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# Answers

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*In essentials module papers it is not always possible to publish a suggested answer which is fully comprehensive. Credit will be given to candidates for points not included in the suggested answers but which are relevant to the questions.*

*The suggested answers presented below give more detail than would be expected from a candidate under examination conditions. The answers are intended to provide guidance on the approach required from candidates, and on the range and depth of knowledge, which would be expected from an excellent candidate.*

- 1 (a)** The PESTEL framework may be used to explore the macro-environmental influences that might affect an organisation. There are six main influences in the framework: political, economic, social, technological, environmental and legal. However, these influences are inter-linked and so, for example, political developments and environmental requirements are often implemented through enacting legislation. Candidates will be given credit for identifying the main macro-environmental influences that affect the NM, whether or not they are classified under the same influences as the examiner's model answer.

**Political**

Monitoring, understanding and adapting to the political environment is absolutely essential for the National Museum. It is currently very reliant on government funding and so is significantly affected by the recently elected government's decision to gradually reduce that funding. The implications of this were recognised by the Board of Trustees and led to the appointment of a new Director General. Unfortunately, senior staff at the museum did not share this perception of the significance of the funding changes. Their opposition to change, which culminated in the Director General's resignation, has led to further political ramifications. The government is now threatening heavier funding cuts and further political trustee appointments. Furthermore, it does appear that the political context has changed for the foreseeable future. The government has only just been elected and the opposition also agrees that the reliance of museums on government funding has to be reduced.

The political appointment of two (and possibly more) trustees is also important to the National Museum. It was significant that it was the two trustees appointed by the government who supported the Director General and his proposed changes. Finally, the continued funding of the government will now largely depend on performance measures – such as accessibility – which have been determined by a political agenda. The museum must strive to meet these objectives even if they are not shared by senior staff. The old ways – built around an assessment of Heritage Collections – appear to have gone forever and senior staff members need to recognise this.

**Economic**

Up to now the National Museum has been largely sheltered from the economic environment. It has been funded by the government, not the marketplace, and that funding has been largely determined by stable internal factors, such as artefacts in the Heritage Collection. Evidence from the scenario and Figure 1, suggests that this funding is stable, increasing on an annual basis to reflect inflation. However, the progressive reduction of government funding will mean that the museum will be exposed to economic realities. It will have to set realistic admission charges. Resources will also have to be used effectively and new opportunities identified and exploited for increasing income. The Director General included a number of these ideas in his proposals. However, it will be difficult to set a charge that will attract sufficient customers to cover the museum's costs, particularly as visitors have been used to paying only a nominal entry charge.

**Social**

The social environment is important to the museum from at least two different perspectives. The first is that social inclusion is an important part of the government's targets. The government is committed to increasing museum attendance by both lower social classes and by younger people who they feel need to be made more aware of their heritage. The visitor information shown in Figure 3 suggests that not only are visitor numbers declining in total, but the average age of these visitors is increasing. The percentage of visitors aged 22 and under visiting the NM has decreased from 19% of the total visitors (in 2004) to just over 12% in 2007. The museum needs to identify what it needs to do to attract such groups to the museum. The Director General had suggested free admission. This could be combined with popular exhibitions (perhaps tied in with television programmes or films) and 'hands-on' opportunities. It appears that the immediate neighbourhood of the museum now houses many of the people the government would like as visitors and so, from this angle, the location of the museum is an advantage. However, the comment of the Director of Art and Architecture about popularity and historical significance hardly bodes well for the future.

The decay of the neighbourhood and the increased crime rate may also deter fee-paying visitors. The museum is becoming increasingly isolated in its environment, with many of its traditional middle-class customers moving away from the area and reluctant to visit. The extensive reporting of a recent assault on a visitor is also likely to deter visitors. The museum needs to react to these issues by ensuring that good and safe transport links are maintained to the museum and by improving security both in the museum and in its immediate vicinity. Visitors need to feel safe and secure. If the museum believes this to be unachievable, then it might consider moving to a new site.

**Technological**

It is estimated that only 10% of the museum's collection is on view to visitors. Technology provides opportunities for displaying and viewing artefacts on-line. It provides an opportunity for the museum to become a virtual museum – allowing visitors from all over the world access to images and information about its collections. Indeed, such an approach should also help the museum achieve some of its technology and accessibility targets set by the government. Technology can also be used to increase marketing activity, providing on-line access to products and allowing these products to be bought through a secure payment facility. The appropriate use of technology frees the museum from its physical space constraints and also overcomes issues associated with its physical location.

## Environmental

It can be argued that all contemporary organisations have to be aware of environmental issues and the impact their activities have on the environment. These are likely to be exacerbated by the museum being located in an old building which itself requires regular maintenance and upgrading to reflect government requirements. It is also very unlikely that such an old building will be energy efficient and so heating costs are likely to be high and to continue to increase. The museum needs to adopt appropriate policies on recycling and energy conservation, but it may be difficult to achieve these targets in the context of an old building. Consequently, environmental issues may combine with social issues to encourage the consideration of the possible relocation of the museum to a modern building in a more appropriate location. However, the museum building is also of architectural importance, and so some acceptable alternative use for the building might also have to be suggested.

## Legal

Legal issues affect the museum in at least two ways. Firstly, there is already evidence that the museum has had to adapt to legal requirements for disability access and to reflect health and safety requirements. Some of these requirements appear to have required changes in the building which have been met with disapproval. It is likely that modifications will be expensive and relatively awkward, leading again to unsightly and aesthetically displeasing modifications to the building. Further tightening of legislation might be expected from a government with a mandate for social inclusion. For example, it might specify that all documentation should be available in Braille or in different languages. Legislation concerning fire safety, heating, cooking and food preparation might also exist or be expected.

Secondly, the museum is run by a Board of Trustees. There are legal requirements about the behaviour of such trustees. The museum must be aware of these and ensure that their work is properly scoped and monitored. Trustees have, and must accept, ultimate responsibility for directing the affairs of the museum, ensuring that it is solvent, well-run, and meeting the needs for which it has been set up. The museum is a charity and it is the responsibility of the trustees to ensure that its operation complies with the charity law of the country.

