

John Ward
Cranfield School of
Management

Elizabeth Daniel
Open University
Business School

Joe Peppard
Cranfield School of
Management

Executive Summary

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 these 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 many years, we have developed a new approach for building a business case. It differs from conventional approaches because it recognizes different types of benefit, identifies measures for all benefits, and gathers evidence for the size of the expected benefits. The approach also requires that 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 the necessary business changes occur.

Our research also identifies 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. But a comprehensive and robust business case also: (1) Enables priorities to be set for investing in different projects; (2) Identifies how the combination of IT and business changes will deliver each of the benefits; (3) Ensures commitment from business managers; and (4) Creates a basis for reviewing the investment when it is complete.

We surveyed over 100 European organizations to understand current practices in developing business cases and to identify how those practices relate to the success of IT investments. The results show that organizations that adopt our suggested approach to building business cases are more successful in delivering value from their IT investments.

DRAWBACKS WITH CURRENT APPROACHES TO IT INVESTMENT BUSINESS CASES

Studies consistently demonstrate that investments in information technology (IT) are failing to deliver the expected benefits. The “success rate”—that is, the percentage of projects that deliver the expected benefits—has hovered around 30% for many years, although recent research suggests that even this disappointing figure may be optimistic.² 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

**MISQE is
Sponsored by**



¹ Blake Ives is the accepting Senior Editor for this article.

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

in the first place. These benefits were often either exaggerated, to obtain funding,³ or there was insufficient understanding of the business changes needed to achieve the benefits.⁴

Our research with major public and private sector organizations over many 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.⁵ This article presents both our approach to building a better business case and the findings of the survey.

Not surprisingly, our survey 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 respondents indicated their organizations were not satisfied with their ability to identify all the available benefits, with 69% reporting that they do not adequately quantify and place a "value" on 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 to obtain funding. Other research suggests that management does not demand rigorous evidence to support major investment decisions,⁶ which can lead to "delusional optimism,"

caused by the benefits being overestimated and the costs of achieving them underestimated.⁷

Previous research has found that disappointment in IT projects is more often related to the expectations established at the outset, than to events that occur during a project.⁸ Thus over-inflated benefit figures in business cases are likely to perpetuate the reported low success rates. Exaggerated benefits may also weaken management's commitment to IT investment; 64% of respondents in our survey 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.⁹

Typically, the main purpose in building the business case for an IT project is to obtain funding approval for the financial investment. However, 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 business managers to achieving the intended investment benefits
- Create a basis for reviewing whether the expected business benefits are actually realized.

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

Many organizations focus strongly or even exclusively on the financial returns from their IT investments.¹⁰ The aim of any business case is to express as many of the benefits as possible in financial terms. However,

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

4 Peppard, J., Ward, J., and Daniel, E. "Managing for the realization of business benefits from IT investments," *MIS Quarterly Executive* (6:1), March 2007, pp. 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 Maklan, S., Knox, S., and Peppard, J. "The missing link in CRM profitability: building marketing capabilities," *California Management Review*, forthcoming.

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

6 Pfeffer, J., and Sutton, R. *Hard Facts, Dangerous Half-truths and Total Nonsense*, Harvard Business School Press, Boston, Mass., 2006.

7 Lovallo, D., and Kahneman, D. "Delusions of success: how optimism undermines executives' decisions," *Harvard Business Review*, July 2003, pp. 56-63.

8 Procaccino, J., Verner, J., and Lorenzet, S. "Defining and contributing to software development success," *Communications of the ACM* (49:8), 2006, pp. 79-83. Also, Paul Strassmann has said, "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 Strassmann, P. *The Squandered Computer: Evaluating the Business Alignment of Information Technologies*, Information Economics Press, New Canaan, Conn., 1997, p. 5.

9 Ross, J., and Weill, P. "Six IT decisions your IT people should not make," *Harvard Business Review*, November 2002, pp. 84-91.

10 Ross, J., and Beath, C. "Beyond the business case: new approaches to IT investment," *MIT Sloan Management Review* (43:2), 2002, pp. 51-59.

an exclusive focus on such benefits can raise issues, including:

- 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 just on efficiency gains from IT, which improve individual processes but often at the expense of overall organizational effectiveness
- Minimizing the costs of the technology by reducing functionality, especially that not deemed immediately essential (for example, integration of processes or information resources)
- Understating the organizational costs of implementation, such as process redesign and training.¹¹

A NEW SIX-STAGE APPROACH TO DEVELOPING BUSINESS CASES

In this article, we present a six-stage approach to developing a robust business case that is based on a rigorous and systematic exploration of the benefits expected from the investment. While many organizations describe their business cases as being based on 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 recognized
- Measures are identified for all benefits, including subjective or qualitative benefits
- Evidence is sought for the size of the benefits included
- An 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.

