Editorial

This issue concentrates most of its attention on the subject of evaluation of information systems investments. This theme attracted a substantial amount of interest amongst contributors, and some additional papers will be published in later issues of the Journal in 1991. Here we are only able to publish five. This would seem to indicate what we suspected from our own and other research on the area – that this is perceived increasingly as a highly important area in organizations, and one in which a lot of learning and changes in practice need to take place. The papers in this issue are thoroughly up-to-date, discuss present practice, and offer constructive ways forward and as such should be of considerable interest to academic and practitioner audiences alike.

We believe that the theme issue format is a very useful way of focusing and influencing research, opinion and practice, and will be looking to devote further future issues to specific themes. Thus the September 1991 issue (Volume 6 Number 3) will concern itself with Information Technology into the 1990s -The Human Resource Issues. This is emerging from a number of pieces of research, including our own, and that carried out by the recent, influential MIT Landmark study, as a major and neglected area in the management of Information Technology. This theme will be interpreted broadly as covering the relationships between information, information technologies and human resource issues in organizations. Typical themes might be business, human resource and IT strategies; human computer interaction; user/IS professional relationships; IT, human resource management and employee relations; analysis and design techniques, including 'soft' systems approaches; human resource issues in respect of prototyping, expert systems, CASE, EIS; managing technological change; IT and politics; IS as social systems; IT and society; management/user/IS professional training and education for IT. This list should not be taken as exhaustive.

We invite contributions to this theme issue. These may well be from practitioners, managers, academics, business consultants or researchers. What would seem to be important is to gain an up-to-date, critical and informed cross-section of perspectives on the issues suggested by the theme issue title. Contributions can take the form of research reports, academic papers, or personal views, but should always be rigorously argued and supported by references wherever possible. Contributors should follow the guidelines for authors published on the back page of every edition of the Journal. In the first instance an intending author should send a proposed title and short summary of the paper to one of the editors at the editorial address. This needs to be done before April 10th 1991. The full paper needs to be submitted for refereeing by May 20th; if revisions are required the final paper needs to be submitted by June 8th 1991.

Future theme issues are planned, and we invite suggestions for possible titles and contributions. One putative title is Marketing and Information Technology. This theme could be interpreted broadly to cover how information and Information Technology relate to, support or transform any or all marketing activities, with the latter again conceived broadly. This may include, for example, market and marketing research, organizing for marketing, relationships with customers, product innovation, promotional effort, pricing techniques and technologies, place and distribution channels, and marketing planning and decision-making. Once again, anyone wishing to contribute a paper on such a theme should first contact the editorial office.

This issue

An introduction to the five main papers appears after this editorial. This edition also includes a paper based on a presentation made by Colin Palmer to the Association for Information Technology (AIT) in May 1990. This addressed the major concern for the need to develop 'Hybrid Managers'. A British Computer Society (BCS) task force is carrying out major research into the type of managers and management education needed to deliver effective information systems, and has already arrived at some thought-provoking suggestions on the subject. One of the more alarming is that the United Kingdom economy requires some 35,000 'hybrids' by 1995. This raises fundamental questions about the characteristics these managers are expected to have and how these managers are going to be developed, especially in such large numbers in such a short space of time. Colin Palmer's paper is useful for summarizing the progress made so far by the BCS task force, and for opening the debate on how organizations might proceed on this issue. The AIT meeting itself revealed a degree of confusion about exactly what the hybrid manager amounted to. It is clear for example, that the term 'manager' itself implies a great degree of interdisciplinarity or 'hybridization'. However the meeting concluded that the term 'hybrid manager' was a useful term around which to base a strong campaign to educate managers on IT issues. If different types of managers need different levels of competence in the three key areas of business, organizational and IT skills, then all the research shows that UK managers need to raise their competencies across all three if they are to compete with other industrialized economies. Furthermore the level of IT awareness and education is still lamentably low amongst all types of manager, whether they are senior or quite junior within the organization. From this perspective Colin Palmer offers a timely and very relevant paper.

The remainder of the issue consists of a detailed report on the June 1990 conference entitled 'People and technology' – a subject, as suggested above, whose time may well have come. There is also a book review on a much neglected area, namely maintaining information systems in organizations. Readers who are interested in reviewing publications, or who have suggestions on books to be reviewed should contact the Book Reviews Editor, Martin Harris, in the first instance. As ever, the Editors are always interested to receive opinions and suggestions on the Journal, and hopefully those who have contacted us in the past can already see their influence on the shape that the Journal has and will be taking.