- (b) The underlying cultural issues that would explain the failure of the Director General's strategy at the National Museum can be explored using the cultural web. It can be used to understand the behaviours of an organisation – the day-to-day way in which the organisation operates – and the taken-for-granted assumptions that lie at the core of an organisation's culture. The question suggests that it was a lack of understanding of the National Museum's culture that lay at the heart of the Director General's failure. In this suggested answer the cultural web is used as a way of exploring the failure of the Director General's strategy from a cultural perspective. However, other appropriate models and frameworks that explore the cultural perspective will also be given credit.

A cultural web for the National Museum is suggested in Figure 1. The cultural web is made up of a set of factors that overlap and reinforce each other. The *symbols* explore the logos, offices, titles and terminology of the organisation. The large offices, the special dining room and the dedicated personal assistants are clear symbols of hierarchy and power in the museum. Furthermore, the language used by directors in their stories (see below) suggests a certain amount of disdain for both customers and managers. The status of professor conferred on section heads with Heritage Collections also provides relative status within the heads of collection sections themselves. The proposal of the Director General to close the heads' dining room and to remove their dedicated personal assistants would take away two important symbols of status and is likely to be an unpopular suggestion.

The *power* structures of the organisation are significant. Power can be seen as the ability of certain groups to persuade or coerce others to follow a certain course of action. At present, power is vested in the heads of collection sections, reflected by their dominance on the Board of Directors. Three of the five directors represent collection sections. Similarly the Board of Trustees is dominated by people who are well-known and respected in academic fields relevant to the museum's collections. The power of external stakeholders (such as the government) has, until the election of the new government, been relatively weak. They have merely handed over funding for the trustees to distribute. The Director General of the museum has been a part-time post. The appointment of an external, full-time Director General with private sector experience threatens this power base and his suggestion for the new organisation structure takes away the dominance of the collection heads. On his proposed board, only one of six directors represents the collection sections.

The *organisational structure* is likely to reflect and reinforce the power structure. This appears to be the case at the museum. However, it is interesting to note that the collections themselves are not evenly represented. Both the Director of Industrial Art and the Director of Media and Contemporary Art represent five collection sections. However, only two collection areas are represented by the Director of Art and Architecture. This imbalance, reinforced by different symbols (professorships) and reflected in stories (see later) might suggest a certain amount of disharmony between the collection heads, which the Director General might have been able to exploit. Management at the museum are largely seen as administrators facilitating the museum's activities. This is reinforced by the title of the director concerned; Director of Administration.

The *controls* of the organisation relate to the measurements and reward systems which emphasise what is important to the organisation. At the National Museum the relative budget of each section has been heavily influenced by the Heritage Collections. These collections help determine how much the museum receives as a whole and it appears (from the budget figures) that the Board of Trustees also use this as a guide when allocating the finance internally. Certainly, the sections with the Heritage Collections appear to receive the largest budgets. Once this division has been established the principle of allocating increases based on last year's allocation, plus a percentage, perpetuates the division and indeed accentuates it in real financial terms. Hence, smaller sections remain small and their chance of obtaining artefacts for them to be defined a Heritage Collection becomes slimmer every year. Again, this may suggest a potential conflict between the larger and smaller collection sections of the museum. Finally, up until the election of the new government, there appears to have been no required measures of outputs (visitor numbers, accessibility etc). The museum was given a budget to maintain the collections,

not to attract visitors. The proposal of the Director General to allocate budgets on visitor popularity disturbs the well-established way of distributing budgets in a way that reinforced the current power base.

The  *routines and rituals*  are the way members of the organisation go about their daily work and the special events or particular activities that reinforce the 'way we do things around here'. It is clear from the scenario that it is not thought unacceptable for directors to directly lobby the Board of Trustees and to write letters to the press and appear on television programmes to promote their views. In many organisations issues within the boardroom remain confidential and are resolved there. However, this is clearly not now the case at the National Museum. The scenario suggests that there are certain  *rites of challenge*  (exemplified by the new Director General's proposals) but equally there are strong  *rites of counter-challenge* , resistance to the new ways of doing things. Often such rites are limited to grumbling or working-to-rule, but at the National Museum they extend to lobbying powerful external forces in the hope that these forces can be combined to resist the suggested changes.

*Stories*  are used by members of the organisation to tell people what is important in the organisation. The quotes included in the scenario are illuminating both in content and language. The Director of Art and Architecture believes that Heritage Collections have a value that transcends popularity with the 'undiscerning public'. He also alludes to the relative importance of collections. He suggests that fashion may not be a suitable subject for a collection, unlike art and architecture. Similarly, the anonymous quote about lack of consultation, that includes a reference to the new Director General as 'an ex-grocer', attempts to belittle both management and commerce.

In the centre of the cultural web is the  *paradigm*  of the National Museum. This is the set of assumptions that are largely held in common and are taken for granted in the organisation. These might be:

- The museum exists for the good of the nation
- It is a guardian of the continuity of the nation's heritage and culture
- What constitutes heritage and culture is determined by experts
- The government funds the purchase and maintenance of artefacts that represent this heritage and culture

There are two important elements of the Director General's proposals that are missing from this paradigm; visitors and customers. Changing the current paradigm may take considerable time and effort.

