

MARK PLAN AND EXAMINER'S COMMENTARY

The marking plan set out below was that used to mark this question. Markers were encouraged to use discretion and to award partial marks where a point was either not explained fully or made by implication. More marks were available than could be awarded for each requirement. This allowed credit to be given for a variety of valid points which were made by candidates.

Question 1

Total Marks: 43 marks

General comments

This is the mini case at 43 marks and also the data analysis question.
It was well attempted.

The scenario relates to an organic fruit farm, KFF Ltd, which grows apples that are either sold to retailers or used in producing its own brand of organic apple juice. To increase capacity, KFF has planted some additional land with a new variety of apple trees and has also started to buy in apples from other organic farmers to use to produce juice. KFF's board is keen to evaluate the success of these strategies against its medium-term business objectives for revenue and profit. A supply chain issue has however arisen as a recent batch of KFF's organic apple juice, made using fruit from one of the new suppliers, was tested by the Food Standards Agency and found to contain artificial pesticides. 20% of the production run has already been distributed to a major retailer and KFF is considering whether to issue a public recall of these bottles, and what it can do to identify such quality problems in future.

(a) PESTEL

Examiner note - Only 3 forces need to be analysed but these need to be justified as Key.
There was plenty of obvious information in the scenario to discuss
Social/Technological/Ecological/Legal. There was less in the scenario to support
Political/Economic

The key forces are:

Social – consumers' attitudes to organic food are changing because of concerns about health and the environment. Organic food is seen to be more socially responsible – it helps address issues around global warming and the environment and reduces concerns about the consumption of harmful pesticide and fertiliser residues. These factors will work to increase industry demand. The accountability of farmers as a result of organic certification is also likely to increase consumer confidence in what they are buying. A focus on the procurement of local goods will benefit organic farmers in their region, as will public sentiment against genetically-modified crops.

Technological – the industry relies on the use of technology to avoid using harmful fertilisers and pesticides. As a result it has developed sophisticated weather management systems and atmospherically controlled growing and storage tunnels. These factors will help increase yields and also reduce the seasonality impact and perishability problems by extending the life of the product through storage, thus benefiting cashflow. Further technical advances may help the industry reduce costs and hence prices, making the products accessible to more consumers.

Ecological (Environmental) – a key factor in the growth of the organic farming industry has been a drive for more environmentally friendly products. Organic farming is seen to be more ecologically sound – the farming methods reduce harmful waste from the manufacture and use of agrochemicals and, since it is often also more local, there is less carbon footprint associated with its distribution. However the need for environmentally friendly farming methods may mean the industry struggles to compete on price with traditional farming methods. The latter may be more pest-resistant due to the use of fertilisers or may be able to achieve greater yields through artificial growth methods. A further environmental issue is the

weather which can have a significant impact on crop quality and yields and which the industry attempts to manage through technology (discussed above).

Legal (Regulatory) – there is significant regulation in the food industry generally and particularly for organic produce. As well as complying with FSA and EU regulations regarding production, packaging and labelling, organic farmers also need to comply with regulations specifying organic farming methods. In addition they need to be approved for and obtain certification, then comply with its terms. There are severe sanctions for breaching regulations, and as a result compliance is critical and costs are likely to be high. Any changes in standards in the future will have an impact on the industry – also different countries have different standards which can be an issue for exports.

Political (there is much less in the scenario to go on for this)

Political factors refer to the attitude and approaches of the government and other parties to the organic farming movement. Any change in government may affect future regulations. The Green Party for example supports changes in the farming industry to make food production more sustainable and protect the environment and its resources; they are also in favour of local food production. Government initiatives to promote sustainability and healthy eating are likely to increase demand for organic products and hence benefit the industry.

Inevitably these are links between political factors and legal factors such as consumer protection regulations and the certification of organic farmers.

Economic –(there is much less information to go on in the scenario for this)

Historically organic produce has been seen as a luxury product and is therefore less in demand when disposable incomes fall. However the move towards organic as a lifestyle choice reduces this risk for the industry, which appears to be in a growth phase. As demand increases there may be pressure to intensify farming operations which may not be consistent with organic methods. Many smaller organic farmers may find it challenging to deal with the size and bargaining power of large retail buyers, which could dictate prices and hence margins. From a financial point of view organic farmers, like traditional ones, are at risk due to seasonality of cashflows and unpredictability of weather.

This requirement was very well answered and was, on average, the best answered requirement on the paper. Most candidates used relevant information from the scenario to justify the importance of their selected PESTEL factor and explain its likely impact on the industry. A common mistake among weaker candidates was to treat PESTEL as if it were a company rather than industry model and/or to discuss relatively unimportant factors. A minority of candidates wasted time by completing a full PESTEL analysis when only three factors were required.

