SWP 9/91 STRATEGIC OPPORTUNITIES AND INFORMATION SYSTEMS MANAGEMENT

ALAN WARR
Cranfield School of Management
Cranfield Institute of Technology
Cranfield
Bedford MK43 OAL

(Tel 0234 751122)

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INTRODUCTION

Techniques are now well established for identifying strategic opportunities for using information systems in business. Additionally, the need for an overall IS strategy clearly derived from and supporting the overall business objectives is becoming widely accepted. The process by which an IS strategy is developed in a company is less clearly defined. Some methodologies exist (eg CCTA guide-lines) but the area of strategy formulation remains one which is highly dependent upon the skills and experiences of those involved and the specific situation of the business.

However for senior IS management and those who ultimately aspire to grow into more senior roles the increasing emphasis on business perspectives over technology perspectives requires some examination. In the first of the Thatcherite decades market-orientated views consistently gained influence. More importantly for IS management the views have emerged independently from within our own ranks. Typical is a recent article in Information and Software Technology where R Jones [1] argues,

"Most IS staff are currently trained from what might be termed the bottom up. Programmers are turned into designers, who then become analysts, and so on. All the time, IS staff are trained to think in a sequential and analytical manner. First do this, then do that. Do not stop to think of the wider implications of what you are doing. And so on.

That approach to training is simply not good enough any longer. The problems of IS arise, not from a failure to cope with technical matters, but directly from a failure to understand the wider implications of business. It is now necessary to alter completely the training perspective of IS staff.

IS staff must be trained from the top down, starting by teaching them the nature of business itself. They then need to be deeply immersed within the business culture of the specific organisation they are working for - how does the organisation make its money, who are its competitors, what determines its success, and so on.

Only then should they be introduced to IS working methods....."

Although such comments can be challenged, they have found the ear of top managers and struck a cord.

This paper examines the techniques used by Cranfield's IS Group to help ask such questions as "How does the organisation make its money, who are its competitors, what determines its

success ?", and relate the answers to how to deploy information systems to support the business objectives.

These ideas are based upon the research and consultancy of staff at Cranfield School of Management, though it has to be said that many of the ideas were originally initiated from Harvard Business School.

THE DEVELOPMENT OF IS USAGE

Several models exist which attempt to explain how the usage of information systems has evolved. The "Three Eras Model" (figure 1) suggests that from the first deployment of computerised information systems in business the overt pursuit has been that of improved business performance but it has been achieved in three distinct ways.

During the **first era**, roughly from the first use of computers in business to the mid 1970s, the focus was on achieving increased competitiveness by increasing the efficiency of clerical processes. This era might be termed the **Data Processing era.**

During the **second era**, up to the mid 1980s, the focus was on improving business performance by using information to improve decision-making. Because the information was primarily quantitative the focus became the provision of management information for lower and middle managers. Computer terminals in the Directors' offices were rare and mainly decorative. This era is generally termed the **Management Information Systems era.**

The **third and current era** is characterised by the use of information systems to improve the competitive performance of the business more directly. The focus is on using IS strategically to gain competitive advantage either through systems which act not just on internal processes but affect the business environment more directly, typically by affecting the product or service offered to the customer or which integrate the value adding processes of the firm or industry. This era might be termed the **Strategic Information Systems era.**

Like all business models the Three Eras model can be accused of over-simplifying a complex reality. However the model does describe the evolving nature of IS deployment in business and concludes that the current emphasis is on using information systems strategically.

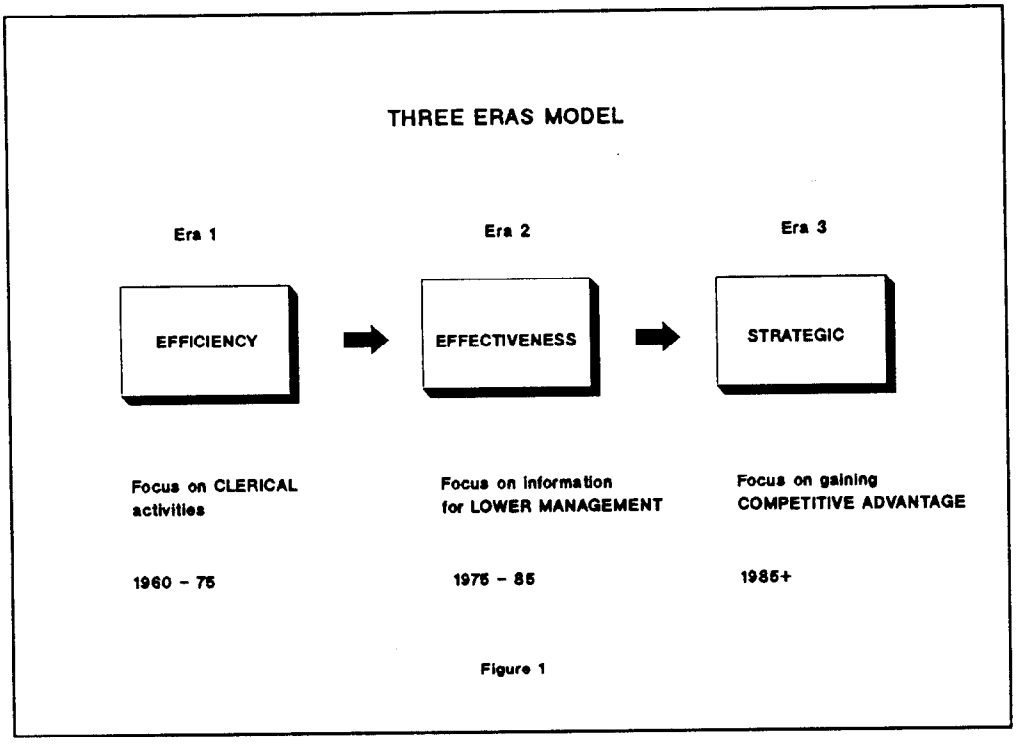

Figure 1

This strategic use is a double edged sword for the IS professional. Those businesses who have the opportunity to use IS in this way (and it is not all) are forced to elevate the role of IS within their organisations. This higher level role means that both the positive benefits and the potential problems are now often organisation wide. The structure of whole industries has been transformed by the innovative and successful deployment of a strategic system by a single firm within the industry.

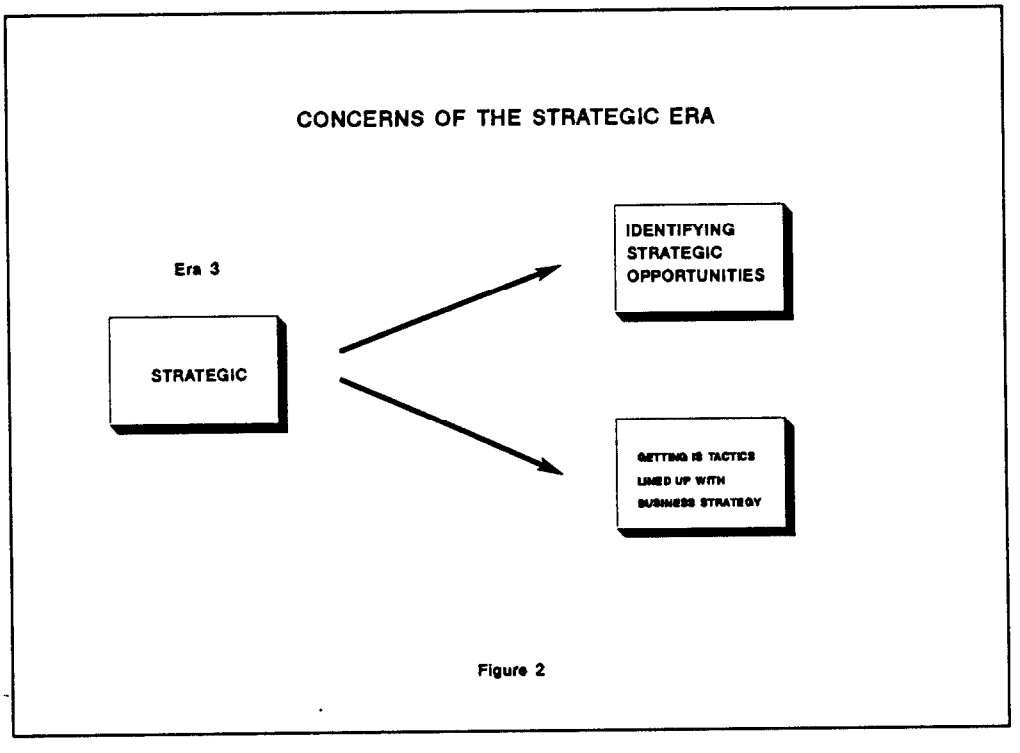

Figure 2

The challenges of this era are clearly :

- identifying strategic opportunities for using information systems.
- managing the information systems resources so that they are lined up firmly behind the overall business objectives

Both of these challenges require the strategic perspectives historically associated with general management and corporate planning. As illustrated in figure 3 the primary influence is no longer the limitations of the technology, as in the first era, but the overall corporate strategy. Indeed the technology is now seen as being subordinate to the information systems strategy which is itself largely derived from the overall business objectives.

