

Strategic planning models

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The syllabus for ACCA Qualification Paper P3, *Business Analysis* is wide ranging and within it students are expected to have some understanding of the role played by an organisation's information systems in the drive for competitive advantage. This role is underpinned by IT solutions but students need to appreciate the strategic importance of IT. The syllabus has three whole sections on strategic choices and strategic action. It also has a section on information technology and how it is used to implement strategic plans. These topics require an appreciation of how IT supports the overall business strategy and how IT is an inherent part of the overall strategy setting and implementation process. The syllabus requires students to apply knowledge rather than simply testing their ability to recall information.

In the determination of how companies use IT there are many models available to us. These are powerful tools, which can be used to analyse how IT can be used strategically. The purpose of this article is to explain some of the more popular models students will come across in their studies.

Nolan's life cycle

Professor Richard Nolan, of the London School of Economics, hypothesised in 1979 that the way organisations have introduced IT and IT applications into their organisations can be viewed as a series of stages, somewhat similar to Greiner's Life Cycle of Organisations, ie the idea that organisations go through defined periods of growth and crises. The six stages are as follows:

Stage 1: Initiation The organisation has no IT systems at all. Some bright spark in the organisation realises the benefits IT applications can bring to the work they do and they persuade the organisation to allow them to bring in IT systems and applications to automate some of their work processes (the advantages of computerisation are often summarised under the headings – Speed, Volume of Processing and Accuracy). The individual is then freed up to use their skills in a more analytical way, using the information from these systems for decision making.

Stage 2: Contagion Following the initial deployment of IT departments and individuals see the advantages arising and begin clamouring 'Me too'. Soon IT applications spread like wildfire around the organisation. At this stage, little 'islands of automation' develop, as some sections and work processes are automated and others are not, often depending on the level of IT awareness of the head of that department or section.

Stage 3: Control The IT spend increases and the organisation begins to realise it has a potential problem. More and more users are demanding IT applications and hardware. No attempt was made to show the link between cost and benefit and, therefore, the organisation puts a moratorium on any new spending. Controls are introduced, typically budgets for hardware and software purchases, the use of standard software applications and the use of a centralised purchasing department for IT hardware and software purchases.

Stage 4: Integration The organisation now realises the need to link the islands of automation that developed during the contagion stage. Different departments are using different applications. The stock application cannot talk to the sales application with the result that a sale has to be entered twice, once to update the debtors ledger and again to update the stock records. This duplication of data causes errors and unnecessary time wasting. In addition, hardware is not compatible throughout the organisation.

This phase involves networking the organisation's IT hardware and software to ensure that all systems and applications can talk to one another.

Stage 5: Data Administration The organisation now realises that the information it has is a key resource. Information needs to be accessible by all individuals at all levels and that information has to be in a common standard format, understandable by all. This phase involves the building of the organisation's database, possibly even an intranet or an extranet.

Stage 6: Data Maturity This is the final phase and at this point, information is used as a key resource and as a source of added value. Information is used in the battle for competitive advantage and the management of information as a resource is seen as a key strategic issue for the organisation. The information flows in the organisation mirror the real world requirements of the organisation.

The organisation fully integrates IT as a resource and manages it as effectively as its other assets:

- a. IT is subject to long-range planning.
 - b. IT is used as a source of competitive advantage.
 - c. There is heavy use by users and managers, with IT professionals performing a support role.
 - d. The focus is on value not the technology.
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The interesting thing about Professor Nolan's hypothesis is that whilst it was developed over 20 years ago, it can still be relevant to what organisations are doing today and how they use IT. Professor Nolan suggested that few companies were at the final phase and his view on that point is probably still as true today.

It could be argued that the model is too simplistic, as it would seem to suggest that an organisation could not exhibit the characteristics of a number of stages concurrently. This is patently not the case.

