

CFE SDM Model Solutions

Fall 2022

1. Learning Objectives:

1. The candidate will understand and apply strategic management concepts and frameworks to develop an organization's financial and ERM Solutions.
3. The candidate will understand how to apply decision making models to general managerial decisions within specified business constraints.
5. The candidate will understand the role that organizational behavior and communication play in organizational decision making and efficacy, as well as learn how ineffective communication is a risk to organizations.

Learning Outcomes:

- (1a) Evaluate and apply strategic management concepts, recognizing factors that affect development and implementation of strategies:
 - Analyze the firm's external environment and the internal organization.
 - Describe and apply strategic management models, including Porter's five forces and value chain analysis.
 - Define types of business-level strategies and recommend an appropriate business-level strategy for a given situation.
 - Explain the impact of competitive dynamics on strategic management.
- (1b) Evaluate commonly used business growth strategies and their application under different economic risk and business environments:
 - Critique and evaluate internal/organic and external/inorganic growth strategies.
 - Assess and recommend growth strategies under different business situations and market opportunities, utilizing the applicable strategic management models.
- (3a) Apply fundamental techniques and frameworks of management science to make informed business decisions:
 - Apply linear optimization models to managerial decisions.
 - Develop decision trees, scenario tests, and simulation models.
- (3b) Apply statistical and quantification methods to analyze managerial decisions with uncertain conditions:
 - Apply probability distributions to business situations with random variables.
 - Construct optimization models utilizing probability theories.

1. Continued

- (3c) Evaluate business situations and describe how quantitative and statistical methods can improved decision making.
- (5a) Apply best practice techniques to structure and communicate ideas logically and persuasively:
- Explain differences between good and poor communication techniques and their implications
 - Apply techniques to structure ideas logically
 - Develop clear fact-based messages that can be communicated persuasively

Sources:

Case Study 2022 section 3 Blue Jay Tire

Data, Models, and Decisions: The fundamental of Management Science
Chp 8, Non-Linear Optimization

SDM-194-22: The Hard Side of Change Management

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a)
- (i) Define each component of the DICE score formula.
- (ii) Describe how a DICE framework is used.

Commentary on Question:

Most candidates did well on this question. Full marks were awarded for accurate description on each component of the DICE Framework for Part (i). In Part (ii), some candidates did not describe how DICE is used, instead just gave a range of score for the likelihood of success. This was only awarded partial points.

Part (i)

D = Duration - time until the change program is completed if it has a short life span; if not short, the amount of time between reviews of milestones.

I = Integrity – the project team’s performance integrity; that is, its ability to complete the initiative on time. That depends on members’ skills and traits relative to the project’s requirements.

C = Commitment – the commitment to change that top management (C1 – most influential executives) and employees affected by the change display (C2 - the people who must deal with the new system, processes, or ways of working).

1. Continued

E = Effort – the effort over and above the usual work that change initiative demands of employees.

Part (ii)

A DICE framework is used to monitor, assess, predict, and provide guidance to change management activities in an organization. Each project is given a DICE score based on the equation above:

- Scores from 1-14 are likely to be successful
- Scores of 15,16 are uncertain
- Scores 17 and above are likely to fail

- (b) Critique the degree to which the local management team was involved in the decision-making process using the Vroom-Yetton model. Justify your answer.

Commentary on Question:

Most candidates did not do well on this question. They failed to provide sufficient justification to reflect the points allocated to this part. Small number of candidates were able to accurately identify the style and come to the right conclusion. However, none of the candidates fully applied the Vroom-Yetton model questions in their assessment.

In this case, the local management team are the “associates” (i.e., 1-level down from the decision-maker).

Vroom-Yetton Model

A: Is there a quality requirement such that one solution is likely to be more rationale than another?

Yes, some solutions will work better than others.

B: Do I have sufficient information to make high-quality decision?

No, an outsider needs to learn about the plant operations.

C: Is the problem structured?

Yes, there is a defined manufacturing process and a management team.

D: Is acceptance of the decision by associates critical to effective implementation?

Yes, acceptance is critical to succeed as the team needs to implement the changes.

1. Continued

E: If I were to make the decision myself, is it reasonably certain that it would be accepted by my associates?

No, the decision is not likely to be accepted by the local management team without their involvement.

F: Do the associates share the organization goals to be attained in solving this problem?

Yes, goal is for the plant to perform better.

G: Is conflict among associates likely in preferred solutions?

Unknown, but irrelevant due to answer to F.

Style Used: A2 and/or Senior Leadership consulted others and made a decision without asking for ideas. They managed the requested information from the local managers, but made the decision all by themselves, it is not clear if there was any feedback from the local managers based on the decision made. This degree of involvement is inadequate. This is a major decision, and they may not have the proper information to make the optimal decision.

Conclusion: G2 and/or Senior Leadership should seek input and consensus from the associates. In this case, they should have set up a group discussion with all of the local managers. Informed them of the issue, what they wanted to achieve and help them make a collective decision as a group.

- (c) Describe what is being measured by each DICE score variable in the context of the above change.

Commentary on Question:

Most candidates did well on this section. They were able to describe and the variables to specific examples in the case study to support their points. Simply assigning scores to variables was not enough for a full mark.

Duration would measure how often reviews occur to evaluate the progress being made. Here, they would be measuring whether production has improved based on the changes they have made. If it will only be reviewed after 6 months, then a score of 3 points will be assigned.

Integrity is the quality of the senior leadership and the competency of the associates. Adding another 100 part-time workers may not signal a high level of competence and it is not clear whether the local management team is well respected. Therefore, assign 3 points for this.

1. Continued

C1 would measure how BJT management are showing their commitment to the change, through their words and actions. C2 would measure how eager the plant employees - managers and workers - are to the change – whether they are excited to improve production at their plant or simply willing to do as told.