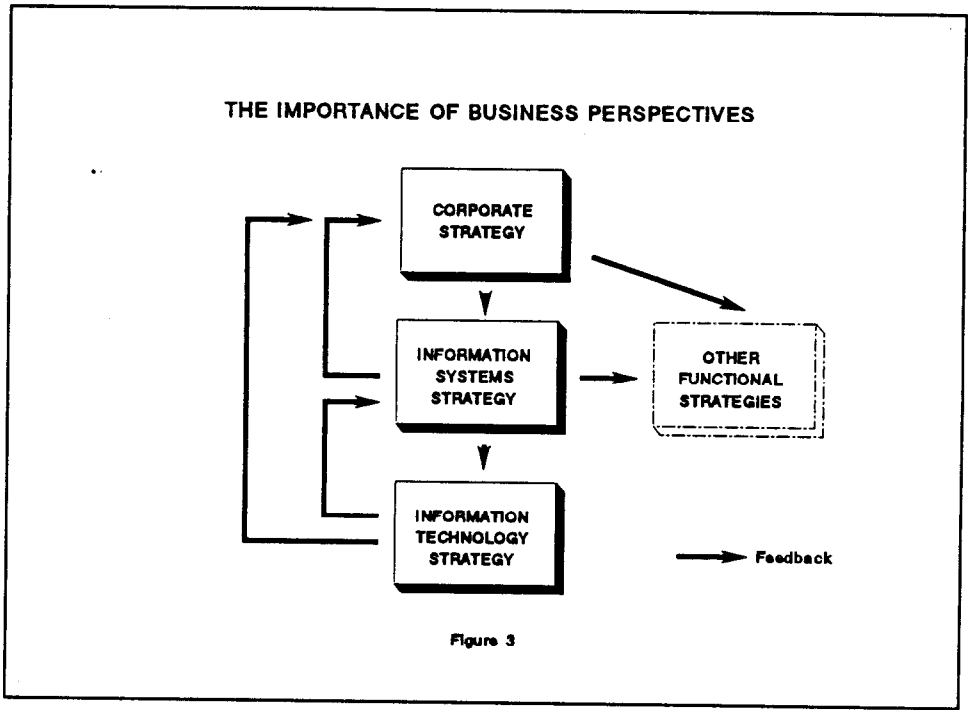

Figure 3

This business orientation required new tools. The systems analysis tools which were so useful for understanding parts of the internal operation of the business are less successful when the object of scrutiny is the competitive forces of an industry or similar.

Since about 1984, academics in the major business schools such as McFarlan and Porter at Harvard, Ward at Cranfield, and others have been addressing the need for tools to aid with this new deployment of information systems.

The result is a set of tools mainly borrowed from the fields of corporate and marketing strategy and adapted to IS by asking the question "And how does the use of information systems affect this strategy model of the business ?"

MANAGING THE DEVELOPMENT OF AN INFORMATION SYSTEMS STRATEGY

The objectives of any strategy are probably threefold :

- To make tactics effective. In businesses greater than five people co-ordination becomes an increasing problem. The day to day tactical decisions and actions require a clear direction to guide them. The strategy acts as a set of higher level objectives and guides the lower level activities and in this way co-ordinates them, improving their effectiveness.

- Increasing the understanding of the nature of the business and its markets and environment. Creating a strategy requires the business to stand back from the detail and take a fresh look at itself and its situation.

- Gaining commitment to the overall mission or goals of the business. This is usually a by-product of the strategy formulation process and results from involvement with the creation of the strategy. Without this commitment the will to achieve the strategy simply will not be there and the changes of direction to achieve the strategy are less likely to happen.

Clearly it is my view that strategies are important for large organisations. However the communication of the strategy to the organisation gets more difficult the more complex the strategy, so a requirement is also that the strategies are kept reasonably simple.

For most businesses the information systems strategy is one of the functional strategies developed to support the higher level corporate strategy. This link is important. For some organisations the overall corporate objectives are not well understood. For such an organisation the starting point has to be the clarification of the corporate strategy. Additionally a clear understanding of the overall business strategy is a crucial input for the IS strategy. Where IS managers lack experience of strategic management, they will not feel sure-footed in interpreting the corporate strategy in IS terms. One way that is used to get around this problem is for the IS strategy formulation process to be managed by a team comprising of both senior general managers and senior IS managers (the IS Strategy Steering Committee) and for high levels of user management involvement in the development of the strategy itself. With increasing maturity of this new area of IS management we may see a decreasing role for non-IS management, however the organisation-wide nature of information systems and the increasing growth of end-user computing probably means that this

coalition of IS management and general management will remain necessary. This contrasts with some of the other functional strategies such as finance and marketing which are developed more independently by these functions. However parallels can be seen with the human resource strategy where general and line management also have a major involvement, resulting in part from their major role in the execution of personnel policies and in the importance of the human resource to their functional responsibilities.

There is a tendency for IS strategy to be seen initially as an exercise which is carried out once. This is clearly not the case. The IS Strategy is better seen as a process where the output is a continuously evolving strategy. The only situation where an IS strategy could be developed once would be where the business faces a static environment. Since no business faces such an environment and most face complex and rapidly changing environments, there is a need to update the strategy as changes occur. Figure 4 illustrates one approach. In this model an IS strategy is developed and is then subject to several annual reviews before the strategy requires major redevelopment. The number of reviews is a matter of judgement and depends upon the amount of change being experienced by the business. A clear trade off exists here. If major redevelopment takes place too often then the costs of IS Strategy formulation will be high. If redevelopment is undertaken too infrequently then the business will not be getting the best from its information systems resources.

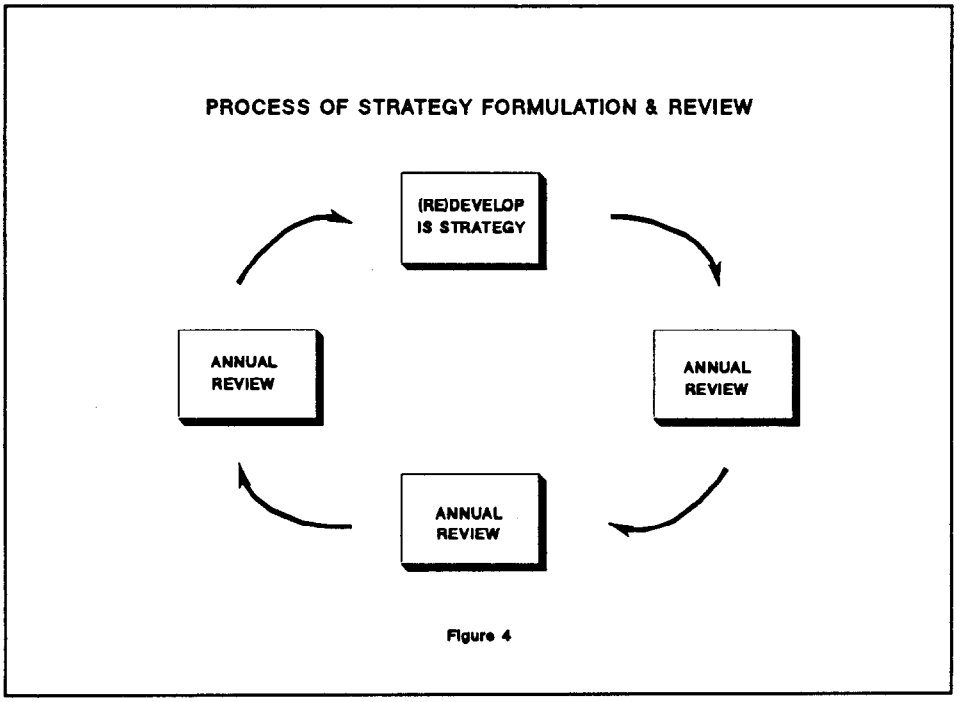

Figure 4

another crucial issue which applies to conglomerates and groups is at which level should the IS strategy be developed. Several options are available. A strategy can be developed at group level or the whole business or at a lower level. This may be for a division or a company. Debate at Business Schools has firmly crystalised around the crucial level for development of all strategy being that of the strategic business unit, which is the level where a business unit faces a clearly identifiable market. The legal structure is not important the market orientation is. Markets are increasingly showing lack of respect for size, legal form or the historical importance of businesses. This is healthy, but means that business strategies must be market focussed. This would simply not occur at group level in a conglomerate structure where decision-makers are too far removed from the markets of their subsidiaries to effectively develop strategies that are market orientated. The strategic business unit concept is also important because it is not unusual to find that a single legal company services several markets with very different requirements.