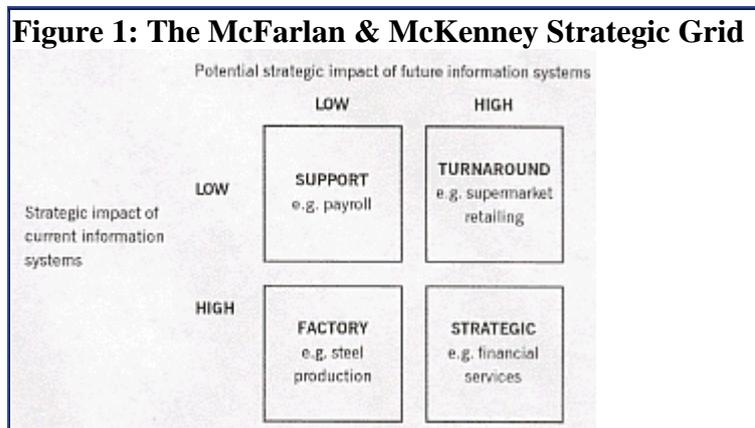
A good use of Nolan's hypothesis is to consider where your own company is in terms of this life cycle. You can then postulate where the company is headed and, hopefully, come up with the appropriate strategies needed to guide the organisation successfully to the final phase. Note, however, that Professor Nolan gives no guidance as to how long each stage might last!

From an exam standpoint, you should be able to identify where any particular organisation currently stands from the information given to you by the examiner. It is important that you then back up that observation by referring to the relevant theory.

McFarlan & McKenney – The Strategic Grid

It is interesting to look at a company at any point in time to try to determine how that company is using IT. IT can be used simply to support current operations. It might be a vital part of data processing, where the alternative, ie to revert to manual methods of processing, is simply unthinkable. IT might be absolutely vital in terms of how the company does its business currently and how it sees its business model developing in the future.

McFarlan and McKenney, in 1983, devised a very useful grid for assessing a company's use of IT – see Figure 1.



The grid has four quadrants built around two straightforward questions:

- a. How important does management feel the current IT systems are to the company?
- b. How important does the company think future developments in IT will be for the company, ie the impact of future IT developments on its way of doing business?

Depending on the responses to these questions, a company can be placed in the four quadrants as follows:

1. Low Current: Low Future Impact. IT has little relevance and simply supports existing processes.
2. Low Current: High Future Impact. IT will feature more on the business agenda in the future. The company believes that IT will have a major impact on their business model in the future and IT is in a turnaround role i.e. IT will be a key feature of future strategic planning. It may not have played such a role in the past.

The example of the supermarket industry is interesting. The retailing industry is often given as an example of how IT has become critical to operations. EFTPOS technology (ie Electronic Funds Transfer at Point of Sales) is the scanning technology we all see at the checkout counter. However, this technology not only indicates the price of the goods being purchased and computes the bill, it also updates the supermarket's stock records and may be on-line to the supermarket's suppliers who are immediately notified of the levels of stock (Electronic Data Interchange). The supermarket can also use the data collected from loyalty cards at the point of sale for marketing purposes. Payments both from the customer and to the supplier are automated electronically. So IT is a key part of operations.

However, all the players in the retail industry currently have EFTPOS technology and it couldn't really be argued that it offers any major source of competitive advantage. Whilst EFTPOS technology is in the factory role, the retail industry can see major changes in the future in the terms of how we, the consumers, do business with the industry, ie e-commerce and the development of web-based retailing, home shopping etc. Consequently, the business model in the future will be completely different and IT will have a new role to play. Therefore retailing is placed in the turnaround quadrant.

3. High Current: Low Future Impact. Here IT is said to have a Factory Role. It is important in terms of day-to-day operations but it is not felt that there are any major IT developments on the horizon that will fundamentally alter the nature of the business. Here, the key issue is the maintenance of existing systems.
4. High Current: High Future Impact. In this quadrant, IT plays a crucial role both in terms of its current role and in terms of how future IT developments are viewed as impacting on the organisation. IT is said to have a strategic significance. It is mission critical (ie the company is not going to be in business at all without using IT effectively to deliver its products and services both now and in the future). The role IT strategy plays in the formulation of the overall business strategy is critical.

It is likely that most questions you will face in this paper will involve companies that are either in the turnaround or strategic quadrants. The question will give you sufficient information to determine the role played by IT and therefore to determine the strategic significance of IT to the company. This shows the application of your knowledge to the specifics of a question.

For companies in the factory role, the key issue will be the security of their systems, back-up procedures, standby arrangements and disaster recovery plans.

It is possible to view a single organisations use of IT and see how different IT applications within that organisation can have different roles (ie it is possible for a single company to have different IT applications that occupy different quadrants at any one point in time). Take the example of a car manufacturer. The automated payroll system would be a good example of the support role. It would be a pain if the computerised payroll were to fail but it would be possible to revert to manual methods of processing. Payroll has no strategic impact.

