



## **MANAGEMENT CASE STUDY AUGUST 2018 EXAM ANSWERS**

### **Variant 3**

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#### **Section 1**

##### **Big Data analytics**

The starting point would be to identify social media sites where users post photographs and to analyse those sites with a view to identifying photographs that might be taken with a phone camera. The software being used might be able to identify the camera used from data within the photographic file, or exclude photographs on the basis of their file size or the resolution used. The next step would be to establish how many photographs a typical user uploads. Presumably users who post more photographs will be more likely to be interested in a camera that takes better pictures.

The pictures themselves could be analysed using some basic algorithms to identify, for example, whether the photographs are of people. If phone cameras are used to take mainly images of friends and family, then the camera should be set up to optimise portraits.

Big Data analytics could also be used to sift through the comments posted on internet forums relating to the use of smartphone cameras and social media in general. These might highlight areas of concern or ways in which users wish to see their cameras improved.

Montel can also analyse reviews of popular new phones, to establish the frequency with which reviewers mention the camera and the number of words devoted to the camera in relation to the review as a whole. The issues raised by the review might also be picked up with a suitable algorithm, such as whether the comments focus on, say, image quality or ease of use. Montel might also analyse trends in sales, charted against the release of new phones. That might give a better indication of the extent to which the market for small cameras might persist in the face of competition from smartphones.

## **Competitive advantage**

At present, Montel's compact cameras offer better quality than even the best phone cameras. Helping Lim to improve the photos taken by its phones could reduce that quality advantage, thereby making Montel less competitive against the smartphone market.

Other phone manufacturers may be able to enhance their own cameras after learning how Montel overcame the technical challenges of fitting an improved camera into Lim's phone. Montel's association with Lim may also help to establish the concept of phone cameras as a genuine alternative to compact cameras.

It is, however, debateable whether Montel should be concerned about declining sales of compact cameras because that decline is already well established. It would probably be more sensible for Montel to move into this new market as aggressively as it can, with a view to capturing market share.

The Bravo is a best-selling smartphone, so it will be prestigious for Montel to be associated with the brand and with that model. Montel could, potentially, establish a reputation for high quality phone cameras that will be promoted through Lim's marketing efforts.

Branding the phone with Montel's name and logo will create significant publicity for this new product. The subjects of pictures will see this branding whenever their pictures are being taken.

The fact that this will be a new model that will be sold in parallel with a similar phone that has only a conventional camera, should give Montel useful feedback on the popularity of its camera. Montel will have the opportunity to observe sales figures and to obtain feedback from retailers and other outlets.

## Section 2

### Life-cycle costing

The first way in which life-cycle costing might be applied is in designing costs out of the product. The most obvious question that might be posed here is whether the camera really needs a F\$50 lens. It may be that a cheaper lens would be almost as good when fitted into the limited space available in the phone. Even with the innovative lens housing, the phone casing will still be slimmer and more constricted than the compact camera that it will be based on. Montel could easily develop a cheaper lens at very little additional development cost, because it is really a matter of setting a specification.

The next step would be to minimise the time to market for this phone. The market for mobile phones is generally fast-moving, with new product features attracting significant attention. Montel should aim to work with Lim in order to get the new phone to market, before a competitor creates its own phone with an enhanced camera. The key to this may well be in ensuring that the new lens housing can be put into production as quickly as possible.

Finally, Montel should aim to maximise the life of the camera itself so that it gets the maximum benefit from its investment in development. It may be difficult to avoid offering upgrades, because the mobile phone market is driven by fashion, and the market may become bored with the basic specification. One approach would be to offer relatively simple upgrades that would cost little to implement, such as a new sensor with a higher resolution. Lim will then be able to claim that its phone camera has more megapixels than before, but the implementation cost to Montel will, hopefully, be minimal.

### Accounting ratios

In the short term, return on capital employed will be reduced, because of the investment in additional equipment that will be generating revenues for only four months of the year. Hopefully, the problem will be temporary once the new year gets under way and Montel can compare a whole year's production into the following year's figures.

There may also be additional reorganisation costs to get the new equipment into production and that will reduce profits in the short term. If Montel is scaling back production, then there could be redundancy costs. That will further reduce return on capital employed.

The other profitability ratios will also be affected by the margin and royalty that the sales and licensing agreement will yield from Lim. Hopefully, these revenues will replace income that had previously been lost due to the decline of sales of compact cameras and will increase the gross profit percentage, even in the short term.

The additional borrowing will increase gearing, which will make Montel appear more risky. That will essentially be a persistent increase, although it is to be hoped that additional profits over time will lead to an increase in equity, which will offset the increase in debt.

The additional finance charge on the debt will also decrease the interest cover, particularly in the present financial year. Finance charges will increase and the earnings before interest and tax will decrease, which will reduce interest cover and make Montel appear potentially more volatile.

The new product will undoubtedly tie up more cash in inventory and in trade receivables. That could lead to an outflow of cash that will make Montel appear to be less liquid.

## Section 3

### Performance measurement

The Design Engineering Department cannot work independently; it has to work within constraints that are imposed from elsewhere in the management team. For example, Montel's management may ask for an existing model to be upgraded, with a deadline for the assignment and a limit to the total cost of the improvements. It should be possible to tell whether the Design Engineering Department's response met the criteria set by senior management, but it will be difficult to tell whether the design was the best that could have been produced within the limits.