This is not to say that a group or company with several different markets would not gain advantages from co-ordinating the IS Strategies of its strategic business units. Clearly it would. The importance is one of emphasis. IS Strategies must be developed at the strategic business unit level. A higher level strategy will be needed for the activities of the group level. A strategy to co-ordinate the IS Strategies of the subsidiaries needs to be a bottom up process from the strategic business unit level rather than a grand meta-strategy imposed from a group level too far removed from the "sharp end" of the business.

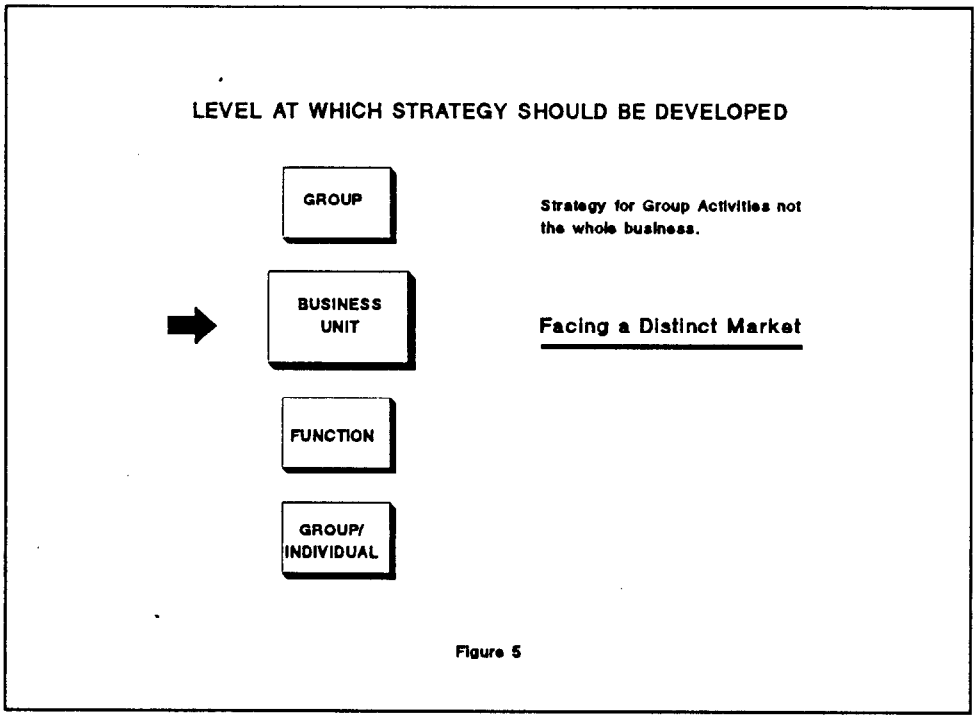

Figure 5

For smaller businesses the IS Strategy is still an important issue. The need to think through the strategic contribution information systems can make is crucial. Clearly however some major differences will be necessary in the process of strategy formulation. For a business start up, steering committees are obviously over-kill. IS Strategy formulation will typically be undertaken by the entrepreneur and the whole process can be much more tightly meshed in with the overall business strategy and business planning activities. The models developed can still be useful. However the reality is that the focus of business schools has, until recently, been on large business and models geared to the more opportunist activities of smaller business are still under development. The need to use information systems to support the achievement of business objectives is as important for most smaller businesses as for their larger cousins.

The development of an IS Strategy requires information, people and resources as an input. The information comes both from within the business and outside the business. In theory and in practice the process is complex. Figure 6 summarises the inputs.

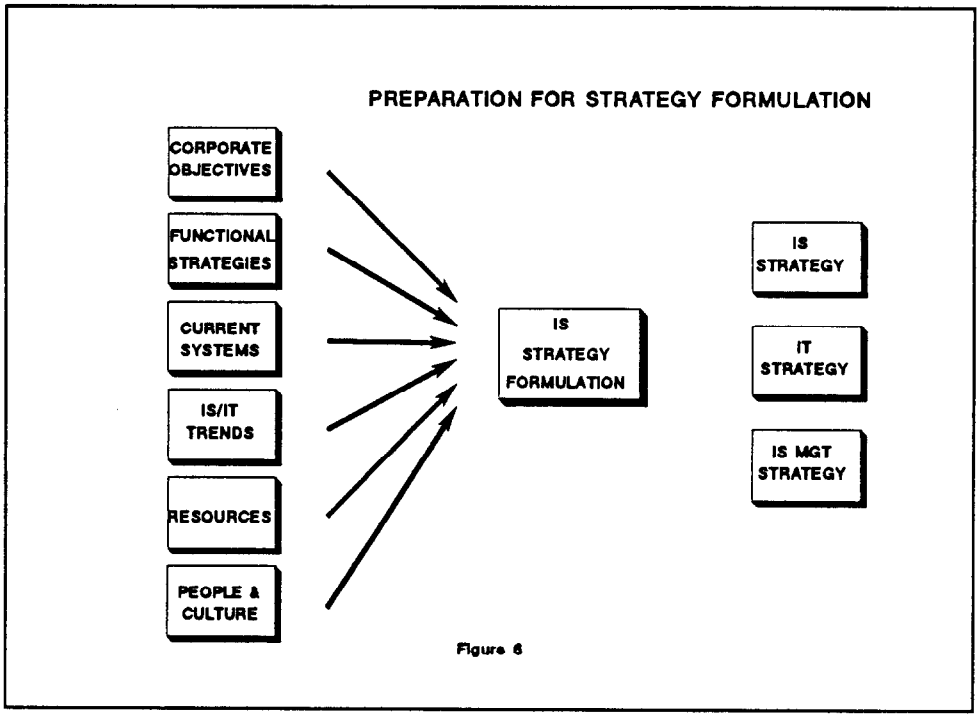

Figure 6

As discussed above the overall corporate objectives are the starting point. However information systems are often a crucial requirements for other functional strategies to be achieved. For example achievement of competitive manufacturing may be dependent, in part, on the use of MRP II techniques or the marketing strategy might include electronic links with customer (EDI). Additionally functional strategies may include the development of departmental systems requiring central support or infrastructure development.

The current portfolio of systems (both in operation and under development) has to be known. An examination of the portfolio itself often reveals the historical lack of strategic direction of information systems, with incompatibility between systems which will clearly need future integration or investment focussed in low value adding parts of the business. The analysis needs to include both an inventory of applications and an assessment of the effectiveness of the systems.

Forecasting technological trends is always difficult but still necessary. This difficulty should manifest itself in a realisation that the trend assumptions used are to some extent going to be inaccurate. But this is the nature of strategy formulation in any functional area. For instance forecasting sales in marketing or interest rates in finance are also going to be best guesses to some extent.

Strategy formulation is a time consuming activity. It requires senior people for significant amounts of time. The activity is justifiable based upon the improved future contribution from information systems that will result. Securing their time can be difficult but is necessary if a worthwhile strategy is to result and if they are to be committed to it. Perhaps the most important input is that of skilled people. This includes not only the business skills of the senior managers mentioned above but also includes IS Strategy skills. The calibre and skills of the people involved are crucial and thought needs to be given as to whether the team involved has the right skills. Additionally physical resources such as meeting rooms, flip-charts, secretarial support, etc are necessary.

TECHNIQUES FOR IDENTIFYING STRATEGIC OPPORTUNITIES

Strategic decision making, like most decision making is about asking fairly simple questions such as where are we now, where do we want to be and how do we get there.

The problem is not the questions but the complexity of the answers which lead to further increasingly complex questions. Additionally the answers are not black and white. To some extent the complexity of business means that the truthful answer to all three questions is "we don't know !" We don't exactly know where we are. We don't exactly know where we want to go. We don't exactly know how we are going to get there. To be fair we have some fairly good ideas but the nature of management is that it is more of an art than a science so we have to learn to live with uncertainty. This lack of certainty cannot be an excuse for inaction, nor can we afford to get lost in esoteric research. It means that we have take a view on many aspects of these questions. Different managers will form different views and these differing views need to be taken account of if the commitment of the whole management team is to be gained for the results of decision making.

