Professional Pilot Paper – Essentials module

# Business Analysis

Paper P3

**Time allowed**
Reading and planning: 15 minutes
Writing: 3 hours

This paper is divided into two sections:

Section A – This ONE question is compulsory and MUST be attempted

Section B – TWO questions ONLY to be attempted

**Do NOT open this paper until instructed by the supervisor.**
**During reading and planning time only the question paper may be annotated. You must NOT write in your answer booklet until instructed by the supervisor.**
**This question paper must not be removed from the examination hall.**

ACCA

**The Association of Chartered Certified Accountants**

**Section A – The ONE question in this section is compulsory and MUST be attempted.**

**The following information should be used when answering question 1**

## 1 Introduction

Network Management Systems (NMS) is a privately owned high technology company established in 1997 by computer engineer, Ray Edwards. It is situated in the country of Elsidor, a prosperous developed nation with a stable well-established political system. Successive governments in Elsidor have promoted technology by providing grants and tax incentives. Tax credits are also provided to offset company investment in research and development. The government, like many governments worldwide, have invested heavily in a national telecommunications infrastructure. However, in 2010 the country suffered an economic downturn that led many companies to postpone technological investment.

By 2010 NMS employed 75 full-time employees in a new, purpose-built factory and office unit. These employees were a mixture of technically qualified engineers, working in research and development (R&D), factory staff manufacturing and assembling products and a small sales and service support team.

### Product areas

In 2010, NMS had three distinct product/service areas – data communication components, network management systems and, finally, technical support.

NMS sells data communication components to original equipment manufacturers (OEMs), who use these components in their hardware. Both the OEMs and their customers are predominantly large international companies. NMS has established a good reputation for the quality and performance of its components, which are competitively priced. However, NMS has less than 1% of the domestic marketplace and faces competition from over twenty significant suppliers, most of who also compete internationally. Furthermore, one of the company's OEM customers accounts for 40% of its sales in this area. The international market for data communication components had increased from $33billion in 2001 to $81billion in 2010. Forecasts for 2011 and beyond predict growth from increased sales to currently installed networks rather than from the installation of new networks. The maturity of the technology means that product lifecycles are becoming shorter. Success comes from producing high volumes of reliable components at relatively low prices. NMS produces components in a relatively prosperous country where there is significant legislation defining maximum work hours and minimum wage rates. All new components have to be approved by an appropriate government approval body in each country that NMS supplies. This approval process is both costly and time consuming.

The second product area is network management systems. NMS originally supplied fault detection systems to a small number of large end-users such as banks, public utility providers and global manufacturers. NMS recognised the unique requirements of each customer and so it customised its product to meet specific needs and requirements. They pioneered a modular design which allowed customers to adapt standard system modules to fit their exact networking requirements. The success of their product led to it being awarded a prestigious government technology award for "technological innovation in data communications". This further enhanced the company's reputation and enabled it to become a successful niche player in a relatively low volume market with gross margins in excess of 40%. They only have two or three competitors in this specialist market. Unlike component manufacture, there is no requirement to seek government approval for new network products.

Finally, the complexity of NMS products means that technical support is a third key business area. It has an excellent reputation for this support. However, it is increasingly difficult and costly to maintain the required level of support because the company does not have a geographically distributed network of support engineers. All technical support is provided from its headquarters. This contrasts with the national and international support services of their large competitors.

### Current issues

NMS currently manufacture 40% of the components used in its products. The rest of the components, including semiconductors and microprocessors, are bought in from a few selected global suppliers. Serious production problems have resulted from periodic component shortages, creating significant delays in manufacturing, assembly and customer deliveries.

NMS is still a relatively immature organisation. There are small functional departments for sales and marketing, technical research and development, manufacturing and procurement. Ray still personally undertakes all staff recruitment and staff development. He is finding the recruitment of high calibre staff a problem, with NMS' small size and geographical location making it difficult to attract the key personnel necessary for future growth.

**Financial situation**

In response to poor internal investment decisions, Ray has introduced a more formal approach to quantifying costs and benefits in an attempt to prioritise projects that compete for his limited funds and time. His first formal cost-benefit analysis helped him select a new machine for producing certain components in his factory. The results of his analysis are shown in figure one. The cost of the machine was $90,000, with annual maintenance fees of $5,000. Ray has seen the machine working and he believes that he can save the cost of one technician straight away. These savings are shown as reduced staff costs. The manufacturer of the machine claims that the accuracy of the machine leads to reduced wastage of "up to 10%". NMS have detailed measures of the wastage of the current machine and Ray has used this to estimate wastage savings. The increased accuracy of the machine over time is reflected in his estimates. Finally, the manufacturer claims 'energy savings'. NMS currently know the energy costs of the whole factory – but not of individual machines. However, Ray thinks that his estimates for energy savings are realistic. He concludes that "over five years the machine breaks even, so this seems a reasonable business case to me". Overall summary financial data for NMS is presented in figure two.

**Figure one: Business case for new machine**

| Year | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| All figures in $000 | | | | | | |
| Cost of the machine | 90 | | | | | |
| Maintenance costs | 0 | 5 | 5 | 5 | 5 | 5 |
| Reduced staff costs | 0 | 15 | 15 | 15 | 15 | 15 |
| Reduced wastage | 0 | 2 | 4 | 6 | 8 | 10 |
| Energy savings | 0 | 2 | 2 | 2 | 2 | 2 |

**Figure two: Financial analysis NMS 2007–2010**

| Financial analysis – extracted from the statement of comprehensive income<br>All figures in $000 | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|
| Revenue | | | | |
| Domestic | 6,235 | 6,930 | 6,300 | 4,500 |
| International | 520 | 650 | 500 | 300 |
| Total | 6,755 | 7,580 | 6,800 | 4,800 |
| Cost of Sales | 4,700 | 5,000 | 4,200 | 2,850 |
| Gross profit | 2,055 | 2,580 | 2,600 | 1,950 |
| Overhead expenses | 1,900 | 2,010 | 1,900 | 1,400 |
| Profit before tax and finance costs | 155 | 570 | 700 | 550 |
| Finance costs | 165 | 150 | 120 | 25 |
| Tax expense | 17 | 62 | 75 | 60 |
| Profit for the year | -27 | 358 | 505 | 465 |
| **Extracted from internal statistical reports** | | | | |
| Employees | 75 | 75 | 60 | 45 |
| % of orders late | 6 | 10 | 7 | 5 |
| Order book | 2,500 | 3,750 | 4,150 | 3,505 |

**Required:**

**(a) Evaluate the macro-environment of NMS using a PESTEL analysis.** (15 marks)

**(b) Analyse the industry or marketplace environment that NMS is competing in.** (16 marks)

**Professional marks will be awarded in part (b) for clarity, structure and an appropriate approach.** (4 marks)

**(c) Figures one and two summarise two financial aspects of NMS**

**(i) Analyse the financial position of NMS.** (9 marks)

**(ii) Evaluate the cost-benefit analysis used to justify the purchase of the new machine.** (6 marks)

**(50 marks)**

**Section B – TWO questions ONLY to be attempted**

**2** The Environment Management Society (EMS) was established in 1999 by environment practitioners who felt that environmental management and audit should have its own qualification. EMS has its own Board who report to a Council of eight members. Policy is made by the Board and ratified by Council. EMS is registered as a private limited entity.

