business successfully.

Identifying the changes necessary to deliver some benefits may be straight forward. For example, many organizations now provide their internal telephone directory via their intranet or portal. In justifying such a development, one obvious benefit is the

cost savings associated with discontinuing printing and distributing of a paper directory. Those savings will be shown in the ‘stop doing things’ column. In other cases the necessary business changes may be less obvious. In such situations we suggest that a Benefit Dependency Network (BDN) be developed before a business case is prepared. The BDN network, previously described in *MISQ Executive*<sup>11</sup>, identifies the IT and changes to working practices and processes necessary to deliver each of the benefits. An important step in developing a BDN is the identification of change owners. Similarly to the benefit owners, named individuals are responsible for ensuring implementation of each of the changes that have been identified. This builds commitment to the investment and shows that both what the investment is likely to deliver and how those benefits can be achieved have been considered

In our experience, senior management is interested in the benefits which enable new activities or innovations, or that stop waste; less interesting to them are the ‘do things better’ benefits. For example, a public sector healthcare organization in the UK was required by the government to deploy systems to allow patients to select and book appointments that were convenient to themselves, rather than simply be sent an appointment date and time by the provider. Senior management initially viewed this simply as a better approach to scheduling; when they eventually realised that it could be used to do new things such as attract patients from outside their traditional catchment area, they became considerably more interested and involved.

### **Step 5: Determine the Explicit Value of each Benefit**

Having identified a column for each benefit, it is then necessary to assign each benefit to a row of the framework shown in Figure 1. Figure 2 describes the degree or levels of ‘explicitness’ of each row, based upon the ability to assign a value to the benefit from information that is known already or can be determined before the investment is made.

An important feature of locating benefits in the rows is the provision of evidence. Each benefit is initially allocated to the *observable* row. Evidence must then be provided, by the benefit owner, to move it to the rows above, which represent increasing levels of explicitness and knowledge about the value of the benefit.

**Observable benefits.** Some benefits can only be measured by opinion or judgement. Such benefits are often described as subjective, intangible, soft or qualitative benefits. While such judgements are acceptable a clear statement of the criteria to be used to assess achievement and also who is appropriate to make that judgement is agreed at the outset of the project

Such assessment by the relevant people is often the only way of determining whether many of the ‘softer’ benefits, such as improved staff morale or customer satisfaction, have been realized. However, if these have been tracked for a period of time through surveys and the issues that the investment addresses can be isolated, it may be

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<sup>11</sup> For a detailed description of the benefits dependency network and its application see J. Peppard, J. Ward and E. Daniel, ‘Managing for the realization of business benefits from IT investments’, *MIS Quarterly Executive*, 6/1 (2007): 1-11; and J Ward, J and E. Daniel, *Benefits Management: Delivering Value from IS & IT Investments*, (John Wiley & Sons, Ltd., Chichester, 2005).

possible to actually measure, rather than merely judge the benefit. Whilst such benefits, even in total, are unlikely to be sufficient to argue the investment case, they must not be ignored or trivialised. They may accrue to large numbers of stakeholders, whose change in behaviour is essential to the realization of the more substantial organizational benefits. For example, in the introduction of new EPOS systems in the supermarket chain discussed previously, although the main financial benefits derived from new information on stock movements, the improved ease of use was seen as an important benefit by the check-out staff. This benefit made the thousands of staff involved positive about the introduction of the new system, despite the disruption to work patterns.

Degree of Explicitness	Do New Things	Do Things Better	Stop Doing Things
Financial	By applying a cost/price or other valid financial formula to a quantifiable benefit financial value can be calculated.		
Quantifiable	Sufficient evidence exists to forecast how much improvement/benefit should result from the changes.		
Measurable	This aspect of performance is currently being measured or an appropriate measure could be implemented. But it is not possible to estimate by how much performance will improve when changes are completed		
Observable	By use of agreed criteria, specific individuals/groups will decide, based upon their experience or judgement, to what extent the benefit has been realised.		

FIGURE 2 Classifying the benefits by the degree of explicitness

**Measurable benefits.** These are defined as benefits where there is already an identified measure for the benefit or where one can be easily put in place. However, importantly, it is not possible to estimate how much performance will improve when the investment is completed.

Wherever possible, existing measures are used, and particularly when they are part of the organizational performance measurement system or its KPIs (key performance indicators), since this ensures that achieving the benefit is seen as integral to delivering the business strategy. It will also mean that the current baseline is already known. If however, no relevant current measurement exists, a decision has to be made as to not only what measure is appropriate, but also whether the effort required to establish the measure is worthwhile in relation to the significance of the benefit. If it is deemed too difficult or expensive to set up a measure then the benefit is ‘relegated’ to observable and suitable subjective criteria for evaluation identified.

