



The Chartered  
Institute of  
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## **OPERATIONAL CASE STUDY May 2018 EXAM ANSWERS**

### **Variant 1**

**The May 2018 exam can be viewed at**

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#### **SECTION 1 - Home delivery service improvement**

##### **Comparison of Swift and Safe:**

The potential change in demand between Swift and Safe is very significant and probably due to the different service offers. Swift brings a relevant benefit of additional contribution (after outsourcing fee) from an 8% increase in home delivery demand offset by lost contribution due to a smaller 1% fall in store demand. Safe brings just a 4% increase in demand and additional contribution (after outsourcing fee) from home delivery orders offset by the loss in contribution from a smaller 0.5% fall in store demand. Clearly therefore, the preferred option in terms of increased demand would be to select Swift. We would however need to also consider the outsourcing fee per package offered by each of the companies.

The fee per package charged by the distribution agents is a significant incremental cost which ranges from L\$20 to L\$50 per package depending on speed of service and destination. The fee per package offered by Swift for all options is higher than that offered by Safe, however the speed of delivery offered by Safe is slower than that offered by Swift. This, as discussed above, has an impact on the potential increased demand from the new home delivery service. The overall cost and consequently the relative net contribution will depend on the mix of standard and express parcels.

There is however also potentially a relevant benefit from the delivery charge fee income paid by customers which will increase overall due to higher volumes from the new delivery service. This will obviously be higher if we chose Swift as the preferred partner.

Based on the information given regarding the service agreements, it is clear that Swift will offer the greatest potential for increased revenue from home delivery. However, the outsourcing fee offered by Swift is significantly higher and therefore without further information on the mix of packages between, standard and express and destination, which will enable us to calculate the total expected revenue and costs, it is difficult to reach a firm conclusion.

### **Relevant cost and benefits of outsourcing decision:**

Cash flows are relevant if they arise in the future as a direct consequence of the decision under consideration. In this situation, relevant items are those that change as a result of selecting the option of outsourcing the home delivery supply chain. We need to compare the relevant costs and benefits of outsourcing with the cost of maintaining the current service.

We will need further details regarding the potential net contribution from each of the partners. The costs include in Schedule 2 are considered below.

Note 1: The current staff costs of L\$400,000 will still be incurred and are thus irrelevant as the staff will not be made redundant due to Mansako's current redundancy policy. However, the cost of the temporary staff of L\$500,000 is a relevant benefit as these costs are avoidable. This can be achieved by replacing the temporary staff with home delivery staff that will no longer be needed for home delivery. This however assumes that the staff will be willing to move to other job positions.

Note 2: All packaging costs of L\$200,000 are saved as these are variable and will be included in the delivery agent's package fee. The L\$200,000 is thus a relevant benefit. The value of this benefit will increase as the volume of home delivery orders rise.

Note 3: The costs relating to the share of distribution centre space (rent and utilities) of L\$2,000,000 are unavoidable and therefore irrelevant. We will avoid incremental rental cost of another warehouse of L\$300,000 which is thus a relevant benefit of the decision to outsource.

Note 4: Transport costs of L\$500,000 for home delivery orders are variable; this is a relevant benefit of the outsourcing decision. Of the remaining L\$200,000, 40% is avoidable and therefore is also a relevant benefit, the remaining 60% is unavoidable and therefore irrelevant.

It may also be possible to increase the customer delivery fee for the express delivery service and potentially the improved standard delivery service. It does seem unlikely though that Mansako would pass on all of the extra charge to customers as this is often not well received. It is also possible that the charges might be reduced to stimulate additional order volumes. There would, nonetheless, have to be different prices for the express delivery service and the standard delivery service to differentiate these.

### **Impact of different payment terms**

The two options have very different impacts on the value of our trade payables and working capital levels. Swift's payment terms are relatively long which would increase the overall value of our payables outstanding relative to Safe as would the additional volumes projected for Swift. If we decided to engage Swift, as payables are higher than they would be working with Safe, the value of working capital we would need would be lower, as would the length of the working capital cycle. If we decided to work with Safe, we would have higher levels of working capital relative to working with Swift. Similarly, the working capital cycle would be longer with Safe than working with Swift.

