Strategic Decision Making Exam

Exam CFESDM

AFTERNOON SESSION

Date: Thursday, November 1, 2018
Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 4 questions numbered 6 through 9 for a total of 40 points. The points for each question are indicated at the beginning of the question. Questions 6 and 7 pertain to the Case Study, which is enclosed inside the front cover of this exam booklet.

2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.

3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.

2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.

3. The answer should be confined to the question as set.

4. When you are asked to calculate, show all your work including any applicable formulas.

5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate morning or afternoon session for Exam CFESDM.

6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

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Tournez le cahier d'examen pour la version française.

CASE STUDY INSTRUCTIONS

The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

> **Question 6 pertains to the Case Study.**
> **Each question should be answered independently.**

6.   (*12 points*)

(a)   (*1 point*) Describe the Herfindahl-Hirschman Index (HHI).

The market shares of the largest coffee house operations in North America, Europe and Latin America are summarized below:

2016 Market Share of Largest Coffee House Operators

	North America	Europe	Latin America
Frenz	18%	40%	11%
Starbucks	25%	5%	5%
McDonald's	20%	5%	4%
Other Regional Operators	37%	50%	80%

(b)   (*2 points*) Rank the three geographic markets with respect to HHI. Justify your answers.

Information on Frenz can be found in Section 4 of the Case Study.

Frenz is exploring ways to increase market share in North America and Latin America. One strategy is to develop a smartphone app that will reward users who "check-in" at Frenz coffee houses. The users may also allow the app to broadcast this "check-in" to all nearby friends within walking distance.

(c)   (*2 points*)

      (i)   Identify the social nudge that Frenz is utilizing in its smartphone app strategy.

      (ii)   Describe how the social nudge identified in part (i) may contribute to Frenz's digital strategy. Justify your answer.

6. Continued

Frenz recently launched the new smartphone app, but the adoption rate has been low. Upon further investigation of its customers, Frenz is able to categorize the coffee consumers into the following three major groups:

- Group A: students and young single workers, who are generally tech-savvy.
- Group B: working professionals, who always have a busy schedule and are constantly trying to meet multiple deadlines.
- Group C: the retired or elderly, who have relatively low social media presence.

The new smartphone app does not appeal to Groups B or C.

(d) (*2 points*) Identify one barrier of communication for each of Groups B and C coffee consumers that may have resulted in the smartphone app not appealing to them. Justify your answers.

Frenz decides to launch alternate marketing campaigns to specifically target Groups B and C. Consider the following four common communication media:

I.	Face to face communication
II.	Telephone communication
III.	Electronic messaging
IV.	Written display

(e) (*3 points*)

(i) Recommend a communication medium that best addresses the barriers identified in part (d) for each of Groups B and C. Justify your answers.

(ii) Describe an example for each of Groups B and C of how Frenz can use the communication media identified in part (i). Justify your answers.

(f) (*2 points*) Recommend a social nudge that Frenz can use effectively to increase coffee sales for each of the selected communication media identified in part (e). Justify your answers with an example for each nudge.

7. (*12 points*) Information on Blue Jay Air (BJA) can be found in Section 2 of the Case Study.

Disruptive technologies are defined as technologies that destroy the value of an existing technology and create new markets.

In a recent article, the following were identified as potential disruptive technologies to the transportation industry.

    I.   **High Speed Bullet Train** – a type of rail transport that operates significantly faster than traditional rail traffic, using an integrated system of specialized rolling stock and dedicated tracks. Primarily used in a regional capacity.

    II.   **Transit Elevated Bus** – a multi-passenger vehicle that drives along tracks embedded on both sides of the street, straddling above the traffic lanes beneath it.

    III.   **Autonomous Flying Vehicle** – a drone-like vehicle that does not require an onboard operator and can carry a few passengers relatively short distances. Speed of travelling is similar to a helicopter with sensor device that could detect and avoid approaching objects travelling at same or slower speed as the vehicle.