Effort would measure how much additional effort is required to achieve the change. These changes require significant effort – hiring, training, and managing new part-time workers will require significant time, and operating two shifts is effectively doubling the effort compared to current levels. Assign 2 points

- (d) Explain how the DICE score formula would differ if the above shift changes were enacted entirely by the US plant's local management.

Commentary on Question:

Most candidates did not do well on this part and failed to identify the changes on the formula or justify their argument. Partial marks were awarded for reasonable suggestions if the answer is consistent with the previous section.

The commitment would change from C1 being BJT management to local plant management, and C2 would be the workers only and increase the overall commitment level (or lower score), as local plant management would likely do a better job at explaining how these changes will address the production issues leading to higher employee buy-in. Other variables would stay the same.

- (e) Compare and contrast the types of power held by management and employees at the US plants to the types of power held by management and employees at the Canadian plants. Justify your answer.

Commentary on Question:

Candidates generally received partial marks for varying answers however if their answers were contradicting or justification was not provided then they were not awarded points.

Similarities:

Legitimate power: Both managements have a hierarchical structure that has a head manager. This manager can communicate concerns to senior management and hire/fire employees accordingly. This gives them both legitimate power.

Reward Power: Both managements have the ability to provide rewards for good performance. This gives them both legitimate power.

1. Continued

Differences:

Coercive Power: The US plant has 50% of employees that are unionized. They could go on strike to receive higher wages, benefits, etc. This gives them coercive power.

- (f) BJT senior management must also review the changes with the union representing US employees in order to avoid a possible work stoppage. BJT senior management plans to explain how the changes will improve production by reducing the plant's Lost Time Injury Frequency Rate.
- (i) Identify the type of conflict outcome sought by BJT senior management. Justify your answer.

After the meeting, both BJT senior management and the union agree to the plan, but with more full-time employment. This will add some cost to the solution and the union is unhappy that not all employees will be full-time.

- (ii) Identify the type of conflict outcome that resulted from the negotiation. Justify your answer.

Commentary on Question:

Most candidates were able to identify the types of conflict outcome in these two parts. A small variety of answers were accepted as justification but if they were not relevant or contradicting they did not get full marks.

Part (i)

BJT management is seeking a win-win outcome. The proposed solution will benefit the union workers by reducing the injury rate of workers (safer environment), and also benefit BJT management by having more workers available (instead of injured) to improve production.

Part (ii)

This is a compromise. Each party gained something, but neither party is completely satisfied with the solution. BJT agrees to the additional cost and the union agrees that not all employees will be fulltime.

1. Continued

- (g) Recall the following dimensions of communication styles (A to C):
- A. Preciseness
 - B. Verbal aggressiveness
 - C. Questioning orientation
- (i) Evaluate the message with respect to the 3 dimensions (A to C). Justify your answers.
- (ii) Explain how informal communication at the US plant may negatively impact the DICE score. Justify your answer.
- (iii) Describe how the message will affect the proposed DICE score in (c) above. Justify your answer.
- (iv) Recommend two actions to address the directional change of the DICE score expected from the town hall messaging. Justify your answer.

Commentary on Question:

Candidates did relatively well on this question. A certain level of variance in answers were accepted and partial points awarded as long as the definition is appropriately applied, the interpretation of DICE score was consistent and candidates were able to provide relevant examples. f

Part (i)

A: This message is precise and laid out in a logical order in regards to the expectations of increased production as a result of this change.

B: This message is verbally aggressive and unsupportive. The mention of performance reviews is appears to be threatening.

C: This message does not have any questioning orientation. Questioning orientation indicates curiosity while this message is dictating an existing situation and not asking for input. It simply re-iterates that BJT has work to do and to double production without any further questioning.

Part (ii)

Informal communication consists of employees talking to one another in an informal setting. An important issue with informal communication is that it could lead to gossip and rumors. Gossip would relate to information that is presumed to be true but is unrelated to work. For example, someone might mention that they saw their colleague drunk at the bar. This is negative informal communication. Information being shared in these means can be untrue, unsubstantiated or misleading.

1. Continued

Gossip, rumors or unsubstantiated information could affect both the Effort or C2 commitment from employees. All these negative informal communication decreases the morale of employees due to false statements. Gossip could negatively impact teamwork which will be required to make the production targets. For example, if one employee starts gossiping about another this could create personal conflict. Similarly, if there are rumors for example, that they want to replace the Union workers with non-Union workers or more part time workers this could again create conflict that threatens BJT's production goals. This would raise the DICE score for these two elements (C2 and E) and consequently the overall score.

Part (iii)

The above management message clearly sent an unsatisfied feeling (ie. in “we still have a lot to do”) on the progress for the transformation. It re-iterates the consequences of production goals in the performance reviews. This will likely have a negative impact on the DICE score. The increase is likely to come from two parts: lower employee commitment (increase in C2) as a result of lower enthusiasm due to the aggressive nature of the message, and higher required efforts to meet the expectation of doubling production (increase in E).

Part (iv)

Based on the scoring – which is expected to be higher after the town hall, the recommendations should be aimed to improve DICE score (or lower):

- 1) Increase the frequency of the meetings or decrease the time between key reviews/milestones to within 2 months. This will improve D score.
 - 2) Provide more insight and clear message about the performance in the town hall in a way of a status update and boost morale with positivity. For instance, “we have been doing well”, “we are at x% of our double production target”. They could also list problems observed to date and how the management is going to tackle these identified problems to demonstrate their commitment.
- (h) Interpret the relationship between the DICE variable E and each of the components of the proposed formula.

Commentary on Question:

Most candidates were able to interpret the three variables (N, S and Q) correctly, however many of them failed to interpret the N variable.

- N – keeping all other variables constant, a higher value N would increase both the nominator and the denominator so the impact would be uncertain.
- S – keeping all other variables constant, a higher value of S_i would increase the numerator and decrease the value of E. Higher salary suggests less effort needed and leads to a better score.