Total possible marks	9
Maximum full marks	9

(b) Data Analysis		
Data Analysis:		
Table 1:	2013	2014
Hectares of KFF orchards yielding fruit	40	55
Tonnes of apples harvested	480	720
Yield (tonnes produced /hectare)	12.0	13.1
Tonnes of apples sold as fresh fruit	288	468
Tonnes of own apples used for juice	192	252
Crop Mix: fruit:juice	60:40	65:35
Tonnes of own apples used for juice production	192	252
Tonnes of apples bought in	-	48
Total tonnes of apples used for juice production	192	300
1 litre bottles of juice produced and sold	96,000	150,000
Bottles produced per tonne	500	500

Revenue: fresh fruit £000	576	889
Tonnes of apples sold as fresh fruit	288	468
Fresh fruit: Revenue per tonne	2,000	1,900
Revenue: juice £000	336	525
Total tonnes of apples used for juice production	192	300
Juice: revenue per tonne £000	1,750	1,750
Juice: revenue per 1 litre bottle £	3.50	3.50
Sales revenue mix: Fruit : juice	63:37	63:37
Cost of sales £000	540	812
Tonnes of apples sold as fruit/juice	480	768
Cost per tonne used £	1,125	1,057
Gross profit £000	372	602
Gross profit per tonne £	775	784
Table 2:	2013	2014
Gross profit margin	41%	43%
Operating margin	12%	10%
Operating costs as % of sales	28%	32%
Interest cover	2.13	1.97
Table 3: Analysis of yield from new trees		
Incremental land	15 hectares	
Incremental apple crop	240 tonnes	
Yield (tonnes produced per hectare)	16 tonnes/hectare	
15 hectares at standard yield of 12 tonnes	180 tonnes	
Increased yield due to efficiency of new planting	60 tonnes	
Table 4: Analysis of changes in revenue 2013-2014		
Revenue generated from additional trees: Strategy 1	£	
Incremental fruit crop: $(468 - 288) \times £1,900$	342,000	
Incremental juice crop $(252 - 192) \times £1,750$	<u>105,000</u>	
	<u>447,000</u>	
Revenue generated from fruit bought in: Strategy 2		
$48 \times £1,750$	<u>84,000</u>	
	<u>531,000</u>	
Revenue lost due to reduction in market price of fresh fruit: $288 \times £(2,000 - 1,900)$	<u>(28,800)</u>	
Total incremental revenue (Note: £1,414 – £912k = £502k)	<u>502,200</u>	
Commentary:		
KFF's profitability is limited by its capacity to meet all the demand for its products. To generate additional capacity, KFF have implemented two new strategies that impact on 2014 results:		
(i) the purchase of land and intense planting of new trees to increase apple production and also improve yields per hectare. The first crop from this was produced in 2014.		
(ii) the decision from 2014 to purchase apples from local farmers to increase juice production. This will increase sales volumes of juice but is likely to reduce the margin if it is more expensive to buy in apples than to home grow them.		
It is not clear whether these strategies will have had a 12 month impact or only affected results for part of the year, and more information would be useful to assess the timing of the change.		

The overall performance of the business in relation to the objectives set is as follows:

	Objective	Actual 2014	Comment
Annual revenue growth	15%	55%	Achieved
Gross margin	45%	43%	Not achieved

On the face of it therefore the new strategies have achieved the required revenue growth, although since this is the first year of impact, the growth achieved may not be sustainable. The gross margin target has not been met, although gross margin has increased from 41% to 43% so it is moving in the right direction.

However further analysis is required, of each strategy, of performance overall and of performance in relation to the objectives.

Strategy 1: New trees:

The purpose of acquiring the land is twofold:

- (i) to increase supply of apples
- (ii) to improve profitability by increasing the yield per hectare

The supply of apples has increased as the new orchard has come on stream, providing an additional 15 acres which in terms of land base increases the capacity of the farm by 37.5%. Ordinarily at KFF's 2013 yield the new land would have produced 12 tonnes per hectare or 180 tonnes of apples in total. The new farming method was expected to increase yields by 30%. In 2014 the new trees actually generated an additional crop of 240 tonnes, 60 tonnes above standard output, which is an increase in yield of 33.33% and resulted in a yield of 16 tonnes per hectare.

As a result the purchase of the land and the switch to more intensive planting appears to have been successful in increasing capacity. Table 4 shows that the fruit grown on the new trees increased revenue by £447,000 in 2014, although as we have no detail on costs we do not know how profitable this was.

A greater proportion of the crop was sold as fresh fruit (65% compared to the previous year's 60%) which perhaps suggests better quality output, but the revenue per tonne fell which, as KFF is a price-taker, is likely to be due to market factors.

Strategy 2: Purchase of other fruit:

During the year KFF acquired 48 tonnes of fruit from neighbouring farms, which it turned into juice and from which it generated £84,000 extra revenue. The additional volume of bottles did not have any impact on the price per bottle, which remained constant at £3.50 and therefore suggests strong demand.

Again more information on the costs of buying in and processing the fruit would be useful. Also there is now some doubt about whether all fruit bought in met the required organic standards, and this may give rise to concerns over this strategy in the future.

