Management Summary

Getting Value from Information Technology

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Management Summary

Foundation Report 75, 'Getting Value from Information Technology', was published in June 1990. In researching this topic, our aim was to provide systems directors with a set of measures that can be used to demonstrate the business value achieved from expenditure on information systems. This document summarises the main management messages arising from our research. The full report is available only to members of the Butler Cox Foundation.

Managers want to know the value of systems

Ever since the data processing managers of the 1960s presented their investment proposals and budgets to a mute, wondering, and puzzled board of directors, the question of value for money has been lurking — unanswered but rarely unasked. All this expenditure on equipment, software, and people with mysterious job descriptions — just what does it deliver in improved company performance? Would the company really be worse off if none of it existed? The common response is that, since all our competitors are spending more on systems, we must do the same. But is the increasing tide of automation really an irresistible surge to progress? Or could it be simply an expensive fad?

In most organisations, there is a growing acceptance that information systems are an essential ingredient of corporate success, but this belief often coexists with an uneasy suspicion that the systems department is shortchanging its corporate customers. What it delivers is too technical, too long-term, too inflexible, too often justified on paper but not in practice. In a rapidly changing world, the system builder is perceived as moving with cumbersome precision towards distant targets that may no longer be relevant when reached.

The problem is not just to manage the global investment, to stay within budgets. It is also necessary to strike a balance between the amount of costly complexity to be built into the

systems and the value they deliver. A means of measuring the business contribution of information systems is needed, since, without it, such a balance can be struck only by guesswork.

Measuring value is difficult

How to measure the business value of systems? The ideal answer would be a simple, all-embracing formula that measures both the total cost of the technology in all its forms, and the added value to the business. There have been many attempts to devise such a value-for-money algorithm, to demonstrate with mathematical precision the bottom-line value of information systems, but in any such attempt, there are fundamental and perhaps insuperable difficulties.

The first problem is how to create a basis for measurement. How do you compare the expenditure on systems in a bank with that in a construction company? Typically, the former may spend several times as much on systems as the latter, as a percentage of total operating costs. So what? The nature, aims, and cost structures of the two businesses are quite different. As Figure 1 shows, any comparison will be either grossly misleading or so hedged about with footnotes as to be meaningless.

Figure 1   Comparisons with others can be misleading

Are we spending too much or too little on IT?

| IT costs as a percentage of total operating costs |
| IT costs per staff member |

■ Our company
■ Average for our sector

Even between two similar companies, the same problem arises. A great deal of systems expenditure these days falls outside the budget of the systems department, or departments. As much as half the total expenditure may be incurred in business units, buying their own equipment and services. Much of it is buried under hundreds of different headings in operating budgets, and even if it is all dug out with meticulous precision and aggregated, what exactly does it all prove?

The whole argument is bedevilled by a fallacy well known to philosophers: if you snap your fingers and lightning strikes, to what extent can you be said to have caused the lightning? Suppose that Bank A spends more on systems than Bank B, and that Bank A is also much more profitable. This may convince some people that spending money on systems causes the first bank to be more profitable. Others might argue that highly successful companies tend to be more relaxed about corporate indulgences, spending more on such frippery as the chairman's car, trips for the sales force, or even expensive computer systems. Who is to say which view is right?

The point is not just philosophical. Management consultants know that, when a company experiences a marked surge in performance, there is rarely unanimity about the underlying reasons for the improvement (see Figure 2). The systems manager will believe that new and better systems played a part. The sales department gives the credit to the new commission structure. The product designer's explanation is that the company is outperforming the competition with its products. It is not unknown even for top management to claim some credit for good results, because they are keenly aware that when times are bad, the hunt for a scapegoat will start in the boardroom.