1. Continued

- Q – keeping all other variables constant, a higher value of Q_i would increase the numerator and decrease the value of E. Better job proficiency suggests less effort needed and leads to a better score.
- T – keeping all other variables constant, a higher value of T_{ij} would increase the numerator and decrease the value of E. Better collaboration and teamwork between colleagues suggests less effort needed and leads to a better score.

(i)

- (i) Describe the objective of negotiating Employee 1's retention in terms of a linear program. Justify your answer.
- (ii) Describe three relevant constraints that would apply when negotiating Employee 1's retention.

Commentary on Question:

Most candidates struggled to clearly articulate the objective of the negotiations in part i and provide all three constraints in part ii.

Part (i)

The objective is to maximize S_1 within the constraints. In other words, increase Employee 1's salary enough to retain him, but not to the point where the E score is negatively impacted by more than 10%.

Part (ii)

- 1- The $E_{new} \leq 1.1 \times E_{old}$: BJT cannot increase the salary to the point where the teamwork score is decreased and the overall net impact on the score is greater than 10%.
- 2- Minimum S_1 to retain the employee: there will be a minimum salary amount that the employee would be willing to accept to stay with the company.
- 3- Salary budget: BJT would typically have a company-wide budget for salaries or salary bands based on seniority levels and this would be a natural constraint.

- (j) Describe how C1 and C2 may exhibit non-linearity. Justify your answer.

Commentary on Question:

Most candidates failed to address non-linearity from each C1 and C2 perspectives, and they only got full marks if they justified their responses with relevant examples.

1. Continued

Senior leadership and employees may have different goals and motivators as well as different levels of influence on a given change project.

C1 represents the commitment from the senior management which revolves around the dynamic between the senior executives. Senior managers could have different priorities or biases towards different projects. Their self-agenda within the company may determine their commitment level - they could be more committed to a project if they feel it would serve their self-interest and that could have an amplified impact on the result of the project and vice versa. This would exhibit a non-linearity shortcoming in the DICE formula.

Whereas, C2 measures the commitment of the employees being impacted by the change and this could be a function of how enthusiastic and empowered employees feel in the change agenda. Employees could be impacted disproportionately by the change in their job scopes and this could result in varying commitment levels. They could have an amplified impact on the project which may exhibit a non-linearity shortcoming in the DICE formulae.

2. Learning Objectives:

2. The candidate will understand how sustainable growth and value can be created through strategic budgeting. The candidate will also understand measures of an organization's value and their uses in decision making.

Learning Outcomes:

- (2a) Explain how strategic budgeting can create value and sustainable growth
- (2b) Assess how effective strategic budgeting is in tracking progress of an organization's initiatives
- (2c) Demonstrate how an organization's strategic goals can be effectively incorporated into the financial budgeting decision making process
- (2d) Evaluate and recommend appropriate value measures for an organization
- (2e) Assess the impact of performance measures and incentives on key business decisions and stakeholder value

Sources:

Damordaran on Valuation, Chapter 9 – Value Multiples

Damordaran on Valuation, Chapter 11 – Employee Equity Options and Compensation

Damordaran on Valuation, Chapter 13 – Value of Control

Handbook of Budgeting – Ch. 2 Balanced Scorecard-based Budgeting & Performance Management

Handbook of Budgeting – Ch. 15 Budgeting of Shareholder Value

SDM-189-21: Capital Bias

Strategic Management - Ch. 5

Strategic Management - Ch. 7

Strategic Management - Ch. 13

Organizational Behavior - Ch. 9

Commentary on Question:

This question aims at testing candidates' understanding and utilization of measurements on valuing organizations and related decision making. This question also tests candidates understanding on bias and communication barriers existing in organizations. Most candidates lost points for not answering the questions based on the syllabus material.

2. Continued

Solution:

- (a) Snappy should be valued at a 50% premium to the life insurance industry average price-to-book ratio.
- (i) Determine Snappy's fair market value. Show your work.
 - (ii) Explain three reasons why a single company may have a higher price-to-book multiple than its industry average.

Commentary on Question:

Most candidates answered part (i) well, but struggled with part (ii). Full points in (ii) were awarded for answers providing correctly following the syllabus material and case study.

- (i) Industry average Price-to-book ratio from Darwin's Exhibit 1 is equal to 1.4.
Snappy Life's 2021 Surplus is equal to \$2,276,000
50% premium should be considered.
Therefore, Fair market value of Snappy is equal to $1.4 * 2,276,000 * 1.5 = 4,779,600$

- (ii) Growth rate: As the growth rate of a firm increases, so do future cashflows and the overall economic value of a company. If the growth rate for a firm is larger than its peers, then the multiple will be larger than the industry average.

Asset quality: The higher the asset quality, the higher the return on capital that is achievable and the higher the EV multiple. If a company has higher quality performing assets than the industry, it will have a higher multiple.

Tax rate: The higher the tax rate, the smaller the reported net income. The smaller the income, the smaller the economic value reported and multiple. A firm could operate in a jurisdiction that has a smaller tax rate than the industry thus having a higher multiple.

- (b)
 - (i) Identify three capital decision biases demonstrated by your colleague. Justify your answer.
 - (ii) Recommend a mitigation technique for each bias identified in part (i). Justify your answer.

2. Continued

Commentary on Question:

Most candidates did well on this question. For part (ii) to get full points candidates had to provide a correct mitigation strategy for the correctly identified bias.

- (i) Expert bias: relying on the analysis of a single expert over other considerations. The colleague is demonstrating expert bias because he based his opinion on the opinion of a single expert. The colleague did not gather further data points.

Narrow framing bias: focusing on a single attribute rather than looking at the entire breadth of metrics and information. The colleague is demonstrating narrow framing because he is focusing on one individual metric (sales) as a justification for the entire value of the project.