To understand the extent to which our approach is related to the success of IT investments, we divided the organizations in our survey into two groups: those that are more successful (more than 50% of projects deliver the expected benefits) and those that are less successful (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.

Our survey confirmed that more successful organizations include a wider range of benefits in their business cases than the less successful, especially benefits associated with innovation and improved co-operation, both internally and with trading partners. Although such benefits are more difficult, but not impossible, to quantify, they provide a more complete view of the business value that many investments produce. Less successful organizations tend to limit the benefits included in the business case 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 financial ones, that are likely to lead to greater commitment from those stakeholders to making the investment successful.

The six steps of our approach are described in detail below.

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 recognize 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

11 Chircu, A., and Kaufmann, R. “Limits to value in electronic commerce related IT investments,” *Journal of Management Information Systems* (17:2), 2000, pp. 59-80.

clearly address some or all of the business drivers. Drivers can be both external and internal.

For example, a mobile phone company was experiencing increased customer defections caused by a combination of service failures and the extended product and service offerings of competitors. While its strategy was to differentiate itself on quality of service rather than compete on price, acceptance of its new services was lower than expected. 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 call center agents to increase sales of new services to existing customers.

Two objectives were set for the project:

- To significantly improve the services provided by the call center and reduce service failures
- To increase the take-up of new services and collect customer profiling information to target new services better.

The first objective addressed the external business drivers related to reducing defections and competing on service quality rather than price. The second addressed the internal driver of needing to recoup the high investment costs in the network through increased sales and identification of new market opportunities. The company aimed to achieve these objectives without increasing the number of staff in the call center by improving efficiencies in call handling. (More details of how this company developed the business case are set out toward the end of this article.)

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. There is an important difference between investment objectives and benefits. Objectives are the overall goals or aims of the investment, which are agreed on 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, all stakeholders do not need to agree to each benefit. For most investments, meeting each of the objectives will provide benefits to several different groups of stakeholders, so although an investment may have only three or four objectives, it may well produce a large number of benefits.

For example, a major U.K. supermarket chain developed a new electronic point of sale (EPOS) system, which provided management and merchandisers with the benefit of being able to monitor sales in near real-time. Staff working at the checkouts did not see this as a benefit, but the new system was considerably easier to use, which they did view as a benefit. Finally, customers were not aware of either of these benefits but did benefit from both improved product availability and reduced checkout 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:

- How the benefit will be measured
- The individual who will own the benefit.

Identifying how a benefit will be measured often helps to express a particular benefit more precisely. For example, “increased sales” may have been identified as an expected benefit. However, in considering how an increase in sales could be measured, and, in particular, how increases can be differentiated from sales that would have been made without the investment, 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 by selling to a new customer segment or geographic market, then the expected benefit needs to be reworded accordingly and the measure set as “sales of new product or service” or “sales to the target segment or market.”

In addition, an owner needs to be assigned to each benefit. This owner is an individual who either personally gains the advantage inherent in the stated benefit or represents the interests of the group of stakeholders that gain the benefit. He or she is therefore willing to work closely with the project team to ensure the benefit is realized. The benefit owner may either be personally involved in the project or participate through the resources and influence that he or she has. A benefit owner does not necessarily “make 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 his or her control or influence. But the benefit owner’s job is 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 survey were twice as likely as the less successful to assign ownership of benefits and develop specific benefit-

realization and organizational-change plans. Making individuals, particularly senior managers, benefit owners not only builds commitment to a 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 the benefits according to two factors:

- The type of business change that gives rise to the benefit
- How much is already known or can be determined about the benefit before the investment is made—the *degree of explicitness* of the benefit.

Each of the benefits expected from the investment is placed in a cell 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 the benefits. Full definitions of the dimensions of this framework are provided in Steps 4 and 5.

We have found that the use of this framework for structuring the benefits, rather than simply compiling a list of benefits as in most business cases, encourages greater discussion and evidence-gathering about the

expected benefits, which results in a more robust business case. Using this framework for all business cases also enables an organization to compare across investments and assists prioritization. The application of the framework is described in Steps 4 and 5.

Step 4: Identify Organizational Changes enabling Benefits

The first stage of using our framework is to classify each expected benefit according to the main type of business change that will be needed to realize it, as shown by the columns in Figure 1. It may seem simplistic to relate each benefit to one of only three types of change, but benefits can always be classified under these three headings:

- The organization, its staff, or trading partners can *do new things*, or do things in new ways, that prior to the investment, were not possible
- The organization can improve the performance of activities it must continue to do—that is, it can *do things better*
- The organization can *stop doing things* that are no longer necessary to operate the business successfully.

