

# **Approaches to Management Development: the domain of information management**

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## Abstract

This paper seeks to examine the issues of information management in business in the contemporary world by reviewing the contemporary writers in the subject area in an attempt to indicate the area of curriculum appropriate for general managers undergoing a management development programme. The domain is that applicable to managers (i.e. general managers rather than specialists in the areas of IT or IS) participating in an MBA programme or a competence-based management development programme of a similar level with similar goals.

## The author

Tony Bate is a Senior Lecturer in Business Information Management and co-ordinator for NVQ qualifications in management in the Wolverhampton Business School. He has a particular interest in developing new approaches to management development reflected in his research interest which is focused on comparing competence approaches to management development with more conventional approaches. This was driven originally by an interest in applying new technology to programmes with a highly structured set of outcomes with a view to developing automated approaches to examining existing knowledge and understanding in participants.

# Approaches to Management Development: the domain of information management

## Introduction

Most business schools provide modules in the area of information management as part of their post graduate/experience management development programmes and have done for some years. However there is no shared agreement as to what these programmes should provide. In this paper I argue that a number of different approaches are adopted which are reflected in the different course readers which are used. The paper consists of an overview of the literature, tracing the development of theory in the field, with an emphasis on the contributions of leading contemporary writers.

The theory relating to management itself is eclectic (Easterby-Smith, 1994), while the concept and theory of information management embraces the whole area of a rapidly changing technology. This makes it very difficult to define the boundaries to the epistemological element of a study in the field. A study of the technology itself can be seen as being rooted in science but may be of little help to the business person who seeks to apply the technology as part of a competitive strategy. The application of the technology involves a raft of softer human and organisational factors, the study of which involves theory relating to psychology and the social sciences. Arguably, the definition of the curriculum for more traditional areas of management, such as finance, human resource management, operations management is more straightforward. Gupta (1996) writes:

*Although there is some debate about the ideal balance between technology and management in the university curriculum, most faculty agree that information is a key currency in facilitating organisational change. It is probably difficult to identify an academic discipline that is more intensely dynamic, fast-paced, profound, and revolutionary than computers and information systems.*

(Gupta, 1996 preface p. xxiii)

## The systems analysis and design era

Early computer systems in business were typically applied to areas of accounting or tasks of a transactional nature. This gave rise to systems analysis and design methodologies consisting of stages of development from initial investigation and feasibility studies through more detailed investigation, to design, implementation and review and evaluation. This sequential approach is reflected in literature of the time. The theory was very much pragmatic and 'how to do' in nature, and subsequent literature focused on specific aspects of the staged process. In particular, problems were encountered at the implementation stages which led to theory, still widely used, about human and organisational factors. Later it was found that systems were not only useful in an operational sense but that they could provide management information. This led to theory relating to management decision-making and systems. This theory can be seen as progressing through to that relating to decision support tools and beyond to expert systems and in the future artificial intelligence.

## Understanding and using IT

One approach to establishing curriculum is to address the understanding of the technology and systems in terms of what they are, what they do, and how we can use them. These approaches are well documented by contemporary writers (Simon, 1996; Stern & Stern, 1996). But this approach will take us only to the awareness of the state of the art in the strategic planning process.

## Holistic approaches

Sometimes called 'soft systems' approaches, information systems are seen as part of a complex world, interacting with a complex environment. Notable examples of soft system methodologies have been developed by Checkland (1981) who provides a way of capturing aspects of the complicated organisational and wider environment as a way of establishing an understanding of those systems and system needs. The technological platform can be seen as a 'hard system' surrounded by the 'softer' aspects of the organisation, its people and structures and the environment. Beer (1966) provided a systemic model of the internal and external environment. Chaos theory can be seen as a related area of theory. Systems concepts are further developed by writers such as Harry (1994).

## End user approaches

The user of the systems can be seen as a customer whose information needs are provided for by systems and by the people and management structures that provide those systems. This can be seen as a move away from the early approaches where systems analysts were drivers of the system development process, even given some consultation with the users. Parker and Case (1993) examine the developments in end user computing through the issues of development of management information systems through to expert and intelligent systems. End user approaches can be taken to include the whole sphere of management and executive information and support systems including the body of theory related to management decision making and systems compiled by writers such as Lucey (1991).