Optimism bias: having too much confidence in your own abilities without considering other evidence. The colleague believes that Snappy would achieve the same results as other retail companies. However, there is no supporting evidence to suggest that Snappy has the same abilities, so the colleague is too optimistic.

- (ii) Expert bias: The colleague should seek advice from more experts and other sources of information.

Narrow framing bias: The colleague should factor in more metrics than just sales to judge the online sales channel. Things like return on investment, total traffic on the site, and other metrics may also be important.

Optimism bias: The colleague should analyze a broad range of possible outcomes, track predictions against reality and remove anecdotal data points from the decision-making process.

2. Continued

- (c) Snappy's optimal value is \$5.8 million.
- (i) Define control premium.
 - (ii) Calculate the implied control premium using your answer from (a)(i). Show your work.
 - (iii) Interpret your answer in (c)(ii).
 - (iv) Explain a potential problem in Snappy's Balance Sheet that could be fixed by changing management.

Commentary on Question:

Most candidates did well on parts (i)-(iii). In order to get full points in (iii), a solution had to specify that the change of management is required in order to realize the value of the control premium. However, many candidates struggled with (iv). The question required considerations specific to the Balance Sheet that could have been addressed by change in the management. In order to get full points, both aspects needed to be explained in the solution. Points were given for well justified considerations related to asset allocation or debt considerations.

- (i) Control premium is the difference between when the value of the firm when the firm is optimally managed and the value of the firm in its status quo.
- (ii) Snappy's Fair Market Value is \$4,779,600 from (a)(i).
$$\text{Control premium} = \text{Snappy's Optimal Value} / \text{Snappy's Fair Market Value} - 1 = 5,800,000 / 4,779,600 - 1 = 21.3\%$$
- (iii) 21.3% control premium implies that there is a benefit in replacing Veltro's management team. Therefore, currently Snappy is not optimally managed.
- (iv) Currently, Snappy is no using debt to finance its business. Snappy's new management can use some level of debt so to reach an optimal financial leverage. We do not know the industry average, but the optimal D/E ratio must be more than 0. With an optimal financial leverage, cost of capital can be lower and firm value can increase.

- (d) Frank Veltro, Snappy’s CEO, will only sell if the current management team is kept in place. To ensure the team continues to perform well after the acquisition, an equity-based incentive plan would be put in place for the team at Snappy. The plan would award a fixed number of restricted shares to each of retained manager who remains with the company for one year after the acquisition.
- (i) Describe an appropriate approach to value the restricted shares. Justify your answer.
 - (ii) Propose two modifications to the incentive plan that will better align the plan with long-term strategic goals. Justify your answers.

Commentary on Question:

Candidates did poorly on question d(i) as they did not memorize the DCF method. Question d(ii) was answered well.

- (i) Darwin and Snappy are both privately held companies so there is no “fair market value” that can be readily used to value the stocks. The recommended approach from the syllabus material is to use a **discounted cash flow** to calculate the expected value of the shares. In addition, illiquidity premium could be added on to the discount rate to represent the fact that these shares are less liquid than normal shares
- (ii) Sample Answer:
 - a. Employment restrictions – vests only if employee remains with firm. This would help ensure that Snappy executives are motivated to do the work to make the synergies come to life and help with the longer-term goals of the acquisition.
 - b. Vesting period - increase vesting period to ensure management stay longer. It is important to encourage the CIO and other execs from Snappy to stay longer at Darwin so that they can bring and integrate Snappy’s innovative intangible resources and capabilities to Darwin. By increasing the length of the restriction period, it’s likely the CIO and other executives will stay around longer to transfer these competencies.
 - c. Performance contingency- the stock will vest only if specific performance metrics are hit. This should motivate the executives to ensure synergies are realized and combined firm is performing according to the desired objectives.

2. Continued

- (e) Gabriela is satisfied with your calculations, but she knows the Board will want assurances that the acquisition creates value for the combined organization over time. Gabriela will review your work and present it to the board members.
- (i) Explain how Economic Value Added can be used to address the board's concerns.
 - (ii) Recommend 5 components for the balanced scorecard for the acquisition of Snappy. Justify your answer.
 - (iii) Identify the type of communication network being used to communicate with the Board. Justify your answer.
 - (iv) Explain how the communication network being used avoids two Individual Barriers to communication. Justify your answer.

Commentary on Question:

Candidates did poorly on (i) and (ii). For (i) some candidates were unable to recall either the formula or definition for EVA. For (ii) most candidates forgot at least one component of the balance scorecard. For question (iv), answers must be related to individual barriers; candidates provided group barriers.

- (i) EVA is calculated as $EVA = (ROIC - COC) * \text{Average Invested Capital}$. Therefore, there are two ways to add EVA:
EVA is added when income generated by the acquisition exceeds the cost of capital (ROIC -COC).
EVA is added when more invested capital is added after the acquisition.
- (ii) Example (5 components must be explicitly stated):
Objective: increase firm value
Measure: EVA
Target: EVA is a \$ measure; candidates do not need to provide a specific target, just reference that one must be set.
Sponsor: identify who will be accountable for the objective. It is reasonable that this is assigned to Gabriela.
Initiative: Acquisition of Snappy
- (iii) Y- information goes from candidate to CEO (straight line) then to all board members (disbursed)

2. Continued

- (iv) Sample answer (full credits given to other **individual barriers** with valid reasonings):
Status differences: CEO is the direct report into the board. The information is being presented by Gabriela to the board, which reduces the status barrier between the presenter of the information and the recipients, since the board does not have a significant status difference from the CEO
Semantics difference: CEO is not a specialist and not prone to jargon, they understand the language of their team, but also what the board will know. In this case, Gabriela is acting as a cross-check on my work to ensure what I meant is being accurately picked up which would mean the likelihood of the board understanding it also increases.
- (f) Darwin's Board is also mindful of the initiatives currently underway.
- (i) Describe the purpose of a strategy map.
- (ii) Compare and contrast Darwin's strategy map with Snappy's for each of the three Internal Perspective components.
- (iii) Assess whether Darwin is a first mover, second mover, or late mover. Justify your answer.
- (iv) Critique the alignment of Darwin's resources based on your assessment in part (iii).