Success of strategies:

No breakdown is given of the costs of either strategy. In total, they have allowed KFF to increase revenue by £531,000 in 2014 (58% of 2013 revenue). The actual revenue increase of 55% (or £502,000) is lower because the market price for fresh fruit has fallen from £2,000 to £1,900 per tonne in 2014.

Overall the revenue mix of fresh fruit and juice has not changed.

The increase in revenue of 55% exceeds the objective of 15%. However this type of growth would be expected in the first year of the capacity increase. The objective is for annual revenue growth of 15% but it is not clear whether that is expected to be each year or on an average basis. In 2015 KFF will only be able to generate more revenue by purchasing additional apples for juice or adopting more new farming methods to increase yields.

Profitability

The gross profit margin has increased overall. Purchasing fruit is likely to have reduced margin on the bottles of juice which incorporate it. The increased yield per hectare will have an upward effect on margin, although this may depend on how expensive the new farming method is. The fact that the cost of sales per tonne has fallen from £1,125 to £1,057 implies that the net effect has been positive.

In order to assess the profitability of the decisions, it would be useful to know:

- the cost per hectare of farming the new trees on the new land compared to the existing trees on the existing land
- the cost per tonne that KFF has had to pay to buy in the fruit

Although the gross margin has increased, the operating margin has fallen from 12% to 10% which is due to increased operating costs.

Thus £502,000 of additional revenue has generated £230,000 of additional gross profit but only £33,000 of extra operating profit. More information is needed about the increase in operating costs.

Cash flow

Interest cover has fallen from 2.13 times to 1.97 times because of the 40% increase in interest costs. The customer mix may have changed and the additional sales may have come from retailers who have dictated longer credit terms. Thus the business' cash position has deteriorated and interest charges have increased. More information on cash flows, and on KFF's capital structure, would be useful.

Further details:

To better explain performance, the business needs to analyse costs between the old and the new trees and also separately analyse the profitability of the two product lines, juice and fresh fruit.

Management accounts for 2014 showing monthly statement of profit or loss and cash flow would help better assess the seasonality of the business and also the impact of the new strategies.

The data analysis requirement was well attempted by the majority of candidates. Most were well practised at providing a table of up-front calculations and a list of additional information, although this was not always tailored to the scenario. The key to a good answer was to identify appropriate financial and operational calculations which would help determine the impact of each strategy separately: both the planting of the additional trees and the purchase of apples from other farmers. The better candidates did this, providing calculations to assess the impact of the additional land capacity and the change in yield, and structuring their evaluation under two separate headings. Weaker candidates were poor in this regard, merely providing calculations of changes in financial figures, within their narrative, and evaluating the performance of the company overall, rather than the impact of each strategy against the objectives that had been set. The best candidates recognised that there was sufficient information to assess the revenue impact of the strategies but not their overall profitability.

Total possible marks	18
Maximum full marks	20

(c)(i)

Ethics pertains to whether a particular behaviour is deemed acceptable in the context under consideration. In short, it is 'doing the right thing'.

In making any ethical evaluation it is first necessary to establish the facts. In this case, it would seem that the facts are reasonably clear in terms of a batch of KFF juice being identified as containing non-organic pesticides and the fruit having been traced to a supplier. What is uncertain is how KFF should react to this.

Given the extensive regulations affecting the organic food industry, the issue of legality needs to be considered and legal advice taken by KFF as to its responsibility. Although the fruit concerned may have come from another farm, the juice is sold under the KFF brand and KFF are likely to be held responsible for the breach by the FSA, which may apply sanctions. KFF may face losing their organic certification, which may require that everything they sell should be 100% organic.

Joe Fielding appears to be prepared to behave ethically in relation to the undistributed product, which would be relabelled and sold as non-organic, presumably at a lower price. It is the action suggested in relation to the bottles that have already been distributed which raises ethical issues.

In making a decision as to how to proceed, it is helpful to apply the Institute of Business Ethics three tests:

- Transparency
- Effect
- Fairness

Transparency – a public recall of the juice already distributed would be transparent and in the public interest. It would be consistent with the reputation KFF has built as an ethical farm. Keeping quiet about the bottles that have already been distributed and only addressing the remaining inventory is less transparent and KFF should consider whether it would mind people (existing customers, regulators, employees) knowing that it has taken this action. Lack of full disclosure may in fact not be an option as it may be imposed by the regulator as a matter of public interest.

Effect – A full recall may embarrass KFF and the retailer but would prevent harm to the end-consumers. The effect of a partial action would be to keep information from the retailer, and consumers who have already bought the juice would suffer due to KFF acting in its own and not the public interest. As a minimum this would be because consumers pay higher prices for organic juice which is in fact non-organic. More serious, although perhaps less likely, is the fact that their health may be affected by the consumption of pesticide residues.

Fairness – It is likely that competitors, the retailer and consumers would not take kindly to the fact that KFF has knowingly deceived them and mis-represented its product.

Actions

KFF should be guided by legal advice and its discussions with FSA, and should co-operate in all investigations made by the FSA. The matter may be of sufficient seriousness for FSA to apply sanctions.