Identifying the business 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

Figure 1: Framework for Developing a Business Case

		Type of Business Change		
		Do New Things	Do Things Better	Stop Doing Things
High ↑ Degree of Explicitness ↓ Low	Financial Benefits			
	Quantifiable Benefits			
	Measurable Benefits			
	Observable Benefits			

justifying such a development, one obvious benefit is the cost savings from discontinuing printing and distributing 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, described in a previous *MIS Quarterly Executive* article,¹² 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 to identify change owners. Similar to benefit owners, named individuals are responsible for ensuring the implementation of each of the changes that have been identified. Assigning change owners builds commitment to the investment and ensures that what the investment is intended to deliver and how those benefits can be achieved are both considered.

In our experience, senior management is interested in benefits that enable new activities or innovations, or that stop waste; they are less interested in “do things better” benefits. For example, a U.K. public-sector healthcare organization was required by the government to deploy systems that allow patients

to select and book appointments convenient to themselves, rather than simply be sent an appointment date and time by the provider. Senior managers initially viewed this system simply as a better approach to scheduling. When they eventually realized that it could be used to do new things, like 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 which column in Figure 1 to place each benefit in, it is then necessary to assign each benefit to one of the four rows. Figure 2 describes the degree of benefit “explicitness” represented by each row, based on the ability to assign a value to a benefit from information that is known already or can be determined before the investment is made.

An important criterion for locating benefits in the rows is the availability of evidence. Each benefit is initially allocated to the *Observable Benefits* row. Evidence must then be provided, by the benefit owner, for moving it to the rows above, which represent increasing degrees of explicitness and knowledge

Figure 2: Classifying Benefits by Their Degree of Explicitness

		Type of Business Change		
		Do New Things	Do Things Better	Stop Doing Things
High ↑ Degree of Expi- citness ↓ Low	Financial Benefits	Financial value can be calculated by applying a cost/price or other valid financial formula to a quantifiable benefit.		
	Quantifiable Benefits	There is sufficient evidence to forecast how much improvement/benefit should result from the changes.		
	Measurable Benefits	Although this aspect of performance is currently measured, or an appropriate measure could be implemented, it is not possible to estimate how much performance will improve when changes are implemented.		
	Observable Benefits	By using agreed criteria, specific individuals or groups will use their experience or judgment to decide the extent the benefit will be realized.		

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

about the value of the benefit. The four types of benefit represented by each row are described below.

Observable Benefits. Some benefits can only be measured by opinion or judgment. These benefits are often described as subjective, intangible, soft, or qualitative. While it is acceptable to use judgment to measure such benefits, a clear statement of the criteria to be used to assess achievement, and also who is to make the judgment, needs to be agreed on at the outset of a project.

Assessment by 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 factors have been tracked over time through surveys, and the issues that the investment addresses can be isolated, it may be possible to actually measure, rather than merely judge, the benefit. While softer benefits, even in total, are unlikely to be sufficient to make the case for investment, they must not be ignored or trivialized. They may apply to a large number of stakeholders, whose change in behavior is essential if the more substantial organizational benefits are to be realized. For example, in the supermarket chain that introduced a new EPOS system (described earlier), the main financial benefits derived from new information on stock movements. However, checkout staff saw the improved ease of use as an important benefit. This benefit made the thousands of staff involved positive about the introduction of the new system, despite the disruption to work patterns.

Measurable Benefits. Measurable benefits are those 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 once the investment has been made.

Wherever possible, existing measures are used, particularly when they are part of the organizational performance measurement system or its key performance indicators (KPIs). Using such measures ensures that achieving the benefit is seen as integral to delivering the business strategy. It also means the current baseline is already known. If there is no relevant current measure, the benefit owner has to decide 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 setting up a measure is too difficult or expensive, the benefit is demoted to “observable”

and suitable subjective criteria for evaluation are 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 benefit owner can also reliably estimate the expected size or magnitude of the benefit.