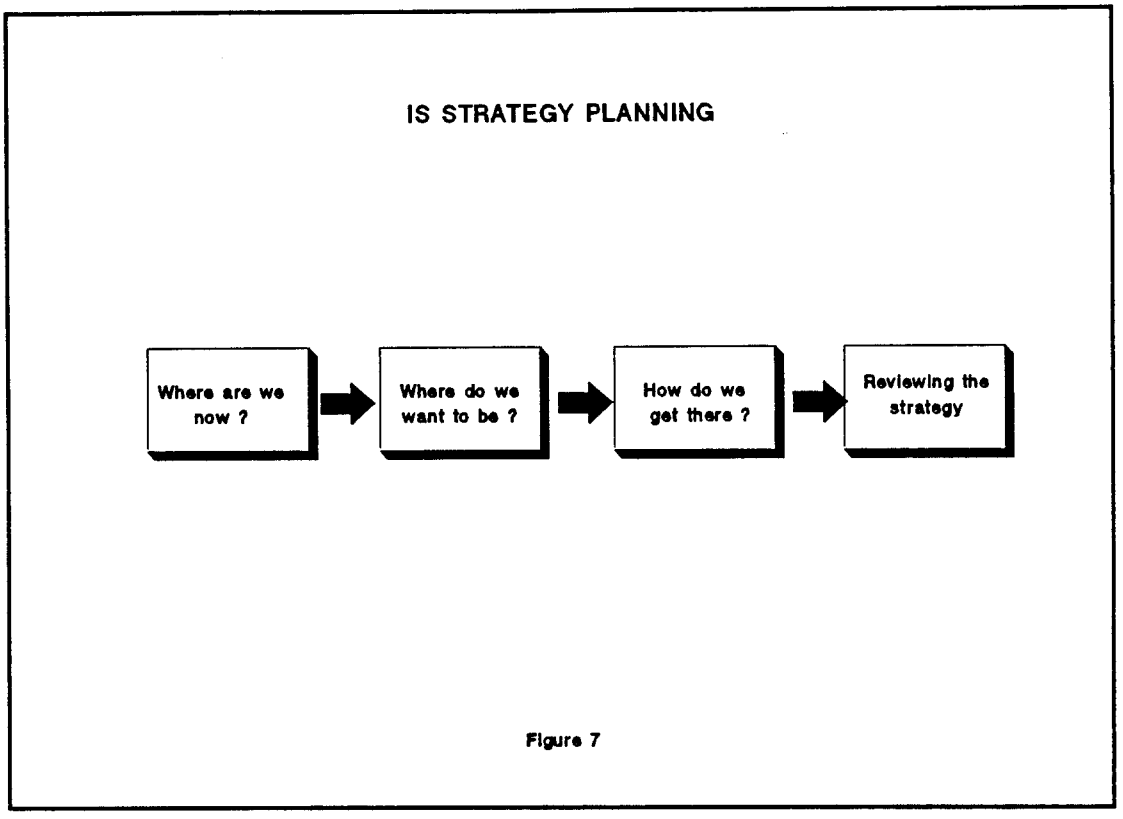

Figure 7

The approach taken to this complexity by the Business Schools in the fields of IS Strategy is to accept it and develop a series of models which help with the understanding of these three questions. The approach to date has resulted in a tool kit of techniques which are not universally applicable and which cannot claim to be either complete or rigourous. However their effectiveness seems to have been proved in practice.

Although methodologies for IS Strategy seem to have been offered by the consultancies they have met with little enthusiasm at the Business Schools. When they are examined they are far less prescriptive than the structured programming and analysis methodologies. Perhaps the problem is the term methodology. A methodology for strategy formulation seems a bit of a contradiction. Strategy formulation seems inherently imprecise and creative as a result of the unmeasurable and unquantifiable nature of much of the information. The term methodology seems to imply a structured sequence. The terminology is perhaps not too important. The point is that the state of thinking at the Business School falls far short of a structured, prescriptive set of actions for management to carry out.

Part of the tool-kit applies to the two questions, where are we and where do we want to be ? It comprises a set of strategy models/techniques which help in the understanding of what the strategic position of the business is. They also help managers see how the strategic position can be improved. By asking the question, how can information systems contribute to improving the

strategic position of the business, these models help identify strategic opportunities for using information systems.

Figure 8 illustrates some of the main tools/techniques. It is not exhaustive. There are other techniques that may prove of value and in this highly creative area managers may develop techniques of their own which help in the understanding of their particular business.

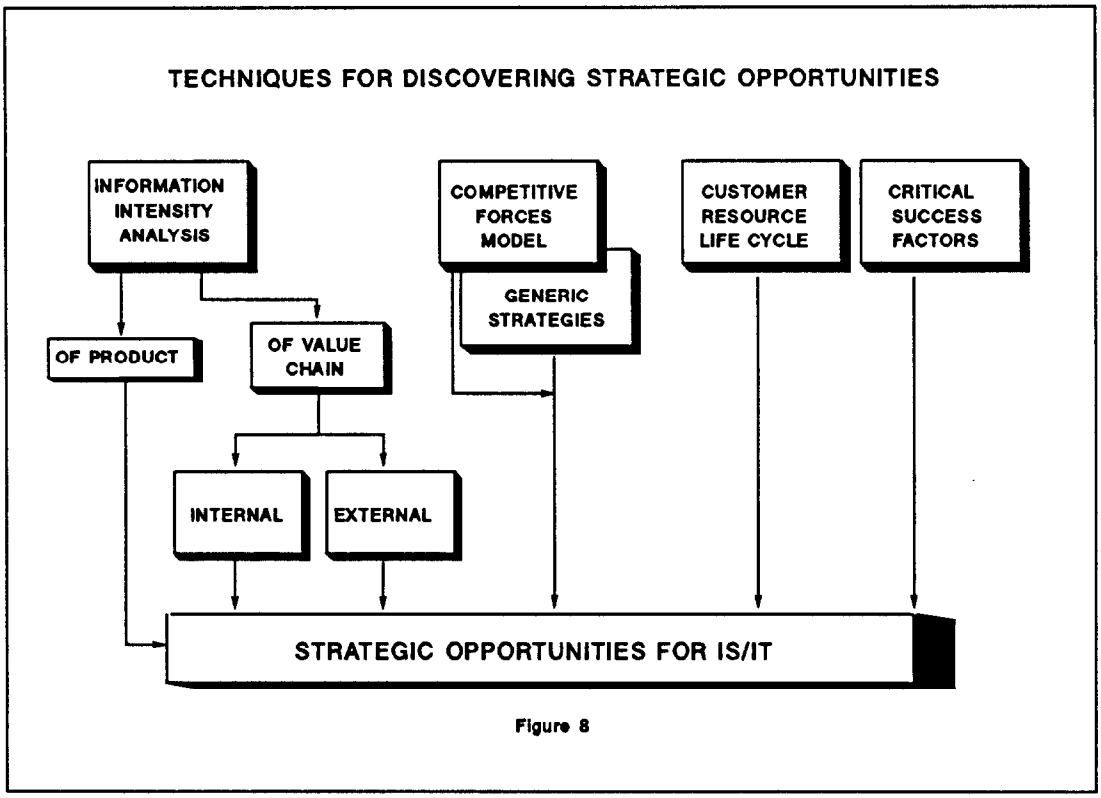

Figure 8

It will be useful to examine these techniques to get a flavour of their nature and perhaps more importantly to see the types of perspectives upon which they are based. Like so many business tools, it is easy to see their limitations and to get cynical, but in the absence of anything better they have proved very useful and powerful.

INFORMATION INTENSITY ANALYSIS

What I have grouped under the heading information intensity analysis are techniques which focus on identifying areas which are information intensive or where information intensity could be increased to gain competitive advantages for the organisation as a whole.

An example would be the examination of the products/services of the business to see whether new or enhanced products based wholly, or in part, on information systems would better serve the needs of the market.

Another example is value chain analysis, a technique developed by Professor Michael Porter[2] at Harvard for use in general strategic analysis and which he and his colleagues later used for identifying strategic opportunities for using information systems. At first sight it appears a simplistic approach but its value lies not in its sophistication but in the fact that the perspectives used are so different from the parochial, inward looking, precedent bound perspectives that are the norm in modern organisations and result from the narrowness of most organisational roles resulting from division and specialisation of tasks. Paradoxically it is this division of tasks that was the key to the success of large scale organisation and now seems to account for their apparent dumbness and their slowness to react to change and exploit new opportunities.

Value chain analysis is high level modelling of the business and its industry.

The first of the two techniques used by Porter is that of the Industry (or External) Value Chain and is illustrated in Figure 9.