Recall the two forms of corporate venturing: autonomous strategic behavior and induced strategic behavior.

- (v) Explain how strategic budgeting and internal corporate venturing influence each other. Justify your answer.

Commentary on Question:

Candidates did poorly on part (f). They did relatively well on parts (i), (iii) and (v,) but most of them scored no or very few points on parts (ii) and (iv). To get full credit for part (ii), candidates needed to identify the three Internal Perspective components, and discuss similarities and differences of those components for Darwin and Snappy. For part (iv), candidates needed to point out the way Darwin currently operates does not align well with their second mover strategy, e.g., its misallocation of resources, and spending on innovation products (more of a first mover strategy). Also, its manual processes are holding it back from quickly replicating first movers' products.

2. Continued

- (i) A cause-and-effect or linkage diagram. When read from the bottom to the top, the map is intended to capture key drivers that affect successive perspectives moving upward. Used to map how well your company is achieving its vision and implementing its strategy.
- (ii) Internal Perspective components are:
 - 1. Customer growth/customer incentives (relationship):
Both companies focus on getting quick turnarounds with customer, Darwin with phone calls answered within four rings 95% of the time, while Snappy's underwriting process for customers are based on AI and would be quick to process.
 - 2. Technology (product):
Darwin has invested in system enhancements to sell new products and be a quick follower in the market. Therefore there are many systems with corresponding new product unique features introduced. Snappy has AI in underwriting process, but only sells simplified insurance products. Similarity is where they have invested in system enhancements. Differences are that Darwin is able to introduce new products, whereas Snappy's system enhancement allows quicker processing, while selling a limited number of products.
 - 3. Operational Excellence (low-cost): Darwin does not pursue this as they have high costs partly due to misaligned resources, where legacy products and systems have drained resources. Contrary, Snappy is known to have automated process, hence maintaining expenses at a low cost.
- (iii) Darwin is a second mover. As mentioned in the case study, "Darwin has not pursued a first to market strategy but has developed competency to be a fast follower and replicate new product designs in the market". First mover would be the first to introduce new products into the market and be innovative. However from the statement, Darwin will closely follow the market hence is a second mover, rather than a late mover which only follow the market trend after a significant amount of time.
- (iv) Second movers are successful if they are able to quickly replicate advances of first-movers while at the same time improving quality and efficiency. Darwin invests heavily in product R&D /Darwin has its innovation program (i.e., scanning and imitating). Darwin has more expenses due to manual processes and legacy systems (i.e., not efficient). Darwin's resources/budgeting are not allocated corrected.

2. Continued

- (v) Induced strategic behavior: Innovations are assigned by management from the top down to the various channels. This type of innovation would be more prescriptive and result from the strategic budgeting process, i.e. objectives, staff skills / competencies, operation capabilities, horizon, the company's mission statement & vision, etc.

Autonomous strategic behavior: Champions within the company push advancements forward through political channels through their own efforts until they reach the market. From this standpoint, innovation holding significant value would be pushed up to management. that would ultimately gain the buy-in of sr. leaders and impact how the corporate budget is allocated relative to the ways mentioned above (i.e., objectives, etc).

- (g) Evaluate the potential acquisition of Snappy by Darwin with respect to four of the seven problems in achieving acquisition success. Justify your answers.

Commentary on Question:

Candidates' performance varied on this question. To get full credits, candidates needed to identify four acquisition problems discussed in the source materials and apply them to the case study to explain how they favor or disfavor Darwin's acquisition of Snappy.

Other acquisition problems (Too much diversification, company becomes too large, or too much debt) were also acceptable if sufficient supporting evidence was provided from the case study.

- (i) Difficulty in merging two very different corporate cultures. Darwin is a more traditional insurance company with pretty developed risk capabilities while Snappy doesn't really have a risk department and is more concerned with making the sale every time. Also Frank will only sell if current management is kept in place but a change in management might give Snappy a higher valuation.
- (ii) Difficulty in achieving synergies. Darwin has old back office admin software while Snappy is state of the art in this regard. If they were going to merge the two systems this would be costly.
- (iii) Inadequate evaluation of target: This could lead Darwin to overpay for Snappy. We valued Snappy at a 50% premium compared to the industry average presumably because it is fast growing but there are other considerations here that should be considered. Such as, Snappy has a surplus issue with their growth rates. This isn't factored into the analysis.

2. Continued

- (iv) Too much time spent on acquisitions. Darwin might be better off investing in its own business rather than trying to acquire Snappy. A lot of focus of senior management has been on this acquisition. But maybe Darwin would be better off investing in its innovation program which could lower Darwin's costs and make them more competitive.
- (h) Recommend whether or not Darwin should acquire Snappy. Justify your answer.

Commentary on Question:

Most candidates did well on part (h). They were able to recognize that Darwin should not acquire Snappy, given the challenges that were described in part (g). Partial credits were given for recommending to acquire if justification is logically consistent with the rest of the question.

I think Darwin should not acquire Snappy. Snappy and Darwin have two very different cultures that would be hard to merge. Also, there are suboptimal synergies here. Snappy and Darwin have two very different admin systems so there would be little cost savings on that front. They also sell very similar products so there would not be any increased product diversity.

3. Learning Objectives:

1. The candidate will understand and apply strategic management concepts and frameworks to develop an organization's financial and ERM Solutions.
4. The candidate will be able to analyze and model dynamic systems and evaluate the risks and sustainability of these complex systems.