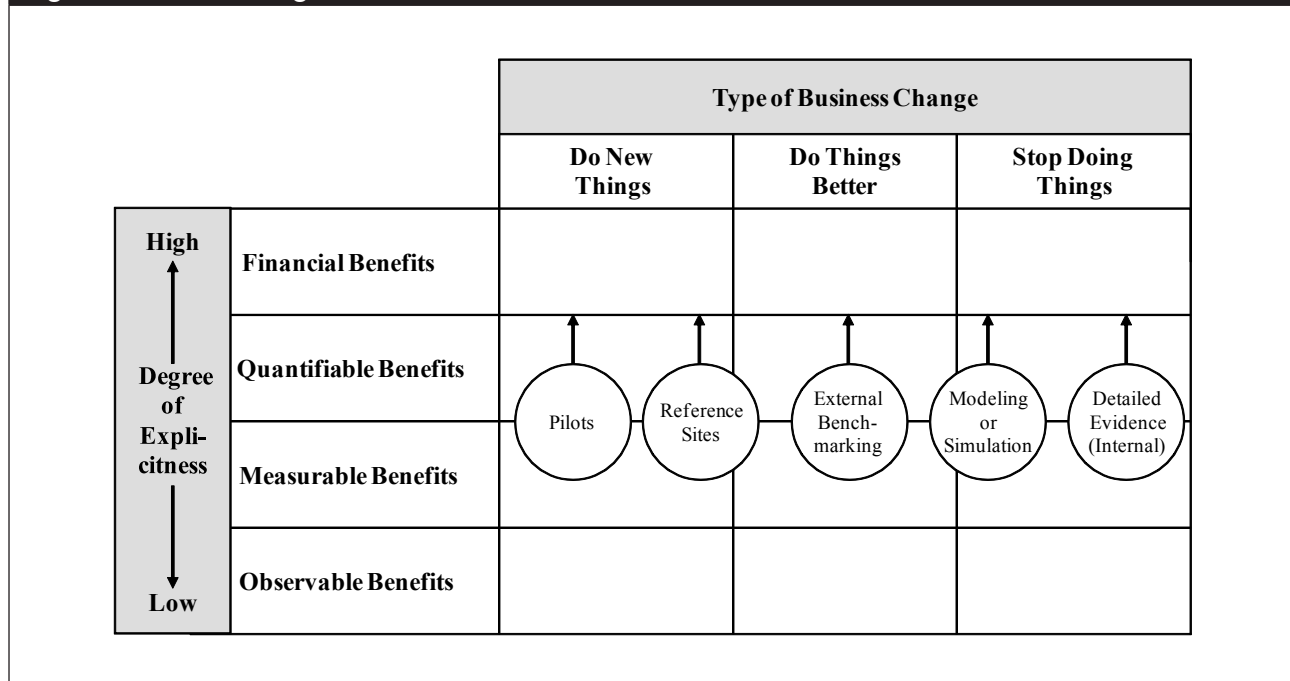
Since quantifying benefits inevitably involves forecasting the future, the challenge is to find ways of doing this as accurately and robustly as possible. Several approaches to overcoming this quantification problem are discussed below. Our research shows that a weakness of many investment cases is the lack of evidence to substantiate the assumptions made in quantifying the benefits. Without legitimate quantification, it will be difficult, if not impossible, to agree on a realistic financial value. Hence moving a benefit from the measurable to quantifiable row is the most critical step in converting a qualitative argument to a sound economic case for investment.

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

Ways of overcoming the quantification problem. There are five approaches to gathering the evidence needed to move a benefit across the “barrier” that separates measurable benefits from quantifiable benefits. These approaches are depicted by the circles in Figure 3, with each circle positioned in the column in which it tends to be most useful. However, when appropriate, each approach can be used with benefits in other columns.

Detailed evidence and modeling or simulation. If a benefit results from the organization discontinuing something it 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 collect the 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 obtain sufficiently representative evidence from which the overall value can be extrapolated.

Figure 3: Converting Measurable Benefits to Quantifiable Benefits



Internal data on its own may not be sufficient to determine how performance will improve when the new IT capability and associated business changes have been completed. In such cases, modeling can be useful. A police force we worked with wanted to introduce a new crime and incident recording bureau. Its intention was that both the public and police officers would report crimes and incidents to the bureau, thus ensuring there would be a single source of complete information for all future activities, such as investigation, resource allocation, and reporting. However, while the force already had data about crime and incident patterns, it did not know how this would translate to calls to the bureau. Simulation software provided by the force's call center vendor allowed it to model likely call patterns based on the existing knowledge of crime and incident occurrences.