> Anne Leeming Leslie Willcocks

Theme issue: introduction

Editor: Leslie Willcocks

The size and continuing growth in investments in Information Systems (IS) has now placed Information Technology (IT) issues above the parapet in many organizations. It is pertinent to be aware at this stage of the sort of sums involved. In 1989, in the private sector, the average UK IT budget in companies with a DP department of five staff or more was £2.73 million. If this is a 5.9% drop in real terms on 1988, then for 1990 an 11.2% increase has been predicted. Furthermore user budget spend on IT continues to grow outside central DP department control, and is predicted to represent 25% of all IT spend by 1990 (Price Waterhouse Information Technology Review 1990/91). In the public sector the Department of Social Security is spending over £2 billions on its Operational Strategy from 1982 and into the 1990s. The National Health Service, like many government departments, is currently committed to investing millions of pounds on Information Technology-based systems. In most of these cases estimates of expenditure continue to race upwards as each year passes. Not surprisingly, senior managers, whether in private or public sectors, are increasingly wanting to question what return they are getting from such investments, and whether the IT route has been and will be a wise decision.

At the same time IS investment has emerged as a high risk, hidden cost process, to the extent that one senior manager recently remarked that all IT expenditure in the last five years should be written off to the training budget (Earl, 1990). This is a difficult area about which to generalize. However, recent research studies suggest that UK IT expenditure is about £8 billion and rising, that at least 20% of such spend is wasted, and that between 30 and 40% of IS projects realize no net benefits whatsoever (Kearney, 1984 and 1987; Wroe, 1986; Willcocks and Mason, 1987; Eason, 1988; KPMG Peat Marwick and Mitchell, 1990).

Much of this may be, amongst other things, a commentary on how IS investments are evaluated and controlled. Certainly the picture here is not an encouraging one. A body of literature has built up in this field in the last five years. Commentators like Parker, Benson and Trainor (1988), Malitoris (1990), Hochstrasser and Griffiths (Kobler Unit) (1990) and (1990)Lincoln and Shorrock describe the inadequacies of traditional cost-benefit based approaches to evaluation at the feasibility stage. They suggest the need for enhanced cost-benefit assessment together with a contingency approach to evaluation. Ward, Griffiths and Whitmore (1990) succinctly summarize one version of this approach. Different combinations of cost-benefit, value linking, value acceleration, value restructuring and innovation evaluation need to be adopted, depending on whether IS objectives are, in the words of Parker, Benson and Trainor (1988), 'substitutive', 'complementary' or 'innovative'. (See also John Ward in this issue). As another example the Kobler Unit (1990) suggests four different sets of evaluation - cost-benefit; value chain, value linking, value acceleration; customer resource life-cycle; and risk evaluation - each most appropriate for assessing particular different sets of objectives to be achieved through the application of new information systems. (See also Beat Hochstrasser in this issue).

How far does the theory inform practice, or has theory arisen mainly because the limitations in practice have become so obvious and costly in recent years? In practice, organizations have found it increasingly difficult to justify the costs surrounding the purchase, development and use of Information Technology (Kobler Unit, 1990; Price Waterhouse, 1989; PA Consulting Group, 1990). While costs are often obvious, the value of IT investments is more often justified by faith alone, or, which perhaps adds up to the same thing, by understating costs and using mainly notional figures for benefit realization (Peat Marwick. 1989). A whole string of hidden, second-order costs are often missed out of the evaluation (Kobler Unit, 1990; National Audit Office, 1989). Kobler Unit (1990) found only 16% of their sample relied on rigorous methods to calculate the benefits of investment in IT. Over a quarter of managers did not know (presumably because it was not measured) whether or not IT was producing better or worse returns than other investments. PA Consultancy Group (1990) found that, once systems were in operation, 45% of their respondents did not measure the performance of the IT function, or used informal methods to do so. A 1990 study of 50 organizations drawn from a cross-section of private and public sector manufacturing and services found a range of inadequacies in evaluation practice at the crucial feasibility stage of projects. Risk and 'soft' hidden costs were often not fully assessed. Nearly half of organizations do not include the user department in the evaluation process, and even less consult end users. Moreover evaluation is geared predominantly to internal objectives. While most endorsed the need to assess the competitive edge implied by an IS project, only 4% of organizations considered customer objectives in the feasibility evaluation process (Lester and Willcocks, 1990).