EMS employs staff to administer its qualification and to provide services to its members. The qualification began as one certificate, developed by the original founding members of the Society. It has since been developed, by members and officers of the EMS, into a four certificate scheme leading to a Diploma. EMS employs a full-time chief examiner who is responsible for setting the certificate examinations which take place monthly in training centres throughout the country. No examinations are currently held in other countries.

If candidates pass all four papers they can undertake an oral Diploma examination. If they pass this oral they are eligible to become members. All examinations are open-book one hour examinations, preceded by 15 minutes reading time. At a recent meeting, EMS Council rejected the concept of computer-based assessment. They felt that competence in this area was best assessed by written examination answers.

Candidate numbers for the qualification have fallen dramatically in the last two years. The Board of EMS has concluded that this drop reflects the maturing marketplace in the country. Many people who were practitioners in environmental management and audit when the qualification was introduced have now gained their Diploma. The stream of new candidates and hence members is relatively small.

Consequently, the EMS Board has suggested that they should now look to attract international candidates and it has targeted countries where environmental management and audit is becoming more important. It is now formulating a strategy to launch the qualification in India, China and Russia.

However, any strategy has to recognise that both the EMS Board and the Council are very cautious and notably risk-averse. EMS is only confident about its technical capability within a restricted definition of environmental management and audit. Attempts to look at complementary qualification areas (such as soil and water conservation) have been swiftly rejected by Council as being non-core areas and therefore outside the scope of their expertise.

**Required:**

**Internal development, acquisitions and strategic alliances are three development methods by which an organisation's strategic direction can be pursued.**

**(a) Explain the principles of internal development and discuss how appropriate this development method is to EMS.** (8 marks)

**(b) Explain the principles of acquisitions and discuss how appropriate this development method is to EMS.** (8 marks)

**(c) Explain the principles of strategic alliances and discuss how appropriate this development method is to EMS.** (9 marks)

**(25 marks)**

## 3 Introduction

CoolFreeze construct refrigeration systems for supermarkets, food processing plants, warehouses and other industrial premises. It has a sales forecasting committee consisting of the company's sales manager, procurement manager, production manager and the head of administration. The committee produces annual sales forecasts for the company which they review quarterly. Historically, these forecasts have been reasonably accurate.

In the second quarter of 2009 they revised/produced their estimates for the next four quarters. The predicted unit sales volume and prices are given in figure one

**Figure one: Sales forecast 2009–2010**

| Year | Quarter | Predicted sales | Predicted sales price | Revenue |
|---|---|---|---|---|
| 2009 | 3 | 81 | $1000 | $81,000 |
| | 4 | 69 | $1000 | $69,000 |
| 2010 | 1 | 62 | $1000 | $62,000 |
| | 2 | 83 | $1000 | $83,000 |

At the meeting that agreed this forecast the sales manager expressed some doubts about the figures. "My team are telling me that it is very tough out there. Companies are not replacing old equipment or constructing new plants. Furthermore, cheaper foreign products are becoming available – undercutting our prices by 10%". Despite these reservations, the sales manager agreed the sales forecasts produced by the committee.

### Actual sales performance

The actual sales for the four projected quarters were as follows (figure two).

**Figure two: Actual sales 2009–2010**

| Year | Quarter | Predicted sales | Actual sales |
|---|---|---|---|
| 2009 | 3 | 81 | 82 |
| | 4 | 69 | 68 |
| 2010 | 1 | 62 | 61 |
| | 2 | 83 | 50 |

The sudden drop in quarter 2 sales caused consternation in the boardroom, particularly as it was a quarter when high demand and profits were anticipated. An analysis of the quarter 2 trading is shown in figure three.

The managing director of CoolFreeze has called you in to review the forecasting model used by the sales forecasting team. "It must be very flawed to go so badly wrong. I have the feeling that the model is not based on a well-accepted approach". He has obtained a copy of the spreadsheet used by the sales forecasting team (see figure four) to help you in your analysis.

The managing director recognises that the actual quarter 2 performance has to be analysed against the budgeted one. "I think everyone here has made mistakes – the sales manager, procurement manager, production manager, administration manager. They all have to take responsibility. We are in this together and now we must pull together to get out of this mess".

**Figure three: Analysis of quarter 2 trading; budget and actual**

| Quarter 2 – 2010 | Budget | Actual |
|---|---|---|
| Units | 83 | 50 |
| Revenue | $83,000.00 | $45,000.00 |
| Raw materials | ($29,050.00) | ($15,000.00) |
| Labour | ($26,975.00) | ($15,750.00) |
| Fixed overheads | ($18,000.00) | ($18,000.00) |
| Operating profit | $8,975.00 | ($3,750.00) |

Figure four: Forecasting spreadsheet

| A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|
| Part 1 | | | | | | | | |
| Year | Quarter | Units | | Trend | Variation | Seasonal | Residual | Check |
| 2006 | 1 | 56 | | | | | | |
| | 2 | 70 | | | | | | |
| | 3 | 74 | 524 | 65.50 | 8.50 | 7.35 | 1.15 | 74.00 |
| | 4 | 60 | 538 | 67.25 | -7.25 | -4.73 | -2.52 | 60.00 |
| 2007 | 1 | 60 | 554 | 69.25 | -9.25 | -11.65 | 2.40 | 60.00 |
| | 2 | 80 | 570 | 71.25 | 8.75 | 9.02 | -0.27 | 80.00 |
| | 3 | 80 | 582 | 72.75 | 7.25 | 7.35 | -0.10 | 80.00 |
| | 4 | 70 | 586 | 73.25 | -3.25 | -4.73 | 1.48 | 70.00 |
| 2008 | 1 | 62 | 588 | 73.50 | -11.50 | -11.65 | 0.15 | 62.00 |
| | 2 | 82 | 588 | 73.50 | 8.50 | 9.02 | -0.52 | 82.00 |
| | 3 | 80 | 586 | 73.25 | 6.75 | 7.35 | -0.60 | 80.00 |
| | 4 | 70 | 586 | 73.25 | -3.25 | -4.73 | 1.48 | 70.00 |
| 2009 | 1 | 60 | 590 | 73.75 | -13.75 | -11.65 | -2.10 | 60.00 |
| | 2 | 84 | 590 | 73.75 | 10.25 | 9.02 | 1.23 | 84.00 |
| | 3 | 82 | | | | | | |
| | 4 | 68 | | | | | | |