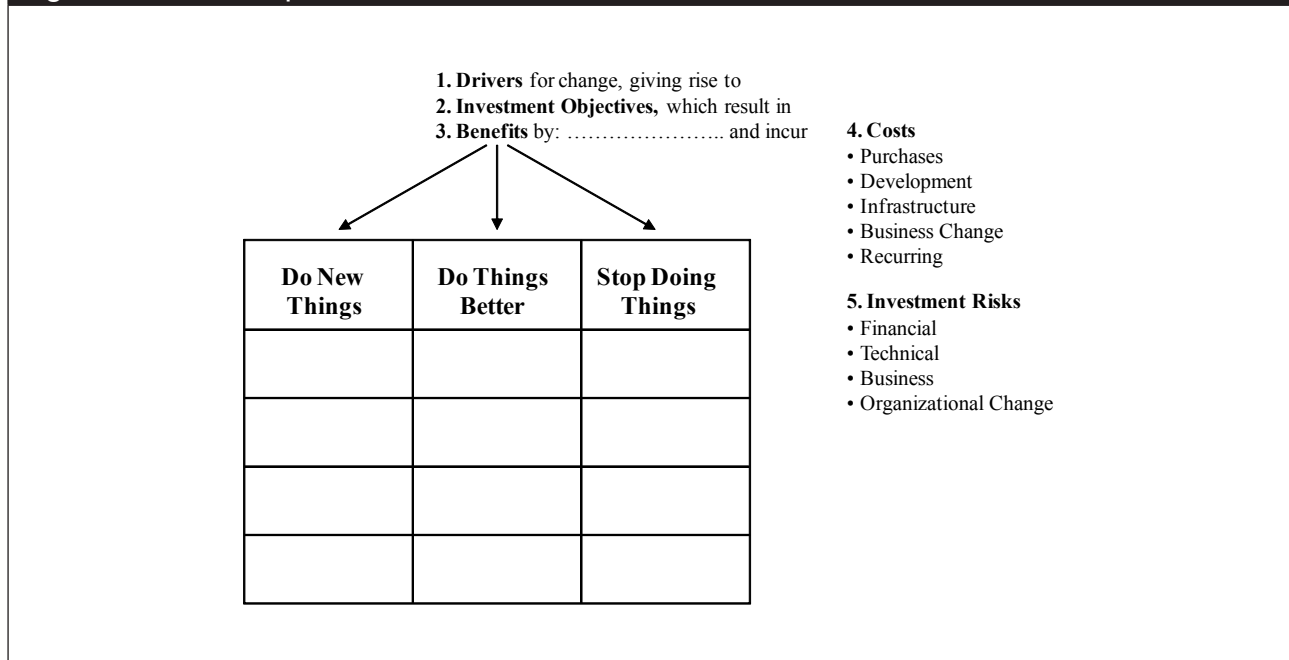
Benchmarking and reference sites. A variety of industries commonly use benchmarking as the starting point for improvement programs. Benchmarking can be a valuable approach to quantifying benefits relative to industry best practices or relative to comparable processes in other industries. For example, the financial services industry considers the time and cost taken to process loan and mortgage applications or insurance claims as competitive KPIs. A critical benchmark in other industries, such as electronics and pharmaceuticals, is time-to-market for new products.

Benchmarking helps to identify potential improvements to established processes and practices,

but it is less useful when an organization is trying to quantify the benefits from an innovation. However, 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 already being used. Obviously, the organization needs to select relevant implementations carefully to ensure it can not only compare how the technology has been deployed, but also understand the required business and organizational changes. It must also understand where the reference organization started from, in performance terms, so it can assess how much of the improvement is relevant and feasible. Another danger in using reference sites is that an organization that believes it is gaining an advantage from an innovation is unlikely to be willing to share all the secrets of its success. The information from such reference sites has to be treated with a degree of caution.

Pilots. Pilot implementations can be used not only to test the technology, but also to evaluate the benefits that can be achieved from new systems and ways of working. To obtain the best evidence, the organization should identify a comparable control group still working in the old way. For example, Thomson's Holidays (a U.K. travel company) conducted a pilot when it first introduced its online holiday booking system to travel agents. It was able to compare very accurately sales from the travel agents selected for the pilot with a representative sample of agents still booking over the phone. On average, there was a 30% increase in business handled by the pilot agencies.

Figure 4: The Complete Business Case



The pilot was 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 for the pilot. The increase in business handled by the pilot site agencies was sufficient evidence to justify the major investment required for rolling out the system to all agencies.

The vast majority of the organizations in our survey conducted pilots to help identify and quantify benefits. However, it is interesting to note that only 24% of the less successful companies used external evidence from reference sites, and only 16% used benchmarking. The comparable figures for the more successful organizations were 45% and 35%, respectively.

Financial Benefits. Benefits placed in the *Financial Benefits* row of Figure 1 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. While these techniques are well known and well used, they are only of value if the underlying data on which the financial calculations are based are reliable and can be verified.