The software governing Computer Integrated Manufacturing might be viewed as having a factory role, ie it has key operational implications but the technology is routine and no major developments might be expected. In the turnaround role, we might classify EDI links (Electronic Data Interchange) and the software governing the links with their suppliers. EDI technology has been around for some time but major developments might be on-line and web-based procurement and the development of extranets. In the strategic role we might place the manufacturer's Customer Relationship Marketing (CRM) software. The interface with customers has current strategic significance (ie it is mission critical) but again developments in e-commerce and the way the customer deals with the manufacturer (i.e. possibly by-passing the dealer and buying on-line) means that changes in this area need to be carefully monitored by the company.

Joe Peppard provides an alternative version to the Strategic Grid (the Applications Portfolio). The same logic applies. He calls the Low Future: High Current Impact – 'Key Operational' and the Low Current: High Future Impact – 'High Potential'.

Why a company should have an IT strategy – Earl's nine reasons

From an examination of McFarlan & McKenney's Grid, it should be obvious why a company should have an IT strategy. If a company is on either the turnaround or strategic quadrants of McFarlan's Grid, then obviously a company should have the appropriate strategy to enable it to plan for future developments. Even if it is in the factory quadrant, IT systems are mission critical and the company should have a strategy as to (a) how to maximise the benefits arising from its deployment of IT and (b) how to cope in the event of a systems failure (i.e. have a back-up or recovery plan).

Earl's nine reasons

Professor Earl of the LSE provides a useful list of nine reasons as to why a company should have an IT strategy. Briefly, they are as follows:

1. IT involves high costs.
 2. IT is critical to the success of many organisations.
 3. IT is now used as part of the commercial strategy in the battle for competitive advantage.
 4. IT is required by the economic context (from a macro-economic point of view).
 5. IT affects all levels of management.
 6. IT has meant a revolution in the way information is created and presented to management.
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7. IT involves many stakeholders, not just management, and not just within the organisation.
8. The detailed technical issues in IT are important.
9. IT requires effective management, as this can make a real difference to successful IT use.

A possible question in the exam could be based on this approach but instead ask students what might be the result of the failure of a company to have an IT strategy in place. Briefly, these can be summarised as follows:

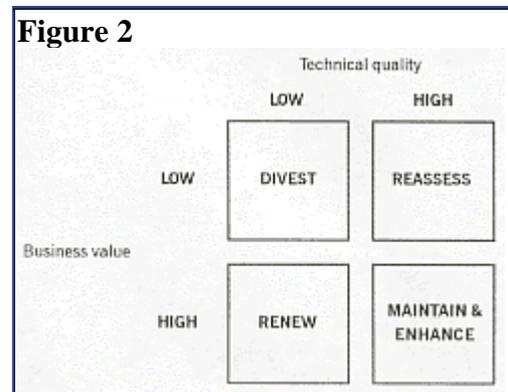
- a. Competitors, suppliers and customers gaining advantage.
- b. Corporate objectives becoming unachievable due to systems limitations.
- c. Systems are not integrated thus causing duplication of effort, inaccuracy, delays and poor quality management information.
- d. Systems' implementations are late, over cost and fail to deliver expected benefits.
- e. No means exist to establish appropriate IS/IT resource levels, to evaluate investments and set priorities.

It is important to note that very little credit will be given to students who simply recite Earl's nine reasons without any application to the question set. The approach should be to identify, from the information given in the question, what is happening or could happen to the company because of the lack of an IT strategy and then use Professor Earl's reasons as a framework for constructing your answer. That is the point of studying these models. They help our understanding of the issues and are a useful starting point for a consideration of the problems and possible solutions.

Earl's Audit Grid

An exam question could give the student an indication of what types of IT applications and systems the organisation is using and possibly information as to the value derived from the IT systems as perceived by the users. It might be the case that the systems used are not suitable for the task or, alternatively, that the systems are actually over specified i.e. they are too elaborate for what is required.

Either scenario is not a good one from the company's point of view. Professor Earl's Audit Grid provides a useful method of assessing the quality of a company's systems. Refer to Figure 2.



Again, two questions are asked for a determination using this model:

- a. Business Value. How does the company assess the value of IT systems in terms of ease and frequency of use. The system users make this evaluation.
- b. Technical Quality. How good are the systems in terms of cost, reliability and the need for maintenance. The IT specialists make this evaluation.