## Competitive advantage approaches

Many of these approaches are initiated by or adapted from work done by Michael Porter (1980, 1985, Porter & Millar 1985 *cf* Currie, 1995). Porter's five forces are examined against information systems and system opportunities so as to alter the forces in favour of the organisation. Porter's Four Ps and value chain are applied in an attempt to provide the organisation with competitive advantage. Earl (1989) also addresses competitive factors. Works by Peppard (1993), Robson (1994) and Ward and Griffiths (1996) provide a collection of tools and techniques to apply in seeking a competitive advantage. Arthur Anderson Management Consultants worked with the Sunday Times (Trends in Information Technology, 1992) to examine the future of IT and its effects on the competitiveness of organisations although their work differs in that it concentrates on the future scenario in terms of opportunities in the area of the technology itself.

## Human and organisational approaches

These approaches date back to the systems analysis and design era but there is perhaps a difference in emphasis. Twenty years or so ago the challenge to systems analysts was how to overcome barriers to change resulting from such things as fear, uncertainty and doubt, whereas now we are more concerned with alignment of information systems with the organisation so as to overcome the gap, Peppard (1998) between the IT organisation and the rest of the organisation, which is seen as an organisation-wide problem.

## Strategic planning and information management

Notable writers in the field are Earl (1989) who provided tools and techniques for aligning corporate strategy with strategy for systems and technology. Many of the strategic analysis tools are derived from or replicate tools and techniques for generic strategy formulation and implementation. Collections of these tools and techniques are covered in works by literature on Strategic Management and Information Systems (Robson, 1997; Peppard, 1993; Wysocki *et al*, 1997; Ward & Griffiths, 1996).

Later works by Earl (1996 *cf* Houlder, 1996), Galliers and Baker (1997) and Peppard (1998), stress the 'gap' between the planned systems outcomes with the real benefits delivered by systems. Peppard (1998) reports that there is still a huge disappointment among senior managers with the benefits and values they are getting from their IT investments. The human and organisational factors involved in the successful delivery of benefits resulting from systems seem to have returned, very much, to the agenda.

## Strategic drift

The expression 'strategic drift' is used here to describe the way environmental factors impact in a way not predicted at the strategy formulation stage. For example the so-called 'millennium bug' has impacted on many organisations' systems costs in a way not anticipated in any strategy. Such unexpected forces can have the effect of diverting strategy off course and creating an ever greater drift between the strategic plan and the need to respond to a changing environment. In such a situation where the real world drives change in a way that was never predicted, action becomes reactive rather than strategic.

According to Harrington (1991), discussion and policies have reflected an agenda at the macro level which has an investment in presenting the installation of IS as universally beneficial, while failing to identify constraining realities in organisations. This has led to an impasse in the way ahead.

## Information management in the information age

It has been argued for some time (Davis & Davidson, 1991) that by the year 2020 around 80% of business profits and market values will be built from that part of the organisation dealing with the business of information. Some years ago Lester Thurow (1992) said that organisations will have to integrate CAD/CAM into the entire production process of which he include research, design, manufacturing, distribution, marketing and service if they were to compete in the global forum. Toffler (1990 *cf* Parker & Case, 1993) suggests that we are coming to the end of the information age and entering a new age of information and communications technology that he describes as the knowledge age, in which knowledge is further refined information articulated through advanced computing techniques such as intelligent databases, expert systems and neural networks.

According to Henry C. Lucas (1994) organisations have distributed the responsibility for technology to all levels of management and to different geographical locations. Lucas sees the design of systems as the key to the successful performance of an organisation and that the design of multi-user systems as being much complex than the design of a personal computer system which involves many more people with, each with their unique and often conflicting needs and expectations. Lucas thinks:

*it is critical that a course in information systems prepare students to play an active role in the development of new applications that will affect their productivity and their company's competitiveness.*

Vanessa Houlder (1996) identifies the Intellectual Capital of Organisations as being the asset of knowledge, information and ability contained within the minds of people and systems belonging to the organisation. Michael Earl (1996 *cf* Houlder, 1996) refers to the many business consultants who are enthusiastically embracing knowledge management; that is the management and exploitation of an organisation's collective knowledge. While Earl refers to this in the context of an organisation's information systems knowledge itself can be seen as a competitive advantage factor.