The best action would be for KFF to act honestly and with integrity, making a full disclosure of all the facts. Even if the FSA does not require disclosure, KFF should consider doing so, to avoid further damage to its reputation.

KFF should then have discussions with the supplier concerned to establish how the use of non-organic pesticides has arisen and why it was not detected. It may have recourse against the supplier depending on the contractual terms.

Having made the suggestion that the company should be dishonest, the board should consider discussing with Joe Fielding the importance of ethical behaviour, and should review

the company's overall culture to ensure that all staff are in line with the importance of maintaining ethics and also the organic status of the company's produce.
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This requirement was well answered. The ethical issues relating to the possible production and sale of non-organic juice were reasonably easy for most candidates to identify. The vast majority of candidates also recognised that there was a legal/regulatory issue here given the FSA and the need for organic certification. Some candidates restricted their marks by not providing clear actions. Better answers distinguished between the actions that might be appropriate in respect of the contaminated juice that has already been distributed and the action that the company should take regarding the remaining bottles.

Total possible marks	8
Maximum full marks	9

(c)(ii) Control procedures and information systems

Given the nature of KFF's business, quality is a critical success factor. Quality assurance and quality control are critical to standardise the quality of fruit and juice products and also ensure that they are safe to consume.

Even if KFF was not an organic farm, the requirement to produce safe foods in a hygienic way is part of the law and there are serious penalties for contravening hygiene and food safety legislation.

In creating a new relationship with suppliers, KFF should establish a service level agreement, agreeing not just on the financial terms of supply but also on key targets/standards that need to be met and the consequence of not doing. Any expectations that KFF has in relation to ethics and sustainability and the need for suppliers to conform to KFF's policies in these areas would need to be set out.

Suppliers should be selected based on their experience and the quality of their products. Clearly verifying a supplier's organic certification and credentials would be a critical step in early due diligence, before contracts are agreed. KFF should carry out an annual inspection visit where the supplier is required to confirm that organic standards have been met. If suppliers are local then occasional drop-in visits may be feasible.

Once a supplier has been contracted then a key control procedure is to measure and monitor supplier performance. Joe is correct that early detection of problems is desirable but costs (both financial and reputational) are generally lower if KFF is able to prevent defective output rather than simply detecting it.

KFF should go through each stage of processing, from purchase of apples and other ingredients/packaging products to the bottling of the final juice, to identify where factors exist that could influence either product quality or safety and then devise procedures that control those factors.

Quality assurance focuses on procedures and standards that will ensure product problems are eliminated or minimised during the production process. In KFF's case this might include inspecting or sample testing fruit that is bought in, before using it in production, in the hope that any poor quality fruit is identified and rejected or that any traces of pesticides would be identified.

Fruit that is to be stored before use might need testing on arrival at KFF and then inspecting again after storage but before use. Any bottles, caps or other items involved in the juice production should also be inspected and tested, since these may cause quality issues.

Quality control is associated with checking a product after it has been produced and this might involve sample testing bottles of juice from every batch of production. Even if there are no pesticide issues, this may be a good idea to ensure consistency of the product over time in relation to flavour, appearance etc.

Given the importance of local reputation, the need for certification and the high level of regulation in the industry, KFF would be advised to apply quality control procedures to all its own fruit and juice production, as well as to suppliers' fruit, if it is not already doing so.

If it is unable to expand its own capacity, then for long-term sustainability of the farm, KFF needs to establish partnerships with local farmers which are transparent and add strategic value.

An information system can be used to enhance this, not just from the point of view of supplier control and monitoring but also for measuring KFF's own performance, by capturing a range of data.

An information system can track performance overtime, and may be useful in identifying trends or detecting early warning signs of future problems. It also provides KFF with evidence for its own organic certification and in relation to supplier performance when discussing or renewing contracts with suppliers.

Appropriate operational measures (KPIs) to monitor supplier performance might include:

Quality assurance

Rejection rate of apples per tonne purchased – this could be compared against KFF's own achievement and also across suppliers and harvests

The reasons for reject could then also be broken down as this will help identify and address the cause of the problem eg:

Level of pesticide/fertiliser detected on apple crop

% of apples contaminated eg by insects

% of apples that were mouldy/physically damaged

These would need to be considered in relation to any agreed tolerances that have been established with the supplier but also in relation to organic standard requirements.

Quality control

Rejection rate of bottles per batch of juice

Level of wastage during production process

% of bottles not meeting specifications (weight, volume, appearance, labelling etc)

Other measures useful for supplier monitoring might include:

Tonnes delivered vs tonnes promised

Number of disruptions to production caused due to late delivery/apple shortages

Price per tonne

This was one of the worst attempted requirements on the paper but answers were quite polarised. The main difference in the standard of answers to this requirement related to whether candidates were familiar with the concept of quality assurance and control procedures. Weaker answers simply listed brief checks that KFF could undertake in relation to suppliers. Stronger candidates identified procedures and processes that could be used to prevent and detect quality issues and monitor performance. A significant number of candidates ignored the requirement to suggest some specific KPIs.