### **Acceptability of paying late**

At Mansako, we currently have a conservative approach to working capital management; this is not consistent with a policy of deliberately paying late. Furthermore, it is unethical to pay our suppliers late; this may cause them difficulties. It is also possible that the supplier would raise their prices to compensate or possible that this would affect Mansako's credit rating.

### **Selecting a partner**

Our previous recommendation was based on the possible impact on contribution. This does not take account of the different payment terms and the resulting impact on liquidity. We should however note that liquidity does not seem to be an issue for Mansako as we have high amounts of working capital particularly cash balances: current assets are almost three times the value of current liabilities. Liquidity is therefore not key to our decision; profitability is the more important criteria for Mansako. Swift would improve our liquidity compared to Safe which may allow us to invest in other working capital such as inventory in order to improve sales. The decision should be based on a calculation which includes the impact of working capital.

The previous recommendation was based on revenue potential from a better service, suggesting Swift. Both options appear to be acceptable from a liquidity and profitability perspective but the decision is unlikely to change as profitability is more important to Mansako than liquidity. The final decision must be informed by a review of all factors such as the reputation of each potential partner.

## SECTION 2 - Capitalisation of expenditure

The rules contained in IAS16 Property, Plant and Equipment and IAS 38 Intangible Assets, allow capitalisation of expenditure on items that are held for use in the production or supply of goods, and expected to be used during more than one period, to be capitalised. Both standards state that future economic benefits should be probable and the costs must be able to be measured reliably. We appear to meet these criteria – the home delivery service project adds value overall and the costs are very clear.

IAS16 contains the rules on tangible assets which are capitalised as property, plant and equipment and requires that we hold these assets at their fair value or cost, net of accumulated depreciation and impairments. The cost will include purchase price and any directly attributable costs incurred getting the asset to its current location and condition necessary for it to be used for its intended use. These typically include site preparation, testing and installation and can include associated legal fees. We can thus include the costs of the sorting equipment and installation.

IAS 38 contains the rules on intangible assets and requires that we hold these assets at cost or fair value less accumulated amortisation. The cost will include purchase price plus any directly attributable costs of preparing the asset for its intended use. The software costs and associated legal fees will be treated as Intangible assets under IAS38 as Mansako has a policy of treating software as intangibles.

The training costs, including overtime, do not meet the criteria, whilst they do potentially provide an economic benefit, the staff could leave and we are not able to control this.

### **Impact on statement of profit or loss**

This project could have a significant impact on the statement of profit or loss in the forthcoming years. Costs will include:

Depreciation – this spreads the cost of the property plant and equipment over the life of the asset. The charge will depend on the depreciation policy, estimation method and any residual value and the portion of the year remaining following capitalisation. We would need to establish the depreciation method, such as straight line or reducing balance. We would also have to estimate the useful life; the longer the life then the lower the charge to each period. In the first year, if the asset is purchased late in the financial year, then the depreciation charge will be lower than if the asset is purchased in the early part of the financial year.

Amortisation – this spreads the cost of the intangible assets such as software over the life of the intangible asset. The charge in the year will depend on the life of the asset which can be difficult to determine and also, in the first year, the portion of the year remaining following the project completion.

Training – the overall costs of L\$90,000 will be included in operating costs within the statement of profit or loss.

## **Steps involved in activity based budgeting**

Activity based budgeting (ABB) is a method of budgeting for activities based on cost drivers. The steps involved in using this technique in this case would be:

1. Establish the activities and an appropriate cost driver for each activity. Effectively GO consultants have given us the relevant activities in picking items along with packing standard and express orders. The cost drivers for these activities are volume based and listed on GO's schedule as the number of item or orders.
2. Establish the estimated time required per activity: estimated for example as 18 minutes for packing each standard order. Whilst GO consultants have provided this, it may be worth checking these numbers once the new operation is established. It is possible that there is a learning curve which will affect the overall timings and that the average is affected by other factors such as phasing over the day.
3. Calculate the budgeted cost driver rate for each activity. This will be found by multiplying the estimated time required for each activity with the (budgeted) cost of that time. There may be a different cost per hour for each of the activities as the average salary of a member of the picking department might not be the same as the packing department.
4. Calculate the overall budget by multiplying the budgeted cost driver rate with the estimated volumes. This will give an overall staff budget which can be flexed according to changes in the planned volume of different order types and overall number of items. There may be an assumption of the average number of items in an order which allows the total number of items to be calculated from the number of orders.