Galliers and Baker (1997) comment on the domain of Information Management as follows:

*.. the subject of strategic information management is diverse and complex. It is not simply concerned with technological issues - far from it in fact. The subject domain incorporates aspects of strategic management, globalization, the management of change and human cultural issues which may not at first sight have been considered as being directly relevant in the world of information technology.*

(Galliers & Baker, 1997 preface p. xiv)

Galliers and Baker also make the point that strategic information management is a management responsibility that executives cannot abrogate to technicians and that while technical expertise is a requirement it is not sufficient for information systems success.

Tapscott and Caston (1993) talk of a paradigm shift where the information age is evolving into a second era of fundamental change, driven by the new competitive business environment on the one hand and profound changes in computers on the other. They talk about four aspects to the paradigm shift that impact on business today. These are:

1. New Technology - new goals for IT and open, user centred network computing.
2. New Business Environment - an open, competitive, dynamic marketplace.
3. New Geopolitical Order - open, volatile, multipolar world.
4. New Enterprise - open, networked, information-based organisation.

## Global organisations

The ability to communicate electronically breaks down the barriers of time and location in doing business. That being communicated can take the form of voice, word, audio, computer software and can relate to the design of a product and the expertise about it. This is tending to break down the distinctions between large and small companies in the market place because the person viewing the Web page has no idea of the size of the company.

According to Luftman (1996):

*Small, agile firms are now effectively competing with industry giants because IT can make a consortium of small firms look, feel, and act big, reaching for customers once beyond their grasp. Their success is provoking large companies to adopt two alternative strategies: either using IT themselves to give the impression to customers that they are small and close or divesting (outsourcing) areas which are not core competencies of their business.*

*Such divestments are restructuring whole industries, not necessarily acrimoniously: strategic alliances of all kinds abound, for example, joint ventures, partnerships, minority holdings, franchises, syndicates and knowledge exchanges.*

The falling cost of IT mean that small firms can acquire global systems that perform as well or better than the larger systems of competitors.

## Change drivers

Ward and Griffiths (1996, preface p. xi), when reflecting developments over the previous six years, notice some key factors that have changed and influence strategic planning in the area:

1. The changing nature of business strategic planning, with the emphasis on 'information' (rather than 'formulation') of strategy, an approach that better recognises the rate of change and degree of uncertainty in the business environment.

2. The development of the 'business re-engineering' or 'business process redesign' movement, which argues that radical rather than incremental change is often essential to business success in the modern world (IT being either a driver or enabler of such radical change).
3. The increasingly favoured 'outsourcing' of significant aspects of IS/IT supply reflects the increasing sophistication and maturity of the IT industry.

Furthermore, they state, “.. Managing IS/IT successfully is perhaps more difficult in today’s environment of faster business change combined with greater choices in IS/IT supply”.

Examination of change drivers can be used as an analysis technique prior to strategy formulation. Managers of an organisation certainly need to be aware of change drivers for their particular industry or sector. For example, bankers will be highly aware of the proliferation of computers connected to the Internet in peoples homes. This will certainly drive change in banking, given the opportunity to perform banking transactions from home.

## Globalization and information management strategies

There is plenty of evidence to suggest that many organisations are formulating strategies which take into account global markets and that their strategies for Information Management are global rather than national. Two influential writers on the subject conclude their paper in the area as follows:

*Changes in technologies and market structures have shifted competition from national to global scope. This has resulted in the need for new organisational strategies/structures. Traditional organisational designs are not appropriate for new strategies, because they evolved in response to different competitive pressures. New organisational structures need to achieve both flexibility and co-ordination among the firms diverse activities in the new international markets.*

*Globalization trends have resulted in a variety of organisational designs that have created both business and information challenges. A global information systems (GIS) management is required.*

(Karimi & Konsynski,1997 p. 211-212)

It is clear that people’s working and social lives will be greatly affected by changes over the next few years as will politicians’ and governments. Of course we cannot predict with accuracy what will happen in the future. Futurologists in the past have often been proven very wrong. What we can do is to look at some of the possible implications as a starting point for discussion.

In the words of another writer on the information age:

*Toward the end of the second millennium of the Christian Era several events of historical significance have transformed the social landscape of human life. A technological revolution, centred around information technologies, is reshaping, at accelerated pace, the material basis of society. Economics throughout the world have become globally interdependent, introducing a new form of relationship between economy, state, and society, in a system of variable geometry.*

(Castells, 1996 p. 1)

## Strategic planning toolkits

Having considered some of the approaches to systems development and strategy development I propose to look at some of the tools and techniques which we can use towards the end of producing

an IT/IS strategy. Greater depth in a comprehensive review is provided by Robson (1997) while a more concise view of some of the techniques is provided by Peppard (1993).