Total possible marks	8
Maximum full marks	9

Question 2**Total Marks: 30**

Overall this question was also well attempted.

The scenario concerns Premier Paper Products plc (PPP) a company which prints banknotes and identity documents for a variety of central banks and governments. New technology means that some central banks have recently decided to change from using paper banknotes to polymer notes and PPP's board is unsure whether to invest in the new technology, which has already been adopted by one of its competitors.

(a) CSFs for PPP**PPP's growth****Ansoff**

The Ansoff model is a two-by-two matrix of Products (new and existing) and Markets (new and existing).

PPP started out as a manufacturer of banknotes (existing product) for its country's central bank (existing market). The growth of its business has then come from both geographical expansion and the development of new products.

Market development – existing products and new markets.

The expansion of the banknote production into over 100 countries across Europe and Asia is market development on a geographical basis, as is the sale of security paper to the state-owned printing works which use it to produce their own banknotes. In terms of CSFs, PPP's design skills and innovative security features are likely to have helped it build market share.

Product development – new products and existing markets.

PPP realised that its existing customer base of central banks would benefit from other products. As a result, in 1960, it capitalised on one of its CSFs - its existing customer relationships and contracts - by expanding its product range and moving into the related area of banknote sorting and counting machines and inspection equipment.

Further product development or Diversification - new product, new market

Growth continued with the establishment of a new product range: passports and identity cards. PPP continued to leverage its expertise in designing and printing security paper and its reputation for maintaining security and confidentiality by extending this to government identity schemes. In 2000 PPP won its first contract to print passports and driving licences for its own government and now produces documents for 65 countries.

Although closely related to central bank clients, governments might be said to be a different market and hence this strategy might be deemed diversification.

Lynch Expansion method matrix

The Lynch model is another two-by-two matrix of method of company growth (organic growth and external development) and geographical location (home (domestic) and international).

Under this model, the primary focus for PPP's growth has been through organic growth and international development.

Both banknote and identity card production started with the domestic market, but because the size of this is limited, to achieve economies of scale PPP had to expand internationally, targeting a variety of global central bank and government clients.

PPP's CSFs have allowed it to grow organically rather than through acquisition. It has achieved this by continuing innovation through in-house research and development and also by leveraging its client base.

Critical success factors are the product features that are particularly valued by customers and/or the activities that an organisation must excel at to outperform the competition.

In the case of PPP, a summary of the key critical success factors discussed above that have facilitated its development are:

- Innovation - expertise in evolving innovative and sophisticated security features for paper, notes and identity documents
- Reputation - for the design of high quality, elegant banknotes and for maintaining security/confidentiality
- Relationships and partnerships/contracts with central banks and governments
- Operational excellence in relation to quality, accuracy, reliability

Candidates were asked to assess the ways that PPP has expanded. A number of models could be used here and many were comfortable using Ansoff, though Lynch and Porter's generic strategies were also relevant. The better answers combined their discussion of the various expansion strategies (product development, market development etc) with an explanation of the CSFs that had facilitated each move. Candidates who merely positioned each strategy on the Ansoff matrix and then separately produced a bulleted list of CSFs tended to score less well.

Total possible marks	10
Maximum full marks	11

(b) Key Risks

A variety of key business risks facing PPP's banknote division are set out below:
(Only THREE are required)

Nature of business risk	Impact and likelihood	Risk management
Strategic: Technological change renders the need for banknotes obsolete	<p>Technological developments clearly have a big impact on the industry and are changing the nature of the product and market as the demand for cash reduces and it is replaced by cards and other contactless payment methods.</p> <p>Changes in technology may reduce the volume of business but for the present time it seems unlikely that it will remove the need for banknotes entirely. Also the technology is likely to be adopted at different rates in different markets.</p>	<p>Reduce risk in short term by developing different technologies eg polymer notes so PPP will retain central bank customers even if they switch from paper. May have to accept this as a risk in longer term</p> <p>PPP as a whole has reduced risk by diversifying product range eg identity cards and passports</p>
Strategic: Failure to produce technologically advanced and competitive banknote products	<p>Industry standards and security features are continually evolving.</p> <p>Failure to innovate would likely result in lost market share and lower margins.</p>	<p>Reduce risk through: continued investment in R&D and design, and employment of skilled designers.</p> <p>Consider JV with universities/scientists</p>
Strategic: Failure to win or renew key contracts	<p>Contracts are often long-term so timing of renewal may be predictable.</p> <p>The loss of contracts is likely as this is a competitive environment and contracts are awarded by central banks which can be affected by political factors outside PPP's control.</p> <p>Failure to win contracts may result in PPP operating below optimal capacity, restricting growth and profitability</p>	<p>Reduce risk by maintaining close, trusted relationships with customers.</p> <p>Monitor sales pipeline and undertake production planning to ensure critical mass.</p> <p>Monitor activities of competitors where possible.</p> <p>Maintain brand and reputation for design and operational excellence.</p> <p>Implement/maintain a CRM system and focus on key contracts as they come due for renewal.</p>
Operational: Poor quality product or standards of service damage the company's reputation	<p>Highly technical contracts with very detailed specifications mean this is a key risk. The very public nature of the product and the high profile central bank customer mean that if a problem does occur reputational damage is quite likely, with a serious impact including possible loss of contracts.</p> <p>Poor quality banknotes or errors would require re-working or perhaps contract penalty payments.</p>	<p>Reduce risk through quality assurance/total quality management and operational excellence programmes.</p>