The four quadrants can be described as follows:

1. Low Technical: Low Business. The organisation really needs to ask itself why it has such a system at all. Divestment may be the best approach.
2. Low Technical: High Business. Here, the end users perceive that the systems can add value to their work but are dissatisfied with poor technical quality of those systems. The organisation needs to renew the IT systems if users are to be kept satisfied.
3. High Technical: Low Business. In this situation the organisation may well have a system that is over specified and is perceived as having little relevance in terms of what the end-users have to do. It adds very little in terms of business value. The organisation needs to reassess why it has invested in IT resources in this way. (Did the IT specialists suggest the investment i.e. the technical staff rather than the end-users drove the IT strategy?)
4. High Technical: High Business. The key issue here is to maintain and enhance the systems as end users perceive them as adding value and the technical quality is also seen as good by the IT specialists.

Again, from an examination viewpoint, students should be able to assess where a given company's systems lie on this grid from the information given in the question. It should then be possible to evaluate the use of IT by the company and how changes in the IT strategy could support the overall business strategy.

Porter's Generic Strategies

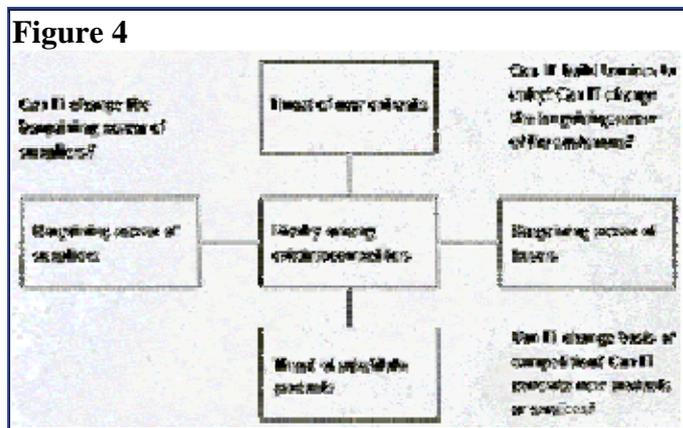
Michael Porter answers the question 'How do organisations compete? ie what the organisation's competitive strategy should be' by considering whether the organisation is either a cost leader or a differentiator. This is one of the strategic options that Johnson & Scholes suggest need to be considered in the overall determination of the business strategy (the others are the method and direction of growth). From the IT strategy viewpoint, students should be able to see how IT could support either of these methods of competition. Figure 3 details possible IT applications.

Figure 3

	Cost leadership	Differentiation
Product design and development	<ul style="list-style-type: none">• Production engineering systems• C.I.M• C.A.D• Co-operative working	<ul style="list-style-type: none">• Product control systems• R&D databases• Speed of development
Operations	<ul style="list-style-type: none">• Processing engineering systems• Inventory management• Process control systems• Labour control systems• Value system links	<ul style="list-style-type: none">• C.A.M• Quality assurance systems• Value system links
Marketing	<ul style="list-style-type: none">• Streamlined distribution system• Modelling capabilities• Centralised control system	<ul style="list-style-type: none">• Sophisticated marketing system• Marketing databases• IT displays/promotion• Telemarketing• Competition analysis system
Sales	<ul style="list-style-type: none">• Sales control system• Advertising monitoring system• Strict incentive – monitoring system	<ul style="list-style-type: none">• Differential pricing system• Office-field communication• Customer – sales support• Dealer support system• Value system links
Administration	<ul style="list-style-type: none">• Cost control systems• Planning and budgeting systems• Office automation for staff reduction	

Porter's 5 Forces Model

This model, shown in Figure 4, can also be applied to a company's use of IT. The answer to all of the questions posed within the model is, yes IT can change each of the forces. A detailed examination of how IT can change the structure of an industry and the effects of IT on the various forces would require an article in itself. Let me use a simple example to illustrate the point – the Internet. The Internet has fundamentally changed the bargaining power of both suppliers and customers. E-commerce, online retailing, more effective supply chain management, on-line procurement, customer databases, loyalty cards, greater access to information, web-based marketing and home shopping have all come about as a result of the development of web-based technologies and the convergence of communications, computers and telephony.



It would be wrong to characterise all these changes as shifting the balance of the forces one-way or the other i.e. as either closing off an industry to outsiders (IT used defensively) or opening up an industry to new players (IT used offensively). IT has been used offensively, as a means of entering an industry that was previously viewed as impregnable by the existing players (eg Direct Insurance) or defensively as a means of keeping out new entrants (eg heavy investment in IT by financial services companies as a barrier to entry).