The initial analysis requires a thorough understanding of the organisation itself. Many tools are available to do this in the realm of strategic management and so are worthy of only a mention here since a comprehensive review of them is available in the various works on strategic management. Others are derived from strategic management but are applied in a certain way as tools for formulating IS/IT strategy many resulting from work done by Porter (1980; 1985). Other tools have their origin in analysing systems and system needs (systems analysis and design) and can be seen as more systems rather than business orientated or more 'bottom-up' in nature by analysing what is already rather than what is required as driven by business and competitive forces. Some approaches are more concerned with implementation rather than analysing business needs.

Whatever approach we use we clearly need to 'derive' an IT/IS strategy by taking account of business and strategic factors as well as an analysis of what we have already and including technological opportunities and constraints as we rarely start from a 'Greenfield' perspective or with unlimited resources.

Formulating an IT/IS strategy can be seen as a process of examining and prioritising opportunities in the field and providing some plan for realising those opportunities. Prioritising is likely to be necessary as some opportunities will deliver greater or sooner benefits than others.

It is also worth remembering that many contemporary writers stress the problem of the 'gap' between the strategy and its implementation (Earl, 1996 *cf* Houlder, 1996; Robson, 1997; Galliers & Baker, 1997) and suggest a greater emphasis on some of the human, organisational, political, difficulties in delivering a successful strategy rather than the application of formal techniques to derive strategy.

Some approaches are known as interpretative approaches which tend to be less formal and concentrate on overcoming the human, organisational and political aspects of implementing strategy rather than the application of tools and techniques to derive strategy. The argument goes that it is no great problem to analyse what is required by the systems and what systems are needed but that it is a much greater problem to achieve a system that satisfies these needs. This is an observation made by the author, particularly while working with course participants in the health sector. Participants prove very capable of devising information and system needs that would improve their organisations but tend to be pessimistic about the reality of achieving those systems, even where a clear benefit is demonstrable, because of organisational restrictions on raising finance, convincing senior managers, harnessing the right knowledge, understanding and skill to implement the systems and so on. This would tend to support the interpretative viewpoint; however the participants did require the application of some structured exercises based on the application of tools and techniques in order to derive those information and system needs, which is my argument for including works on the application of tools and techniques in the curriculum. I therefore propose to provide an overview of some of the available tools and techniques.

## The meaning of IT/IS strategy

Since we are to derive the above it is worth clarifying the meaning of Information technology and information systems strategy. Indeed different authors interpret them differently which can be confusing. My view is that the IS strategy is what is needed by way of systems that deliver information that supports the business strategy and provides competitive advantage or added value to the organisation, a view not dissimilar to Earl (1989). To say that it is derived from the overall strategy of the organisation is an oversimplification since system opportunities will influence the overall strategy of the organisation and indeed the overall strategy and the IS strategy or likely to be intertwined or almost one and the same, a view indicated by contemporary writers such as Earl (1996

*cf* Houlder, 1996). We therefore need to understand the business and the potential deliverables of the technology in order to formulate the IS strategy.

My view is that the IT strategy is that which delivers the IS strategy, that is a strategy focused on the issues of technology and software which deliver the information needs of the IS strategy.

Some writers talk of a IM strategy and interpret it as a strategy for delivering information needs of managers or a description of what those information needs are as indicated by Worrall (1995). It is sometimes used, perhaps more loosely, to describe those policies, or day-to-day mechanisms for dealing with decisions relating to systems, such as a policy of using a committee of users and providers to select software packages for the organisation. Ward and Griffiths (1996) talk about a IS/IT management strategy the common elements of which apply throughout the organisation, ensuring consistent policies where needed.

## **Tools and techniques for understanding the organisation**

These are comprehensively dealt with in Robson (1994) and many of the other works on strategic management (Bowman, 1990; Wheelen & Hunger, 1989). The techniques are largely borrowed from works on generic strategy and can be regarded as techniques that help in the understanding of the organisations internal and external environment. This is the first stage in the process of deriving information and system needs as well as opportunities to exploit technology and systems to gain competitive advantage. The simplest of these is the SWOT analysis which may directly reveal opportunities to exploit technology or systems or at a slightly higher level of analysis reveal how system strengths may be used to exploit external opportunities or cope with external threats.

