Business : Specimen Paper 3 (2023)

Devonice Ltd (DL)

Gabriel Romana founded DL in **2012** in **country Y**. He **used his savings** to develop Devonice, a **luxury** ice cream brand made from **natural ingredients**. DL started manufacturing ice cream in a **small factory in 2013**.

Organisation and growth

DL has **grown rapidly**. Gabriel has **increased the product rang**e with **new flavours** of ice cream. In **2016**, DL opened its **second factory** and its **first Devonice ice cream shop** in country **Y**. At present, **most sales are made to supermarkets in country Y.** However, Gabriel has **plans to open more ice cream shops**. He is also considering **selling DL franchise agreements** to **increase export sales**.

Gabriel **enjoys being in control** of the business and intends to **maintain a centralised structure**. Managers of the functional departments **report directly** to Gabriel and **he makes all major decisions.**

The production line project

DL has **two factories**, operating **24 hours a day**. In total, there are **5 production lines** and **200 workers** able to produce **30 million litres of ice cream per year**. **Capacity utilisation** is currently **90%**. To increase capacity and flexibility, Gabriel is considering investing in **computerised production lines**. Gabriel wants this project completed **within 20 weeks** in time for the **summer season.**

The operations manager has prepared a **critical path analysis** (CPA) **for the project** (see Appendix 1 and Appendix 2).

The **operations manager** is **worried about the project**. He told Gabriel: 'This **new system** is **complex** and **untried**. I am also worried about **delays** and the **impact on our workers**.'

Estimated net cash flows of the project (Table 1)

Year	Net cash flow ($m)	Discount factor (8%)
0	(2.5)	1
1	0.5	0.93
2	0.8	0.86
3	1.2	0.79
4	1.5	0.74
5	1.5	0.68

A competitive market

Devonice is now the **market-leading brand** in **country Y** and is **exported** to **10 other countries**. DL's **innovative marketing** and **high quality product** have contributed to sales growth. DL **targets young adults** and has developed a **premium brand image**. Promotion includes the use of **social media**, **school sponsorship** and **celebrity endorsement**. DL also **donates** a share of its profits to **environmental charities.**

Market conditions in country Y are challenging. A **multi-million dollar advertising campaign** by a **global** ice cream brand has **increased competition**. DL **sales have remained stable** but **market share has fallen**. In response, Gabriel is **considering reducing the price** of Devonice or **increasing promotional spending**. The marketing department has estimated the promotional elasticity of demand and price elasticity of demand for Devonice.

Details of demand (Table 2.)

	Price elasticity of demand	Promotional elasticity of demand
Action	Reduce price to supermarkets by 8%	Increase annual promotional spending by $0.5m to $1.75m
Outcome	Demand increases by 10%	Demand increases by 10%

The **marketing manager recommends reducing price** to **widen the market appeal** of the brand and open up new distribution opportunities. However, Gabriel believes this could **damage the brand image**. In his opinion, i**ncreasing promotional spending** is the **better decision.**

Corporate social responsibility (CSR)

Despite **rising incomes in country Y**, there is **concern about health** related problems due to poor diet. In 2020, a **pressure group started a campaign** to persuade food manufacturers to take greater responsibility for the impact of their products. The group **demanded government action** to **reduce sales of food products** high in sugar and fat by:

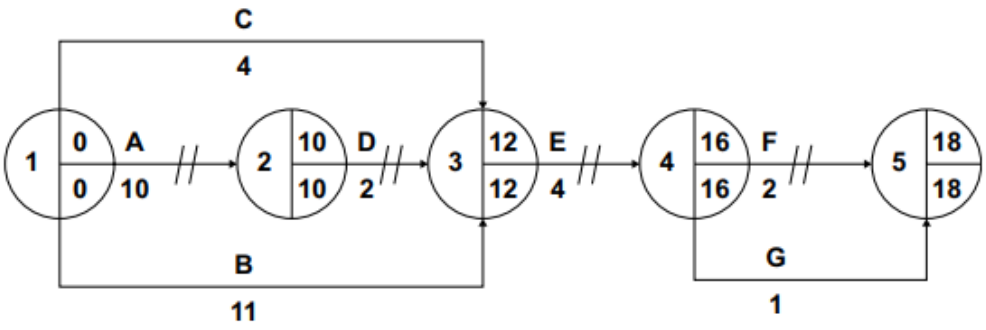
- **regulating product labelling**
- **restricting advertising**
- **introducing a tax** on these products. *(sugar tax)*