Operational: Product security. A breakdown in security procedures resulting in theft of products from a site or loss of notes in transit	Likelihood: PPP's past history suggests this is reasonably unlikely Impact: PPP may be contractually liable	Reduce risk by: Security screening for all staff. Physical controls regarding site access, material stores etc would reduce the risk on site. Use of stringent controls for personnel and carriers involved in distribution. Transfer risk through Insurance.
Hazard: Loss of a key manufacturing site or inventory at a site eg through fire	Depending on the details of the contract, this may result in litigation. The impact would be severe, the likelihood is unknown.	Reduce likelihood by having preventative measures such as advanced smoke detection and sprinkler systems, plus 24 hour monitoring. Transfer through insurance. Contingency plan for other sites to operate as back-up.
Compliance: Failure to comply with legal or regulatory requirements	Value and nature of product means there is some likelihood here and reputational impact would be high	Avoid/reduce by: Implementing code of conduct and ethics Screening and security clearance for all employees Disciplinary procedures Training in rules and procedures

Examiner Note:

Other relevant key risks were awarded credit. **Only THREE were required.**

The majority of candidates produced a well-structured table, identifying three risks facing PPP's banknote division, although weaker candidates did not always concentrate on the key ones. Some candidates limited their marks by not addressing all elements of the requirement comprehensively eg focussing on the impact of the risk and its management, without considering its nature and likelihood. The strongest answers identified a range of key risks and used the TARA model to identify appropriate risk management strategies. A number of candidates wasted time and marks discussing risks facing PPP as a whole rather than the banknote division.	
Total possible marks	9
Maximum full marks	9

(c) Strategy evaluation	
To:	PPP Board
From:	A Manager, Banknote division
Date:	September 2015
Re:	Polymer bank notes
Factors to consider in deciding whether to invest in the technology to produce polymer banknotes include the following:	
Competition	
Uniquel is currently the only competitor producing polymer notes, but if these are deemed by central banks to be the way forward, then other printing companies are likely to follow suit.	
This will have an impact on	
(i) the demand for PPP's paper product	
(ii) the number of contracts that PPP can retain on renewal	

Likely buyers and their preferences

Potential customers for polymer notes include:

- Central banks who already outsource production to PPP
- Central banks who outsource production to PPP's competitors (private companies or other in-house printers)
- Central banks who currently print in-house

Since a major issue for the industry is security it appears likely that more central banks will move to polymer or alternatively demand increasingly expensive security features for paper notes. A way of ensuring optimal production is to approach other in-house state printing works that do not have PPP's economies of scale and may increasingly find it too costly to keep up with security developments for a small volume of notes.

Environmental considerations

The desire on the part of governments, businesses and consumers to be more environmentally friendly and to promote sustainability may influence the move away from paper to polymer.

Timing of any adoption of new technology

PPP could wait and see to what extent central banks move to polymer as their contracts come up for renewal and make a decision once it has more information. However this will allow Unicel and any other competitors which enter the market to steal market share. Since banknote contracts are long-term (10 years on average) and this may increase, given the seven year lifetime of the new notes, it could be locked out of the market for a long time. PPP must also consider the impact on its reputation for innovation of being seen not to adopt new technology.

Resources and competences

New machinery is required which may necessitate more factory space. In addition it will take time to recruit the appropriate workforce and source suppliers of polymer. PPP is an expert in producing security paper products – it may not currently have in-house expertise to develop, design and print polymer banknotes. Any errors or issues of quality in the early stages of the process may affect its reputation and position in the paper banknote market.

Costs

A contract for paper notes requires production of notes every three years, compared to every seven for polymer. Thus PPP will need to tender for and win new contracts every year or persuade existing customers to switch to ensure efficient utilisation of production facilities.

Other issues to consider if a decision is taken to introduce polymer are:

- Whether to run the two technologies side by side or cease paper production and switch to polymer
- Whether eventually demand for banknotes will cease altogether as payments move to electronic systems in the longer term

Product portfolio

Paper notes appear to be a cash cow product for PPP currently. The question is to what extent demand will decline and to what extent PPP, as a major industry player, might influence this decline by making the move to polymer. The immediate abandonment of PPP's major product seems implausible, however over the next few years sales may decline to the point where paper notes might then be abandoned.

The adoption of polymer notes is at an early stage in the lifecycle. PPP could aim to stay in the paper notes market all the time it is making sufficient returns and as one of the biggest players it has economies of scale which will probably allow it to outlast smaller competitors. However whether in the long term there will be a dual market for both paper and polymer, or whether eventually paper notes will disappear over time in favour of polymer, needs to be considered.