For the purpose IS/IT strategy they can be used in a number of different ways but broadly we use them to gain an overall understanding of the organisation prior to even thinking of IT/IS (such as a consultant investigating an unfamiliar business) or as a direct link into a possible system solution to add value to the organisation. For example a business may be low geared (have a low ratio of debts to assets) which could be regarded as a strength. This is something we can 'keep at the back of our minds' because when we have derived a strategy it is likely in this case that capital will be available. Alternately a courier business may have the opportunity to install terminals in the premises of its regular customers; in this case the SWOT analysis has lead us directly into an IT opportunity. Each case results from some reasonable analysis but we must be careful not to jump straight into solutions without really understanding the business and its competitive position; that is we must be wary of how we apply the tools.

## **Understanding the competitive position of the organisation**

Most people would agree that we need to link our IS/IT strategy to competitive or environmental factors. Even if the business is not a competitive one (a charity for example) we need to examine the particular client group the organisation serves and the outside influences which affect it. When analysing a public utility, for example, we would need to examine the role of the regulator and the regulatory framework in which the organisation works and survives. On a fairly simple level we can use Porter's four P's, and a fifth P used by many which is 'people' as a kind of a checklist to provide us with possible opportunities in the field. For example we can explore how we could use information and technology to improve our 'product'. Possible solutions for a manufacturing organisation may be to pool product specification information on a central database as a way of using shared information in the development of a new product. This type of analysis will only takes only goes so far however because it is really only a checklist which may help to clarify our thinking but does not provide any real analysis.

Perhaps of more use is the application of Porters five forces analysis in understanding the competitive position of the organisation.

## Sources of competition

A well known writer in the field of global competition in 'the information age' is Castells (1996) who provides us with four main processes that determine the form and outcome of competition. While Castells is refereeing to the nature of competition between nations I think these four 'sources' provide a useful tool for examination of those units (organisations) that make up nations.

The first is technological capacity including the science base of the production and management process, the R&D strength, the human resources necessary for technological innovation, the utilisation of the new technologies and their diffusion into the economic network. Castells (1996) also describes technological capacity as:

*an attribute of a system: what I called the science-technology-industry-society system (the STIS system). It refers to the appropriate articulation of science, technology, management, and production in a system of complementaries, each level being provided, by the educational system, with the necessary human resources in skills and quantity. The excellence of a given economic unit, for instance a strong science base or a long manufacturing tradition in a country, is not enough to ensure the successful adoption of a new technological paradigm based on information technologies. It is the articulation of different elements that becomes critical. This is why technological capacity can hardly be the attribute of the individual firms (even giant global firms such as IBM).*

The above serves to provide us some 'food for thought' but also forces us to take a very wide view as to how an organisation competes including many aspects such as the local provision of education and the capacity of the available workforce as part of a competitive paradigm based on technology.

Briefly, Castells goes on to describe the second factor influencing competition as access to large, integrated and affluent markets. The first factor can be seen as a supply issue, the second as a demand issue.

The third factor that explains competitive performance in terms of the "differential between production costs at the production site and prices at the market of destination".

The fourth factor considers the political capacity of the nation in terms of providing national strategies that enable organisations to compete on global markets.

## Evaluating IT/IS

Before embarking on any sort of IT/IS investment some sort of appraisal needs to be made in order to justify the investment to be made in order to secure funds or justify the allocation of existing budgets. Remember of course that a decision to make an investment may be taken in terms of a priority above another investment, whether or not the other investment is in the area of information systems of another type of investment.

Secondly, once the investment has been made, an appraisal of the success of that system against the original system objectives, investment justification, needs to be made, as a process of identifying problems and learning for the future.

Thirdly, some kind of ongoing appraisal of systems is likely to be desirable as is the case with all the other systems in the organisation which will eventually form the accounting procedures of that organisation.

There appears to be little consensus as to how IS/IT evaluation should be done but a weight of evidence that suggests the existing methods are inappropriate. Cook and Parish (1992 *cf* Ward &

Griffiths, 1996) found that 70% of organisations had no formal justification and post implementation review process for IS/IT investments. Other studies by Ballantine, Galliers and Stray (1994 *cf* Ward & Griffiths, 1996) and Willcocks (1994 *cf* Ward & Griffiths, 1996) suggest that traditional financial analysis techniques are widely used but that organisations are finding them more and more difficult to apply because the benefits are increasingly difficult to measure.