Step 6: Identify Costs and Risks

In addition to the benefits, a complete business case must obviously include all costs and an assessment of the associated risks (see Figure 4). It is important to include recurring IT costs associated with the new system once it goes live. These can include license 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, the cost of these changes, particularly when they affect a wide range of stakeholders, leads to the significant cost overruns often reported for large IT investments. In spite of this, nearly 60% of the survey respondents believed they were generally good at estimating costs.

Once the organization has determined the total financial value of the relevant benefits and identified the expected costs, it can then make a financial assessment. Although the majority of organizations perform some form of financial assessment on all IT investments, that does not imply that their decisions to invest are based exclusively on the estimated economic returns. The limitations of financial appraisal techniques are well known. Given the many uncertainties of IT projects, even those organizations that apply appraisal techniques rigorously appreciate that basing

decisions solely on estimated financial values will limit the types of business investments they make.¹³

There are well-established ways of estimating the financial and technical risks associated with an investment in IT.¹⁴ However, it is often the reluctance or inability of the staff within an organization to make the necessary business or organizational changes that prevent the benefits from being achieved.¹⁵ This is where the development of a BDN 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, an organization can assess the risks of not achieving the business case. The value of the particular benefit at risk will then suggest the importance of taking action to avoid or mitigate the risk.

EXAMPLE OF APPLYING THE SIX-STAGE APPROACH

We describe below how the mobile phone company referred to earlier used our six-stage approach to develop the business case for new call center systems.

The Business Objective

This company is a major global provider of mobile telephony services to both consumers and businesses. Following an internal restructuring of its service and territorial divisions, the U.K. consumer division wished to improve the service provided to customers and its ability to promote new network services and features to existing customers. The company believed that excellent customer service was one of the few ways it could differentiate itself from competitors in a very competitive market. It had also invested considerable amounts in new network facilities and needed to increase sales of its higher end services to recoup this investment.

The company identified that service improvement and the promotion of its newer services could be achieved

by upgrading its call center systems. Most service requests from customers came into the call center. If the request was dealt with promptly, the company believed the call center agent could then discuss newer service offerings with the customer.

In addition to dealing with incoming service requests, agents would also make outbound marketing and promotional calls to customers. A new customer-profiling system would be deployed so that the service being promoted, and the script used, could be tailored to the perceived customer needs. Agents would also collect data from customers during service and promotional calls, and record it in the profiling system. This data would be used both to improve future targeting and to develop new service offerings.

Business Drivers

External drivers. The company perceived competing mobile telephony services as being indistinguishable, so it was difficult to differentiate its offerings on brand alone. In the past, it had tried to compete on price but had found it difficult to sustain this. Hence it saw service as a differentiator.

Internal drivers. The company needed to recoup the high investment it had made in network access and infrastructure by increasing customer take-up of its higher-end services.

Investment Objectives

The company identified two objectives for the investment in upgraded call center systems:

- Significantly improve the service provided by the call center and reduce service failures
- Increase the take-up of newer services and collect customer profiling information to target new services better.

Benefits

The main benefits that would be realized by achieving the two objectives are shown in Figure 5. The total expected financial benefits amount to £1,805,000 (\$3,587,400) per annum.

The benefits framework shown in Figure 5 is typical of many IT investments. It includes a full range of benefit types, from observable to financial. While the senior managers involved were keen to show that the financial benefits provided an acceptable return to the organization, they recognized that the observable benefits were of most interest to the hundreds of

13 Kohli, R., and Devaraj, S. "Measuring information technology payoff: a meta-analysis of structural variables in firm-level empirical research," *Information Systems Research* (14:2), 2004, pp. 127-145.

14 For a comprehensive description of the range of IT implementation risks and how they can be addressed, see: Jordan, E., and Silcock, L. *Beating IT Risks*, John Wiley and Sons Ltd, Chichester, 2005.

15 For analyses of IT project risk, see: Gibson, C. F. "IT-enabled business change: an approach to understanding and managing risk" *MIS Quarterly Executive* (2:2), September 2003, pp. 104-115; *The Challenges of Complex IT Projects*, The Royal Academy of Engineering, London, 2003; and Nelson, R. R. "IT project management: infamous failures, classic mistakes, and best practices," *MIS Quarterly Executive* (6:2), June 2007, pp. 67-78.