Part 2

| | 1 | 2 | 3 | 4 | |
|---|---|---|---|---|---|
| 2006 | | | 8.50 | -7.25 | |
| 2007 | -9.25 | 8.75 | 7.25 | -3.25 | |
| 2008 | -11.50 | 8.50 | 6.75 | -3.25 | |
| 2009 | -13.75 | 10.25 | | | |
| Total | -34.50 | 27.50 | 22.50 | -13.75 | |
| Average | -11.50 | 9.17 | 7.50 | -4.58 | 0.58 |
| Adj | 0.15 | 0.15 | 0.15 | 0.15 | |
| NewAvg | -11.65 | 9.02 | 7.35 | -4.73 | 0.00 |

Forecast

| | | | | |
|---|---|---|---|---|
| 2009 | 3 | 73.50 | 7.35 | 81 |
| | 4 | 73.50 | -4.73 | 69 |
| 2010 | 1 | 73.65 | -11.65 | 62 |
| | 2 | 74.00 | 9.02 | 83 |

**Required:**

**Write a briefing paper for the managing director that:**

**a** **Explains and evaluates the spreadsheet used by the sales forecasting team.** (12 marks)

**b** **Analyses the quarter 2 – 2010 performance of CoolFreeze.** (13 marks)

**(25 marks)**

**4** DRB Electronic Services operates in a high labour cost environment in Western Europe and imports electronic products from the Republic of Korea. It re-brands and re-packages them as DRB products and then sells them to business and domestic customers in the local geographical region. Its only current source of supply is ISAS electronics based in a factory on the outskirts of Seoul, the capital of the Republic of Korea. DRB regularly places orders for ISAS products through the ISAS web-site and pays for them by credit card. As soon as the payment is confirmed ISAS automatically e-mails DRB a confirmation of order, an order reference number and likely shipping date. When the order is actually despatched, ISAS send DRB a notice of despatch e-mail and a container reference number. ISAS currently organises all the shipping of the products. The products are sent in containers and then trans-shipped to EIF, the logistics company used by ISAS to distribute its products. EIF then delivers the products to the DRB factory. Once they arrive, they are quality inspected and products that pass the inspection are re-branded as DRB products (by adding appropriate logos) and packaged in specially fabricated DRB boxes. These products are then stored ready for sale. All customer sales are from stock. Products that fail the inspection are returned to ISAS.

Currently 60% of sales are made to domestic customers and 40% to business customers. Most domestic customers pick up their products from DRB and set them up themselves. In contrast, most business customers ask DRB to set up the electronic equipment at their offices, for which DRB makes a small charge. DRB currently advertises its products in local and regional newspapers. DRB also has a web site which provides product details. Potential customers can enquire about the specification and availability of products through an e-mail facility in the web site. DRB then e-mails an appropriate response directly to the person making the enquiry. Payment for products cannot currently be made through the web site.

Feedback from existing customers suggests that they particularly value the installation and support offered by the company. The company employs specialist technicians who (for a fee) will install equipment in both homes and offices. They will also come out and troubleshoot problems with equipment that is still under warranty. DRB also offer a helpline and a back to base facility for customers whose products are out of warranty. Feedback from current customers suggests that this support is highly valued. One commented that "it contrasts favourably with your large customers who offer support through impersonal off-shore call centres and a time-consuming returns policy". Customers can also pay for technicians to come on-site to sort out problems with out-of-warranty equipment.

DRB now plans to increase their product range and market share. It plans to grow from its current turnover of £5m per annum to £12m per annum in two years time. Dilip Masood, the owner of DRB, believes that DRB must change its business model if it is to achieve this growth. He believes that these changes will also have to tackle problems associated with

– Missing, or potentially missing shipments. Shipments can only be tracked through contacting the shipment account holder, ISAS, and on occasions they have been reluctant or unable to help. The trans-shipment to EIF has also caused problems and this has usually been identified as the point where goods have been lost. ISAS does not appear to be able to reliably track the relationship between the container shipment and the Waybills used in the EIF system.
– The likely delivery dates of orders, the progress of orders and the progress of shipments is poorly specified and monitored. Hence deliveries are relatively unpredictable and this can cause congestion problems in the delivery bay.

Dilip also recognises that growth will mean that the company has to sell more products outside its region and the technical installation and support so valued by local customers will be difficult to maintain. He is also adamant that DRB will continue to import only fully configured products. It is not interested in importing components and assembling them. DRB also does not wish to build or invest in assembly plants overseas or to commit to a long-term contract with one supplier.

**Required:**

**(a) Draw the primary activities of DRB on a value chain. Comment on the significance of each of these activities and the value that they offer to customers.** (9 marks)

**(b) Explain how DRB might re-structure its upstream supply chain to achieve the growth required by DRB and to tackle the problems that Dilip Masood has identified.** (10 marks)

**(c) Explain how DRB might re-structure its downstream supply chain to achieve the growth required.** (6 marks)

**(25 marks)**

**End of Question Paper**

# Answers

**At the Professional level 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 nevertheless, 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 could be written by 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, socio-cultural, technological, environmental and legal. However, these influences are inter-linked. For example, political developments and environmental requirements are often implemented through legislation. Candidates will be given credit for defining the main macro-economic influences that affect NMS, rather than the strict classification of these in the PESTEL framework.

Political

The political environment in which organisations operate is very significant. Political parties may encourage or discourage economic activity through taxation policies and legislative programmes.

NMS is based in a stable, prosperous country, where successive governments have valued and encouraged technology. Tax incentives and grants are given to companies that invest in technology and in research and development. Tax credits are also provided to companies that invest in research and development. These incentives are open to NMS, its domestic competitors and its domestic customers. The government has also promoted the use of technology through a well-publicised awards scheme. NMS is a recent beneficiary of such an award – for "technological innovation in data communications".

The scenario suggests that the government itself is a major investor in communications technology. This technology has to be delivered through equipment that meets certain standards of reliability and compatibility. The government has put an approval process in place to ensure such standards. Such a process should ensure that technically inferior goods do not make it into the market place.