Within this broad context the five contributions to this theme issue of the Journal would seem to be particularly timely and pertinent. All point to inadequacies in the way information systems and technology investments are evaluated, but all put forward constructive proposals on how evaluation analysis and practice can be redirected. In the first paper David Silk identifies the three generic IT/IS benefits as efficiency, effectiveness and strategic advantage. After discussing recent research findings on current issues in information management, he identifies seven types of justification that might be used to 'sharpen up the business case' for IT/IS investments. The author then identifies twelve major information management challenges. The paper is particularly useful for then developing a benefit-level matrix arrived at by plotting the generic benefits already identified above against strategic, tactical or operational usage. The author concludes by stressing the importance of developing an appropriate corporate investment culture, employing the right investment assessment techniques, aligning the management of IT more closely with the business, and monitoring IT value for money from formulation right through to routine operation of the information system.

Veronica Symons offers a different focus. Through means of a detailed and fascinating case study of IS development in a subsidiary of large international manufacturing organization, she shows convincingly how evaluation is properly regarded as the embodiment 'not of a formal objective procedure ... but of a social process involving multiple perspectives'. The paper is helpful for establishing how the formalperspective commonly rational underlying IS evaluation can place an excessive emphasis on the technology at the expense of the organizational aspects of information systems. Symons concludes that evaluation is necessarily a socially-imbedded process. It needs to focus on both the content and context of change. In terms of the former this comprises linking IS to business goals and consideration of the implementation process. But IS evaluation must also included historical and infrastructural elements of IS, the distribution of knowledge, authority and control within the organization, and the process of change, i.e. the actions, reactions and interactions of participants.

In a third paper Glen Peters develops further the evaluation methodology he first presented in an article in the September 1988 issue of JIT. The new paper is now directed away from evaluating the overall IT strategy and towards benefits identification for specific IT investments. After presenting research findings on management characteristics of projects that worked well, Peters establishes three important attributes for an evaluation methodology. A framework in the form of a cost-benefits hierarchy, is then developed in detail. The author then provides a highly useful demonstration of the full methodology through means of seven major IT projects in an oil company marketing and distributing oil to retail, commercial and industrial trades. The application of stage 1, then stage 2, of the methodology left four projects. Interestingly, two had produced negative internal rate of return in stage 2 but were retained because of their close associations with the overall investment strategy. A second worked example is also provided, this time of nine IT investments in an international consumer products company. Glen Peters would seem to have developed a powerful, flexible and usable methodology for evaluating IT investments and aligning them with strategic IT and business concerns; this paper will be of considerable interest to practitioners wrestling with their own particular IS evaluation problems.

The final two papers develop in detail justifications for, and the content of, portfolio approaches to the evaluation of IS investments. Beat Hochstrasser presents part of the three year Kobler Unit research into 34 UK Companies. (See also a review of the full study in JIT5, 2). His paper is valuable for pointing at the importance of evaluating indirect, human and organizational costs in IS projects. These can be four times higher than direct costs. The research found no single generic procedure adequate for measuring the variety of functions and benefits made possible or supported by IT projects. Hochstrasser then details six types of IT projects and assesses the variety of techniques appropriate to their evaluation. He also includes a valuable discussion on how to evaluate second-order effects of IT projects, and stresses the importance of linking evaluation to the delivery of information as well as an IT strategy.

In a related paper John Ward establishes the types of benefits that can accrue in relation to the business objectives of IS investments. He then stresses the importance of using the appropriate basis for judgement of IT applications based on the role they are expected to fulfil in the business. The rest of the paper integrates a range of theories and approaches using IS applications portfolio analysis. Five methods of evaluation - cost/benefit, value linking, value acceleration, value restructuring and innovation evaluation - are shown to be variously useful for evaluating each of the three generic IS benefits of efficiency, effectiveness and competitiveness. These methods are then related to whether IS applications are intended to be 'strategic', 'factory or key operational', 'turnaround or high potential', or 'support'. Ward also discusses which evaluation methods should be the responsibility of IS/IT managers, and which those of business managers.

This final paper is valuable for synthesizing what is a diverse literature and set of practices. It also points the way forward to less 'acts of faith', less abandonment of IT investments as sunk costs, more analysis of IS investments, and a search for more refined ways by which they can be evaluated. It holds this in common with the other papers here, and represents a fitting conclusion to the theme issue.

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