Learning Outcomes:

- (1a) Evaluate and apply strategic management concepts, recognizing factors that affect development and implementation of strategies:
 - Analyze the firm's external environment and the internal organization.
 - Describe and apply strategic management models, including Porter's five forces and value chain analysis.
 - Define types of business-level strategies and recommend an appropriate business-level strategy for a given situation.
 - Explain the impact of competitive dynamics on strategic management.
- (1b) Evaluate commonly used business growth strategies and their application under different economic risk and business environments:
 - Critique and evaluate internal/organic and external/inorganic growth strategies.
 - Assess and recommend growth strategies under different business situations and market opportunities, utilizing the applicable strategic management models.
- (4a) Identify and model the dynamic processes within a complex system:
 - Develop and apply causal loop diagrams that model the feedback structure of complex systems
 - Apply stocks and flows to dynamic modeling
 - Apply dynamic modeling to business decisions
- (4b) Explain the underlying factors that drive the sustainability and stability of a dynamic system:
 - Evaluate the structure and behavior of dynamic systems
 - Identify the factors that contribute to risk and instability in dynamic systems
- (4c) Evaluate complex systems and describe how actuarial principles can mitigate risks and improve sustainability.

Sources:

Strategic Management: Competitiveness and Globalization –

- Chapter 4: Business Level Strategy

3. Continued

Competitive Advantage: Creating and Sustaining Superior Performance –

- Chapter 2: Value Chain & Competitive Advantage
- Chapter 4: Differentiation
- Chapter 7: Industry Segmentation & Competitive Advantage

Business Dynamic

- Chapter 4: Structure and Behavior of Dynamic Systems
- Chapter 5: Causal Loop Diagrams
- Chapter 9: S-Shaped Growth: Epidemics, Innovation Diffusion, and the Growth of New Products
- Chapter 12: Coflows and Aging Chains

SDM-190-21 Loving the one you're with

Commentary on Question:

This question is an integrated question combining materials from Sections 1, 4 and 5. The intent is to test a candidate's understanding of the learning objectives set out in these sections. Generally, the candidates did well in this question especially on the topic of differentiation and value chain. For the Business Dynamic concepts, many candidates still have some learning gaps in this topic. For the Organizational Behavior section, generally candidates have good grasp of the underlying concepts in this question.

Solution:

(a)

- (i) Identify Frenz's business-level strategy. Justify your answer.
- (ii) Identify the mechanism Frenz uses to create buyer value following the strategy identified in part (i). Justify your answer.
- (iii) Identify two combinations of primary and support activities in Frenz's value chain that creates the buyer value identified in part (ii). Justify your answer.
- (iv) Identify the combination of primary and support activities in Frenz's value chain that relies on its suppliers to create the buyer value identified in part (ii). Justify your answer.

3. Continued

Commentary on Question:

For part (i), most candidates identified “differentiation” or “focused differentiation” as Frenz’s business-level strategy. Either strategy chosen will earn full points as long as the justification is consistent with the chosen strategy.

For part (ii), most candidates identified better coffee quality as the key to raise buyer performance. Many candidates did not identify better experience as Frenz’s strategy to create buyer value, resulting in only partial marks being given. However, full marks will also be awarded if “accessibility” is used as the reason in place of better experience.

For part (iii) and (iv), many candidates mixed up the 5 primary activities with the four support activities of the value chain described in the textbook. Many candidates also failed to provide the specified activities stated in the textbook. Partial marks are given if the descriptions were correctly provided in the answers.

- (i) Focused Differentiation. As per case study, Frenz is one of the most recognized and respected brands in the “premier” coffee houses as well as a household brand in the developed world. It is focused because its “primary” product is selling premium brand specialty coffee.
- (ii) The mechanism that Frenz uses to create buyer value is to raise buyer performance by offering better quality coffee and better coffee experience. This is cited in the Case Study as follows: “Frenz is a global **premier** coffee roaster, marketer and retailer of **specialty** coffee” and Frenz was “the early pioneer of in-store Wi-Fi”. Everything in case study suggests a better experience with no mention of focusing on reducing cost.
- (iii) Two combinations are: (I) Primary: Operations, Support: Technology Development → Case Study cites “dominant in the high-end specialty coffee market” (II) Primary: Service, Support: Technology Development → Case Study cites “We’ve always been in front of the curve – we were early pioneers of in-store Wi-Fi”
- (iv) Primary: Operations, Support: Procurement → raw materials like coffee beans, tea leaves, dairy products are required to run the business and deliver a premium experience (i.e., high-quality beans). As per Case Study, Frenz is “expanding certain of Frenz’s product lines, such as the super-premium coffee market, bubble teas, specialty fruit drinks, and mixed coffee and tea drinks, which have given Frenz a reputation as a product innovator in the market. To this end, Frenz is exploring offering coffee made from exotic coffee beans and special tea leaves.”

3. Continued

- (b)
- (i) Propose two dimensions to define relevant product segments in the Coffee Shops Industry. Justify your answer.
 - (ii) Propose two dimensions to define relevant consumer buyer segments in the Coffee Shops Industry. Justify your answer.
 - (iii) Identify the industry segment or segments, as defined by your dimensions in (i) and (ii), in which Frenz's business-level strategy is most competitive. Justify your answer.

Commentary on Question:

For part (i), most candidates identified the correct dimension to define product segment. However, some only provided one dimension with two product segments stated. Thus only partial marks were given. The list of dimensions applicable to coffee product segments includes the following: Price level, Features, Technology or Design, Inputs employed, Packaging, Performance, Product versus Ancillary Services, Bundled versus Unbundled. Answers outside of this list are generally not acceptable.