The current political environment wishes to protect its citizens who are employees, by enacting legislation concerning employment hours, conditions and reward.

Economic

The stage or phase of the economic or business cycle clearly affects customer buying decisions. The case study suggests that 2010 saw a downturn in the domestic economy which resulted in a reduction of customer commitment to long-term investment. Customers may postpone their buying decisions, although if innovative products bring cost and communication advantages then they will eventually have to invest in them.

Despite worsening economic conditions, labour costs remain high in Elsidor and the company may have to re-consider their commitment to manufacturing in the country.

Socio-cultural

It appears that electronic communication and information exchange will continue to increase with implications for companies supplying products and systems to meet these growing needs. All evidence suggests that the social use of services on such networks will increase. Hence, although demand appears to be currently dropping off, new social uses for telecommunication networks might spark off a new wave of investment.

Technological

Technology is a significant factor in shaping the life cycles of existing products and the introduction of new ones. The technology sector is extremely innovative, with new and improved technologies constantly emerging. NMS must scan the external environment for such technologies and identify how they might affect the future of their current products. NMS must also consider how such emergent technologies might be used in their own products. The forecast that increased sales will come from currently installed networks rather than from the installation of new networks is also relevant here.

Environmental issues

Green issues have an increasing impact on organisations, particularly in prosperous developed countries. The reduction of emissions and improvement of re-cycling are likely to be reflected in socio-cultural trends and enshrined in legislation. The cost of waste disposal is also increasing. All these issues combine to increase the costs of manufacture and affect the competitiveness of the company in its market place.

Legal

NMS operates in a country where there are laws defining employer responsibilities and employee rights. It is likely that such regulation will continue and NMS, like all companies working in Elsidor, have to evaluate the benefits and costs of working within such constraints. Some organisations seek to gain competitive advantage by moving to countries where regulation is more lax and hence avoid the compliance costs incurred by their competitors. The case study scenario suggests that NMS has significant international competitors. It is likely that some of these will be based in countries where employment and other legislation are less onerous.

Summary

In the context of the case study scenario, it is political, legal and economic factors that significantly affect NMS. However, as a technology company with significant investment in research and development, NMS must continue to scan the technological environment to identify trends that could undermine, enhance or replace their products.

**(b)** Michael Porter provides, through his five forces framework, a useful way of analysing the competitive environment of NMS. Analysis suggests that the following key factors are shaping this environment. Other appropriate models and frameworks could be used and appropriate credit would be given.

Bargaining power of buyers

NMS is competing in two discrete market places. In the data communications component market it where it has less than 1% of the market share it is, at best, a supplier of marginal significance. The customers are OEMs, large industrial buyers who are likely to demand a testing combination of low prices, high quality and reliability. They are unlikely to tolerate the late delivery of orders. It appears that alternative sources of supply are readily available and that switching costs are relatively low. This combination of circumstances suggests that OEMs have significant bargaining power in this market place. This is particularly true for the OEM who currently accounts for 40% of NMS' current sales.

In the second market place, where network management systems are supplied to large end users, the buyers appear to have less bargaining power. NMS is catering for each customer's specific needs and so each solution is, to some degree, a bespoke solution. This makes it much harder for buyers to compare products and prices of potential suppliers, unlike in the commodity-like data communication component market. Alternative sources of supply are much more difficult to find as there only two or three companies in this specialist marketplace. Furthermore, the product purchase is likely to represent a relatively small part of the buyer's overall investment in information and communication systems. Reduced bargaining power makes this product less price sensitive and so provides an opportunity to generate good margins. Large international customers are likely to be cautious about moving to new suppliers.

The bargaining power of suppliers

It seems unlikely that NMS will be able to exert much influence on it suppliers. They are purchasing semiconductors and microprocessors from major global companies, who probably have well-known and powerful brands. NMS, as a small company, will not have the power to exert buyer pressure on its suppliers, either in terms of price or delivery. Current problems associated with the delivery of components are having a significant impact on the company's ability to meet customer deadlines and expectations. Clearly an audit needs to be made of supplier performance and the opportunity, or otherwise, for NMS to concentrate on suppliers able to deliver on time. However, for a small company like NMS, the supplier appears to be in an excellent bargaining position.

If labour is seen as a supplier, then evidence again suggests that NMS is in a relatively weak position. The scenario notes the difficulty of finding high calibre staff with NMS's "small size and location making it difficult to attract the key personnel necessary for future growth".

Threats from new entrants

NMS is operating in an industry where the costs of entry are significant because it is capital and knowledge intensive. NMS has shown that there is a place for smaller innovative companies able to identify and exploit specialist market niches. Economies of scale compel new entrants to enter at significant output levels or suffer a cost disadvantage. The products are complex and there is likely to be a significant learning curve with costs only falling as volume builds up over time.

The need for government approval of new data communications components creates an approval process that is both lengthy and expensive and so creates a significant barrier to new entrants. New entrants may be discouraged by the uncertainty surrounding the industry, in terms of technology, user acceptance and the R&D investment necessary to create components and systems compatible with OEM's equipment and end user systems. Furthermore, the need to offer comprehensive after-sales support, although a problem for NMS, does also create a significant barrier to new entrants.

Finally, the exit costs and barriers to exit in the shape of industry-specific knowledge, skills and assets reduce the attractiveness of the marketplace to new entrants.

Threats from substitutes

High technology industries are, by their very nature, prone to new technologies emerging that threaten and then eventually replace the established technology. Hence it is very important that companies in such industries constantly scan the external environment to identify and anticipate such threats. There is evidence that large, successful, high technology companies are particularly vulnerable to ignoring the challenge from disruptive new technologies. However, the small size of the NMS may give it a competitive advantage in its ability to respond quickly and flexibly to change.

Rivalry amongst competitors

Very different levels of competition are being experienced in the two market places NMS is operating in. Unfortunately the financial data given does not separate out the revenue and costs for each market place. However, it is clear that the high-volume, low-margin component business offers intense competition with buyers who are able to use their size to extract favourable prices. NMS has less than 1% of the home market and there are over twenty competing suppliers, some of whom have significant international presence, with a dedicated, geographically distributed support team. The ability of NMs to generate better market share and volumes through product innovation in this market seems highly unlikely. Competitive rivalry is high when there are many competing firms and the costs of leaving the industry are high.

The intensity of rivalry in the network management systems market is significantly less because there are only two or three competitors in this specialist market. NMS is dealing with a small number of large end users, designing products specific to their needs. In Porter's terms, NMS are adopting a focused differentiation strategy. In these low-volume, high-margin markers the emphasis has to be on increasing the volume side of the business, but at the same time making sure that they have the resources to handle new customers.