The future of the banknote

The lifecycle of the banknote industry appears uncertain. Changing consumer preferences appear to have reduced demand for traditional cash payment. Thus the banknote division faces a long-term threat posed by phone, card and other digital payment mechanisms. Scenario planning may help to identify future risks and possible strategic responses. However although demand for cash is reduced, it appears likely that it will not disappear altogether and that there may be more demand for cash in some parts of the world than others, because different countries are at different stages in the lifecycle of cash and electronic payment mechanisms.

Conclusion

On balance it appears that there is a sound strategic argument for the introduction of the new technology. However forecasts need to be prepared and a detailed cost benefit analysis/investment appraisal undertaken to assess the incremental effect of introducing polymer.

Most, but surprisingly not all candidates, scored an easy format mark for setting out their answer in the memo format required. Candidates who used sub-headings to structure their answer tended to produce a wider range of points than those who merely listed a range of unconnected factors. Better candidates provided a balanced argument regarding the benefits and problems associated with investing in the polymer technology, linking their answers to the risks identified in (b). Most candidates provided an initial recommendation as to whether the investment was advisable and the best candidates identified the steps that should be taken to reach a decision.

Total possible marks	11
Maximum full marks	13

Question 3**Total Marks: 27**

The third question had the lowest average mark, which was influenced by a number of poor answers to requirement (c).

The scenario relates to a company, TT, which has launched a free smartphone app that allows it to act as an intermediary between private hire taxi drivers and their potential customers in a major capital city. Private hire drivers who pass TT's screening process are issued with a TT smartphone which allows them to be registered and tracked on the TT system. Customers can use the TT app to get a fare quote, book a driver and track their arrival. Fares are set using a dynamic demand-based pricing model and increase when vehicles are in short supply. TT currently retains 20% of the fare as commission. There are rumours that a rival firm is planning to launch its own taxi booking app in the city, and TT is considering cutting its fares by 25% for a limited period of four weeks but is unsure whether to alter its commission.

(a) Cost and value drivers

An organisation's value chain is the sequence of activities by which value is added to its service. This influences the margin a customer is prepared to pay over the costs the organisation incurs in delivering the service.

Within the value chain there can be both cost and value drivers. Whilst cost drivers influence the cost of a given activity, value drivers help an organisation to differentiate itself from competitors. TT's success has been built around its smartphone app which facilitates ease of booking, cashless payment, and improved customer service compared to both Citicabs and existing PHVs. As a result it appears to be following a differentiation strategy.

In the case of TT, the key drivers include:

Examiner note: only three are required

Technology as a value driver of customer service – TT makes widespread use of existing technology (GPS, phone, electronic payments) to add value by making it easier for customers to book a car, track it and pay for it. Using the phone as a meter makes prices more transparent for customers and the payment system is also more secure as drivers do not handle money.

- Technology as a cost driver - The use of the smartphone app reduces the costs to TT of matching drivers and customers since this largely happens without any need for intervention by TT. It means that TT can provide a very high level of customer service at a low cost to itself, connecting customers with the nearest available driver at the touch of a button.
- Procurement (cost driver) – TT's HR model is one of independent contractors rather than employees. While this reduces cost the dynamic demand-based pricing model would also ensure that there is flexibility of supply, as drivers are incentivised to make themselves available when more cars are needed.
- After sales (value driver) - Asking customers to rate journeys and drivers creates a perception that TT cares about the customer experience. The fact that drivers have to score at least 4 out of 5 to be able to continue is likely to give the customer confidence in the quality of the service.
- Customer service (value driver) - Fast booking and reduced waiting times for cars, the ability to track cars and the ease of payment all create an enhanced customer service experience.
- Firm infrastructure (cost driver) - TT operates a low-cost, flexible model. It has little in the way of infrastructure costs (no requirement for investment in non-current assets such as cars) or employment costs of drivers.

This requirement was well done by most candidates, who as usual demonstrated good knowledge of Porter's value chain analysis. The better candidates linked their discussion to TT's generic strategy, identified whether each key driver selected was a cost or value driver, linked it with the relevant aspect of the value chain, and explained how it gave TT a competitive advantage

Total possible marks	8
Maximum full marks	9

(b)

Dynamic demand-based pricing is an attempt by TT to find a price at which supply and demand are equal and hence could be argued to be a market-driven approach.

TT increases the price in periods of peak demand, when the supply of available PHVs is lower than the number of customers. This has the effect of attracting more drivers because the journeys are more lucrative, hence increasing supply, whilst potentially reducing demand temporarily as the more price-sensitive customers decide to make alternative arrangements for their journey or wait until prices fall again. The extent to which this happens will depend on the price elasticity of demand.

Essentially this strategy is similar to one of price discrimination, used for example by railways or cinemas, where prices vary according to the time of day, or dynamic pricing used by airlines, where prices vary according to the actual level of demand compared to what is deemed a normal level.