In the past systems analysts have provided a cost benefit analysis to justify and to evaluate investments. This is simply a process of calculating the initial investment cost in hardware, software, training and so on and comparing these with benefits, in the form of say reduced labour cost, achieved through the automation of processes, over the period during which the proposed system was to operate.

Sophistication could clarify and distinguish fixed and variable costs and incomes while net present value techniques could correct factors to do with the passing of time. Twenty or so years ago this would have seemed fairly reasonable since the aim of many systems was a fairly simple one of reducing staff costs at a fairly operational level. This approach became rather more difficult when systems were used to provide managers with information since the changed quality of the decisions made by managers can be assessed as adding value to the organisation but assessing by how much is problematic.

Now we talk about strategic information systems and competitive information systems which support the organisations strategic aims and the quantification of benefits becomes even more difficult. It may be possible to state that the systems will be essential to support the organisations objectives or Critical Success Factors but any reduction to quantity becomes both difficult and of dubious value anyway.

## Strategic information systems planning

The expression in the subtitle above results from work done on competition and systems planning. Strategic information systems can be seen as those which are prioritised to most effectively feed the organisations mission, objectives, and long term survival. Galliers and Baker (1997), using a distinction made by Huff and Beattie (1985 *cf* Galliers & Baker, 1997), distinguishes between SISP and IS strategy formulation:

Strategic information systems 'directly support the creation and implementation of an organisations strategic plan'. The emphasis here is on information systems that enhance executive management processes and decisions. For example, according to the definition, information systems that test the assumptions underpinning strategic plans or business objectives would be classified as strategic.

Competitive information systems 'directly support the execution of strategy by improving the value/cost relationship of the firm in the competitive environment'. Here, the emphasis is on improving competitiveness through the use of IT in reducing costs or adding value to products/services. Galliers also points to a lack of application of formal methods and techniques in strategy formulation:

The reality is that many companies do not formulate strategy according to this rational/analytical model, nor do they adequately plan their information systems, let alone incorporate competitive considerations into their planning efforts. What is more, they experience difficulty in implementing their plans, once these have been formulated.

## Stages of strategy formulation

Figure 1 represents an attempt to map the process of strategic planning and implementation, using the overall strategic management model is of Wheelen and Hunger (1989). This has been extrapolated downwards to examine those areas which apply to the information part of strategy. The three levels

of strategy originate from work done by Earl (1989) where IS encompasses information systems on a broad basis including paper systems verbal systems etc. as well as the technology. Because of the importance of technology it justifies a strategy of its own, hence the IT strategy, which can be seen (Figure 2) as being encompassed by the IS strategy. My interpretation of IM strategy is that it covers the organisation's policy which enables the formation and execution of the IS/IT strategy although some writers interpret it as being quite different; being a strategy for providing managers at different levels of the organisation with the information they need. The model has been used by the author to provide a framework of competence by extrapolating the knowledge and understanding required by a manager at different stages in the process and considers managers with varying degrees of specialism and in different industries/sectors.

For example, external scanning can be applied to the area of information management by scanning the environment for new development in the area of IT and examining whether these would apply to the particular organisation. This is exemplified by some large organisations that appoint readers whose job it is to be highly informed and knowledgeable about the state of the art and trends in the technology. Similarly, strategy implementation could be applied to the area of information management and would become project management in essence.