**(c) (i)** The financial data shows revenue climbing to a peak in 2009, before falling away (by about 10%) in 2010. During this period the percentage of sales from international contracts remained fairly constant. NMS is still overwhelmingly dependent on the domestic market, accounting for about 92% of revenue.

Although 2009 was a record year for revenues, increased cost of sales meant that gross profit declined slightly. Indeed the gross profit margin has declined every year in the period under consideration, and the reasons for this need to be investigated.

| | 2010 | 2009 | 2008 | 2007 |
|---|---|---|---|---|
| Gross profit margin (gross profit/revenue) | 30.42% | 34.04% | 38.24% | 40.63% |

Unfortunately the financial data does not distinguish revenues and cost of sales between the three distinct product/service areas. However, the scenario suggests that gross profit margins of 40% are being achieved in the network management systems area. If this is so, then the gross profit margin on data communication components is clearly significantly lower.

In 2010, overhead costs were reduced, but at a slower rate than the fall in revenue. This led to a dramatic fall in the net profit margin. Again, analysis shows that the net profit margin has also declined every year in the period under consideration. In general, this fall has mirrored the decline in the gross profit margin. However, the rapid fall in 2010 suggests that operating costs have not been brought under control to reflect the sudden sales decline.

| | **2010** | **2009** | **2008** | **2007** |
|---|---|---|---|---|
| Net profit margin (net profit before interest and tax/revenue) | 2.29% | 7.52% | 10.29% | 11.46% |

The number of staff employed in 2010 was exactly the same as the previous year. This has meant a rapid fall in the sales revenue per employee.

| | **2010** | **2009** | **2008** | **2007** |
|---|---|---|---|---|
| Sales revenue per employee | 90 | 101 | 113 | 107 |

Finally, the companies order forward order book has also reduced over the period. In 2007 it stood at 73% of sales revenue. This has declined to 37% by 2010.

The overall financial picture is of a company that failed to control costs as it sought increases in revenue. This appeared to work relatively well whilst revenues were increasing (the company was profitable in 2007, 2008 and 2009) but it was a problem as soon as revenues dropped. Costs were not cut at the same rate as revenue decline, leading to a trading loss in 2010.

**(c) (ii)** Ray Edwards has effectively undertaken an informal time to payback calculation. His assertion that the machine will pay for itself after five years is correct. A more formal representation of the approach is given below.

All figures in $000s

| **Year** | **0** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|---|
| Cost of the machine | 90 | | | | | |
| Maintenance costs | 0 | 5 | 5 | 5 | 5 | 5 |
| Total costs | 90 | 5 | 5 | 5 | 5 | 5 |
| Reduced staff costs | 0 | 15 | 15 | 15 | 15 | 15 |
| Reduced wastage | 0 | 2 | 4 | 6 | 8 | 10 |
| Energy savings | 0 | 2 | 2 | 2 | 2 | 2 |
| Total savings | 0 | 19 | 21 | 23 | 25 | 27 |
| Carried forward | (90) | (76) | (60) | (42) | (22) | 0 |

There are two issues that need further consideration. The first concerns the approach to investment appraisal. Time to payback is a legitimate approach, but Ray has to be sure that it is a reasonable way of evaluating project investment in the context of NMS. It does not take into account the time value of money and so future cash flows are not discounted, unlike the Net Present Value (NPV) approach. This is significant here, because most of the cash outflows of the project are almost immediate (more than half of the costs are incurred in year zero), whilst significant benefits do not accrue until years three, four and five. If time to payback is acceptable, then Ray has to consider whether the payback time (five years) is acceptable and, more importantly, whether there are other investments within the company which might pay back sooner, given that projects will be competing for limited resources.

Secondly, the costs of buying the new machine are very tangible. However, Ray's classification of benefits requires further consideration. Although all three categories of benefit have been given a financial value, these values are not of the same degree of reliability. Ray has already calculated that less labour is needed to use this machine and has estimated a reduction of $15,000 per annum based on observed performance. This appears to be a relatively tangible financial benefit. In Ward and Daniel's term this is a quantifiable benefit, because sufficient evidence exists to forecast how much benefit should result from the change. Wastage is currently being measured in NMS, but there is a risk of transferring the manufacturer's claims of savings of 'up to 10%' directly to the NMS environment. It is impossible to predict how much

will be saved in advance in the specific context of NMS. It will be possible to measure reduced wastage once the machine has entered into service, but it is difficult to predict accurately in advance. In Ward and Daniel's terms this is a measurable benefit for which a reliable measure currently exists and the improvement can be measured once the machine is working.

The manufacturer claims lower energy costs, but no data is provided. At present, energy costs are measured for the company as a whole, but not for individual machines. It should be possible to do this (and measure it again afterwards) to see if the claimed benefits have been achieved. However, at present the data is at the wrong level of granularity and so the claimed benefits must be an "educated guess" and it will be impossible to reliably allocate any savings to the new machine after implementation. Other elements of energy policy might have had a greater effect.

## 2 Context

The decline in the number of people taking the qualification appears to be a reflection of the maturity of the marketplace. The large pool of unqualified environmental managers and auditors that existed when the qualification was launched has now been exploited. There are now fewer candidates taking the examinations and fewer members joining the EMS. The organisation's response to this has been to look for international markets where it can promote the qualifications it currently offers. It hopes to find large pools of unqualified environmental managers and auditors in these markets.

The scenario suggests that EMS currently has relatively limited strategic ambitions. There is no evidence that EMS plans to develop new qualifications outside its current portfolio. Indeed, attempts to look at complementary qualifications (such as soil and water conservation) have been rejected by Council. Hence, expansion into new strategic business markets does not appear to be an option.

**Strategy Development**

**(a) Internal development**

Internal development takes place when strategies are developed by building on or developing the organisation's own capabilities. It is often termed organic growth. This is how EMS has operated up to now. The original certificates were developed by the founders of the Society. Since then, additional certificates have been added and the Diploma programme developed at the instigation of members and officers of the Society.

In many ways this type of organic growth is particularly suited to the configuration of the organisation, one where there is a risk-averse and cautious culture. The organic approach spreads cost and risk over time and growth is much easier to control and manage. However, growth can be slow and indeed, as in the case of EMS, may have ceased altogether. Growth is also restricted by the breadth of the organisation's capabilities. For example, EMS has not been able to develop (or indeed even consider developing) any products outside of its fairly restricted product range. Furthermore, although internal development may be a reasonable strategy for developing a home market it maybe an inappropriate strategy for breaking into new market places and territories. This is particularly true when, as it appears in the case of the EMS, internal resources have no previous experience of developing products in overseas markets.