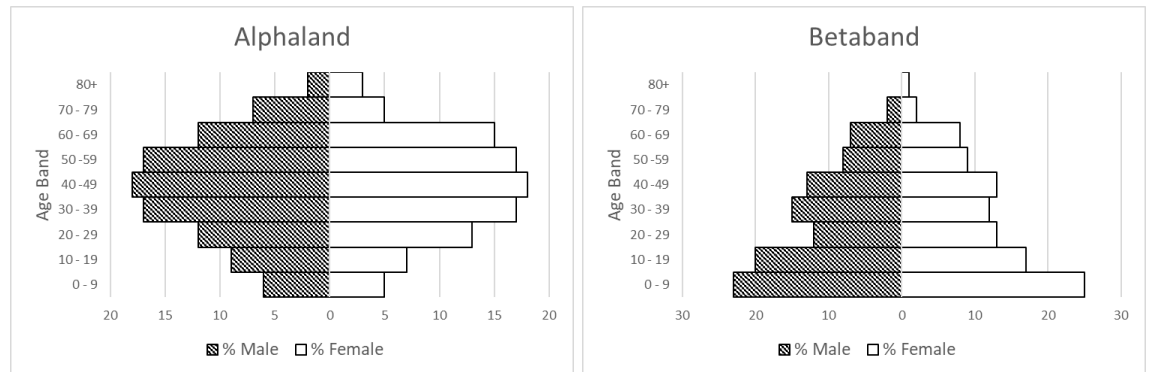
For part (ii) some candidates answered buyer location or geographic location as a dimension. Unfortunately, this is not a dimension for consumer buyer segment. The list of dimensions applicable to consumer buyer segment includes the following: Buyer's Demographics, Psychographics or Lifestyle, Language, Decision-Making unit to purchasing process, purchase occasion. Answers outside of this list are generally not acceptable. Also, partial points were given to candidates who provided two different aspects of Buyer's Demographics because their answers only covered one dimension.

For part (iii), candidates have to use the dimensions identified in both parts and applied their relevance to Frenz's business-level strategy. Failing to make such connections will not be awarded with any points.

- (i) Coffee Price level: Premium roasted Coffee versus Regular Coffee – the price defines the types of coffee beans used in brewing or roasting the coffee products; Input employed: Roasted Beans versus Regular Beans – define the different quality/types of coffee
- (ii) Demographic - Age – defines younger and older clientele have different preferences of product; purchase occasion – business/everyday customers versus occasional customers may respond to different promotional efforts
- (iii) Frenz tends to appeal to younger business clientele who prefers high-price quality products roasted with specialty beans. As per Case Study, "Frenz is dominant in the high-end specialty coffee market especially through its premier coffee house outlets which have over a 40% market share in Europe". Also, its clientele are mostly digital savvy (generally younger business customers) as its digital strategy targets this segment of customers.

3. Continued

- (c) Lotte obtains a population pyramid for each country. Each country currently has the same size of population.



- (i) Compare and contrast the populations of Alphaland and Betaband. Justify your answer.
- (ii) Sketch an aging chain based on the age bands in the pyramids connecting ages bands 70 – 79 and 80+.
- (iii) Assess which country will have the best consumer buyer segment for Frenz’s ongoing expansion. Justify your answer.

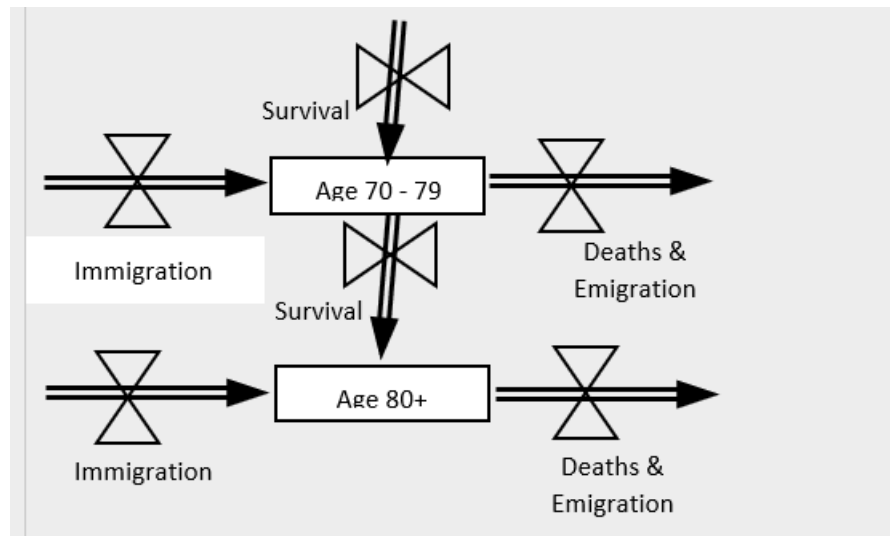
Commentary on Question:

For part (i), some candidates did not provide similarities between the two populations. Most candidates use the generally equal proportion of male and female distributions for both countries as similarities. However, this may be an acceptable answer but not the one key observation that we are looking for from the population pyramid, which is a surge of population in both countries between 30-49 age cohorts. For contrast, most pointed out Alphaland has more older age cohort than Betaband in their population distribution. However, almost no candidates pointed to the low birth rate in Alphaland versus high birth rate in Betaband by comparing the proportion of childbearing age bands (15-49) with the earliest age band cohorts (0-14). Almost all candidates failed to identify the overall population trend differences between Alphaland and Betaband over time. For part (ii), only a few candidates identified that immigration is a key inflow to each age cohort. Also, the outflow for each age cohort should include emigration.

For part (iii), partial points were given for candidates who chose Alphaland and provided justifications for doing so.