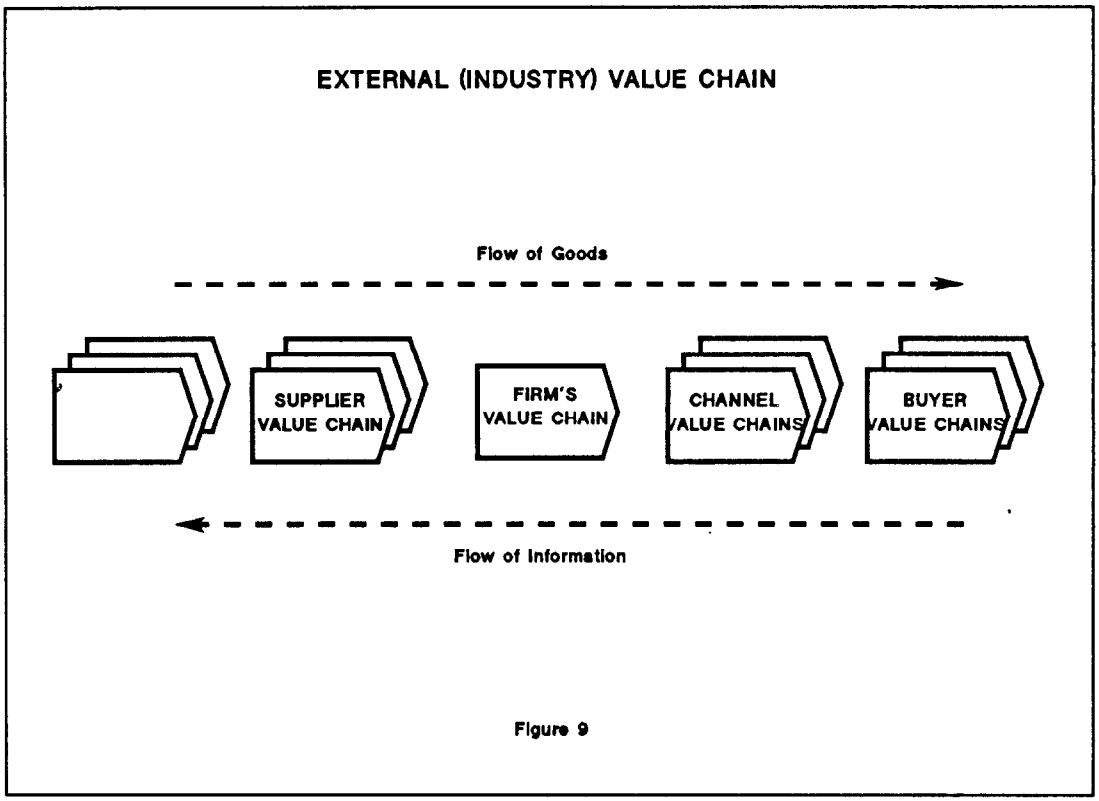

Figure 9

The technique comprises viewing the firm as a link in a chain of firms which collectively convert raw materials into products or services which have a value to the ultimate consumer expressed by the amount the customer is willing to pay for them. In this way the position of the business in this value adding chain is identified and more importantly the value adding function that the firm carries out in the economy is brought into focus.

The question can then be asked how can (or will) information systems affect the industry value chain. For example EDI might be used to improve the flow of information back up the chain about changes in the ultimate market place and make the industry more responsive to customer needs and stimulate demand.

The second of the two techniques is the firm's (or internal) value chain. This is again a high level model of the firm which focuses on how the firm's internal processes add value (Figure 10).

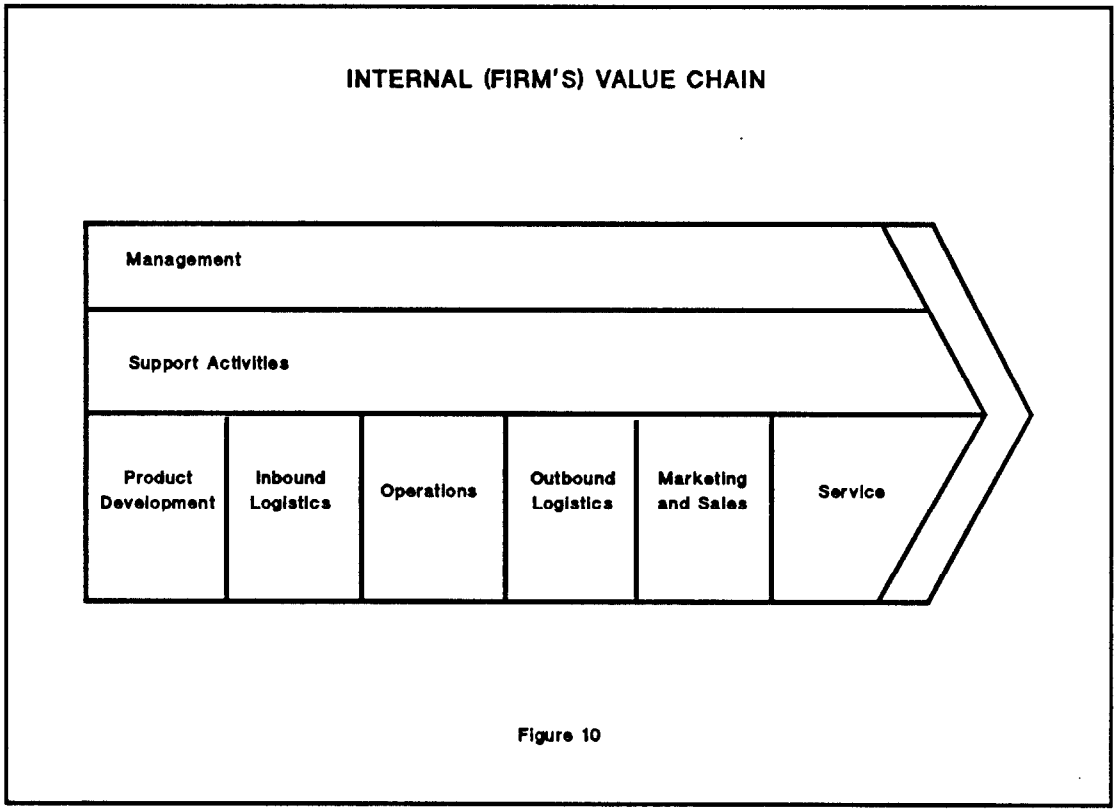

Figure 10

The lower part of the model relates to the chain of internal activities which add value. The upper part relates to the activities which are necessary (or otherwise) to co-ordinate the value adding activities. By mapping the firm's applications portfolio onto the model it can be used to see how applications are focussed. The model can also be used to identify opportunities for improving the value adding processes of the firm for example by better flow of information between the value adding components.

In practice the value chain models can become much more complicated. The key to their effective use has been found to be the achievement of a balance between getting too detailed and as a result becoming too complex for high level decision-making and making them so simple as to be a very poor reflection of reality.

It is worth commenting that in practice value chain analysis has been found to be easier to apply to traditional manufacturing situations than to service companies.

CRITICAL SUCCESS FACTOR ANALYSIS

Critical success factor (CSF) analysis is a technique, again taken from general strategic analysis, which has proved very successful in practice. CSF analysis basically starts with the business objectives and asks the question what things do we have to do in order to achieve these objectives, what are our critical success factors ? For IS Strategy analysis we extract from the list of CSFs those which are affected by information systems and consolidate them to identify objectives for information systems. These objectives become an input into the IS Strategy planning process.