In summary, internal growth has been the method of strategy development at EMS up to now, based on a strategic direction of consolidation and market penetration. There is no evidence that EMS is considering developing new products to arrest the fall in qualification numbers. However, the Board has suggested developing new markets for the current qualification range and India, China and Russia have been identified as potential targets. It seems unlikely that internal development will be an appropriate method of pursuing this strategic direction.

**(b) Mergers and Acquisitions**

A strategy of acquisition is one where one organisation (such as EMS) takes ownership of other existing organisations in the target countries. One of the most compelling reasons for acquisition is the speed it allows an organisation to enter a new product or market area. EMS might look to acquire organisations already offering certification in its target markets. These organisations would then become the mechanism for launching EMS qualifications into these markets. In addition, it is likely that these organisations will have qualifications that the EMS does not currently offer. These qualifications could then be offered, if appropriate,in EMS's home market. This arrangement would provide EMS with the opportunity to quickly offer its core competences into its target markets, as well as gaining new competencies which it could exploit at home.

However, acquisitions usually require considerable expenditure at some point in time and evidence suggests that there is a high risk that they will not deliver the returns that they promised. It is unlikely that the EMS will have enough money to fund such acquisitions and its status as a private limited entity means that it cannot currently access the markets to fund such growth. Any acquisitions will have to be funded from its cash reserves or from private equity investment groups. Furthermore, acquisitions also bring political and cultural issues which evidence suggests the organisation would have difficulty with. Under achievement in mergers and acquisitions often results from problems of cultural fit. This can be particularly problematic with international acquisitions, which is exactly the type of acquisition under consideration here. So, although acquisitions are a popular way of fuelling growth it is unlikely that EMS will have either the cash or the cultural will to pursue this method of strategy development. There is no evidence that EMS has any expertise in acquiring organisations in it home market and so such acquisitions overseas would be extremely risky.

**(c) Strategic Alliances**

A strategic alliance takes place when two or more organisations share resources and activities to pursue a particular strategy. This approach has become increasingly popular for a number of reasons. In the context of EMS it would allow the organisation to enter into a marketplace without the large financial outlay of acquiring a local organisation. Furthermore, it would avoid the cultural dislocation of either acquiring or merging with another organisation. The motive for the alliance would be co-

specialisation with each partner concentrating on the activities that best match their capabilities. Johnson, Scholes and Whittington suggest that co-specialisation alliances "are used to enter new geographic markets where an organisation needs local knowledge and expertise". This fits the EMS requirement exactly.

The exact nature of the alliance would require much thought and indeed different types of alliance might be forged in the three markets targeted by EMS. A joint venture is where a new organisation is set up jointly owned by the parents. This is a formal alliance and will obviously take some time to establish. EMS will have to contribute cost and resources to the newly established company, but such costs and resources should be much less than those incurred in an acquisition. However, joint ventures take time to establish and it may be not be an option if EMS wants to quickly move into a target marketplace to speedily arrest its falling numbers. A licence agreement could be an alternative where EMS licenses the use of its qualification in the target market. This could be organised in a number of ways. For example, a local organisation could market the EMS qualification as its own and pay EMS a fee for each issued certificate and diploma. Alternatively, the qualification may be marketed by the local organisation as an EMS qualification and EMS pays this organisation a licence fee for every certificate and diploma it issues in that country. This requires less commitment from EMS but it is likely to bring in less financial returns, with less control over how the qualification is marketed. Furthermore, if the qualification is successful, there is the risk that the local organisation will develop its own alternative so that it gains all the income from the transaction, not just a percentage of the transaction fee.

At first sight, the strategic alliance appears very appropriate to EMS's current situation. The licensing approach is particularly attractive because it seems to offer very quick access to new markets without any great financial commitment and without any cultural upheaval within EMS itself. However, the uptake of the qualification is unpredictable and the marketing and promotion of the qualification is outside the control of EMS. EMS may find this difficult to accept. Furthermore, the EMS will only be receiving a fraction of the income and so it must ensure that this fraction is sufficient to fuel growth expectations and service the newly qualified members in other countries. Finally, there is often a paradox in organisations where internal development has been the strategic method adopted so far. An organisation used to internal development and control often finds it difficult to trust partners in an alliance. Yet trust and cooperation is probably the most important ingredient of making such strategic alliances work.

**3 (a)** I have had the opportunity to analyse the spreadsheet that you provided. My analysis suggests that the forecasting team used moving averages to help them analyse past sales and forecast the future. This is a well-established technique of analysing a time series and you are incorrect in your assumption that it is "not based on a well-accepted approach".

**Explanation of the spreadsheet construction**

The technique is based on averaging figures in the time series. For example, column D is calculated by adding up the first four figures (56,70,74,60) and then adding this total to the total moved on by one quarter (70, 74,60,60). This value is than divided by 8 (the number of values in the total calculation) to give the average value in column E. This represents the trend of the time series.

The figures in column F are the variation of the trend from the actual sales figures. These variations are analysed in part 2 where a seasonal variation is calculated.

This seasonal variation is then subtracted from the total variation of each quarter to determine the random or residual variation (column H)

The author of the spreadsheet has checked that the total of the trend plus seasonal plus random variation comes to the original sales figure (column I).

It is difficult to identify where the forecast figures come from. They are roughly in line with the observed trends and represent a very modest increase on the previous year (less than 1% growth). The forecasting group probably thought they were being very realistic.

**Analysis**

Time series analysis is based on past data. It cannot be used to predict sudden changes in the marketplace. The sales manager had expressed reservations when the forecasts were agreed. His sales staff had already reported that customers were less optimistic about the future because of a weakening economy and the availability of cheap foreign imports. In retrospect, a greater consideration of the external environment should have been included in the overall forecasting approach. Perhaps a number of scenarios should have been considered that took into account changes in the external marketplace.

However, even without such consideration it is clear from the trend figures that growth had been weakening. The growth from 2006 to 2007 (based on the quarter 3 trend figure) was about 11%. In contrast the growth from quarter 2 of 2008 to quarter 2 of 2009 (again based on the trend values) was less than 1%. The final two actual sales figures for 2009 were, in total, exactly the same as the previous year (150 units). This weakening was reflected in the cautious forecasts put forward by the forecasting team. However, there appears very little in the statistical data that suggests that the rapid decline in sales experienced in quarter 2 of 2010 could have been anticipated from the data alone.