DL could **change ingredients** to **reduce sugar content**. However, Gabriel is worried about **consumer reaction**. DL is also **facing pressure** to **stop using palm oil** because of the **loss of rainforest** associated with its production. **Palm oil** helps make ice cream **smooth** and **creamy**. There are **alternatives** DL could use, but these are **more expensive.**

Appendix 1: Critical path analysis (CPA) for the production line project

Activity	Description
A	Run existing production lines at full capacity to increase inventory for changeover
B	Order and delivery of ice cream equipment
C	Order and delivery of packaging equipment
D	Removal of existing production equipment
E	Installation of new production equipment
F	Training of production line workers
G	Testing of production lines

Appendix 2: Network diagram for the production line project



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(1) Analyse two possible advantages to DL of centralisation as the business continues to expand. [8]

Centralization refers to the process of **keeping decision-making power and authority at the top levels of an organization**. In a centralized organizational structure, decision-making is primarily driven by a small group of top-level managers who have a high degree of control over the organization's activities. In the case of DL, the managers of each department report directly to the founder Gabriel, who then makes all the major decisions himself. There are two main possible advantages to DL of centralisation as it grows, including :

(1) Rapid decision making : as Gabriel is not required to consult and ask the opinions of employees before making large decisions, it is a much less bureaucratic process. For instance,

while he may discuss the implications of implementing the computerized production lines with his operations manager, regardless of the operations managers concerns about the project being too complex or risky, Gabriel ultimately has the final say. His 200 production workers must then adapt to these orders, even if they disagree with or dislike the change. Rapid decision making will be a benefit to DL as it continues to grow as due to the arrival of the global ice-cream competitor, it is now more imperative than ever for DL to be able to make quick, strategic decisions in order to keep up and remain competitive to protect DL's premium brand.

(2) Consistency : in centralised organisations, decisions are made by senior managers (in this case Gabriel, and most likely some others) with the interest of the business as a whole, as opposed to being varied across departments. This ensures that policies, strategies and tactics are consistent with the main goals of the business. In the case of DL, the decision to franchise abroad and open more stores in country Y will require consistent marketing in order to ensure DL's brand remains premium. Otherwise, consumers may become confused at an inconsistent brand image and begin to view the company in a negative, unreliable light. For example, as noted by Gabriel, if DL was to take the marketing manager's advice of lowering prices in order to compete with the new global competitor, this would be inconsistent with the ice-cream's current premium brand image.

Other potential answers include :

- Efficient use of resources: By centralizing decision-making, the business can ensure that resources are allocated effectively. This can be particularly important in a capital-intensive industry like ice cream production, where investments in new equipment or production lines can be costly.
- Senior managers at head office better experienced so better equipped to make decisions - can reference marketing managers poor decision making about lowering prices
- Centralisation allows for **central buying** because all purchasing decisions are made by a single authority or department, rather than by multiple departments or locations. This can lead to economies of scale because the central buyer can negotiate better prices and terms with suppliers by leveraging the buying power of the entire organization. This is because suppliers are more willing to offer discounts and lower prices when they are guaranteed a larger volume of business.

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(2) Analyse two possible limitations to DL of using critical path analysis (CPA) when planning the production line project.

Critical path analysis is a project management technique used to identify the sequence of activities that are critical to the completion of a project within a given timeframe (in the case of DL, this timeframe is 20 weeks). It involves identifying all of the tasks that need to be completed, estimating the duration of each task, and then creating a network diagram that shows the

dependencies between the tasks. This allows businesses to identify the critical path of projects, which determines the minimum amount of time taken to complete it.