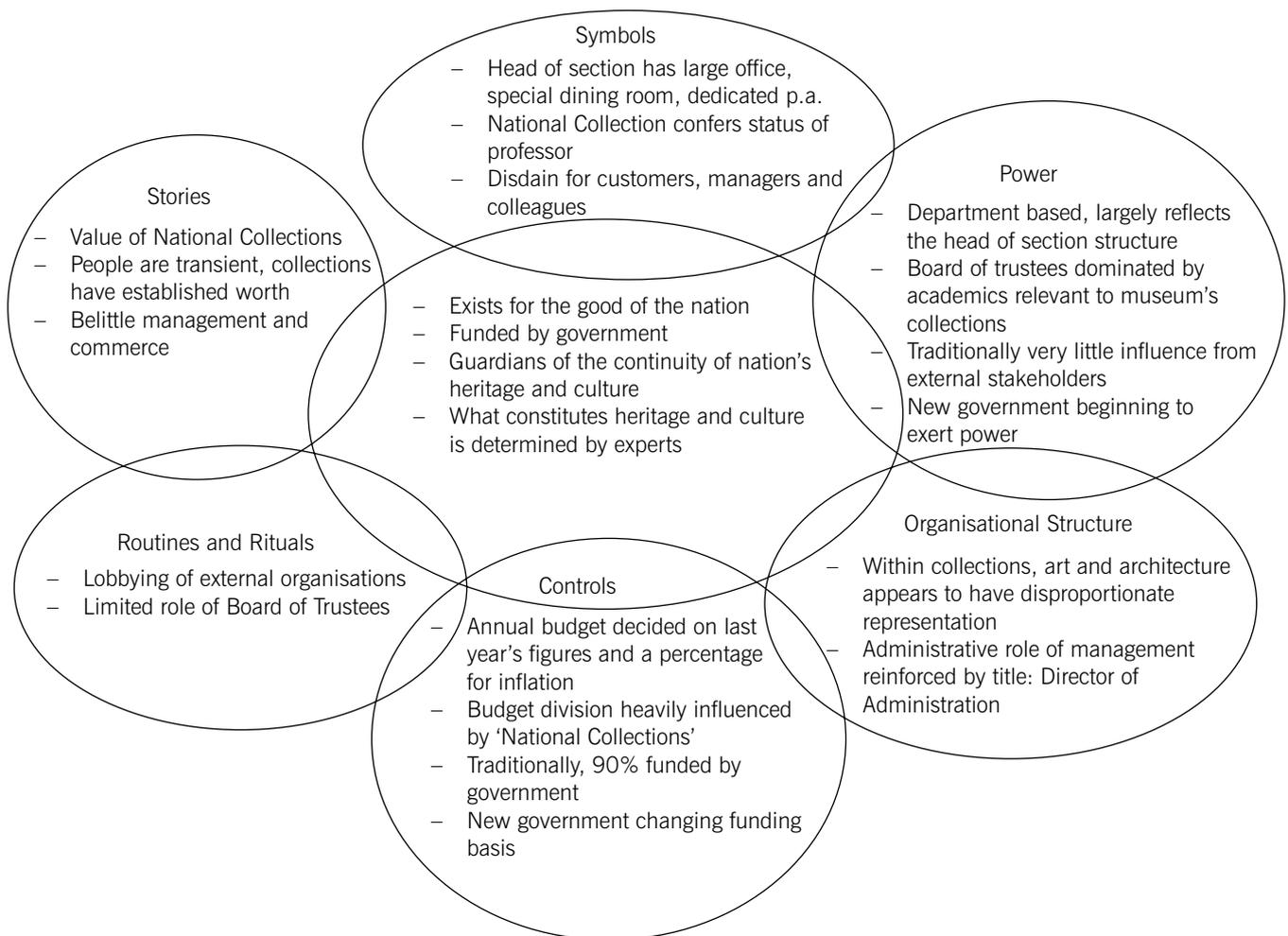


Figure 1: Possible cultural web for the National Museum

Candidate answers which considered the cultural web from a perspective of how it might have helped the Director General develop and implement proposals are also acceptable. For example:

- He may have considered deferring one or both of the proposals to remove the head of collection sections' dining room and their dedicated personal assistants. These are important symbols of their status and the financial gains from removing them seem unlikely to outweigh the consequences of their removal.
- He might have considered simply adding directors to the organisational structure, rather than inviting conflict by removing two of the collection directors. For example, replacing the current Director of Administration with the four new directors of his proposed structure (Finance, Visitor Services, Resources, Information Systems) might then have been more acceptable. The actual number of collection related directors remains the same (three), but their relative power in the board would have been decreased.
- An analysis of the cultural web identifies a possible conflict between the collection section heads that could have been exploited. A significant number of sections are not designated as Heritage Collections and so are not headed by professors. These sections are also less well represented on the board and they receive less money, which is allocated in a way that accentuates and perpetuates the relative wealth of the powerful sections. Published stories and deriding fashion, reinforces this division. The Director General could have identified proposals that could have brought the heads of certain sections 'on side' and so destroy the apparently harmonious position of the collection heads.
- He also needed to recognise the structure of the Board of Trustees. Their current composition meant that there was little chance that they would support his proposals.
- Finally, he would have benefited from understanding the paradigm of the National Museum and how at odds this paradigm is with his own vision and with the vision of the incoming government. In this context the cultural web has important implications for the heads of collection sections. Both the *power* and *controls* elements of the cultural web are undergoing significant change. The new government is exploiting its position as a major stakeholder and insisting on new controls and measures that reflect their paradigm. Although the heads of collection sections have successfully lobbied for the removal of the Director General, they are very unlikely to change the government's policy. Indeed the sacking of the Director General has strengthened the government's action and resolve. The sacking of the Director General may have been a *pyrrhic victory* and a much worse defeat now awaits the heads of collection sections.

- (c) The *design* lens views strategy as the deliberate positioning of an organisation as the result of some 'rational, analytical, structured and directive process'. Through the design lens it is the responsibility of top management to plan the destiny of the organisation. Lower levels of management carry out the operational actions required by the strategy. The design lens is associated with objective setting and a plan for moving the organisation towards these objectives. In the context of the scenario, the government is now significantly involved in objective setting and tying funding to those objectives. The Director General has responsibility for defining and delivering a strategy within these objectives. There is evidence that he has gone about this in a 'top-down' way and not sought advice from current employees. On the television programme, employees were particularly critical of a lack of consultation; 'these proposals have been produced with no input from museum staff. They have been handed down from on-high'. In many ways, the approach taken at the National Museum under the new Director General represents the design lens view of strategy. Such an approach is not unusual in public sector organisations, where elements of strategy are dictated by government manifestos.