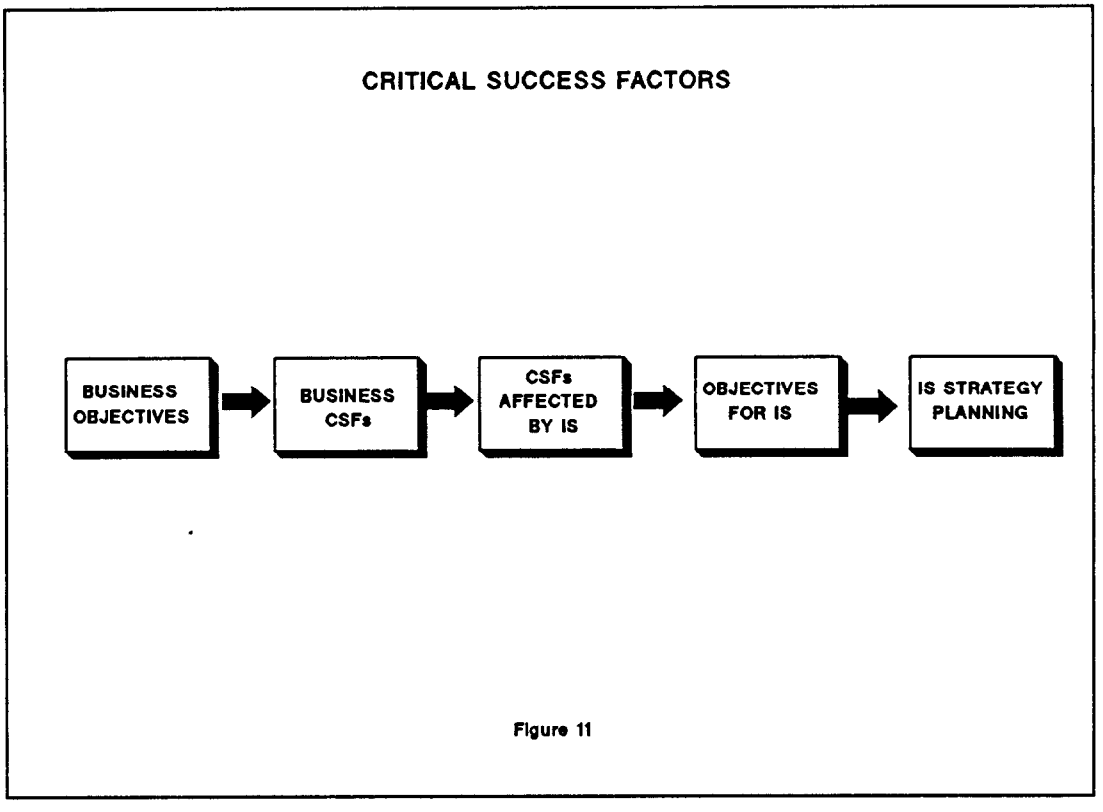

Figure 11

This technique is a good technique for helping to get the IS Strategy firmly lined up in support of the overall business objectives. It is also a technique which can be used to get senior managers involved because they have little difficulty in identifying with CSFs (which contrasts with organisation-wide entity or data modelling).

If the technique is used on its own it can ignore the more pro-active capability of information systems to influence the business objectives by creating new business opportunities.

COMPETITIVE FORCES

The five forces model is one of the most important corporate strategy models. It was developed by Michael Porter to help map out the competitive forces influencing a firm (Figure 12).

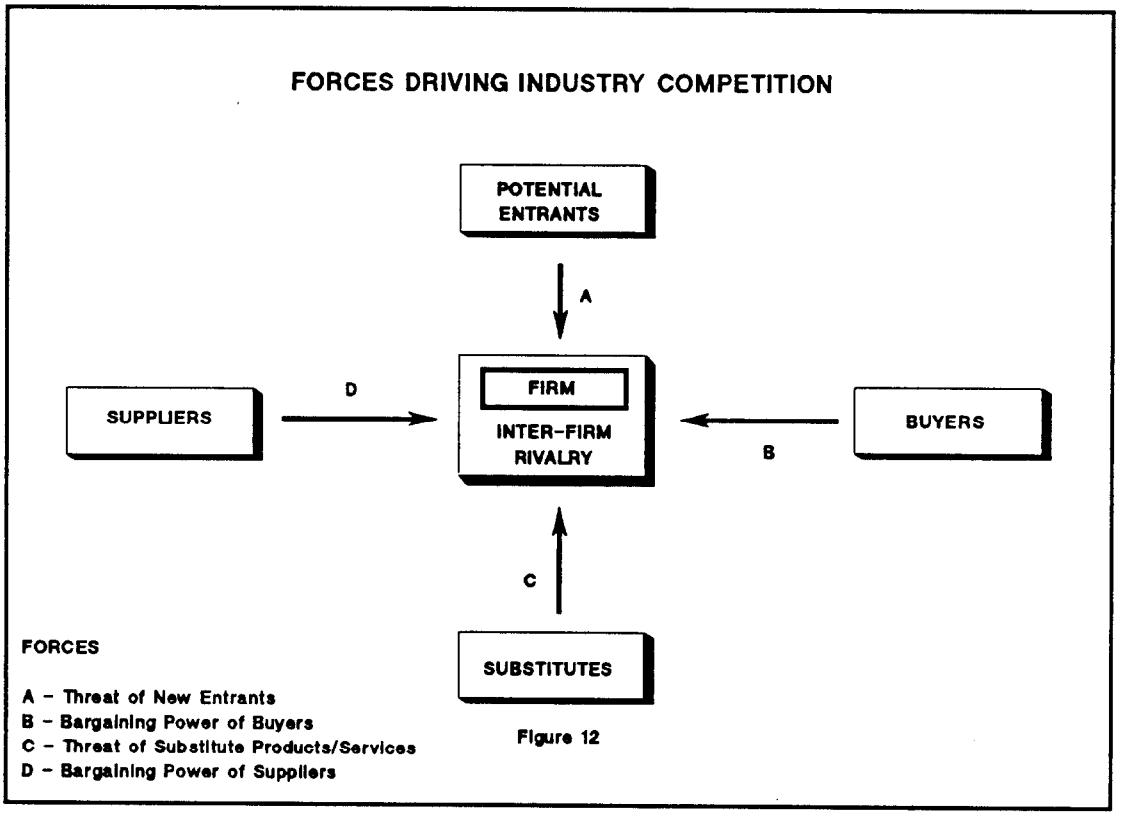

Figure 12

It shows the five competitive forces identified by Porter :

- Threat of new entrants
- Bargaining power of Buyers
- Threat of substitute products/services
- Bargaining power of suppliers
- Competition with existing firms in the industry

The value of this model for IS Strategy is that it allows the identification of the competitive forces in the industry and allows those developing the strategic direction of IS to ask the question, how can information systems be used to reduce each of these forces ? For example, how can information systems be used to reduce the power of suppliers or how can information systems be used to create barriers to entry and deter new entrants ?

GENERIC STRATEGIES

Porter also found that successful firms have one of the four strategies illustrated in figure 13.

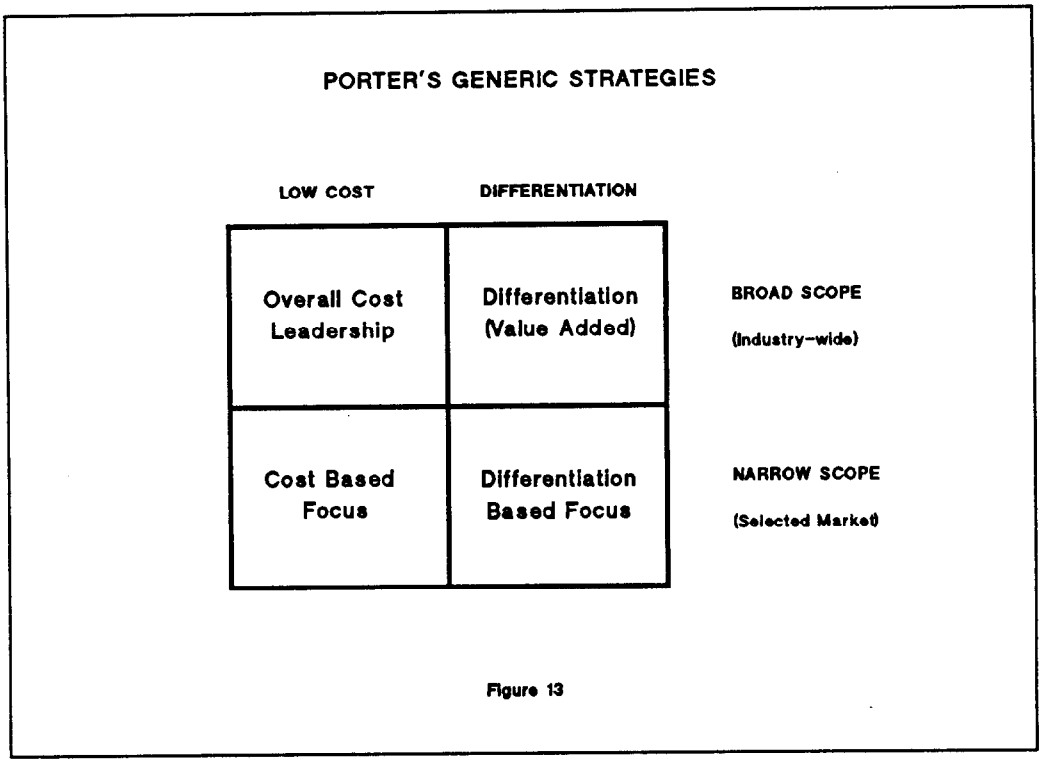

Figure 13

According to his research, firms which try to follow two or more of these so called generic strategies do not succeed. For IS Strategy the use of this model is simple. It is not the role of IS Strategy to decide which of these four generic strategies the business should be undertaking. However when the generic strategy is known, those formulating IS Strategy can ask the question, how can information systems be used to (for example) achieve overall cost leadership ?

CUSTOMER RESOURCE LIFE CYCLE

The utility of this model comes from the increasing realisation that a market orientation in strategy formulation is crucial. The model is a general model for the stages that a customer goes through when he/she buys. Its power comes from the high level focus which views the process as having the following stages :

- Establishing requirements, and specifying the attributes required
- Selecting the source, ordering, authorisation and payment, physical acquisition and testing and acceptance

- Stewardship which comprises integrating into existing activities, controlling usage, upgrading and maintaining

- Retirement comprising transfer or disposal.