## **Reasons for using the ABB approach**

ABB would help the business develop more accurate budgets which could be flexed for changes in the volume of express and standard parcels. This would create a focus on activities, improve control and better highlight any variances versus what these activities were supposed to cost.

ABB will also focus attention on making improvements which lower both the cost and the cost driver rate. It may be for example that the rate for the express service, per parcel, is higher than we might expect and we can look for ways to reduce the time associated with this service for example by reducing the number of labels needed.

There are also downsides however as it is an expensive system to implement and will require some expertise. In addition, ABB requires lots of information and checking to ensure accuracy, all of which are time consuming. ABB also may have limited use elsewhere as many of the costs in the distribution centre are likely to be general overheads.

An ABB approach would help control and variance analysis in several ways. This approach treats the distribution centre costs as variable and therefore controllable. It follows that we can manage and reduce the costs. This budgeting approach also gives us much better information on the reason for the variance as it may be caused by changes in the mix of standard and express parcels, changes in the time taken to pick or pack an order or changes in the cost of labour versus budgeted rates. The information and control could be further improved if the activities and timings could be split into separate, specific components. In packaging orders, for example, we could split packing costs (which would be driven by the number of items in each parcel) and labelling (which would be driven by the number of parcels).

### **SECTION 3 –Promotional tools**

There are numerous social media platforms that could be used to communicate the launch of the improved home delivery service including twitter (short comments), Instagram photos (potentially of our bags with the details of the home delivery offer) and Facebook (pictures and messages). We could use these platforms to communicate the improved service launch and also details of the services we offer. In addition, we could do market research via the social media sites, for example, on the price that we might charge for the service. Furthermore, we could monitor social media for useful comments or feedback from customers. It would be possible to offer social media users an incentive in return for signing up to news feeds or offering such feedback. There is also the possibility of hosting live discussions, chats, polls and competitions to both raise interest and get valuable feedback on trends and preferences including their delivery requirements.

It is also important to ensure that content is suitable for mobile devices as an increasing number of people access their social media, and indeed purchase, via mobile technology such as phones. Content may have to be separately developed for different operating systems as different mobile devices may need alternative code.

Viral marketing could also be very powerful. This is achieved by encouraging individuals to pass on our message through 'sharing' experiences and thoughts with their own followers which can spread a message very quickly, and to large numbers of people via websites such as YouTube or other social media sites. Celebrity endorsements or connections can be very useful here, driving up numbers of people that will see our content. We would pursue such endorsements to make the most of the social media opportunity.

#### **Recommendation**

Social media is a very popular way to promote to a technology driven target customer and so could be very useful in our case. This could potentially have a very significant positive impact for Mansako. Our target audience are stylish and fashion conscious individuals who appear to be key users of social media. The audience reach is vast; huge numbers of people use these platforms and can be reached at very low cost compared to other forums. Messages can also be spread very quickly and easily changed to keep the content fresh. Ultimately, a decision to use social media will depend on the alternatives but given all of these benefits and no significant issues, there is likely to be a strong case for use of social media and viral marketing to promote the new delivery service.

## **Use of sensitivity analysis**

The net contribution is sensitive to the level of demand following the advert. We could use sensitivity analysis to understand how sensitive the contribution result is to changes in one of the factors driving demand; these being magazine circulation, percentage of people responding to the advert and average spend. We should, for example check the impact on contribution of an increase or decrease in the percentage of people responding to the advert. We should repeat these for each of the alternatives as the results could vary, for example by size of advert. If we can compare the impact of changes on the different options, we can establish which appears to be most sensitive to changes in demand and therefore most risky.

It would also be really helpful to understand how far each variable can change before we make no additional contribution; for example, how much the average amount spent per customer can fall before the campaign breaks even. It is then important to use this to understand whether each of the numbers in the calculation of sales are reasonable – If we need 3% of customers to respond to the advert to break-even, we can ask the question as to whether this is reasonable. This process is important in establishing better estimates of the range of possible results including the worst case, best case alongside the most likely outcome.

## **Limitations of using sensitivity analysis**

Sensitivity analysis would have some drawbacks given that some of the underlying assumptions are simplistic. The model assumes that a change in one variable would not impact another variable whereas, for example, a change in the percentage of readers responding to the advert may well affect the average spend as the size and nature of the group responding also changes. It also only looks at changes in the variables, not how likely these changes would be. In addition, it does not tell us whether we should go ahead. In our example, sensitivity analysis may not give us a clear steer on which advert size is better.