3. Continued

- (i) Similarities - There was a surge in population in both countries between 30 and 49 years ago. Given that this surge was not sustained, there was likely a singular event to temporarily increase birth rates and/or immigration (e.g., end of a war).
Differences - Alphaland has since seen a steady decline in the birth rate (small base of pyramid at age cohort 0-14 compared to the child-bearing age cohorts of 15-49) whereas Betaband's birth rate continued to be large enough to grow the population (large base); Betaband's overall population is still increasing over time while Alphaland's is decreasing.
- (ii) Entry into each age band is immigration & survival; Exit is death & emigration.



- (iii) From Frenz case study: younger/millennial demographic is the target for specialty coffee drinks, so Frenz should choose the younger population → Betaband, which has a higher market growth potential.

- (d) State the purpose of the coflow structure.

Commentary on Question:

Most candidates did well in this question.

Coflow structures are used to keep track of the attributes of various items as they travel through the stock and flow structure of a system.

3. Continued

- (e) Recommend three corrections and/or improvements to the coflow diagram. Justify your answers.

Commentary on Question:

Most candidates got partial marks for this question as some recommendations are not acceptable.

Three recommendations are:

1. More coffee drinkers is the driver for more demand for coffee, not the other way around.
 2. Demand for coffee is a result of the number of coffee drinkers and the degree to which each coffee drinker seeks coffee. It is more appropriate for it to point toward Store Openings.
 3. Coffee prices, attitudes towards health, and disposable income are drivers of demand, not necessarily the number of drinkers. They should be connected to demand.
- (f) Describe how the relationship between the number of coffee drinkers and the rate at which people begin to drink coffee should be modelled in the above coflow diagram. Justify your answer.

Commentary on Question:

Generally, candidates either got full marks on this question or zero points. Very few got partial marks as the key point is to identify that this is a re-enforcing loop between the number of coffee drinkers and the new coffee drinker rate.

The relationship is a re-enforcing loop between the number of coffee drinkers and the new coffee drinker rate.

- (g)
- (i) Identify the complex pattern of behavior being applied by your colleague. Justify your answer.
 - (ii) Critique your colleague's statement.
 - (iii) Identify the most appropriate operational risk associated with Frenz's expansion plan to which the complex pattern of behavior identified in part (i) can be applied. Justify your answer.

Commentary on Question:

For part (i), many candidates did not recognize the "overshoot and collapse" pattern of a fundamental mode of behavior in dynamic systems caused by depleting resources (carrying capacity).

3. Continued

Part (ii) critique question was intended to test if the candidate can see the carrying capacity under the coffee situation may not go to zero as population of coffee drinkers are not limited by competition but by the rate of growth of a country which is depending on the birth and death rate as well as immigration policy of the country. Most candidates missed this point.

For part (iii) operational risk question, many candidates did not refer to the list of operational risk in the Case Study to apply the “overshoot and collapse” pattern of behavior. Only one operational risk can result in zero carrying capacity from the list of operational risk presented in the case study. Others may not result in zero carrying capacity or may only result in “temporary” zero carrying capacity but can recover with appropriate management action.

Model solutions to part g:

- (i) Growth & collapse → customers are looked upon as a consumable resource, declining carrying capacity.
 - (ii) Colleague infers that the number of customers (carrying capacity) is eroded over time as they purchase coffee, similar to Atari buyers in the 80’s (from syllabus). As soon as a coffee has been consumed, though, that customer is available again. Population will increase/decrease based on migration, mortality and births. More companies will increase competition, but not reduce the number of potential customers.
 - (iii) The answer must be “the degree to which Frenz is able to negotiate appropriate terms and conditions as it enters into, maintains, and develops commercial and other agreements could have significant impact on company financing and operation”. This is because it is a necessary resource for success and carrying capacity decreases as more companies move in, which in turn, lead to increasing risk of Frenz’s contract to terminate without being renewed. Only this operational risk on the Case Study list has a finite/non-renewable nature of real estate.
- (h) Frenz intends to use its loyalty card program during the expansion. Recall the Three Pillars of Thanking Customers.
- A. Type and Amount
 - B. Timing and Frequency
 - C. Sustainability
- (i) Assess the loyalty card program with respect to the Three Pillars of Thanking customers. Justify your answer.
 - (ii) Explain how the loyalty card program affects the coflow model above.

3. Continued

Commentary on Question:

For part (i), most candidates got partial grading points with only a few receiving full marks as many candidates did not assess the reward after 6 months to customers who stopped drinking Frenz coffee. Also many candidates failed to see the free coffee given is equivalent to providing bulk discount to Frenz coffee price and in the long run will impact product profitability. This reward scheme may no longer not be sustainable if the initial discount is extended beyond 1 year to avoid the drop off.

For part (ii), many candidates failed to make the positive polarity connection that the loyalty card made with demand. This resulted in some grading points being deducted.

- (i) Type and Amount: type of reward to which a customer responds best. A free coffee is a small reward, more about the thank you. Timing and Frequency: Initially it is good (1 every 10 times), but the change to 1 every 20 is a big drop-off. This may result in customer feelings of loss aversion caused by anchoring bias. The reward after 6 months may be perceived as rewarding customers who choose not to consume Frenz coffee rather than encouraging loyalty. This is contrary to the intent of the loyalty program. Sustainability: Essentially a 5% discount on people already purchasing a lot of coffee; amounts to a bulk discount. As per Case Study, having the reward drop from 1/10 to 1/20 after first year is sustainable in long run. However, if the reward is modified to keep the 1/10 reward perpetually in order to avoid the loss aversion and anchoring bias, it may not be sustainable in the long run due to the higher bulk discount provided to coffee price that may reduce the overall profitability for Frenz. So, it is best to consider a lower initial reward and slowly stepping up to a higher reward over time to make the reward problem more sustainable in the long run. This may also avoid the trivialization effect of the reward.
- (ii) The loyalty card will ensure demand for Frenz's coffee remains high. This means it should have a positive polarity influencing demand.