The strategic importance of this model is derived from its perspective. Far from a customer being regarded as either a quick sale, not so quick delivery and cash collection or as an annoyance, the full range of the customers potential requirements are brought into focus.

From the IS perspective the aim is to identify strategic opportunities by identifying stages in the customer resource life cycle which can be improved by using information systems. In so doing the position of the business relative to its competitors is improved.

Other techniques could have been included and are used (BSP, PEST analysis, Boston Box, etc). The importance, for me, is not the techniques themselves, which are not that dramatic but the perspectives used. The techniques are outward looking, orientated towards the business's environment and market-place. They address industry-wide and organisation-wide issues. They address vast complexity by simple models. They are not prescriptive, if it works then the technique/model is of value if not, then there were no guarantees and you must try something else. They contrast dramatically with the narrowly focused perspectives that dominate day to day organisational life.

An important caveat is that the usage of these tools and techniques is not the objective. The objective is to identify strategic opportunities for using information systems and to deploy the information systems resources in support of the overall business objectives. So often we lose sight of the objective by following a professionally or historically prescribed approach.

Clearly the deliverables from the usage of the techniques above will be more than just the identification of opportunities for using information systems strategically. An indication of the relative strategic impact of each opportunity should emerge. Also a clearer and richer understanding of the strategic position of the business should emerge.

THE ROLE OF THE STRATEGIC GRID IN MAPPING OUT THE APPLICATIONS PORTFOLIO

The identification of strategic opportunities for information systems is only one stage in IS management. Two further crucial stages are :

- Selecting which opportunities to undertake and which not to undertake and scheduling application developments within the resources available to create a plan for implementing the strategy.

- Managing the implementation of the IS Strategy plan.

In this second area few techniques have yet been developed within the business schools. The implication seems to be that there are no resource constraints. Having identified strategic opportunities you simply go ahead and develop them. Even if in theory there should be no shortage of resources from the market place for projects with a high return, the reality is that most businesses will be constrained by IS budgets, staff shortages, the speed at which change can be absorbed and the need to undertake some projects ahead of others because applications are often interdependent.

One approach by John Ward [4] has been found to be of value in managing these later stages. The technique, called the Strategic Grid, focuses on the applications portfolio and focuses on the management of the portfolio from the current position to the desired position. The approach challenges the belief, sometimes held, that there is a single right way of managing IS applications.

The Strategic Grid is a development of work by Warren McFarlan at Harvard. It divides the applications within the portfolio into four broad groupings based upon their current and future contribution to the business objectives.

The first broad grouping are termed **Support** systems and are those applications which are valuable but are not critical to the success of the business.

The second grouping are termed **Factory** systems (not to be confused with systems found in a factory) and are those applications which the organisation depends upon for its current success and are crucial to its operations.

The third grouping are **Strategic** systems and are those which are critical to creating future business success.

The fourth grouping are **Turnaround** systems which are high-potential applications which may become important in achieving success in the future but are either new areas of business or new developments in technology which make their feasibility uncertain.

Figure 14 illustrates these groupings as a 2 x 2 matrix and hence the name Strategic Grid.

THE STRATEGIC GRID

STRATEGIC	TURNAROUND
Applications which are critical to sustaining future business advantage	Applications which may be important in achieving future success
Applications on which the organisation currently depends for success	Applications which are valuable but not critical to success
FACTORY	SUPPORT

Figure 14

Figure 15 shows the grid with applications which might typically fit into each of the groupings.

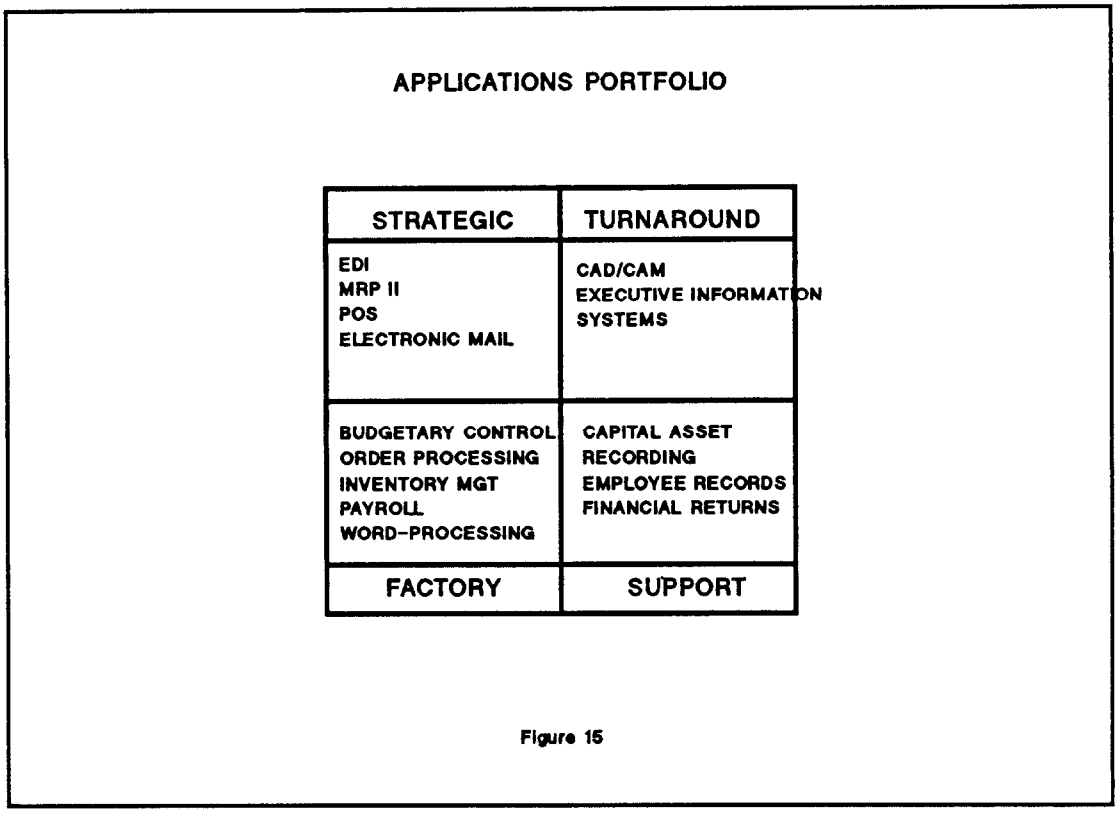

Figure 15

The Strategic Grid can be used in a number of ways. The first is as a check on the present and future role of information systems in the business. This is achieved by investigating the balance of the applications portfolio between the four boxes. If the portfolio is exclusively grouped in the Factory and Support boxes then it would appear that the future strategic contribution of information systems is planned to reduce in the future. This may very well be appropriate, but if the industry is one where the strategic impact of information systems is expected to increase or the senior management perceptions are that future competitiveness will come in large part from the use of information systems, then something is wrong with the portfolio and investigation of this inconsistency is necessary.

It is tempting to suggest that what is required is a balanced portfolio with applications in operation or being developed in the Strategic box which will make a strategic contribution in the medium term and some developments in the Turnaround box which will make a contribution in the longer term. However business is not that obligingly simple. A business may be in an irreversibly declining industry and so would gain no advantage from applications in the Strategic or Turnaround box. A business may be short of funds and unable to sustain any Turnaround systems.

It is difficult (and maybe dangerous) to be prescriptive about the distribution of applications around the Strategic Grid. The important issue is whether the balance of the portfolio is that which is appropriate to achieve the current and future business objectives.

The second use of the grid is to help make decisions about how to manage the applications in the portfolio. The approach to managing an application will vary according to the box it is in. The type of systems management/project management, the economic justification, the technology, tools and methods used will be different. This is not unreasonable.

A Support system is not going to make a major strategic contribution. If it is an existing system then we would manage it to avoid further investment in it. If it is a system to be developed then we would be minimising investment, typically by buying a package, and trying to conserve our scarce development resources for Factory and Strategic systems where the contribution to current and future success is much greater.

A Factory system is crucial to current business operations and success. Such a system demands careful formal management. Developments would have to be carefully analysed and implemented. A systems disaster would have direct impact on current business success. In the main these would be systems which the business or (other businesses) would be experienced in using and predicting the likely economic impact of developments to such a system could be undertaken fairly accurately.

Strategic systems are those which will have been identified by the strategy tools discussed above. Their identification required the involvement of senior business management. Their development and implementation will require the involvement of top management. Such systems are likely to be subject to considerable levels of change caused by changing business and competitive pressures. Comprehensive long term planning for the system is inappropriate since the requirements are likely to change. Excessively formal approaches will inhibit the ability of the business to rapidly adapt the system to prolong or enhance the competitive advantages achieved. This could be achieved by linking the development into the business planning process or by managing it with a senior management steering committee. Economic justification will include the expected competitive advantage or the competitive disadvantages if not developed. Competitive advantage and disadvantage are very difficult to quantify.