**Quantifiable benefits.** Like measurable benefits, quantifiable benefits are ones where an existing measure is in place or can be put in place relatively easily. However, in addition to being able to measure performance before and after the investment the expected size or magnitude of the benefit can also be reliably estimated.

Since quantifying benefits inevitably involves forecasting the future, the challenge is to find ways of doing this that are as accurate and robust as possible. A number of

approaches to overcoming this quantification problem are discussed below. From our data, one of the weaknesses of many investment cases is the lack of evidence provided to substantiate any assumptions made in quantifying the benefits. Without legitimate quantification, it will be difficult, if not impossible to agree a realistic financial value. Hence the step between measurable and quantifiable is the most critical in converting a qualitative argument to a sound economic case for investment.

In our survey, over half the more successful organizations believed they adequately quantify the benefits, whilst less than 15% in the less successful group believed they do this satisfactorily. More worryingly, over 50% of the less successful organizations admit to often overstating the benefits to gain funding, whilst only 20% of the more successful group do so.

**Financial benefits.** These are benefits that can be expressed in financial terms. A benefit can only be placed in this row when sufficient evidence is available to show that the stated value is likely to be achieved. Hence all financial benefits are the result of applying a financial value or formula to a ‘proven’ quantifiable benefit. The financial benefits can then be combined to calculate an overall financial value of the investment, rate of return or payback. Whilst these techniques are well known and well used, there is only value in them if the underlying data on which the financial calculations are based are reliable and can be verified.

### Ways of Overcoming the Quantification Problem

There are a number of ways that evidence can be gathered to enable the measurable to quantifiable ‘barrier’ to be bridged, as illustrated in Figure 3. The five approaches to gathering evidence, shown in the circles in Figure 3, are primarily aligned to the column in which they tend to be most useful. However, when appropriate, each approach can be used with benefits in other columns.

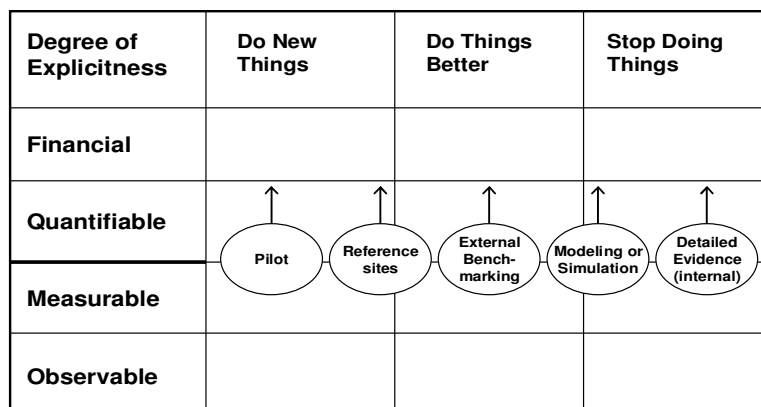


FIGURE 3 Converting measurable to quantifiable benefits

## Detailed Evidence and Modelling or Simulation

If a benefit results from stopping doing something the organization no longer needs or wishes to do, then the size of the expected benefit can usually be estimated from existing internal data or evidence. It is often important to establish evidence over a relevant time period, such as a year or through a peak in the trading cycle. However, it may only be necessary to sample the data to find sufficient representative evidence from which the overall value can be extrapolated.

Internal data on its own may not be enough to determine how performance will improve when the new IT capability and associated business changes have been completed. In such cases, modelling can be useful. A police force we worked with was interested in introducing a new crime and incident recording bureau. It was intended that both the public and police officers report crimes and incidents to the bureau ensuring a single source of complete information for all future activities, such as investigation, resource allocation and reporting. However, whilst they had existing data about crime and incident patterns, they did not know how this would translate into calls to their bureau. Simulation software provided by the vendor of the call centre system allowed them to model likely call patterns based upon their existing knowledge of crime and incident occurrences.

## Benchmarking and Reference Sites

Benchmarking is commonly used in a number of industries as the starting point for improvement programs. This can be a valuable approach to quantifying benefits, in relation to 'best practices' in the industry, or in comparable processes in other industries. For example, the time and cost taken to process loan and mortgage applications or insurance claims are considered as competitive KPIs in the financial services industry, whereas in other industries, such as electronics and pharmaceuticals, time-to-market for new products are critical benchmarks.