There are numerous potential limitations to critical path analysis, but the two main ones that may affect DL include :

(1) Complexity - critical path analysis can be a complex process, especially for large projects, such as DL's **implementation of computerised production lines**. It requires significant **resources** and **time** to correctly construct a CPA, and **updates** and **alterations** may be necessary as the project progresses. In the case of DL, the potential complexity of CPA may be a significant limitation for the business as they **aim to complete the project in under 20 weeks** before summertime, likely because the rising heat will lead to more ice-cream sales. The **operations manager** has already expressed concerns about **potential delays** and the **overall complexity** of the project. The fact that there is only **2 weeks of float available** in the CPA further highlights the **importance of accuracy** in the critical path analysis. If the **CPA is not correct and accurate**, DL may **not be able to meet the deadline** for summer sales, resulting in a **loss of revenue** and **potential damage to the business's reputation**. Therefore, DL must ensure that the CPA is meticulously constructed and updated throughout the project to minimize the risk of delays and disappointing consumers.

(2) Limited scope : CPA focuses only on the tasks required to complete a project and **does not consider external factors** that may impact the production time. For instance, in the case of DL, external factors may include its **current workforce of 200 employees** being concerned about potential job losses due to being replaced by computerized machinery, which may lead to them **deciding to go on strike** in order to protest. This industrial action would impact the production completion time of the project, and as there is **only a 2 week float** alongside the fact the protesting **employees would take 2 weeks to be trained**, the project may not be completed within the **20 week framework** before summertime. This may lead to a **loss in sales**, **decline in customer loyalty**, and give DL's **new global competitor** further opportunity to obtain more **market share**. Therefore **effective change management** may be required to ensure employee trust and cooperation.

<u>Other potential answers include :</u>

- Overemphasis on critical tasks: CPA places a lot of emphasis on critical tasks, which can lead to neglect of non-critical tasks.
- Uncertainty: CPA assumes that all tasks have a known duration and are independent of each other, which is often not the case in real-world projects. This can lead to inaccurate predictions of project completion time or cost. DL is undergoing a new project, may be unfamiliar with certain aspects of the production
- Inflexibility: Once a critical path is determined, it can be difficult to change course or adjust the plan if unexpected events occur. This can limit a business's ability to adapt to changing circumstances.
- Other external factors could include economic, supplier, natural disaster etc.

3(a) Using the data in Table 1, calculate the payback period for the production line project. (1)

Payback period = time it takes for net cash inflows from project to pay back initial investment (-)

- 0 years = (2.5) m (initial cost of project)
- 1 year = (2.5) + 0.5 = (2)m
- 2 years = (2) + 0.8 = (1.2) m
- 3 years = (1.2) + 1.2 = **0**

Payback period = 3 years

(b) Using the data in Table 1, calculate the net present value (NPV) for the production line project. [3]

The formula can be written as:

NPV = CF0 + (CF1 / (1+r)^1) + (CF2 / (1+r)^2) + ... + (CFn / (1+r)^n)

where:
CF0 = the initial cash outflow (usually negative)
CF1 to CFn = the expected cash inflows for periods 1 to n
r = the discount rate
n = the number of periods

So :
2.5 + (**0.5** /(1+**0.93**)^1) + (**0.8** /(1+**0.86**)^2) + (**1.2** /(1+ **0.79**)^3) +(**1.5** /(1+**0.74**)^4)+ (**1.5** /(1+0.68)^5)

Dont understand

- Net Present Value (NPV) is a financial measure used to determine the profitability of an investment project by comparing the present value of expected cash inflows to the present value of expected cash outflows over a given period of time, usually several years. It takes into account the time value of money. (money decreases value overtime.)