Turnaround systems will be new, innovative systems. Characteristically they will be high risk with significant possibilities of failure and dealing with unknown and untried areas of business. These systems lend themselves better to prototypes or small trial systems. The type of management required to make such developments work are different to the formal managerial techniques required for Factory systems or the strategic planning approaches of Strategic systems. Turnaround systems require entrepreneurial drive and informal methods. Since we cannot be sure the system is viable and changes to the systems are almost certain, formal economic justification is difficult. One approach is to regard this area in the same way as we regard pure research and

allocate limited seed-corn funding to get the project started and prove its feasibility. If successful it would then move to the Strategic box.

Figures 16, 17 and 18 summarise these differences.

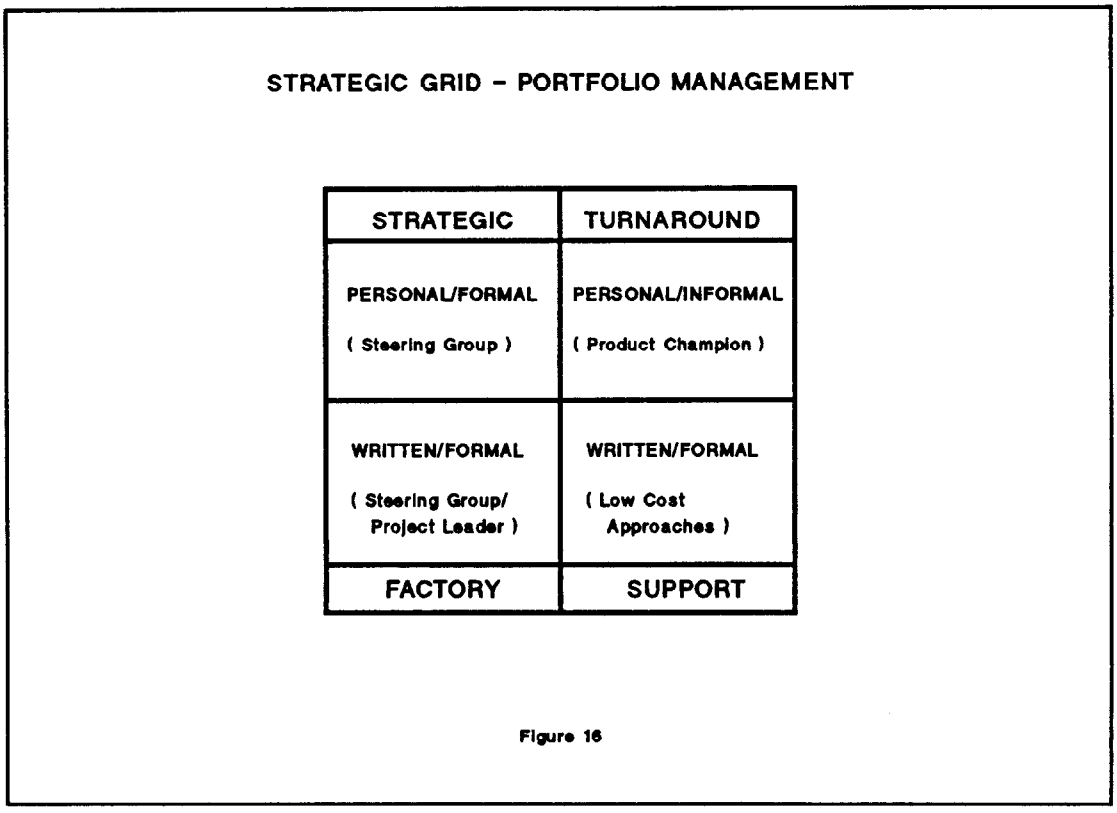

Figure 16

STRATEGIC GRID - ECONOMIC JUSTIFICATION

STRATEGIC	TURNAROUND
STRATEGIC DECISION-MAKING (Return on Investment PLUS Competitive Advantage/Disadvantage	SEED-CORN FINANCING (Formal investment appraisal impossible. Expense like R & D)
INVESTMENT APPRAISAL (Return on Investment with Risk Management)	INVESTMENT APPRAISAL (Risk Avoidance/ Minimise Investment)
FACTORY	SUPPORT

Figure 17

STRATEGIC GRID - TOOLS & TECHNIQUES

STRATEGIC	TURNAROUND
Application Generators Relational Databases	Rapid Prototyping
Software Engineering Structured Analysis Quality Assurance Structured Databases	Off the Shelf Packages
FACTORY	SUPPORT

Figure 18

The importance of the Strategic Grid is in the way it requires IS management to view the portfolio of applications not just as a series of projects competing for IS resources but as a portfolio of applications which are viewed according to their strategic contribution to the business. It shows clearly that applications simply cannot all be managed in the same way.

In practice it can sometimes be difficult to place applications in the four boxes provided. Managers can have different views on the future strategic contribution of a system and may differ upon its current contribution. Some applications seem to fall between two boxes. Once again it has to be stressed that the objective is not to use the Strategic Grid "properly" but to gain strategic insights into how to manage the applications portfolio.

IMPLICATIONS FOR TECHNICAL IS MANAGEMENT

One of the clear implications of the above discussion is that there is an important role for IS Strategy in most businesses today and in the future. Without a strategy for the deployment of information systems a business is unlikely to get the competitive advantages it might otherwise have achieved.

The role of senior IS management in IS Strategy formulation is important. The process of developing an IS Strategy requires both an intimate knowledge of the business and a knowledge of what can be achieved technically. Both are required to create an effective strategy. A strategy which is technically unrealistic is not a strategy but a "wish list".

Also a large measure of the effort required to implement the strategy will come from IS management. Involvement is clearly important if they are to "own" the strategy and understand its importance. Strategies deliver value to the business through their effects on day to day activities. A strategy which is not implemented is a net consumer of resources and is an avoidable overhead. This is clearly one of the dangers of strategies created by outside management consultants. Unless commitment is gained for the strategy plans they will become an expensive decorative addition to the executive book-case.

The skills required to create an IS Strategy are a combination of high level strategic business skills and the information systems skills needed to identify the technical possibilities and limitations. Few people have this combination. In our functionally organised businesses it is nearly impossible to develop. Those relatively small number (compared with accountancy or engineering) of IS professionals who undertake the broadening experience of an MBA rarely see senior IS

management as their post-MBA objective. They are more frequently using the MBA as an exit route out of computing into general management. This means that for the short and medium term an abundant supply of these dual-disciplined professionals simply will not exist. IS Strategies will therefore continue to require a coalition of senior business management and IS management to be successful.

However the requirement for IS professionals to be able to use strategic business perspectives is clear. The IS Strategy and as importantly the strategic thinking behind it become the basis for tactical decisions. No longer should project schedules and priorities be set based upon a vote, organisational politics or who shouts loudest. The ultimate authority for such decisions become the overall business objectives and the IS Strategy. For project leaders and system managers to be able to do this they must understand these perspectives and be in touch with the strategic position of their companies. Increasingly there will be a need for strategic business skills if the IS professional is to make a full contribution. Strategy skills will undoubtedly become one of the keys to success for the Chief Information Officers of the future.

CONCLUSIONS

This paper has explored some of the techniques and issues associated with the new era of business information systems, the so called strategic era. That the new era is a permanent development and not a "flavour of the month" is now clearly the case. The techniques used in this area are not technically difficult to handle, though this should not mask the fact that the area of identifying strategic opportunities is inherently complex. The greatest challenge is in the perspectives upon which they are based. These are broad, holistic, organic perspectives where the viewer can never obtain all the information required and where the complexity is vast and incomprehensible. These are perspectives which it is difficult (maybe impossible) to develop within the narrow functional specialism of technical computing.

Early in the paper I included Jones' suggestion that IS professional should be trained in business first before being exposed to IS practices. Whilst his suggestion is important in bringing the problem to our attention and maybe as a blue-print for future training we are some way from even beginning to embrace this approach. The fact of organisational life is that progress to general management is usually contingent upon success as a functional specialist. This is true for manufacturing and finance as well as IS. This is likely to continue.

The development of IS into a corporate resource with the potential for massive strategic contributions brings greater opportunities for IS management. Peter Drucker and others have

recently predicted the emergence and nature of the information based organisation. Some business school academics have suggested that this may be a future fourth era of IS development. One of the key players in such an organisation will be the professional that combines IS perspectives with strategic business perspectives whether they emerge from a business background or from a technical IS background.

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