Strategy as *experience* provides a more adaptive approach to strategy, building on and changing the existing strategy. Changes are incremental as the organisation adapts to new opportunities and threats in the environment. The experience lens views strategy development as the combination of individual and collective experience together with the taken-for-granted assumptions of cultural influences. However, it has to be recognised that the assumptions and practices of the organisation may become so ingrained that it is difficult for people to question or change them. This certainly appears to be true for the heads of collection sections at the National Museum. The museum is now facing a fundamental change in the way it will be funded and the increased influence of the government suggests a change in the paradigm of the organisation. It seems unlikely that people with a vested interest in the current arrangement and perpetuating that current arrangement will come up with the change in strategy that is now required. The 'taken-for-granted' behaviour of people in organisations is one of the major barriers to developing innovative strategies. Strategy as experience seems innately conservative. It could work well when a small incremental change is required within a stable environment. However, this does not appear to be the situation at the National Museum and so developing strategy as experience may not seem a possible way forward and perhaps this is why the Director General explicitly rejected this approach.

Strategy as *ideas* has a central role for innovation and new ideas. It sees strategy as emerging from the variety and diversity in an organisation. It is as likely to come from the bottom of the organisation as from the top. Consequently, the organisation should foster conditions that allow ideas to emerge and to be considered for inclusion in a 'mainstream strategy'. Certain conditions, such as a changing and unpredictable environment foster ideas and innovation. It could be argued that the macro-environmental conditions for adopting this lens are present at the National Museum. Political, social and environmental influences might lead to new ideas – for example, the relocation of the museum and the exploitation of on-line access to resources creating a virtual museum. The museum is undergoing a fundamental change in priorities and funding and the consequences of these changes is unpredictable. On the other hand, the museum is a long-established conservative organisation with many symbols of hierarchy and deference. There is no evidence in the scenario of a group of people generating conflicting ideas and encouraged to compete with each other in an open and supportive environment. The National Museum seems to be dominated by powerful individuals protecting their own interests. Finally, a key factor in the selection of ideas is the marketplace. The National Museum is currently operating in a protected economic environment, although this is set to change.

There is plenty of evidence to suggest that it is difficult to change strategies in a hierarchical or deferential structure. At the National Museum the Director General decided to pursue a designed strategy. In many ways this appeared to be the natural lens to adopt given the objectives set by the newly elected government that was beginning to exert its power. This strategy may have worked if he had been more sensitive to the cultural web and, also, if he had not asked for the backing of the Board of Trustees. This was always unlikely to be forthcoming given its composition. The paradigm change means that it is unlikely that the experience lens would have proved fruitful. However, it may have been possible to exploit strategy as ideas if the Director General had carefully selected heads of collection sections who were relative losers under the current system.

## 2 (a) First Leisure

The initial motivation for the acquisition of First Leisure was the need to diversify out of a declining market place (falling 5% over the recorded period) into an expanding one (increasing over 25% in the recorded period). The cash generated by the quarrying company was used to purchase a profitable, well-run company in an expanding market. Diversification was a direct response to environmental changes. Increased costs and falling reserves meant that there was little chance of finding new sites in its core market. MMI initially played no managerial role in First Leisure, allowing the managers who had made it successful to continue running the company. However, buying a company concerned with leisure appeared to be an example of unrelated diversification and there were some negative comments about the financial wisdom of this acquisition.

After a period of consolidation, certain unexpected synergies emerged that had not been clear at the time of acquisition. These came from the conversion of disused or unprofitable quarry sites into leisure parks. This conversion was doubly advantageous. In the first instance it reduced the operating costs of MMI, allowing it to shed costs associated with running unprofitable mines and maintaining security and safety at disused sites. Secondly, it allowed First Leisure to acquire sites relatively easily and cheaply in an environment where it was becoming more expensive and harder, because of planning restrictions, to purchase new sites. Johnson, Scholes and Whittington discuss the principles of *economies of scope* where an organisation has under-utilised resources that it cannot effectively use or dispose of. It makes sense to switch these if possible to a new activity, in this instance leisure parks.

The turnover of First Leisure has doubled in six years. The figures summarised in table 1 suggest an expanding company in an expanding market and its market share continues to grow (up from 13% to 21% in the recorded period). Furthermore, gross profit margins have remained fairly constant but recent increases in the net profit margin suggests that costs appear to be under control, despite the recent issues concerning the supply of boats from Boatland. In corporate management terms MMI probably perceived that it would initially be playing a 'portfolio management' role at First Leisure. However, the discovery of unexpected synergies has led to it adopting (and perhaps claiming in hindsight) a synergy manager role. In terms of the BCG matrix, First Leisure exhibits all the characteristics of a star business unit and so it should be retained in the portfolio. It has a high market share in a growing market and increasing margins means that even if it has spent heavily to gain this share (and there is no direct evidence of this in the scenario), costs are now beginning to fall.

### Boatland

The synergies that emerged from acquiring First Leisure appear to have been unexpected. However, the acquisition of Boatland in 2006 was largely justified on the grounds of synergy. Synergies were expected with First Leisure and with MMI itself. By this time the directors felt that they had built up significant managerial competencies that could be successfully applied to acquired companies. These managerial competencies could be used to drive extra value from underperforming companies and so deliver benefits to shareholders. In the case of Boatland the expected synergies with First Leisure were as follows:

- First Leisure had experienced difficulties in the supply and maintenance of boats for their leisure parks. Boatland seemed to offer a way out of this problem. First Leisure would become a preferred customer of Boatland, taking priority over other customers. MMI also perceived that cost savings could be found by bringing boat manufacture and maintenance into the Group. In this instance, MMI was pursuing a policy of *backward integration*, producing one of the inputs into First Leisure's current business activities.
- Secondly, Boatland itself appeared to be under valued. The management team appeared to lack ambition, focusing on producing a limited number of craft to high specification. It was felt that the production of boats for First Leisure would help the company expand, allowing it to increase market share partly based on guaranteed orders from First Leisure.