Figure 5: Benefits Framework For New Call Center Systems

Objective Type	Doing New Things	Doing Things Better	Stop Doing Things
Financial		Benefit: Increased customer retention due to improved service provision Measure: Reduction in customer defections. Avoided defections due to service failure = 1,750 pa Cost per defection = £500—saving of £875,000 pa Benefit Owner: Customer accounts manager Benefit: 20% reduction in call servicing costs Measure: Cost per service call. Number of calls pa = 5.6 million, total servicing costs = £1.2 million—savings of £240,000 pa Benefit Owner: Telechannel sales manager	Benefit: Stop call-backs to customers after failed service calls Measure: Number of call-backs. Number in previous years = 1.5 million. Cost per call-back = £0.46—savings of £690,000 pa Benefit Owner: Call center operations manager
Quantifiable			Benefit: Eliminate call waiting times over 2 minutes for customers Measure: Number of calls currently waiting over 2 minutes = 1.1 million Benefit Owner: Call center operations manager
Measurable	Benefit: Call center staff able to undertake sales calls/ promote new services Measure: Number of sales calls per staff member or sales per staff member. Current value = 0 (call center currently purely inbound) Benefit Owner: Telechannel sales manager	Benefit: Customers not switching to competitors' products and services Measure: Number of defections to competitors. Current number of customers switching = 5,500 pa Benefit Owner: Customer accounts manager	
Observable	Benefit: Call center staff motivated by being trained about newer services Measure: Increased call center motivation Benefit Owner: Call center staff manager	Benefit: Ability to develop future services based on customer data Measure: Quantity and quality of customer profile data Benefit Owner: New service development manager	Benefit: Stop customers becoming frustrated/rude because of service failure Measure: Call center staff opinion Benefit Owner: Call center staff manager

Figure 6: Complete Example of Investment Costs and Risk Analysis

Investment Costs	
Purchase of new call center hardware and 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
Total:	£945,000
Net increase in annual systems support and license costs:	£80,000
 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 center processes and practice Limited existing change management capability Call center staff capability to promote more technical services Customer willingness to share information for profiling purposes

call center agents who were required to use the new systems and adopt new ways of working. The agents' buy-in to the new system was key to making the investment a success.

The benefits in this example also cover the full range of business changes, from discontinuing things the company wished to avoid, such as call-backs to customers due to service call failures, to doing new things, such as promoting new higher-value services during service calls. The example also demonstrates that it is easier to put a financial value on things the company is already doing and either wishes to stop or do better. It is, however, harder to determine a robust quantity or financial value for benefits resulting from innovation.

Investment Costs and Risks

The investments costs that the mobile phone company incurred in implementing its new call center systems and the risks involved are summarized in Figure 6.

USING THE BUSINESS CASE TO REVIEW THE INVESTMENT

A good business case will enable the outcome of an investment to be assessed in terms of the benefits delivered, or if they were not achieved, to explain why not. Most organizations carry out post-implementation

reviews that consider time, cost, and technical quality. However, less than 50% of organizations in our survey do a formal assessment of the value delivered, even though senior management rates "value" as the top criterion on which success should be judged. Data from our survey indicates 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 they needed to further improve their evaluation and review of benefits, nearly 70% of them did at least carry out such reviews. Fewer than 40% in the less successful group evaluated and reviewed the benefits. Revealingly, those within the less successful group that overstated the benefits to obtain funding are the least likely to review the outcome.

Our survey data shows that, of all the aspects of business case development, carrying out a post-implementation evaluation and review of the benefits is the strongest differentiator of the successful group. We believe that the rigor with which an organization appraises the results of its IT investments will significantly affect the quality of the business cases on which investment decisions are made. In turn, the comprehensiveness and the quality of the business cases will significantly influence the commitment of managers to delivering the intended benefits. In our survey, those organizations that deliver the majority of

expected benefits were distinguished from those that fail to do so by the attention they paid to the benefits throughout the investment life cycle.

ADOPTING THE SIX-STAGE APPROACH MAXIMIZES THE VALUE OF IT INVESTMENTS

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

We found that 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, but also has other purposes. A convincing and robust business case also:

- Shows how the benefits depend on business changes, as well as on technology
- Gains commitment to achieving the benefits
- Enables the success of the investment to be judged objectively.

The approach to developing business cases described in this article directly addresses these issues and hence ensures the argument for investment is clearly understood both by those who have to decide whether to proceed and by all those involved in project delivery. This understanding results from providing appropriate evidence to support the benefits and allocating responsibility for their delivery.

In the less successful organizations in our survey, the business case often has the sole purpose of obtaining funding. The result is either that all the benefits that the investment could deliver are not identified or benefits are overstated. Neither is satisfactory and both result in lower levels of actual benefits. In many of these organizations the logic of the investment case is reversed—first, the costs are understood and then sufficient benefits to justify the cost are identified. This sequence is a rather too literal interpretation of the term “cost benefit analysis.”