The model allows TT to extract the maximum possible revenue by charging higher prices to people who are willing to pay more. Whilst some may argue this is unfair to customers, TT is transparent about their approach to pricing and customers have alternative forms of transport and other PHVs/Citicabs available so are making a free choice.

It could be argued that customers benefit as this approach to pricing is not just about exploiting demand but also about incentivising drivers to work at peak times in order to increase supply, thereby offering the customer a better service. Also drivers benefit as they earn more money and are therefore compensated for having to work at times that are perhaps less sociable eg public holidays.

To some extent it is a matter of perception as to which price (the high or low fare) is seen as the norm and therefore whether TT are seen to exploit customers by increasing the price in busy periods, or considered to be offering a discount at quieter times.

Unlike Citicabs, whose prices are fixed by the regulator, TT is free to set its own prices. It would be interesting to see how the maximum prices charged by TT compare to those of Citicabs.

The discussion of the benefits of demand-based pricing was well done by the majority of candidates, with many identifying both demand and supply side factors. The requirement to consider whether this was unfair to customers was less well done and some weak candidates ignored it altogether. Better answers identified that the use of price discrimination is common in many industries. They pointed out that TT's demand-based pricing model will serve to balance supply and demand, facilitate its promise to make cars available in five minutes, and be transparent so customers can choose rivals such as Citicabs if they are cheaper.

Total possible marks	8
Maximum full marks	9

(c) Evaluation of fare reduction strategy:

Current fares received:	£
130,000 x 4 x £10	5,200,000
Split:	
Drivers 80%	4,160,000
TT 20%	1,040,000

(i)

Fares reduced by 25%, demand unaffected	£
130,000 x 4 x £7.50	3,900,000
Split as now:	
Drivers 80%	3,120,000
TT 20%	780,000

TT would lose £260,000 (£780,000 compared to £1,040,000) and drivers would be £1,040,000 worse off (£3,120,000 compared to £4,160,000).

Fares reduced by 25%, demand increases 15%	£
130,000 x 1.15 x 4 x £7.50	4,485,000
Split to maintain drivers' income:	
Drivers	4,160,000
TT	325,000

TT is £715,000 worse off (£325,000 compared to £1,040,000 previously). Drivers are unaffected.

(ii) For neither TT nor the drivers to be worse off, and there to be no change in the 20% commission structure, revenue would need to be maintained at £5,200,000 still.

Where n is the number of journeys: $n \times 4 \times £7.5 = £5,200,000$
Hence $n = 173,333$ (£5,200,000/£30)
This requires an increase in demand of 33.3% for the month.

(iii) Evaluation of fare reduction strategy

	TT £000	Drivers £000
Current strategy	1,040	4,160
25% reduction, no change in demand, 20% commission	780	3,120
25% reduction, 15% increase in demand, maintain driver income	325	4,160
25% reduction, 20% commission, 33.3% increase in demand	1,040	4,160

If fares are reduced by 25%, with no corresponding increase in demand, the total fares received are £3,900,000 and under the 20% commission, both TT and the drivers are worse off: TT would lose £260,000 and drivers £1,040,000.

This is likely to cause drivers to move away from TT and contract with other PHV operators in an attempt to maintain their income levels. A lack of availability of drivers may then affect TT's customer service levels or cause higher demand-based prices.

If fares are reduced and demand increases by 15%, the new fares received are £4,485,000. If TT guarantees that drivers will receive the same income, then TT suffers all the impact of the fare reduction and would be £715,000 worse off than in a normal four week period. However if the increase in demand is permanent as customers stay loyal to TT, then in future months TT's income will increase. Also TT would be able to advertise this to drivers as a reduction in its commission to 7% (£325k/£4,485k) and may actually attract more drivers as a result. This seems a sensible strategy.

For neither TT nor the drivers to be affected by the fare reduction, an increase in demand of 33.3% for the month is required, which seems an ambitious target and may depend on the elasticity of demand as well as the reactions of competitors.

Other factors to consider:

Although the fare reduction may be attractive, in peak periods when the demand-based pricing model kicks in, the reduction may not be obvious to customers and hence may not have the desired effect.

TT's price reduction may lead to a price war in the PHV market, which will end up permanently reducing every operator's prices and hence margins.

The level of demand will be stimulated if demand for TT's product is price-sensitive, but the customer's decision to use TT may be more about ease of use, service, age of customer – in which case the price reduction may not stimulate demand.

Ultimately TT may be prepared to suffer a short-term reduction in income in the hope of strengthening its loyal customer base and ensuring it retains its drivers before the entry of a new rival.

This was the worst attempted requirement on the paper. Candidates seemed to score very well or very poorly. Common mistakes in the calculations included not considering the impact for a 4 week period, confusing the percentage commission with the percentage price reduction and ignoring the constraint of maintaining the driver's income in the second calculation. Many weaker candidates ignored either the calculation element or the discussion element of the requirement completely, limiting the marks available. Better candidates used their calculations as a starting point to discuss whether the strategy was sensible, identifying that the numbers are based on certain limiting assumptions and that wider issues may be relevant.

Total possible marks	11
Maximum full marks	12