In this instance MMI probably thought of itself as a synergy manager, helping Boatland develop strategic capabilities and exploiting synergies with both MMI and First Leisure. However, the acquisition has not brought the expected benefits. The boats provided for First Leisure have not been appropriately constructed for their purpose and, paradoxically, because of the way they are misused by holiday makers, maintenance costs and 'downtime' has increased. Furthermore, the status of First Leisure as a preferred customer has led to delays in boat manufacture and maintenance for established customers. Orders have fallen and so has the reputation of the company. This is reflected in the data provided in table 1. Revenue and market share has fallen in a static market place. More worrying is the significant fall in gross and net profit margins. The net profit margin has fallen from 13.04% in 2002 to just 4.29% in 2008. Furthermore, difficulties also have been created for First Leisure, which are also disturbing its relationship with MMI. The problem at Boatland appears to be cultural and this is reflected not only on the results but in the loss of experienced boat building employees. When the company was bought it concentrated on building a small number of high quality boats to discerning customers who valued and cherished their boats. In contrast, First Leisure required a large number of simple, robust boats that could be used and abused by holiday makers. The products and markets are different and the perceived synergy was an illusion.

In BCG terms Boatland has a very small share of a static market. Although there is no evidence of it being a cash drain on MMI the conflict between the culture of Boatland and the cultures of MMI and First Leisure probably used up a disproportionate amount of company time and resources. In terms of the Ashridge Portfolio Display, Boatland appeared as a *heartland* business but it soon turned into a *value trap* business. It seems sensible to divest Boatland from the portfolio. However, the supply implications of this to First Leisure will have to be investigated and so divestment may have to wait until First Leisure has built up a relationship with an alternative supplier.

**(b) Introduction**

Since 2002 MMI have built up a small portfolio of businesses that reflect different strategic directions. It has consolidated in its own market by shedding unprofitable or closed quarries and purchasing smaller competitors. This is reflected in the data given in table 1. During a period when the marketplace has declined by 5%, MMI has increased its market share from 20% to 28%. Gross profitability has remained fairly steady during the period, but the net profit margin has increased significantly since 2004. The increase in market share is probably due to the acquisition, in 2004, of two smaller competitors. The increase in the net profit margin can largely be traced to the disposal of redundant and unprofitable quarries to First Leisure. MMI's attempts at diversification have had mixed success. First Leisure, acquired in 2002, turned out to be an inspired acquisition as unexpected synergies emerged which assisted MMI's profitability. However, the expected synergies from the Boatland purchase have not materialised and MMI appear to have destroyed rather than created value in this acquisition.

In 2004 MMI acquired two of its smaller competitors, bringing five further mines or quarries into the group. MMI introduced its own managers into these companies resulting in a spectacular rise in revenues and profits that caused the CEO of MMI to claim that *corporate management capabilities* were now an important asset of MMI. So there appears to be evidence that MMI management can successfully improve the performance of an acquisition. However, Boatland is in a significantly different industry to these earlier acquisitions. MMI managers are familiar with the management of mines and quarries and probably found that the employees of these companies shared the culture of an industry they were familiar with. In contrast, at Boatland the sought after synergy was with First Leisure, not MMI, and so the MMI managers entered an industry and an environment they were unfamiliar with. Evidence from the First Leisure and Boatland acquisitions suggests that MMI is more successful when it employs a 'hands-off' approach to managing acquisitions which are not directly related to its core mining and quarrying operations. The incumbent management team are left to get on with the job with minimal interference from MMI.

**InfoTech**

The current financial position of InfoTech suggests that its management team may not be able to deliver the turnaround required. Market share and gross and net profit margins have fallen over the recorded period. Revenues have decreased by 16% at InfoTech in a period where the size of the market has increased by almost 25%. If MMI acquires InfoTech then the preferred 'hands-off' approach will be very risky, particularly considering the financial investment the company requires. MMI appears to have two alternatives if it goes ahead with the acquisition. The first is to learn from its experience at Boatland and install managers who are more sensitive to the culture of the organisation and the industry as a whole. To do this, they will have to recognise that their perceived value adding managerial capabilities actually turned out to be value destroying at Boatland. MMI could recruit managers with established track records in the information technology industry. However, there is no evidence that MMI has successfully adopted this approach before.

The financial position alluded to above also needs to be considered. Boatland and First Leisure were both successful, profitable companies when they were acquired. In contrast, Infotech is making a loss and appears to require investment which it has failed to secure in its own right. This is a controversial reason for acquisition and in this context MMI is playing the role of a portfolio manager, one it has never played for a failing company. In terms of the BCG matrix, InfoTech is a business unit in a growing market but with a low market share. It would be defined as a *question mark* or *problem child*.

*Suitability* is one of the three success criteria Johnson, Scholes and Whittington use to judge strategic options. An approach which evaluates whether the acquisition addresses the situation in which MMI and InfoTech are operating would be a perfectly valid approach to answering this question.

**3 (a) (i) System Testing**

The scenario mentions the system specification that has been signed off by Caetlinsure. System testing is performed by ASW testers to ensure that the proposed software solution fulfils this specification. The aim is to verify that the system does what it was specified to do and to identify and remove most faults before it is released to the customer for acceptance testing. The key issue here is that system testing is performed by ASW testers and not employees of Caetlinsure. Successful system testing relies on the accuracy and completeness of the specification as the software is tested against that specification.

System testing may also include elements of usability and performance testing. Usability testing will focus on the clarity and consistency of the user interface as well as ensuring that the software complies with any standard user interface guidelines. Performance testing will attempt to verify that the system meets specified performance targets, such as a certain response time, when it is processing a specified number of transactions or being used simultaneously by a certain number of users. System testing is the last opportunity ASW gets to address product quality before the product is released to the customer. Any faults in the software will subsequently be visible to end users whose confidence in ASW (and the software solution) will be influenced by its functionality, reliability and usability.

**(ii) Acceptance Testing**

This activity will be undertaken by user acceptance testers at CaetlInsure. The scenario mentions the requirements catalogue submitted by CaetlInsure in the early stages of the project. User acceptance testers will test the delivered software to confirm that it meets these requirements. These testers will also be concerned about the usability of the software as well as how the software will fit in with the whole business process, including manual and clerical activities. Acceptance testers will evaluate the usability of the software from the perspective of the competence of the actual users of the software – the people who are going to use the system as part of their work.