The forecasting team might have given further consideration to the sudden increase in random variations in the last three analysed quarters. These might have suggested that the external environment was changing and that other factors were beginning to influence the marketplace. The absolute random variation reported in the last three quarters is greater than that reported in total in the preceding six quarters.

One of the weaknesses of the approach used by the forecasting team is that data from four years ago is given as much weight as much more recent data. This could have been addressed by using exponential smoothing that uses a smoothing constant to reduce the influence of early data considered in the time series. This method uses a series of weights with higher weights given to the most recent data.

Overall, time series analysis is a well-documented way of analysing past data and using it to forecast the future. However, it is suited to a relatively stable situation where historical data is representative. The concerns of the sales manager should have been taken into consideration. Changes in the external environment meant that a technique that had worked well in the past produced optimistic forecasts that could not be achieved.

**(b)** The budgeted sales volume for the second quarter of 2010 was 83 units. Except for warnings from the sales manager, there was no evidence that this would not be achieved. The actual sales for the previous three quarters had been in-line with the forecast and so there was no clear case for the budgeting committee to change its sales forecast.

Flexing the budget allows us to look at the consequences if the planned level of output had been 50 (actual sales) rather than 83 (planned sales).

This flexed budget is presented below.

| | |
|---|---|
| Output (sales) | 50 units |
| Sales revenue | $50,000 |
| Raw materials | ($17,500) |
| Labour | ($16,250) |
| Fixed overheads | ($18,000) |
| Operating profit (loss) | ($1,750) |

The table below compares budget, actual and the flexed budget.

| | Budget | Actual | Flexed Budget |
|---|---|---|---|
| Units | 83 | 50 | 50 |
| Price | $1,000.00 | $900.00 | $1,000.00 |
| Revenue | $83,000.00 | $45,000.00 | $50,000.00 |
| Raw materials | ($29,050.00) | ($15,000.00) | ($17,500.00) |
| Labour | ($26,975.00) | ($15,750.00) | ($16,250.00) |
| Fixed overheads | ($18,000.00) | ($18,000.00) | ($18,000.00) |
| Operating profit | $8,975.00 | ($3,750.00) | ($1,750.00) |

A number of conclusions can be drawn.

**Sales volume**
The sales volume variance for quarter 1 is an adverse variance. The sales manager should be held accountable for this. However, in fairness to him, he had warned of weakening demand at the meeting of the planning committee that set the targets for the four quarters. The reasons appear to be associated with changes in the external environment. Customers are reluctant to invest in new machines or replace old machinery in times of difficult trading conditions. Cheaper foreign imports have also been identified.

**Sales price variance**
The sales price variance for quarter 1 is also an adverse variance. This is due to lower prices being charged. The sales manager is again accountable for this. He has probably discounted prices to compete with cheaper foreign imports. He warned in the scenario of cheaper foreign imports undercutting prices by about 10%. It appears that the sales manager has had to match these prices, as the sales unit price fell to $900 in this quarter.

**Materials variance**
The materials variance is a favourable variance because actual costs ($15,000) are less than the flexed budget $17,500. There may be at least two reasons for this. On the one hand the production manager may have been able to reduce the amount of raw material used in the manufacture of the equipment. This may be possible, although with such a well-established product this seems unlikely. It is more likely that the procurement manger has been able to negotiate lower prices for raw materials. CoolFreeze has had to reduce its prices (reflected in the sales price variance) but this has been partly offset by obtaining lower prices from suppliers.

**Labour variance**
The labour variance is again favourable because actual labour costs were less than the flexed budget. The variance is relatively small; $500. There may, again, be two possible reasons for this. Firstly, that labour costs have been reduced by paying lower rates. This would be the responsibility of the personnel department. This may be possible; perhaps some employees have left and have been replaced by cheaper employees. Alternatively, perhaps the number of hours required to produce each unit has been reduced. This would be the responsibility of the production manager. Further information is needed to come to a firm conclusion.

**Overhead costs**
Fixed overheads have remained as per the original budget.

**Summary**

Your assertion that "we have all made mistakes" seems rather sweeping. The main problems to be addressed appear to be in sales volume and sales price. These are the responsibility of the sales manager. In contrast, raw materials and labour costs have been well controlled with positive variances achieved by the production and procurement managers. Similarly, overheads have been maintained at their budgeted value.

**4 (a)** A simple value chain of the primary activities of DRB is shown below.

| | | | | |
|---|---|---|---|---|
| Handling and storing inbound fully configured equipment<br>Quality inspection | Re-branding of products<br>Re-packaging of products | Customer collection<br>Technician delivery and installation | Local advertising<br>Web based enquiries | On-site technical support<br>Back to base support |
| **Inbound logistics** | **Operations** | **Outbound Logistics** | **Marketing and sales** | **Service** |

Comments about value might include:

Inbound logistics: Excellent quality assurance is required in inbound logistics. This is essential for pre-configured equipment where customers have high expectations of reliability. As well as contributing to customer satisfaction, high quality also reduces service costs.

Operations: This is a relatively small component in the DRB value chain and actually adds little value to the customer. It is also being undertaken in a relatively high cost country. DRB might wish to re-visit the current arrangement.

Outbound logistics: Customer feedback shows that this is greatly valued. Products can be picked up from stock and delivery and installation is provided if required. Most of the company's larger competitors cannot offer this service. However, it is unlikely that this value can be retained when DRB begins to increasingly supply outside the geographical region it is in.

Marketing and sales: This is very low-key at DRB and will have to be developed if the company is to deliver the proposed growth. The limited functionality of the web site offers little value to customers.

Service: Customer feedback shows that this is greatly valued. Most of the company's competitors cannot offer this level of service. They offer support from off-shore call centres and a returns policy that is both time consuming to undertake and slow in rectification. However, it is unlikely that this value can be retained when DRB begins to increasingly supply outside the geographical region it is in.

**(b)** DRB has already gained efficiencies by procuring products through the supplier's web-site. However, the web site has restricted functionality. When DRB places the order it is not informed of the expected delivery date until it receives the confirmation e-mail from ISAS. It is also unable to track the status of their order and so it is only when it receives a despatch email from ISAS that it knows that it is on its way. Because DRB is not the owner of the shipment, it is unable to track the delivery and so the physical arrival of the goods cannot be easily predicted. On occasions where shipments have appeared to have been lost, DRB has had to ask ISAS to track the shipment and report on its status. This has not been very satisfactory and the problem has been exacerbated by having two shippers involved. ISAS has not been able to reliably track the transhipment of goods from their shipper to EIF, the logistics company used to distribute their products in the country. Some shipments have been lost and it is time-consuming to track and follow-up shipments which are causing concern. Finally, because DRB has no long term contract with ISAS, it has to pay when it places the order through a credit card transaction on the ISAS website.