Although benchmarking is helpful for identifying potential improvements to established processes and practices, for obvious reasons it is less useful when trying to quantify the benefits from innovations. Unless the innovation is the first of its kind in the industry, there will be some reference sites where similar changes have been made or the technology is being used. Obviously care is needed to select relevant implementations and to be able to compare not only how the technology has been deployed, but also to understand the required business and organizational changes. It is also important to understand where the reference organization started from, in performance terms, in order to assess how much of the improvement they have achieved is relevant and feasible. Where organizations believe they are achieving an advantage from an innovation, it is unlikely that they will be willing to share all the secrets of their success, so the information gained from reference sites has to be treated with a degree of caution.

## Pilot Implementations

Pilot implementations can be used to not only test the technology, but also to evaluate the benefits that can be achieved from new systems and ways of working. To provide the best evidence it is good to identify a comparable control group still working in the old way. For example, when Thomson's Holidays first introduced its online holiday booking system into travel agents, it was able to compare very accurately the sales of the selected pilot sites with a similarly representative sample of agents still making bookings over the phone. The pilot was undertaken in a sample of agencies which was selected to be representative of the range of different agencies that they operated. The pilot was also run for several months, to ensure that improvements were genuine and not just due to the initial enthusiasm of the staff in the agencies selected to take part in the pilot. The 30% average increase in business handled by the pilot site agencies was sufficient evidence to justify the major investment required for roll out to all agencies.

It is interesting that, while the vast majority of all organizations in our survey conducted pilots to help identify and quantify the benefits, only 24% of the less successful companies use external evidence from reference sites and 16% of this group used benchmarking, compared with 45% of the more successful organizations using reference sites and 35% using benchmarking.

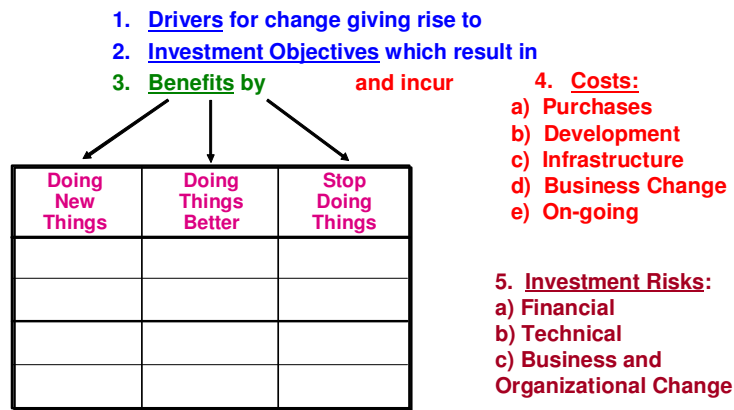
## Step 6: Identify Costs and Risks

In addition to the benefits, a full business case must obviously include all costs and an assessment of the associated risks (see Figure 4). It is important to include recurring costs associated with the outcome of the IT project once the new system goes live. These can include licence fees, telecommunications and ongoing maintenance costs and will occur throughout the life of the investment. In fact, the majority of IT costs are relatively easily calculated. However, the costs associated with making business and organizational changes are less predictable and are usually either underestimated or not included at all. From our evidence, it is the cost of these changes, particularly when they affect a wide range of stakeholders that leads to the significant cost overruns often reported for large IT investments. In spite of this, the nearly 60% of the survey respondents believed they were generally good at estimating costs.

Once a total financial value of the relevant benefits has been determined and the expected costs have been identified, a financial assessment can be made. Although the majority of organizations perform some form of financial assessment on all IT investments, that does not imply that the decision to invest is based exclusively on the estimated economic return. The limitations of financial appraisal techniques are well known and, given the many uncertainties of IT projects, even those organizations which apply them rigorously appreciate that basing decisions solely on estimated financial values will limit the types of business investments it makes.<sup>12</sup>

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<sup>12</sup> R. Kohli and S. Devaraj, 'Measuring information technology payoff: a meta-analysis of structural variables in firm-level empirical research', *Information Systems Research*, 14/2 (2004): 127-145.



**FIGURE 4** The complete business case

In terms of assessing the investment risks, there are well established ways of estimating financial and technical risks.<sup>13</sup> However it is often the willingness or ability of the staff within the organization to make the business or organizational changes that prevents the benefits from being achieved.<sup>14</sup> This is where the development of the Benefits Dependency Network provides a means of assessing not just overall project risk but risk in relation to each benefit. By considering the difficulty of making each change required to deliver a particular benefit, the risks of not achieving the business case can be assessed. The value of the particular benefit at risk will then suggest the importance of taking action to avoid or mitigate the risk.