Measuring the impact of Design Engineering will be difficult, because almost any measure could lead to dysfunctional behaviour. For example, the development of large numbers of innovations will reflect a hard-working and capable Department, but there will be a limit to how frequently it is realistic for Montel to update and upgrade its products. Conversely, it is important that Design Engineering should devote some time and effort to speculative evaluation of new ideas and possible improvements, in the hope that some of the knowledge gained will lead to increased revenues. Much of that effort will, of necessity, produce very little observable output against which to evaluate Design Engineering.

The work of the individual engineers will also be difficult to evaluate, because of the need to work in teams. For example, a new camera will require engineers with different areas of expertise, ranging from lenses to electronics. Knowing how much any given engineer contributed to the design effort will be very difficult to determine.

The fact that engineers come from different backgrounds may also mean that some have more scope for making a contribution than others. For example, camera sensors may have reached the point where there is little scope for further development, apart from minor adaptations to suit new models. A specialist in that area may appear to have made relatively little contribution in comparison to, say, an engineer who designed a new type of lens.

### Stock options

IFRS 2 *Share-based Payment* requires that shares issued as payment should be valued in terms of the fair value of the goods or services received. Unfortunately, when the shares are used to reward employees as a part of a remuneration scheme, then there is no realistic way to measure the value of the services received in return for the shares. IFRS 2 requires that the problem is addressed by valuing the options themselves at their grant date. Valuing financial instruments can be difficult, but it will be easier than valuing the work done by the engineering team in return for the options.

The engineers will be permitted to subscribe for shares at the option's strike price, which means that this is an equity-settled share-based scheme.

Accounting for the options requires that Montel determines the fair value of the instruments, which is complicated because these appear to be specific instruments that have been designed for the remuneration scheme. There is no objective fair value, such as a market price that can be observed. Montel should look for traded options issued by companies in the same industry that might serve as a basis for comparison, allowing for differences such as the remaining lives of the options and whether they are in or out of the money. IFRS 2 raises a further complication in accounting for these schemes because they should allow for the number of options that will be vested on 31 December 2021. Montel knows exactly how many options have been granted, but the options may lapse before their vesting date in the event that the engineers resign or are dismissed. It may be possible to estimate the proportion of engineers who will remain over the next three years on the basis of past experience, although that will be complicated by the new share option scheme that could discourage staff from resigning. In the absence of any indication to the contrary, the scheme could be accounted for on the basis that the whole team will remain in place and that all of the options will vest.

## Section 4

### Suitability of IRR

The suitability of an investment appraisal technique should be evaluated on the basis of whether it aligns the investment decision with the maximisation of shareholder wealth. IRR is generally only suitable for examining projects that can be considered in isolation, because a project whose IRR exceeds the required rate of return will yield a positive net present value and so increase shareholder wealth. IRR has several flaws that can lead to an invalid choice between alternatives.

In this case, the IRR criterion would favour Option A. That does not necessarily mean that Option A would create more benefit than Option B. First of all, Option A offers a 17% return, but the initial investment is smaller. The shareholders are being asked to choose between a 17% return on F\$4,200m versus a 14% return on F\$8,400m. It is possible that the latter investment will offer the greater absolute increase in shareholder wealth, because the amount that is being invested is significantly higher.

There is a similar argument arising from the fact that Option A has an expected useful life of only four years, compared to Option B's six-year span. In absolute terms, Montel's shareholders may derive more wealth from a longer-term investment, even if the rate being offered is lower. That concern could be offset to some extent by the possibility that cash flows can be predicted with greater certainty in the shorter term, suggesting that Option A could be both lower risk as well as higher rate of return.

Finally, IRR ignores the fact that Option A appears to suffer from some non-financial constraints that could lead to problems with Lim. The investment offers a higher rate of return, but average demand is expected to exceed the maximum output from Option A's equipment. That might lead to the breakdown of the contract with Lim and so disrupt the cash flows that gave the 17% IRR.

### Negotiation with Lim

As with any negotiation, our starting point should be to clarify the respective positions of the two parties to the discussion. Option B will give Lim greater scope for upside risk in the event of heavy demand for the new phone. Unfortunately, that option also requires Montel to risk an additional F\$110 million, which may not yield any benefit depending on the demand from Lim.

We should recognise that Lim is taking a significant risk itself, because it will have to promote this new phone, which will be expensive. It may leave Lim open to further discussions over the basis for its own forecasts and estimates. If Lim is making a significant commitment of its own, then that may be sufficient to reassure Montel that there is little real need to sign a contract for a minimum order.

If Montel cannot be reassured through that discussion, then it may be possible to reach a compromise with Lim. For example, it may be possible to have Lim order, say, 75 million units to be delivered over the first year of the contract.

That would not protect Montel in the longer term, but it would, at least, protect the company's cash flows in the first year. Having this order will give Lim an added incentive to promote the new phone aggressively at launch and might reassure Montel.

Finally, it might be possible to repackage the deal so that both parties have some reassurance. Lim could, for example, be invited to enter into a joint venture for the ownership and operation of this factory. In that case, Lim would not be forced to commit itself to the purchase of inventory that might prove unsellable, but it would contribute to the initial investment in return for part ownership of the assets.