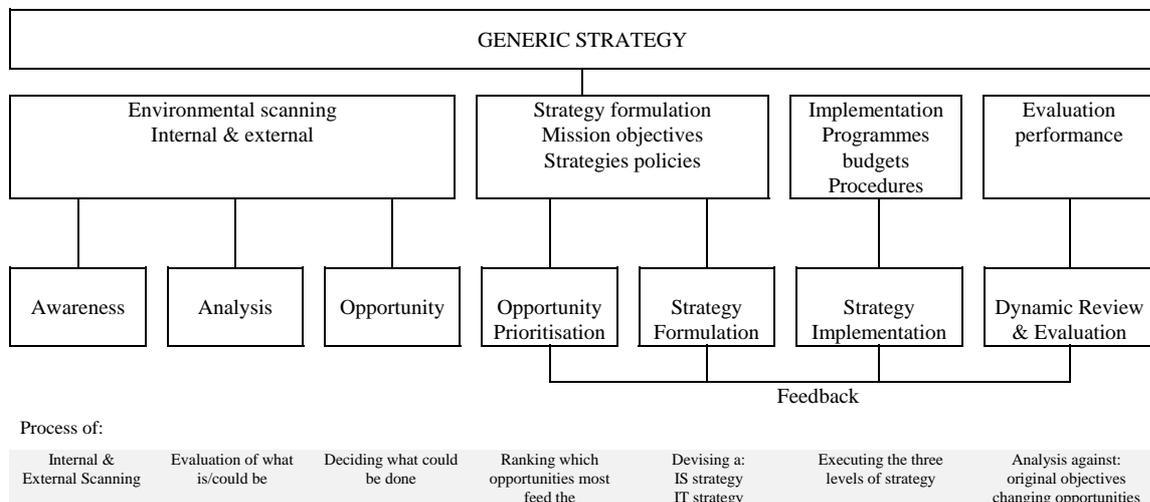


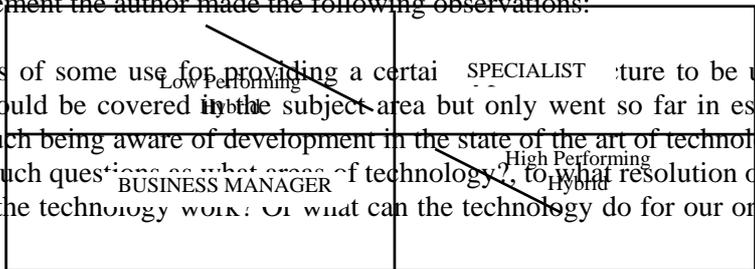


Figure 1. The process of strategy formulation

### Critique of the model

The author has applied the framework of competencies to a group of full-time MBA students. A full discussion of the merits of applying a competence framework as part of this management development programme is beyond the scope of this paper but in so far as it applies to the domain of information management the author made the following observations:

The framework was of some use for providing a certain structure to be used as a basis for examining what should be covered in the subject area but only went so far in establishing content. While statements such as being aware of development in the state of the art of technology can be derived it does not answer such questions as 'what areas of technology? to what resolution of technical detail?', 'in terms how does the technology work? Or what can the technology do for our organisation?' and so on.



The separation of levels of strategy into IT, IS and IM does not, in practice appear to be very useful. In preparing a strategy participant find that many objectives in the area of information cover systems technology and management and an attempt to separate the merely makes the exercise more tedious. Any effort in appreciating the difference between the stands does not appear to improve the quality of the strategy.

Extrapolation of the subject area was done in a logical fashion but the results did not necessarily reflect the real problems managers actually face in organisations.

Let us continue by attempting to address some of issues that face those responsible for business information in organisations.

### The competence needed for successful implementation of strategy

Some people criticise the formal approaches, partly on the basis that in practice there is a huge gap between the strategy and what can actually be implemented in the real world. Many attach a great deal of importance to having the right project manager to implement new systems.

There has been much discussion in recent years as to sort of person that is needed to “make systems work”. Much of this discussion is fuelled by a realisation that systems have failed to deliver business performance and competitive edge. Research by the British Computer Society (Palmer, 1990) suggests that a person that is stronger in business rather than computing terms makes the best project manager. Of course a person brilliant in both respects would be the ideal but this is rarely if ever achievable. The following diagram is an attempt demonstrate how the business and technical aspects can be seen as two sides to a graph and that it is possible to plot a location for a person with a combination of abilities. The person with both abilities can be seen as the ‘hybrid’ manager.

**Figure 2. The Hybrid Manager**

The grid is an attempt to map the attributes of the hybrid manager as a possible way of clarifying suitability for particular roles. The technical specialist would be expected to score highly against the technical attributes and low against business attributes although a real hybrid might score high in both respects. Criteria to measure technical attributes would be a deep knowledge and understanding of the technology itself. Criteria to measure business attributes would include such things as awareness of the internal politics, knowledge of customers (external and internal) requirements.