An exam question could require students to assess the nature of the existing forces affecting the industry, how the company's deployment of IT might be used to strengthen those forces in the company's favour and how IT could be used by the company's competitors to attack the competitive position of the organisation.

Porter's Value Chain

The value chain can be used to assess the impact of IS/IT on the elements of a firm's individual value chain and on how the integration between the value systems of the various contributors can be strengthened. Refer to Figure 5.

Figure 5

Support Activities	FIRM INFRASTRUCTURE					MARGIN
	TECHNOLOGY DEVELOPMENT					
	HUMAN RESOURCE MANAGEMENT					
	PROCUREMENT					
Primary Activities	Inbound logistics	Operations	Outbound logistics	Marketing & sales	After sales service	MARGIN

Questions in this area are likely to be straightforward. The information in the question would allow the student to see the operation of various primary and support activities. Various applications that could be used in these activities can be identified to earn marks. Supply chain management and the linkages in the value chain system need to be fully understood, as does the role IT plays in the integration of the value system, eg EDI and Customer Relationship Marketing.

IT as a source of competitive advantage

It is frequently stated that one of the main reasons why a company should have an IT strategy is because IT can be the source of competitive advantage. But what does this term 'competitive advantage' mean? Joe Peppard provides the following useful summary:

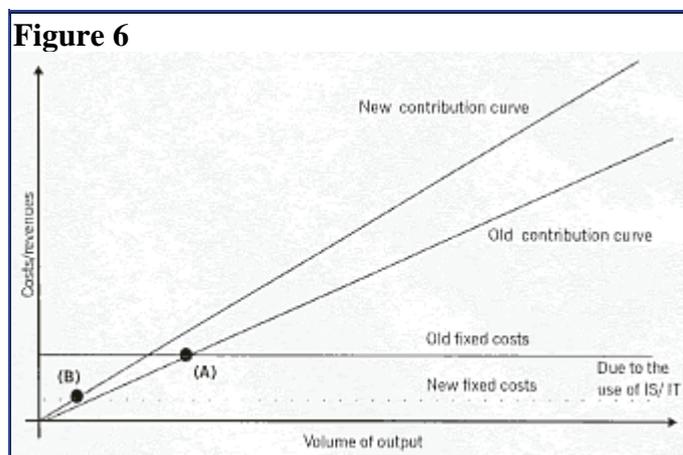
- Establishing entry barriers.
- Affecting the cost of switching operations.
- Differentiating products/services.
- Limiting access to distribution channels.
- Ensuring competitive pricing.
- Decreasing supply costs.
- Increasing cost efficiency.
- Using information as a product.
- Building closer relationships with suppliers and customers.

Ward and Griffiths suggested four ways that IS/IT could be used for competitive advantage:

1. Linking the organisation to customers or suppliers, eg EDI, website, VANs, extranets.
2. Creating effective integration of the use of information in a value-adding process, eg data mining, data warehousing, ERP.
3. Enabling the organisation to develop, produce, market and distribute new products or services, eg CAD, CRM.
4. Giving senior management information to help to develop and implement strategy, eg knowledge management.

Moriarty and Swartz provide an example of how the application of IS/IT can generate a competitive advantage in relation to the sales and marketing function. They explain how technology can increase productivity through providing better marketing information (eg databases) and more efficient sales and marketing tools (eg direct mail, websites). To be classed as a competitive advantage the increased productivity would not be available to others. This is unlikely unless the technology is very expensive (entry barrier), or competitors are unaware of how to utilise it.

Increased productivity may lead to reduced fixed costs. For example, fewer sales and marketing staff may be required, allowing a move to smaller premises. The effect of reduced fixed costs and a greater contribution arising from savings in variable costs is shown in Figure 6.



As a result of the use of IS/IT, the breakeven point has been reduced from (A) to (B).

Conclusion

Detailed consideration of the various models discussed above can be found in various study textbooks. The purpose of this article is merely to introduce the concepts and models to the student and show how their application to the specifics of an examination question can very easily earn marks. Very little credit is given at this level of your accountancy studies for regurgitation of the theory. The reason why the questions are set in the form of scenarios is to test the students' application of the theory. It is all very well learning the models, but if you cannot apply them, you won't pass. Hopefully, this article will help you do both.

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