Some measurement of the business value provided by information systems is essential, but how detailed should it be? Too much emphasis on measures can easily have a most undesirable consequence. It can force the
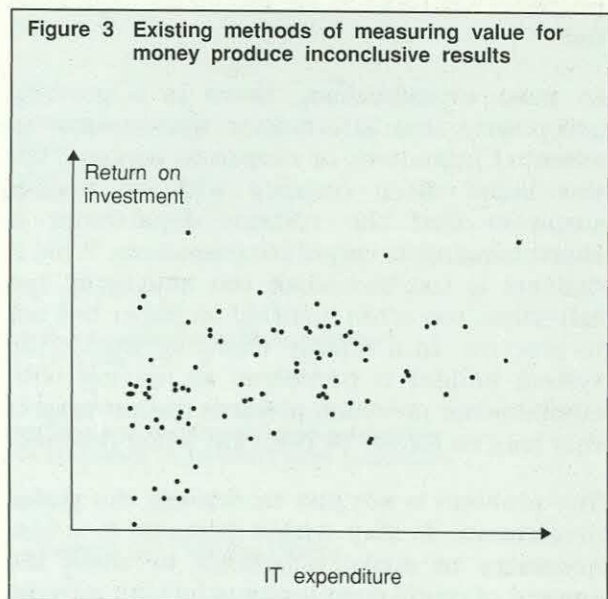
systems department into an inward-looking, defensive posture. When the systems department's main preoccupation becomes the compilation of a statistical justification of its own existence, it ceases to pursue the business aims for which it was created, and by definition, ceases to have a *raison d'être*.

Existing measurement methods yield mixed results

Since the measurement of the value of systems is an area of compelling interest, it is not surprising that many have attempted to devise suitable measurement methods. One of the better known is Paul Strassmann's 'return on management' method, which relates investment in information systems to management added-value. (The concepts underlying the method are described in the full report.) Another is IBM's SESAME method, which compares the costs and benefits of an IT system with those of an equivalent manual system. These and other methods have produced interesting and illuminating results, but as Figure 3 illustrates, none of them has actually cracked the central problem of measuring value for money.

It is not difficult to measure precisely the micro-economic evidence, such as how much is spent on hardware, how many staff are employed in the systems department, and so on. The views of different observers about the macro-economic evidence can also be measured through attitude surveys. Such a survey may

Figure 2 Assessing the business contribution of IT is difficult

Our increase in profits is due to:
"The new sales commission structure" (Sales director).
"Better designed products" (Product-design director).
"Improved quality control" (Manufacturing director).
"Better information systems" (Systems director).

Figure 3 Existing methods of measuring value for money produce inconclusive results

Return on investment

IT expenditure

indicate that a majority of senior managers believe that their systems investments are successful. The fact is worth knowing, but to imagine that an attitude survey can establish objective truth is a snare and a delusion.

Since the overall value-for-money equation depends on judgement, it is no more capable of mathematical proof than any other value judgement. Because computer systems seem so very quantitative, it comes as a surprise that the assessment of the value is so very qualitative.

A twin-track policy is needed

As usual, it is more valuable to concentrate on what we can do than what we cannot. We can measure the internal efficiency of the systems department, and we can encourage the systems department to relate expenditure on systems to the key performance measures used to monitor the health of the business. Tracked over time, these relationships will build up a composite picture of the business contribution of systems. Combining these two elements into a twin-track policy is the key both to progress and to building confidence in the systems department. Forget about the hunt for a single all-embracing measurement. Concentrate on these two complementary tasks.

Internal efficiency can — and must — be measured

The value-for-money judgement of senior managers is often distorted by a suspicion that cash has a different value in the systems area from elsewhere in the organisation. While everyone else counts every cent of expenditure, the systems department (runs the myth) believes that only the most expensive solution is good enough — and then only just. Careful and systematic measurement of the internal productivity of the systems department can start to bury this damaging myth once and for all.

It is important that this malign and often baseless belief should be laid to rest, since a lack of confidence in the internal efficiency of the systems department is sure to colour senior management's perception of the business value of systems. If the systems department is generally regarded as a lavish and prodigal steward of its own resources, how can it hope to establish itself as a prudent and frugal custodian of the firm's money?

The measurement of the systems department's efficiency is not difficult, and a whole range of well-tried and useful measures is available. (Butler Cox, for example, provides two services in this area — the Productivity Enhancement Programme, which measures the productivity of the systems development process, and the Service Improvement Programme, which helps the systems department to identify its own strengths and weaknesses.) At the very least, obtaining and disseminating the results of such internal audit measures will reassure the business that the systems department cares. It demonstrates that it is as concerned about the corporation's assets as any other part of the business.

Systems expenditure must be related to business purpose and measures

The problem of demonstrating the business value of information systems cannot be mechanistically resolved, for reasons already explained, but it can be managed. The key task is for the systems department to be seen to be considering the needs of the business, so that its customers will not have serious doubts about the wisdom of its investments.