3(c) Evaluate whether DL should go ahead with the proposed production line project [12]

The decision of whether DL should follow through with the implementation of the computerised production lines in order to increase capacity and flexibility is one that **depends on multiple factors,** which should all be considered before making the final decision. I will **evaluate these factors** and then **conclude with my recommendation.**

Firstly, the **initial cost of investment would be 2.5 million dollars**. Its **payback period** is **3 years,** meaning it would take 3 years for the project to pay back the cost of 2.5 million. Therefore it will **take the project 3 years to start generating profit.** Its net present value is positive however, meaning that over the course of 5+ years it will incur more profit than loss, this is why the project is worth considering. However, it should also always be noted that **financial predictions**, even NPV which takes into consideration the time value of money, should always be looked at with a grain of salt. It is **never 100% possible to predict all the external events** that may impact the profitability of a project. For instance, a natural disaster such as an earthquake occuring in country Y would disrupt the projects production, causing delays and potentially inflicting costly damages. This would reduce the profitability of the project, and DL as a whole. Investing in **contingency planning** may therefore be an option for Gabriel to consider.

DL is currently operating at **90% capacity utilisation**, with **200 workers** and **5 production lines**. Assuming the introduction of computerised production lines will allow them to utilise 100% capacity, this would be extremely useful as it would **produce more ice-cream to be sold and distributed** throughout country Y's supermarkets and the 10 other countries it exports to. Additionally, if Gabriel does decide to open **new stores** and **begin to franchise** DL in other countries, operating at a higher capacity utilisation will **assist in supplying the necessary ice-cream to these stores**. Ultimately, operating at a higher capacity would help DL remain **competitive**, especially against the new global rival in country Y. Although operating at 100% capacity has its clear benefits, there are also potential limitations such as an **overworked workforce** and **reduction in quality**.

Additionally, there are also other details to consider. **$2.5 million dollars is a large investment**, even for a successful, luxury business. The **case study did not mention what form of finance being used**, but the choice of finance used may greatly impact the profitability of the project. For instance, going with an external source of finance such as a **bank loan** may require **high interest rates** which would **add to the costs** of the project, making it less profitable. However, financing it through an internal method of finance such as **retained profits** would mean not having to pay additional interest, but the **shareholders of DL** may receive lower dividends and be displeased.

Finally, the **concerns of the operations manager** should not be dismissed. The critical path analysis of the project produced a **critical path of 18 weeks**, leaving **2 weeks of float**. The operations manager is worried about the impact this project will have on the workforce, assuming they might dislike the change and fear potential job losses. This may cause them to take **industrial action** in protest. If this is the case, as there is only 2 weeks of float, a disruption

like protests may lead to delays. Additionally, as the **new system is complex and unfamiliar** to DL, once it is implemented it could result in **errors** and a **reduction in quality** of the ice-cream. Both instances may lead to **consumer dissatisfaction** and a **negative impact on DL's premium brand image**, which is something DL cannot afford to risk as a strong substitute of their product (the global competitor) has entered the market.

In conclusion, whether or not DL should proceed with the computerized production line project depends on a multitude of factors. Ultimately, I personally do believe despite the potential drawbacks operating at a more flexible, and larger capacity utilisation will help DL remain competitive with their global rival, especially as producing more will better equip them to open more stores and franchise across the globe.

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4 (a) Using the data in Table 2, calculate the promotional elasticity of demand (PrED) for Devonice ice cream. [4]

PrED = % change in demand / % change in amount spent on promotional spending

- **10%** / (**1.75**-**0.5**) / (**0.5**) x 100%
- 10 / (1.25 / 0.5) x 100%
- 10% / (0.4 x 100%)
- 10% / 40%
- **0.25** *(so change in promotional spending won't really affect demand)*

(remember that answer should not be a %)

(b) Evaluate whether DL should, in order to increase sales, reduce the price of ice cream or increase promotional expenditure. [12]

The question of whether DL should reduce the price of its ice cream or increase promotional expenditure in order to improve sales is a **multifaceted** one that **requires extensive analysis of various contributing factors**. I will evaluate the various arguments for and against each option, and conclude with a recommendation of which one I believe DL should go with.

First of all, the likely reason **why Devonice is looking to increase sales** is due to wanting to **regain its lost market share** after the new global competitor entered the market of country Y. While DL's **sales remain stable** as of current, this may not continue to be the case if the rival ice-cream company persists with **its marketing efforts**. Therefore DL must now t**ake preventive measures** in order to ensure it **remains the market-leading brand** in country Y.