Our approach proposes a “benefit cost analysis” that enables management to clearly understand the benefits they can expect from an investment and hence decide

how much they are willing to invest. By using the framework shown in Figure 1, management can also understand what has to be done to achieve the business case and whether the organization is able and willing to make the investments in the business and organizational changes needed to realize the benefits.

The three factors that most differentiated the more successful companies in our study from the less successful were:

- Identifying all the potential benefits from the investment (three times more likely in the successful organizations)
- Quantifying those benefits (also three times more likely in the successful organizations)
- Reviewing projects after implementation and transferring the lessons learned to new projects (twice as likely in the successful organizations).

Given this, why do so many organizations not prepare rigorous and robust business cases? There are two main reasons. First, it takes time and resources to produce a comprehensive business case, particularly if considerable effort is required to run a 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. But such unwillingness may be misguided. Our research shows that, in the more successful organizations that follow our suggested approach, nearly 80% of IT business cases are funded 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. However, only a minority of organizations systematically review the effectiveness of their business cases. The main reasons given for not reviewing investments are:

- It is not necessary to review a successful project
- Individuals fear being blamed if an investment fails to deliver the expected benefits
- There is insufficient time and resources to carry out the review
- Where the original business case was not robust, any review would be based more on subjective opinion than objective assessment

- No one will be keen to hold a review where the benefits were overstated in the business case.

Any organization tempted not to review the benefits of an IT investment should remember that our research shows that the more successful are far more likely to carry out such a review.

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 working with a wide range of organizations, benefits-led business cases also offer organizations a way of significantly improving the success rate of those investments.

APPENDIX 1: ABOUT THE RESEARCH

This article is based on data collected from three related research projects conducted at the Information Systems Research Centre at Cranfield School of Management in the United Kingdom.

The first was a longitudinal study that explored how organizations can realize business benefits and value from their IT investments. The researchers worked with 20 large U.K. organizations from both public and private sectors. First, by following a case study methodology, the researchers identified the key dimensions of an effective business case. Then, by using an action research methodology, the researchers worked with inquiry teams in the organizations, initially to develop an approach to constructing a business case. This approach was then 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 five in-depth case studies of different types of enterprise-wide systems. This research helped to identify many of the implementation issues that must be addressed during the development of business cases and led to the approach being refined.

The third project was a survey conducted during 2006 in collaboration with the Vlerick Leuven Gent Management School in Belgium. The survey obtained the views of senior business and IT managers in 102 organizations in the U.K. and Benelux countries on their management practices and organizational

success in generating value from IT investments. These practices covered the full investment life cycle from project inception, through justification, planning, business case preparation, implementation, and evaluation of the benefits ultimately realized. Most of the organizations in the survey 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.

ABOUT THE AUTHORS

John Ward

John Ward (j.m.ward@cranfield.ac.uk) is Professor of Strategic Information Systems at Cranfield School of Management at Cranfield University in Bedford, U.K. He has published many papers in leading journals, including *California Management Review*, and is co-author of the books *Strategic Planning for Information Systems* and *Benefits Management: Delivering Value from IS & IT Investments*. Prior to joining Cranfield, he worked in industry for 15 years, the last three as systems development manager at Kodak Limited. He is a consultant to major international and public sector organizations. He has a degree in Natural Sciences from Cambridge, is a Fellow of the Chartered Institute of Management Accountants, and is a past-president of the U.K. Academy for Information Systems.

Elizabeth Daniel

Elizabeth Daniel (e.m.daniel@open.ac.uk) is Professor of Information Management and Associate Dean for Research and Enterprise at the Open University Business School in Milton Keynes, U.K. She has published more than 30 papers in journals in the IS field and is co-author of *Benefits Management: Delivering Value from IS & IT Investments* with John Ward. Prior to joining the Open University, she was at Cranfield School of Management for six years. Before joining academia, she worked in industry, most recently as a management consultant. She has a degree and a Ph.D. in Physics from Manchester University and an M.B.A. from London Business School.

Joe Peppard

Joe Peppard (j.peppard@cranfield.ac.uk) holds the Chair in Information Systems at Cranfield School of Management where he is Director of the Information Systems Research Centre and leads the school's IT Leadership Programme, an executive education program for chief information officers (CIOs). His research and teaching focus on information systems

strategy and management, and he has published widely in these areas. His most recent books include *Strategic Planning for Information Systems* (John Wiley) and *Customer Relationship Management: Perspectives from the Marketplace* (Butterworth-Heinemann).