The key point here is that acceptance testers are employees of CaetlInsure. If they believe that the system does not meet their functional requirements, then the reason for this has to be investigated. It is possible that the requirement was not defined in sufficient detail at the outset and so ASW's interpretation of it may not be unreasonable. Whatever the reason for the problem, issues identified in acceptance testing can lead to delay in system implementation and much negotiation about responsibility for putting it right.

**(iii) Data Migration**

Data migration concerns moving the data from the current system used by CaetlInsure to the replacement ASW packaged solution. It can take place when user acceptance testing has accepted the delivered software. Once migration has taken place live transactions have to be put through the new system to ensure that it remains up-to-date. The project plan suggests that CaetlInsure intend to parallel run their systems for a while. In parallel running, transactions are entered into both the current and the new system and checked against each other. Any discrepancies are investigated. To ensure the validity of comparisons all transactions must be entered into the new system as soon as data migration is complete. This means urgently checking the success of the data migration through *statically inspecting* the data held in the files of the new system. There are a number of automated tools that can assist in this file comparison. ASW employees will undertake the testing of migration programs with the actual data migration performed by CaetlInsure IT staff.

Data migration is also important because it is a critical point for considering the *quality* of data being moved from the current system. Some of the data held in the current system may be inaccurate, incomplete or out of date. Data migration provides an opportunity for cleansing this data and so improving the overall quality of information held in the computer system.

**(b) The project manager could request an extension to the deadline**

The case study scenario suggests that early delays in the project were caused by the absence of key CaetlInsure staff and changes in user requirements in the re-insurance module. These delays meant that the full system specification was signed off three weeks later than initially agreed. Unfortunately, the delivery date of the whole project was not re-negotiated at this point as it was suggested that 'time could be made up' during the programming stage. Furthermore, the marketing department of CaetlInsure had already announced the launch of a new product to coincide with the implementation of the software and they did not want to change these dates. However, the project manager could now return to CaetlInsure and inform them that it had not been possible to catch up with the proposed schedule and to remind them that the initial slippage had been caused by them. Although the deadline date is associated with a product launch it is unlikely that this is crucial. It is not a matter of life and death. It might be irksome to delay the launch by a few weeks, but it is unlikely that many people will notice or indeed care about it. There are many significant successful products which have been released long after their intended release date. In many ways it is an artificial deadline.

However, there are at least three problems associated with this suggestion. The first is that the delay is now longer than the three weeks incurred at the specification stage. Consequently, the project manager will have to explain that there have been further delays to the project. Secondly, the project manager will have to be very confident about his revised delivery date. The project plan does not explicitly contain any time for programmers fixing faults found in system and acceptance testing and it seems very likely that faults will be found in this testing. Finally, some negotiation will have to take place on the late delivery penalty clause charges the sales account manager agreed in the initial contract. If some (or all) of these clauses are enacted then the profitability of the project will be significantly affected.

**The project manager could consider a functional reduction in the scope of the software solution.**

The scenario suggests that the re-insurance functionality has been a problem throughout the project. There may also be unresolved issues in other parts of the software. However, it must be remembered that the ASW product is a proven software solution, bespoke development is only concerned with customising the basic product to fulfil certain customer requirements. Therefore it is likely that there are large areas of the software that can be successfully delivered to the customer. The key issue here is whether this reduced functionality will fulfil the requirements associated with the proposed new product which CaetlInsure intends to launch. If it does then the delivery of a partial solution does not have a significant business impact and the product launch can go ahead as planned. The project manager needs to discuss this with the customer as quickly as possible. He has to be sure that the reduced scope does indeed fulfil these requirements and, if it does, to focus testing, migration and document production on these parts of the software. He will also have to estimate the delivery time of the second phase of the software that fulfils the complete user requirement.

There are three elements of this suggestion that the project manager should bear in mind. Firstly, the impact of reduced scope on the penalty clauses of the contract. It would appear harsh to deliver a part solution but to still be fully penalised for not delivering the total solution. Consequently some contract renegotiation is necessary. Secondly, there will be an unexpected overhead associated with delivering a second phase which contains the full product. This is the overhead of *regression testing*, making sure that changes made to the product in the second release do not unintentionally affect the software solution that

has already been delivered. Finally, the specification of data migration programs will have to be reviewed to see if they need to be changed in the light of the reduced functionality. Any changes will affect data migration programs which are currently being written or tested.

**The project manager could consider taking steps which might reduce the quality of the product**

A number of options might be considered around the testing of the software. One option is to considerably reduce system testing and hand over the software to acceptance testing ahead of the proposed schedule. The point has already been made that the software is essentially a package that has to be tailored for specific functions. Consequently, large areas of the software have been tested before, much of it by actual users out in the businesses that are using this solution. Programs for the CaetInsure version will have been unit tested by programmers before they have been released to system testers and so no area of the system is *untested*, although there will be areas that have not been *independently tested*. Another option is to reduce the scope of system testing, focusing it on testing functionality rather than usability (which will be one focus of acceptance testing) and performance (which can be difficult to perform effectively in a software house environment where the user's actual hardware configuration cannot be easily mimicked). A further option is to execute system and acceptance testing in parallel.

There are a number of issues with this approach which the project manager needs to consider. The first is that the acceptance testers are likely to find significantly more faults than they would if full system testing had preceded acceptance testing. This can lead to a reduction in customer confidence which could jeopardise the whole project. Secondly, faults identified by both system and user acceptance testers have to be carefully managed. Configuration management becomes a very significant issue and appropriate version control of the software is an essential overhead. Confidence is undermined by the constant releases of new versions of the software, some of which, due to poor configuration management, contain faults which have already been reported and fixed in earlier versions of the software.

**The project manager might consider requesting more resources**

Finally the project manager may request further resources for the project. The current project plan is at a high level of detail. It does not show how many system testers are actually working on the system or how many technical authors are writing the documentation. It may be possible to add more resources and so reduce the elapsed time of the activity. Resources might also be asked to work smarter or work longer. For example, testing might be prioritised so that the most important areas of the software from the user's perspective are tested first. It may also be possible to automate certain areas of testing or to outsource it to specialist testing companies. Programmers might be asked to focus more on static testing (which is particularly effective at finding faults) and to work overtime to beat their deadlines.