The first essential is to distinguish between the different business purposes of the different kinds of investments, to which different evaluation criteria will be applicable. As Figure 4 shows, there are five such different investment profiles:

Figure 4 The business purpose defines the category of IT investment	
Purpose of the investment	**Type of IT investment**
Surviving and functioning as a business	→ Mandatory investments
Improving business performance by reducing costs or increasing sales revenue	→ Investments to improve performance
Achieving a competitive leap	→ Competitive-edge investments
Enabling the benefits of other IT investments to be realised	→ Infrastructure investments
Being prepared to compete effectively in the future	→ Research investments

— Some investments are mandatory, in order to comply with the law or industry norms.

— Some investments are designed to improve business performance — for example, by cutting costs.

— Some investments are designed to achieve competitive advantage.

— Some investments need to be made in infrastructure, such as voice or data networks. Such investments will produce no direct return, but are essential to the operation of specific applications.

— Some investments fund research projects. They lay the base for profitable investments in the future.

Many disagreements arise because the critics of a proposed investment are applying the wrong criteria — seeking a direct return from an infrastructure or research project, for example. The first task of senior management is thus to ensure that all proposed investments are evaluated according to their business purpose. Although different criteria will apply, IT investments all have one thing in common. They must be judged by business criteria, not technical criteria.

We urge systems directors to seek out a range of business measures that can be used as the basis for assessing the value for money of information systems. Such measures will typically be the size of the organisation, the volume of business it carries out, its operating expenses, and its key business-performance indicators (see Figure 5). Every business already uses a range of such measures to assess its overall performance. IT expenditure should be related to each of them, so that a composite picture can be built up of the contribution that systems make to the business.

An example may help to illustrate how this would work in practice. A speaker at a Butler Cox Foundation Conference was the systems manager of a large American corporation. He had calculated the proportion of the total expenses of his company that was allocated to the accounts heading known as General & Administrative (G&A). He further calculated the proportion of G&A spent on information systems of one kind or another. He found an interesting correlation. As the systems element within G&A grew, so G&A itself as a proportion of total expenses declined. He tracked this correlation over several years, and while it held good, was able to claim that systems were making his company less expensive to run.

The common aim of relating IT expenditure to familiar business-performance measures is to mobilise the commercial judgement of the systems department's customers, to help them to see the value for money being provided. In the end, the systems themselves have no value. Their only value is the information they generate and the ability they provide for exploiting that information.

It is also essential to provide a management framework within which commercial judgement about the value of systems can be exercised. In the early days of computing, systems managers accepted the responsibility not only for controlling the costs of systems, but also for achieving the benefits. They would 'promise' to secure a reduction of headcount in the finance department, even though they had no management responsibility for that department.

Such foolish confusion of responsibilities was commonplace, and invariably led to disappointment and failure. Only when the managers who run the business have a clear responsibility for achieving the benefits of proposed systems do they begin to exercise their commercial judgement.

Top management must ensure a sensitive blend of measures

Our research (which is set out in full in the main report) confirms that the task of demonstrating that systems investments are worthwhile and provide value for money is complex and demanding. There is no simple measure that will produce the desired result. Top management must encourage a sensitive and subtle approach

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Figure 5   There is no single all-embracing measurement

IT expenditure should be related to a range of key business-performance measures.

Business measure	IT ratio
Size of business	IT expenditure: total revenue / number of employees
Volume of business	IT expenditure: tonnes produced
Operating expenses	IT expenditure: total expenses
Key performance indicators	IT expenditure: passengers carried / customers served / items produced

employing both metrication of the internal efficiency of the systems department, and business measures of the value of information.

Above all, top management must not press for facile reassurances based on over-simplified statistics, which are invariably misleading.

Getting Value from Information Technology ▲

The Butler Cox Foundation

The Butler Cox Foundation is a service for senior managers responsible for information management in major enterprises. It provides insight and guidance to help them to manage information systems and technology more effectively for the benefit of their organisations.

The Foundation carries out a programme of syndicated research that focuses on the business implications of information systems, and on the management of the information systems function, rather than on the technology itself. It distributes a range of publications to its members that includes Research Reports, Management Summaries, Directors' Briefings, and Position Papers. It also arranges events at which members can meet and exchange views, such as conferences, management briefings, research reviews, study tours, and specialist forums.

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— The events combine access to the world's leading thinkers and practitioners with the opportunity to meet and exchange views with professional counterparts from different industries and countries.

— The Foundation represents a network of systems practitioners, with the power to connect individuals with common concerns.

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