The **marketing manager's suggestion** to increase sales would be to reduce the price of DL's ice cream, this is a tricky option. On one hand, the **price elasticity of demand** for DL's products

is **-1.25**, an 8% decrease in price would lead to a 10% increase in demand. Therefore it is clearly quite **elastic**. This is likely due to the fact that DL is a **luxury brand**, therefore its **demand is highly responsive to price**. Having a price elastic product can be of benefit to DL, as it means that it **can increase its sales quite a lot** simply by **slightly reducing its price**. This will allow DL to **raise its sales quicker than its global competitor**, potentially leading to it **regaining** its **lost market share.**

However, **as the founder Gabriel pointed out**, lowering the price of DL's products may **impact its perception of luxury** in the eyes of consumers. This goes back to the **psychology** of a consumer, where the more expensive a product is, the more luxurious it is perceived to be. So while in the **short-term**, lowering the price of ice-cream will **raise sales** and allow it to **remain competitive**, in the **long term** DL may **lose its brand image of luxury** entirely. This brand perception of being a novelty ice-cream could potentially be what **differentiates** it from other competitors. Therefore if it is taken away, then DL becomes just like every other ice-cream brand. This may lead to them having to **continuously lower the price** as the years go on, in order **to remain competitive**.

So, Gabriel disagrees with the marketing managers proposal to lower the price of their products, believing that increasing promotional activity would be the better option to raise sales. This option however is **similarly not without its faults**, as the **promotional elasticity of demand is only 0.25**, making it **inelastic**, meaning an **increase in promotional spending** will **not greatly impact the level of demand** for DL's products. Therefore if they decide to go with this option, there must be **alterations to their marketing plan** in order to make sure this increase in spending will be profitable, particularly because it is a **$1.25 million increase**. So how can they do this?

Well firstly, DL's **current target market is young adults**, and their **current marketing strategy** is done through **social media**, **celebrity sponsorships** and **school sponsorships**. Right away we can identify that **school sponsorships may not be the best outlet** of promotion for DL's **intended target market**, you will not find a large amount of young adults in school. Instead of using school sponsorships, DL could invest in using **search engine marketing**. This is where DL's luxury ice-cream ads would be **shown to targeted consumers** based on their **online search history.** This would ensure that those who are viewing the ads are more likely to be potential consumers interested in the product. Another way to improve their marketing efforts would be to **launch a similar million dollar ad campaign** as their new rival did. This way, they may be able to **branch out** and reach **other potential target markets** who may not have seen their advertisements through social media, celebrity endorsement or school sponsorships. Instead, perhaps they saw the ads on TV or on a billboard and are now interested in trying the ice-cream (older generation perhaps).

In conclusion, I personally believe the option of **increasing promotional activity** would be the best option for DL to raise its sales while maintaining its luxury brand image - **so long as it alters its marketing strategy** in order to ensure this spending will adequately increase demand. However, if DL does choose this route (which is likely as it is the option favored by

Gabriel) they must **consider the pressure groups efforts** to convince the government to reduce the sales of food products high in sugar and fat. This is because **if their campaign is successful**, it will **restrict DL's advertising abilities**. Therefore if this is the case, to be able to continue marketing their products on a large scale, they may have to be prepared to **alter their sugar content.**

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(5) Evaluate whether DL should consider corporate social responsibility in its decision-making. [12]

Corporate social responsibility refers to the practice of a business **not just focusing on the goal of maximizing profit and growth**, but also considering the **impact of its activity** on the wider community. Usually, these considerations will include ensuring its operations do not **damage the environment**, or **harm their various stakeholders**, primarily consumers and employees. The question of whether DL should consider corporate social responsibility during its decision making is one that requires careful consideration.

First, it will be **helpful to examine DL's CSR situation**. In country Y, there is a growing trend of concern with regard to **health and diet**. In 2020, a pressure group has campaigned to the government to implement changes that would result in lower sales of unhealthy food products high in sugar, this would include DL's ice-cream. These changes would be the **regulation of product labeling** to ensure companies are not misrepresenting ingredients, **restricting the advertising** of unhealthy food products and enforcing a **sugar tax**. If the campaign is successful, it would **impact DL's profitability.** Alongside the pressure to reduce sugar, DL is also facing **pressure to substitute its ingredient of palm oil** to something more environmentally sustainable, even though the **costs of substitution** would be high. Finally, DL may also face bad publicity if its new computerized production project results in a large number of **worker redundancies**.