## **Use of probabilities**

If we were able to find out the relative probabilities of a good and a poor result, we would be able to calculate the expected value of a large advert and the expected value of a small advert and use this to guide our decision. This would be fairly simple to calculate, reducing each alternative to a single result which allows us to easily compare options. This method removes the uncertainty and takes account of risk but the probabilities can be subjective. We also should note that it is very unlikely that we would achieve the expected value; indeed, this may not be an outcome that is possible. Furthermore, expected value represents the average outcome of repeated campaigns and in this case at Mansako, we may only plan to run this campaign once.



## **SECTION 4 – Quality costing**

### **Conformance and non-conformance costs**

Quality costs comprise the costs of conforming to quality standards, known as conformance costs, as well as the costs of not meeting those standards which are known as non-conformance costs. Conforming to quality standards will demand costs of both prevention and appraisal. Prevention costs are incurred in ensuring that things do not go wrong and appraisal costs are incurred in checking for quality issues before we see failures, in other words checking that the product conforms to standard. At Mansako, we have incurred conformance costs in the shape of overtime which is driven by appraisal activities. The appraisal comprises checks to compare label data to order data to minimise issues further down the line.

Non-conformance costs can include the costs of both internal and external failure; costs are incurred depending on whether the issue is found before the customer is affected (internal) or after the customer has been affected (external). At Mansako there have been considerable external failure costs in handling returns but also the cost of lost profit from returns, all due to the late delivery of orders. There may also be costs of damage to their reputation and fewer repeat purchases from customers who have received a poor service. In issuing gift vouchers, the real cost to the business for gift vouchers is the cost of providing the product purchased using that gift voucher.

Quality costing aims to lower the overall costs of quality. It aims to do this by spending on conformance costs in order to reduce the costs of failure by a more significant amount. Here at Mansako, the planned system upgrade will for example help to prevent further external failure. Whilst this does suggest that the total costs of quality are minimised at a certain level of error, we should be uncomfortable with any errors at Mansako which is more in line with the zero defects philosophy of total quality management.

### **Quality cost reporting**

Quality cost reporting would deliver management information that tracks the separate quality costs. This style of reporting is typically operated with a total quality management philosophy which demands we get it 'right first time' and deliver continuous improvement. It would have numerous benefits through raising the profile of quality, such as in steering investment towards projects that delivered better quality.

These benefits include more focus on and actions to manage overall quality costs and adverse cost trends. Quality cost reports would allow us to look for opportunities to make improvements and should therefore deliver higher quality to the customer which is critically important in this market. Here at Mansako the costs of failure are considerable and quality cost reporting would therefore be very useful even though the upgrade should largely eliminate errors.

### **Systems implementation**

This is clearly an issue of critical importance. It is important to manage risk by implementing the new system in a way which allows us to be sure that there will be no further issues. It could therefore be helpful to changeover using either a pilot or parallel run to lower the risks. A pilot changeover involves implementing the system in one part of the business, in this case, perhaps in one range or in one country or region. If the upgrade is considered to be working correctly, then we would take a decision to implement it fully. A pilot changeover can

also be implemented retrospectively where the new system is run with old data to cross check against previous systems. Clearly we will be looking for the new system to deliver different results to the old system to eliminate the errors. A parallel run involves running both systems together and comparing results. This can be better when the system is considered key and the business wishes to avoid any further problems: in our case this approach could be useful as the issue is high priority.

It is vitally important to involve users in the development and testing of a new system to gain their support and commitment. We should ask key staff to participate in the design and planning, using their expertise and promoting ownership. We should also select key users, or those with concerns, to support testing in particular user acceptance testing. Furthermore, it is important to communicate updates to all affected staff and stakeholders emphasising the benefits compared with the old system to encourage acceptance.

In addition to the changeover method and staff involvement, there are a number of factors which can reduce the risk of project failure. It is important firstly to test thoroughly before implementation: this can involve user acceptance tests and volume tests to ensure that the system meets the users' needs and in this case, solves the issue. Many other key success factors are around robust project planning, including detailed project plans. Project management will also be key to ensure there are clear responsibilities, sensible deadlines, adequate resource and management support. It is also important that users receive the necessary training, particularly when there are already issues with user support.