However, the project manager must be aware that adding resources to a late running project often slows the project down as established members of the project team explain requirements, standards and procedures to any newcomers. A key factor here will be the precision of the requirements. If these are well specified then it should be possible to add testing staff reasonably effectively, or indeed to outsource testing to countries where it can be conducted relatively cheaply. It may also be possible to bring in technical authors and automated testing tools specialists who can speed up these activities. Programming is more of an issue. It will be very difficult to bring new programmers up to speed. However, it may be possible to transfer resources from other projects and to support the established programmers by providing appropriate hardware and software.

Finally, the addition of resources to the project will have an impact on project profitability. The project estimate will have assumed a certain commitment of resources. Adding resources will reduce the profit margin and indeed, in the extreme, may make the project itself unprofitable.

- (c) There is no correct answer for this part of the question. However, it is suggested that a combination of the above strategies would be appropriate. The deadline is not crucial in the wider scheme of things and there is no statutory requirement to deliver on time. However the deadline is significant to the customer and a failure to meet this deadline may cause internal problems and a 'loss of face'. This is particularly significant in this context because ASW is an external supplier. It might have been easier to negotiate an extended deadline if the software were being supplied by an internal IT department. Hence, it might be suggested that, in these circumstances, the deadline should not be extended for an initial release. However, it may be possible to negotiate the scope of this release, making sure that the key functions are in place and tested when the software is delivered. The customer might accept this reduction in scope as recognition of the delays caused earlier in the project when, due to the absence of key personnel, the full system specification was signed off three weeks late.

It could be argued that the current tasks of ASW, system testing and writing the user manual, could be shortened by adding further resources to the project. Effective testing will depend upon the quality of the specifications but it may be possible to add more resources and back this up with reduced test coverage. The amount of testing performed is driven by risk. There has to be a balance between the cost and time of more testing and the consequences of failure. Although the insurance system appears to be mission-critical to CaetInsure, there is a robust current system that could be reverted to during the planned parallel running.

It would also appear that more resources could be added to writing the user manual. There is already slack between the scheduled completion of the user manual and its use in the training course.

ASW might also consider starting writing the data migration programs before week 22. It appears from the project plan that ASW are waiting for system testing to be complete before writing these programs. It may be possible to start beforehand, writing migration routines for the parts of the system that have already passed system testing.

The acceptance testing is outside the control of ASW. It is being performed by CaetInsure. However, again CaetInsure might consider reducing the time taken for acceptance testing by adding more resources to the task and by accepting a greater risk of failure during parallel running.

On balance, it might be suggested that further resources are quickly added to the project and that the test coverage is reduced. Hence the solution is largely concerned with adding resources and potentially reducing quality. If the customer is happy to slightly reduce the scope of the initial release to reflect past delays then this is a bonus. However, it is suggested that in this project the delivery date should remain fixed. Relaxing this is not an appropriate strategy in this instance.

- 4 (a) High labour turnover is not always a problem for an organisation. Some companies, particularly those pursuing a strategy of cost leadership, can tolerate low commitment and high turnover, employing unskilled workers who are easy to recruit and train. However, this is not the case at Equiguard where the engineers play a key role. The high turnover of engineers is of particular concern for two reasons.
- The scenario suggests that the company have two primary sets of customer-facing employees. The customer support clerks, who record and schedule repairs, and the engineers who actually fix the faults. Of these, only the engineers meet the customers face-to-face. Hence the motivation of the engineers, their commitment to the company and their proficiency in undertaking the repair is vital to Equiguard. Their behaviour will affect how the customer perceives the company and also the probability of them renewing their warranty agreement. High labour turnover in such a key customer-facing job is a major issue.
  - The cost of training engineers is significant. The case study suggests that it costs the company approximately \$6,000 to train an engineer when they join the company. Table 1 shows that Equiguard spends an average of \$1,000 per year in keeping each engineer up-to-date with new products and product changes. Although this figure is lower than its competitors, it is still a significant investment compared with other industries. The training costs are additional to other recruitment costs incurred by the company. These costs would include advertising the posts and the cost of organising and conducting job interviews.

Hence the high turnover of engineers is a significant problem to Equiguard.

Table 1 is primarily concerned with the *reward options* offered by Equiguard and two of its competitors. Reward options usually contain three elements – base pay, performance pay and indirect pay. Organisations have to decide how each of these three components should be balanced in the reward mix. Equiguard have taken an approach which stresses base pay and pays little attention to performance and indirect pay. Although their annual average pay is greater than their competitors, engineers cannot gain extra pay to reflect work-related performance. Equiguard's approach fails to recognise that many organisations (including two of its competitors) now reward their employees with a level of pay dependent upon an individual's performance. Performance related pay ties additional payments directly to the performance of the task. This may be at an individual or team level or both. Both of Equiguard's competitors offer this. Its absence was recognised by two engineers in the exit survey;

- 'There is no point in doing a good job, because you get paid no more than doing an ordinary one. Average work is tolerated here.'
- 'The real problem is that the pay structure does not differentiate between good, average and poor performers. This is really de-motivating.'

This absence of performance related pay has also been recognised by the HR director who has proposed two performance related pay measures (one individual and one team-based). Performance related pay may also be distributed organisation-wide. Additional income can be given to employees to reflect the size, growth or profitability of the firm. Table 1 again suggests that Equiguard is not competitive in this area, with both Safequipe and Guarantor offering profit-sharing schemes.

Indirect pay (or employee benefits) is the part of the reward management package provided to employees in addition to base and performance pay. Health and life insurance, pension plans, company cars and social club membership are all examples of indirect pay. Table 1 includes two measures that might be relevant here; days holiday and expenditure on training. Again Equiguard performs less well than its competitors. A failure to invest in employees is likely to contribute to poor performance and high labour turnover. It appears that the company sees training as a cost rather than as an investment and employees' knowledge as a threat rather than an opportunity. Human Resource Development perceives that an organisation's investment in the learning of its people 'acts as a powerful signal of its intentions' (Bratton and Gold). That the company is sending out the wrong signal is suggested by a further quote from the exit survey.