Therefore, in evaluating whether DL should consider CSR during decision making, **we are really talking about 3 decisions in particular**. The decision to reduce its sugar level, whether or not to substitute its palm oil ingredient, and if there is anything they can do to reduce negative publicity when potentially laying off a large number of its workforce.

The decision of whether or not DL should reduce the sugar amount in its ice-cream is a tricky one. Technically, the three changes proposed by the pressure group **have not been made legal**, yet. However, it can be argued that DL might **benefit from responding to pressure group activity in the short term** rather than being forced to make changes in response to government action. Taking the preventative measure of reducing their sugar content could However, Gabriel worries that by altering the sugar level of their ice-cream may lead to **consumers disliking the change** and potentially switching over to competitor's product. Additionally, there may be **added costs** of having to **purchase healthier sugar substitutes,**

like stevia, which may result in a rise of DL's prices, and since its products are price inelastic, this would likely lead to a decrease in sales.

What Gabriel is not considering however, is that making their ice-cream more healthy may actually benefit DL. Not only would they **meet the requirements** proposed by the pressure group, meaning their **marketing efforts wouldn't be diluted** and they **wouldn't have to pay additional taxes,** but they could also begin to market themselves as a luxury, healthy ice-cream brand. In this way, they can **reach a new growing target base** of **health conscious consumers**. Becoming healthier could therefore become a **USP** DL takes advantage of to **differentiate itself from competitors**. It may even lead to being able to justify a **higher price.**

Similarly, the decision of whether to stop using palm oil has its potential benefits and limitations. On one hand, deciding to substitute it would **alleviate the pressure** DL is facing, preventing any **backlash** or **bad press** for using an ingredient that contributes to **deforestation**. However, the **alternatives are more expensive,** meaning it would further add to DL's costs. Additionally, an alternative ingredient may **result in a change of texture** - which can lead to **consumer dissatisfaction** - and a loss of customers. One way to continue using palm oil, but also combat the risk of bad publicity, would be to **donate a larger amount of its profits to other environmental endeavors, not just charities.** For example, seeing as the use of palm oil contributes to rainforest deforestation, DL could donate a share of its profits to **plant trees** in order to **offset the loss of trees** caused by the production of the palm oil. Doing this will ensure that DL can continue to use palm oil, keep the texture of its ice-cream to consumer liking, while also **planting trees to help counteract the negative environmental impact of their operations.** Although this should only be done if it is a more cost effective option than switching over to an alternative ingredient.

The final decision of DL that may require the consideration of CSR would be the decision-making regarding the redundancies of DL's **200 employee workforce**. This situation would arise after the introduction of the computerized production lines, where many production workers jobs will no longer be required. A way to **mitigate bad publicity** and **protect the morale of the remaining employees** would be to provide the redundant workers with a reasonable **severance package**, and **communicate clearly** and **fairly** its intentions and reasons for the downsizing of the workforce. Although this may **add to cost**s and make it a more **time consuming process**, it will allow DL to **retain a brand image of fairness** and ethics , **avoiding bad publicity** and potential **consumer boycotts.** Keeping the morale of the remaining workers high is also important to maintain productivity.

In conclusion, I believe that although considering CSR can oftentimes **add to costs** and **time** in the **decision making process**, it will **benefit DL in the long-run** to take into consideration the impact it's operations and products have on all stakeholders, not just shareholders. This way, it can **avoid bad publicity**, **meet government regulations and avoid fines**, and potentially even be able to grow an **ethical**, **healthy brand image** that would **differentiate itself** from other ice-cream manufacturers.

Could have also mentioned :

- A rise in price could negatively impact DL - it has a highly elastic demand
- The countries it plans to franchise to may care about ethics alot

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