## Synthesis

Management standards developed by MCI concentrate very much on the information needs of the particular manager being developed which seems to be at variance with the content of the curriculum of most business schools which has a much more strategic focus and sees the manager much more as a contributor to strategies that provide information rather than the receiver of information. However these extremes may give us a glue to deriving an appropriate curriculum as I argue that either extremes have some validity in that the manager is both a customer of systems that supply information and a contributor to those systems. Taking the customer angle first we can examine the role of the manager and search for ways of developing the managers ability to use information most effectively as part of the decision and executive process. We can also search for the most effective ways developing the manager so as to communicate with the information provider in a way to most effectively exploit those available systems. I suggest that this involves developing the manager in terms of knowledge and understanding of those systems as it is my observation that many managers play a role in systems creation and strategy but have little understanding of some of the 'basic principles' of those systems. Those basic principles would also enable the manager to more effectively contribute to systems development. If we take the manager as a provider rather than a customer I argue that there needs to be an understanding of systems but also of strategy in terms of understanding how the organisation competes and survives and will do in the future together with an understanding of business and technical drivers in terms of how they will effect the organisation. None of the literature I have reviewed really addressees the two extremes of the manager as a provider and a customer of information.

I argue that the curriculum of the information management programmes, which I think are typical of most business schools, tend to address the issues of the manager as a user of information at the lower (certificate level) and a provider at the higher (diploma and MBA level). I suggest that we need to be much more searching about the actual decision making role of the manger and then lead that through to and understanding and development of strategy but that this should permeate through all levels.

The systems analysis and design techniques are clearly of use for the management of a specific project which has clear determined boundaries and have the prior approval of senior managers who have placed the project in the organisations strategy. However they are of little help in actual strategy formulation and therefore of doubtful value as a curriculum content for general managers.

Human and organisational approaches are clearly back on the agenda as a lot of the most recent writers stress the 'gap' between what is really required and actually achieving systems that deliver. However there do not seem to be any real techniques available to help in this respect and I suggest that this is an area where we need to search for greater knowledge. Globalisation and change drivers are clearly an important issue but much of the literature is of a future scenario building nature and does not provide us with any real tools for analysis.

Strategic planning toolkits are available but do not seem to recognise the fact that overall strategy and strategies for information are intertwined and indeed these tools seem to have been little developed in recent years.

## Conclusion

Based on the literature contained in this paper I argue that the following issues are addressed as a core part of a management development programme for general managers:

1. A thorough understanding of the way organisations compete in a global environment and the role that systems and technology play in that competition. To use work done by Castells (1996) managers must understand how to appropriately articulate the mixture of science, technology, management, and production in a system of complementaries, each level being provided, by the educational system, with the necessary human resources in skills and quantity.
1. I further argue that in order to do this manager must have the appropriate knowledge and understanding of:
  - a. Technical change drivers. The appropriate knowledge and understanding being that of not too much technical detail (this is the area of the specialist), but sufficient to understand the future trends and identify how these trends will effect the way an organisation competes and survives within a particular industry.
  - b. Business change drivers. These relate to the business forces acting upon the organisation but they also need to be related to technical change drivers.
2. In order to address issues of successful implementation the manager needs the appropriate level of understanding of theory relating to human and organisational factors and the ability to apply these to the organisation, including aspects of physiological understanding
3. The manager needs to be able to exploit systems as an effective end-user and also to effectively articulate end-user needs to system providers. This requires the appropriate knowledge of systems in terms of management information providing and decision making as well a knowledge of what systems can/could provide.
4. There is a need for organisational re-engineering techniques to be developed and applied which take account of virtual organisations and semi-virtual organisations. Many approaches for BPR have been criticised; maybe these were ahead of their time!
5. Information itself is a resource which needs to be managed but also an asset. Conventional techniques have difficulty in accommodating information as an asset.
6. The application of tools and techniques for strategy formulation may still be important but these do not overcome the difficulties of implementation. The manager needs a thorough understanding of what is available, what can be done in the real life situation and how to apply appropriate tools and techniques to realise strategic objectives.
7. There is a whole emerging theory in the are of virtual organisation with its special issues relating to the management of people and technology. The manager will need to be equipped to respond to these new challenges.
8. The distributed nature and proliferation of systems will require managers, both providers and clients to respond to new challenges.

Points 1-8 above are all points related to the provision of information systems rather than developing the manager as a user of information. I think there is a lot of scope to search for new ways of analysis the managers role leading to the development of effective managers as users of information as well as providers.

This tends to lead us to developing the hybrid manager but I think we need to do a lot more searching to see what mix user/provider is most effective and what the key ingredients that are needed develop the successful manager in the area.

There is much talk about intellectual capital and knowledge management, but so far there seems to be little in terms of tools and techniques to be used for analysis and development in the area.

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