A worked application of the suggested approach, based on an actual investment by the mobile phone company referred to earlier, is outlined in Box 1. The benefits framework shown in the table is typical of many investments. It illustrates a full range of benefit types, from observable through to financial. While the senior managers involved were keen to show that the financial benefits provided an acceptable return to the organization, it was recognised that the observable benefits were those of most interest to the hundreds of call centre staff that were required to use the new systems and adopt new ways of working, and whose buy-in was key to making the investment a success. The benefits result from a range of business changes, from stopping doing things the organization wished to avoid, such as call backs to customers due to service call failures, to doing new things, such as promoting their new higher-value services during service calls. The case also demonstrates that it is easier to put a financial value on things you are already doing and either wish to

<sup>13</sup> E. Jordan and L. Silcock in their book *Beating IT Risks*, (John Wiley and Sons Ltd, Chichester 2005) provide a comprehensive description of the range of IT implementation risks and how they can be addressed.

<sup>14</sup> For a recent analysis of IT project risk see C. F. Gibson, 'IT-enabled business change: an approach to understanding and managing risk', *MIS Quarterly Executive*, 2/2 (2003); *The Challenges of Complex IT Projects*, (The Royal Academy of Engineering, London, 2003) and R.R. Nelson, 'IT project management: infamous failures, classic mistakes, and best practices', *MIS Quarterly Executive*, 6/2 (2007): 67-78.

stop or do better. It is however, harder to find a robust quantity or financial value for benefits resulting from innovation.

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### **Box 1: MobilePhone Co example business case**

MobilePhone Co is a major global provider of mobile telephony services to both consumers and businesses. Following an internal restructuring of their service and territorial divisions, the UK consumer division wished to improve the service provided to customers and its ability to promote new network services and features to these customers. Excellent customer service was one of the few ways the organization believed it could differentiate itself from its competitors in what is a very competitive market. The organization had also invested considerable amounts in new network facilities, and needed to increase the sales of higher end services in order to recoup this investment.

The major part of the service improvement and the promotion of the newer services would be achieved by upgrading their call centre systems. Most service requests from customers came in via the call centre. If the request was dealt with promptly, it was hoped that the member of the call centre staff could then discuss newer service offerings with customers. In addition to dealing with incoming service requests, call centre staff would also make outbound marketing and promotional calls to customers. A new customer profiling system would be employed to allow the service being promoted, and the message used to be tailored to the perceived customer needs. Data would also be collected from customers during service and promotional calls, and recorded in the profiling system in order to improve future targeting and also to be able to develop new service offerings.

#### **Business Drivers**

*External* – mobile telephony services seen as indistinguishable, hence difficult to differentiate from other players on brand alone. Price competition undertaken in past was difficult to sustain, hence service seen as a point of differentiation.

*Internal* – High investment made in network access and infrastructure, need to recoup this through increased customer take up of higher-end services.

#### **Investment Objectives**

1. Significantly improve the service provided to customers by the call centre and reduce service failures
2. Increase take up of newer services e.g. mobile internet and data services
3. Collect customer profiling information in order to develop and target new services

#### **Benefits**

The main benefits that would be realised by achieving these objectives are shown in the table below. The total expected financial benefits amount to £1,805,000 per annum.