DRB has stated that it wishes to continue importing fully configured products. It is not interested in importing components and assembling them. It also does not wish to build or invest in assembly plants in other countries. However, it may wish to consider the following changes to its upstream supply chain:

- Seek to identify a wider range of suppliers and so trade through other sell-side web sites. Clearly there are costs associated with this. Suppliers have to be identified and evaluated and financial and trading arrangements have to be established. However, it removes the risk of single-sourcing and other suppliers may have better systems in place to support order and delivery tracking.
- Seek to identify suppliers who are willing and able to re-brand and package their products with DRB material at the production plant. This should reduce DRB costs as this is currently undertaken in a country where wage rates are high.
- Re-consider the decision not to negotiate long-term contracts with suppliers (including ISAS) and so explore the possibility of more favourable payment terms. DRB has avoided long-term contracts up to now. It may also not be possible to enter into such contracts if DRB begins to trade with a number of suppliers.
- Seek to identify suppliers (including ISAS) who are able to provide information about delivery dates prior to purchase and who are able to provide internet-based order tracking systems to their customers. This should allow much better planning.
- Consider replacing the two supplier shippers with a contracted logistics company which will collect the goods from the supplier and transport the goods directly to DRB. This should reduce physical transhipment problems and allow seamless monitoring of the progress of the order from despatch to arrival. It will also allow DRB to plan for the arrival of goods and to schedule its re-packaging.

DRB might also wish to consider two other procurement models; buy-side and the independent marketplace.

In the buy-side model DRB would use its web site to invite potential suppliers to bid for contract requirements posted on the site. This places the onus on suppliers to spend time completing details and making commitments. It should also attract a much wider range of suppliers than would have been possible through DRB searching sell-side sites for potential suppliers. Unfortunately, it is unlikely that DRB is large enough to host such a model. However, it may wish to prototype it to see if it is viable and whether it uncovers potential suppliers who have not been found in sell-side web sites searches.

In the independent marketplace model, DRB places its requirements on an intermediary web site. These are essentially B2B electronic marketplaces which allow, on the one hand, potential customers to search products being offered by suppliers and, on the other hand, customers to place their requirements and be contacted by potential suppliers. Such marketplaces promise greater supplier choice with reduced costs. They also provide an opportunity for aggregation where smaller organisations (such as DRB) can get together with companies that have the same requirement to place larger orders to gain cheaper prices and better purchasing terms. It is also likely that such marketplaces will increasingly offer algorithms that automatically match customers and suppliers, so reducing the search costs associated with the sell-side model. The independent marketplace model may be a useful approach for DRB. Many of the suppliers participating in these marketplaces are electronics companies.

**(c)** DRB's downstream supply chain is also very simple at the moment. It has a web-site that shows information about DRB products. Customers can make enquiries about the specification and availability of these products through an e-mail facility. Conventional marketing is undertaken through local advertising and buyers either collect their products or they are delivered and installed by a specialist group of technicians. DRB could tune its downstream supply chain by using many of the approaches mentioned in the previous section. For example:

- Developing the web site so that it not only shows products but also product availability. Customers would be able to place orders and pay for them securely over the web site. The site could be integrated with a logistics system so that orders and deliveries can be tracked by the customer. DRB must recognise that most of its competitors already have such systems. However, DRB will have to put a similar system in place to be able to support its growth plans.
- Participating in independent marketplace web sites as a supplier. DRB may also be able to exploit aggregation by combining with other suppliers in consortia to bid for large contracts.
- DRB may also consider participating in B2C marketplaces such as e-bay. Many organisations use this as their route to market for commodity products.

DRB may also wish to consider replacing its sales from stock approach with sales from order. In the current approach, DRB purchases products in advance and re-packages and stores these products before selling them to customers. This leads to very quick order fulfilment but high storage and financing costs. These costs will become greater if the planned growth occurs. DRB may wish to consider offering products on its website at a discount but with specified delivery terms. This would allow the company to supply to order rather than supply from stock.

**1** Up to three marks for each element of the PESTEL analysis up to a maximum of 15 marks.

The marking scheme is expressed in terms of Porter's five forces framework. Other approaches and frameworks would be given appropriate credit. Up to three marks for considering the perspective of customers, up to two marks for suppliers, up to two marks for the threats of substitutes, up to three marks for the threat of new entrants, up to three marks for competitive rivalry, up to three marks for recognising and defining the three market places that NMS compete in.

Professional marks are awarded as follows – up to one mark for clarity, up to one mark for structure and up to two marks for justifying and explaining an appropriate framework for the analysis

**(i)** Up to two marks for the calculation and interpretation of each of the following ratios – gross profit margin, net profit margin, revenue per employee. Up to one mark for further appropriate points up to a part question total of nine marks

**(ii)** Up to two marks for time to payback issues, up to two marks for identifying drawbacks and suggesting alternatives. Up to four marks for identifying issues about benefit identification and quantification up to a maximum of six marks for this part question.

**(50 marks)**

**2** The question asks for principles and suitability.

1 mark for each relevant point up to a maximum of 8 marks for internal development. There is a maximum of 4 marks for points relating to principles. (8 marks)

1 mark for each relevant point up to a maximum of 8 marks for acquisitions. There is a maximum of 4 marks for points relating to principles. (8 marks)

1 mark for each relevant point up to a maximum of 9 marks for strategic alliances. There is a maximum of 5 marks for points relating to principles. (9 marks)

**(25 marks)**

**3** **(a)** Explanation of the spreadsheet construction – up to 1 mark for each relevant point up to a maximum of 5 marks. Analysis of the spreadsheet model and explanation of the moving average time series – up to 1 mark for each relevant point up to a maximum of 7 marks. (12 marks)

**(b)** Up to 3 marks for the flexed budget
Up to 2 marks for each appropriate variance up to a maximum of 8 marks
Up to 2 marks for overall summary and other considerations (such as overhead costs). (13 marks)

**(25 marks)**

**4** **(a)** 1 mark for each relevant point up to a maximum of 3 marks for the value chain
1 mark for each relevant point up to a maximum of 6 marks for the significance and value of the primary activities.
(9 marks)

**(b)** 1 mark for each relevant point up to a maximum of 6 marks for identifying upstream changes.

1 mark for each relevant point up to a maximum of 4 marks for identifying how these changes address problems experienced by DRB. (10 marks)

**(c)** 1 mark for each relevant point up to a maximum of 6 marks for identifying upstream changes. (6 marks)

**(25 marks)**