- 'This is the first place I have worked where learning new skills is not encouraged. There is no incentive to improve yourself. The company seems to believe that employees who gain new skills will inevitably leave, so they discourage learning.'

Equiguard needs to revisit its reward mix. High labour turnover and the comments of the exit survey suggest that annual salary is not the prime determinant of satisfaction.

- (b) In performance related pay, income is tied to the level of ability and output. Advocates of this approach suggest that a job's performance measures demonstrate to the employee what the employer considers to be the key tasks they want employees to perform. Measures also suggest what level of performance is expected in those key tasks. However, for these measures to be successful, the employee has to perceive that the measures are both relevant and achievable. There are at least two significant issues here (both of which appear in the performance measures suggested by the HR director).
- Firstly, that the parameters that underpin the measure are under the control of the employee who is attempting to achieve a defined performance. There is little point in setting targets that are outside the scope of the employee's influence.
  - Secondly, that the measures that relate to the employee are not at odds with the measures applicable to the whole organisation. So employees are not encouraged to work in a way that maximises their income but which reduces the performance or profitability of the organisation as a whole.

The HR director at Equiguard has proposed two performance measures. The first is a team-based bonus based on an average time it takes for the company to respond to a repair request. He proposes that this should be based on the time taken between the customer request for a repair being logged and the date of the engineer attending to fix the problem. He argues that customers value quick response times and so the shorter this time the greater the bonus should be. Although quick response to a customer request for a repair is important, the potential problem with this measure is that it is influenced by parameters largely outside the influence of the team. Firstly, it depends upon the availability of an engineer and this availability is largely determined by how many engineers the company decides to employ. Secondly, the scenario makes it clear that the visit is scheduled 'at the earliest possible time convenient to the customer'. This may be some considerable time in the future, particularly for householders who have to make arrangements to stay at home to allow the engineer access to the equipment they are repairing. To make this a legitimate performance measure the lead time to repair has to be in the hands of the team, which it clearly is not.

In addition, the HR director proposes an individual bonus. This will be based on the average time taken for an engineer to fix a reported fault once they have arrived. This is the average time taken for the engineer to repair the fault from the start time of the job to its completion. He argues that the company values quick response time as this increases efficiency and so the quicker the fix the greater the bonus.

At least this measure is partly in the hands of the repairer. However, there are at least three problems with this measure;

- The length of the repair is likely to depend upon the complexity of the problem and the design of the equipment being repaired. The measure would penalise engineers working on complicated problems on complex equipment.
- The length of the repair may influence the quality of the repair. There might be a temptation to perform a relatively quick fix, with a high probability of a future failure. Indeed the measure might encourage engineers to maximise their income by performing a number of quick repairs that do not address the underlying problem. The effect of this on Equiguard could be potentially disastrous. Their current business model depends upon the company minimising calls and repairs during the warranty period. In contrast, the performance measure might lead to more calls, increasing the pay of the engineer but undermining the profitability of the company.
- There could be problems with engineers reliably reporting the correct start and end time of a job. The engineer may be tempted to falsify these times, reducing job time but perhaps increasing the time apparently spent in travelling and performing administration.

- 1 (a)** Up to 2 marks for identifying appropriate macro-environmental influences in each of the six PESTEL areas – even if it is justifying the lack of influence. A further 8 marks are available for giving credit to candidates who have extended their argument in selected areas of the framework. It must be accepted that each area of the PESTEL will have a differential effect.  
(20 marks)
- (b)** Up to 2 marks for each significant cultural factor identified by the candidate up to a maximum of 8 marks.  
Up to 2 marks for an explanation of how each factor contributed to the rejection of the Director General's proposals, up to a maximum of 10 marks. This includes any ethical issues raised within the cultural analysis.  
Up to 2 professional marks are available for the overall clarity and coherence of the analysis.  
(20 marks)
- (c)** Up to 8 marks for the insights offered by the lenses into the case study scenario.  
Up to 2 professional marks are available for the overall clarity and coherence of the analysis.  
(10 marks)
- 2 (a) First Leisure**  
Up to 2 marks for recognising that this unrelated diversification was driven by environmental change; supported by appropriate data.  
Up to 2 marks for issues concerning economies of scope.  
Up to 3 marks for interpreting the financial and market data.  
Up to 2 marks for recognising the likely parenting role and for locating First Leisure on an appropriate analysis matrix.
- Boatland**  
Up to 2 marks for recognising the synergies expected from Boatland.  
Up to 2 marks for interpreting the financial and market data.  
Up to 3 marks for explaining the failure of the acquisition.  
Up to 2 marks for recognising the likely parenting role and for locating Boatland in an appropriate analysis matrix.  
(Up to a maximum of 15 marks)
- (b)** Up to 3 marks for interpreting the financial performance of MMI and summarising its acquisition strategy.  
Up to 2 marks for recognising that a 'hands-off' approach has been more successful when MMI has pursued unrelated diversification.  
Up to 2 marks for recognising the difficulty of pursuing this approach at InfoTech.  
Up to 2 marks for interpreting the financial and market data.  
Up to 2 marks for recognising the likely parenting role and for locating InfoTech in an appropriate analysis matrix.  
(Up to a maximum of 10 marks)
- 3 (a)** Up to 1 mark for each relevant point concerning contribution to testing and quality up to a maximum of 3 marks for each activity  
Three activities are specified  
(9 marks)
- (b)** Up to 1 mark for each relevant point up to a maximum of 3 marks for each strategy.  
(Up to a maximum of 10 marks)
- (c)** Up to 2 marks for each relevant point up to a maximum of 6 marks for this part of the question.  
(Up to a maximum of 6 marks)
- 4 (a)** Up to 3 marks for each deficiency identified by the candidate up to a maximum of 15 marks.  
(Up to a maximum of 15 marks)
- (b)** Evaluation of HR director's suggested measures: measure 1 – company wide measure: up to 5 marks  
Evaluation of HR director's measures: measure 2 – individual measure: up to 5 marks  
(10 marks)