	Doing New Things	Doing Things Better	Stop Doing Things
<b>Financial</b>		<p><b>Benefit:</b> Increased customer retention due to improved service provision</p> <p><b>Measure:</b> Reduction in customer defections. Avoided defections due to service failure= 1750 p.a. Cost per defection = £500 – saving of £875K p.a.</p> <p><b>Benefit Owner:</b> Customer account manager</p> <p><b>Benefit:</b> 20% reduction in call servicing costs</p> <p><b>Measure:</b> Cost per service call. No of calls p.a. = 5.6 million, total servicing costs = £1.2 million – saving of £240K p.a.</p> <p><b>Benefit Owner:</b> Tele-channel sales manager</p>	<p><b>Benefit:</b> Stop call backs to customers after failed service calls</p> <p><b>Measure:</b> Number of call backs. Number in previous years = 1.5 million. Cost per call = £0.46 – saving £690K p.a.</p> <p><b>Benefit Owner:</b> Call centre operations manager</p>
<b>Quantifiable</b>			<p><b>Benefit:</b> Eliminate call waiting times over 2 mins for customers</p> <p><b>Measure:</b> Number of call currently waiting over 2 mins = 1.1 million</p> <p><b>Benefit Owner:</b> Call centre operations manager</p>
<b>Measurable</b>	<p><b>Benefit:</b> Call centre staff able to undertake sales calls/promote new services</p> <p><b>Measure:</b> Number of sales calls per staff member or sales per staff member. Current value = 0, call centre purely inbound service oriented.</p> <p><b>Benefit Owner:</b> Tele-channel sales manager</p>	<p><b>Benefit:</b> Customers not switching due to products and services of competitors</p> <p><b>Measure:</b> Number of defections due to offerings of competitors. Current number of customers switching = 5500 pa</p> <p><b>Benefit Owner:</b> Principal product and service manager</p>	
<b>Observable</b>	<p><b>Benefit:</b> Call centre staff motivated by being trained about newer services</p> <p><b>Measure:</b> Increased call centre motivation</p> <p><b>Benefit Owner:</b> Call centre staff manager</p>	<p><b>Benefit:</b> Ability to develop future services based on customer data</p> <p><b>Measure:</b> Quantity and quality of customer profile data</p> <p><b>Benefit Owner:</b> New service development manager</p>	<p><b>Benefit:</b> Stop frustrated/rude customers due to service failure</p> <p><b>Measure:</b> Call centre staff opinion</p> <p><b>Benefit Owner:</b> Call centre staff manager</p>

**TABLE: Benefits for MobilePhone Co**

### Investment Costs

Purchase of new call centre hardware & software:	£250,000
Cost of Implementation Technical Consultants:	£120,000
Internal Systems Development Costs (for configuration):	£150,000
Infrastructure Upgrade Costs:	£75,000
Business Change Costs:	£270,000
Training Costs:	£80,000
<b>Total:</b>	<b>£945,000</b>
Net increase in ongoing systems support & licence costs:	£80,000 p.a.

### Risk Analysis

Technical Risks:	Complexity of the systems functionality Number of system interfaces and systems being replaced
Financial Risks:	Confidence in some investment costs – especially business change Confidence in the evidence for some of the benefits Business criticality of areas affected by the system
Organizational Risks:	The extent of changes to call centre processes and practice Limited existing change management capability Call centre staff capability to promote more technical services Customer willingness to share information for profiling purposes

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## Using the Business Case to Review the Investment

A good business case will enable the outcome of the investment to be assessed in terms of the benefits delivered, or if they were not achieved, to explain why. Most organizations carry out post-implementation reviews that consider time, cost and technical quality, but fewer than 50% of our surveyed organizations do a formal assessment of the value delivered, even though senior management rates ‘value’ as the top criterion on which success should be judged.<sup>15</sup> Data from our survey indicated that ‘evaluation and review of the benefits’ was the weakest aspect of managing IT investments. Only 20% of the organizations were satisfied that they did this sufficiently well. Although many of the more successful organizations believed this needed further improvement, nearly 70% of them at least carry out benefit reviews compared with fewer than 40% in the less successful group. It is almost certainly not a coincidence that within the less successful group, those which overstate the benefits to obtain funding are the least likely to review the outcome!

Of all the aspects of business case development that differentiated the successful from the unsuccessful groups, evaluation and review of the benefits was where the differences were most pronounced. It seems reasonable to suggest that the rigor with which an organization appraises the results of its IT investments will significantly

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<sup>15</sup> See also R. Nelson, ‘Project retrospectives: evaluating project success, failure and everything in between’, *MIS Quarterly Executive*, 4/3 (2005): 361-372.

affect the quality of the business cases on which investment decisions are made.<sup>16</sup> In turn, the comprehensiveness and the quality of the business cases will significantly influence the commitment of managers to delivering the intended benefits. It is this attention to the benefits throughout the investment life-cycle that, from our survey, distinguishes those organizations that deliver the majority of benefits expected from those that fail to do so.

## Conclusions

The majority of organizations believe their approach to developing business cases for IT investments is far from satisfactory. It is also apparent that many business cases are not based on adequate evidence in support of either the value of the benefits claimed or the likelihood of them being realized. However our research also found that the quality and comprehensiveness of business cases has a significant affect on the success of IT investments.

Our research shows that those organizations that are more successful in realizing value from their IT investments understand that the business case is not only a way of obtaining funding, it also has other purposes: showing how the benefits depend on business changes as well as technology, gaining commitment to achieving the benefits and enabling the success of the investment to be judged objectively. The approach to developing business cases described in this paper directly addresses these issues and hence ensures the argument for investment is clearly understood by those who have to decide whether to proceed, and by all those involved in project delivery. It is not surprising that this is achieved through a combination of providing appropriate evidence to support the benefits expressed and allocating responsibility for their delivery.

In the less successful organizations the business case often has the singular purpose of obtaining funding, leading to either not identifying all the benefits that the investment could deliver or to overstating the benefits. Neither is satisfactory and clearly results in lower levels of benefits delivered. In many of these organizations the investment logic is told largely in reverse - the costs are understood first and then sufficient benefits to justify the cost are identified, a rather too literal interpretation of the term 'cost benefit analysis'!

Our approach proposes a 'benefit cost analysis' which enables management to clearly understand the benefits that they can expect from an investment and hence decide how much they are willing to invest. In using the framework shown in Figure 1, management can also understand what has to be done to achieve the business case, and whether they are able and willing to make the investments in business and organizational changes needed to realize the benefits.

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<sup>16</sup> P. Tallon, K. Kraemer and V. Gurbaxani, 'Executives perceptions of the business value of information technology' *Journal of Management Information Systems*, 16/4 (2000): 145-173. See also R. Ryan Nelson, 'Project retrospectives: evaluating project success, failure and everything in between', *MIS Quarterly Executive*, 4/3 (2005): 361-372

The three factors which most differentiated the more and less successful companies in our study were their ability to identify all the potential benefits from the investment (3 times more likely in the successful organizations), quantify those benefits (again 3 times more likely) and whether projects were reviewed after implementation and lesson transferred from completed to new projects (twice as likely).

When stated so clearly it seems simple. So why don't more organizations produce rigorous and robust business cases? There are two main reasons for this. First, it takes time and resources to produce a comprehensive business case, particularly if it requires considerable effort, such as a running pilot project to provide reliable evidence for the expected benefits. Organizations are often unwilling to commit such resources if the proposal may not be funded, or if it will delay a project considered certain to be funded. However, our research also shows that nearly 80% of IT business cases are funded in the more successful organizations that follow our suggested approach, compared with just over 40% in the less successful.

Second, if an organization does not review whether the benefits have been achieved after implementation, it reduces the incentive to produce a rigorous business case. Reasons given for not reviewing investments include: 'it is not necessary if the project is successful' or individuals' fear of being blamed if an investment fails to deliver the expected benefits. Equally often, the reason is again one of time and resources to carry out the review. If the original business case was not robust, any review would be based more on subjective opinion than objective assessment and if the benefits were overstated, no-one will be keen to hold a review. These are the main reasons only a minority of organizations systematically review the effectiveness of the business cases, but as our research shows the more successful are far more likely to do so.

Producing consistently robust business cases through a comprehensive and rigorous approach to identifying and quantifying the benefits enables organizations to make more informed decisions about which IT investments to make. From the evidence provided by the more successful companies in our survey, and our experience of working with a wide range of organizations, developing such benefits-led business cases also offers organizations a way of significantly improving the success rate of those investments.

## Appendix 1: About the Research

This paper is based on data collected from three related research projects conducted at the Information Systems Research Centre at Cranfield School of Management. The first is a longitudinal study that explored how organizations can realize business benefits and value from their investments in IT. The researchers worked with 20 large organizations from both public and private sectors in the UK. Following first a case study methodology, the key dimensions of an effective business case were identified. Then, working with inquiry teams in these organizations using an action research methodology, an approach for constructing a business case was initially developed, tested and subsequently refined and enhanced through a cycle of action and learning.

The second project studied the change and organizational issues associated with the successful deployment of enterprise systems. The scope of the project included 5 in-depth case studies of different types of enterprise wide systems. This research helped in identifying many of the implementation issues that must be addressed during the development of the business case and led to us refining our approach.

The third project was a survey, conducted during 2006 in collaboration with the Vlerick Leuven Gent Management School in Belgium, which obtained the views of senior business and IT managers in 102 organizations in the UK and Benelux on their management practices and organizational success in generating value from their IT investments. These practices covered the full investment life cycle from project inception, through justification, planning, business case preparation, and implementation to evaluation of the benefits ultimately realized. Most of the organizations in our sample were large, coming from both the industrial and service sectors, with 11% being large public sector organizations. From this research we were able to identify the practices that differentiated the organizations that are more successful in generating value from IT investments.