    IV.   **Hyperloop** – a mode of transportation that uses pods, with roughly 150 passengers, transported at speeds up to 750 miles per hour along the length of a low-pressure tube. The pods are supported on a cushion of air and accelerated via magnetic linear accelerators.

(a) (*6 points*)

    (i)   Evaluate how the disruptive technologies (I-IV) may impact BJA under each of Porter's five forces of competition. Justify your answer.

    (ii)   Describe three reasons why the disruptive technologies represent a threat to BJA.

    (iii)   Rank the four disruptive technologies (I-IV) in the order of greatest to least threat to BJA. Justify your answer.

7. Continued

Rebecca Gibbs, VP of Operations, considers the Hyperloop the wave of the future, and believes BJA should pursue a partnership with the Hyperloop One Company in order to be one of the early adopters of the technology.

Furthermore, she states "*When I was a kid, the October 1967 issue of Popular Science described Urbmobiles, which were cars running on tracks. I couldn't wait for them to be built, but it never happened. There is just no chance that the Transit Elevated Bus will happen. And there are no jet-packs, which was highly predictable, so there won't be a flying car. All of this was obvious. People just wanted to sell magazines.*"

Jim Peters, CRO, conversely, believes Rebecca is not carefully considering the true likelihood that these technologies will come to fruition. Ultimately, Jim believes that BJA's strengths and core competencies are most aligned with the Autonomous Flying Vehicle.

(b)   (*2 points*)

    (i)   Identify one heuristic used by Rebecca in her argument. Justify your response.

    (ii)   Identify one cognitive bias demonstrated by Rebecca. Justify your response.

You are given the following definition of strategy:

"Strategy is the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competences."

(c)   (*2 points*) Describe three reasons why the Autonomous Flying Vehicle represents the best strategic opportunity for BJA to pursue among the four disruptive technologies (I-IV) based on the definition of strategy provided above.

(d)   (*2 points*) Recommend two tactics that BJA can use with the Autonomous Flying Vehicle to successfully overcome rivals from other disruptive technologies. Justify your recommendation.

8. (*11 points*)

    (a)   (*3 points*)

        (i)   Explain how a liquidity event may impact credit risk. Justify your answer by providing an illustrative example.

        (ii)   Explain how a credit event may impact liquidity risk. Justify your answer by providing an illustrative example.

ABC Inc. has the following balance sheet profile:

- Liabilities mature in 14 years
- Assets backing liabilities:
  - Zero-coupon bonds maturing in 15 years with value of $100 having a current market price of $72
  - The bond issuers are not rated
  - Loss given default is 100%

The risk-free rate is 1%.

    (b)   (*2 points*)

        (i)   Determine a constant annual spread used for discounting ABC Inc.'s assets using the Reduced Form model. Show your work.

        (ii)   Explain the spread determined in part (i).

        (iii)   Describe three determinants of a bond spread not explicitly quantified by the Reduced Form model.

ABC Inc. assumes the entire spread is an illiquidity premium.

    (c)   (*1 point*) Critique the assumption made by ABC Inc. Justify your answer.

8. **Continued**

ABC Inc is considering three techniques to estimate credit risk of the assets:

      I.   Z-score
      II.   Neural networks
      III.   Engaging credit risk experts

(d)   (*3 points*) Describe one advantage and one disadvantage for each of the three techniques (I-III).

ABC Inc. has decided to engage credit risk experts to determine the amount of the credit spread component of its assets.

(e)   (*2 points*) Describe how ABC can design a process to minimize bias of the selected group of experts.

9. (*5 points*) Company ABC is considering one of two digital payment methods, A and B.

The company's CRO asks you to form a team of cybersecurity experts to evaluate the cybersecurity breach risk of the two payment methods. Your team is engaged in training, information gathering, and collaboration on cybersecurity risk best practices. The team has confidence in its decision making regarding which payment method is more secure.

(a) (*1 point*)

  (i) Identify a bias that your team may have. Justify your answer.

  (ii) Recommend a way to reduce the bias identified in part (i).

To measure the cybersecurity breach risk, your team uses a beta distribution to calculate the breach frequency. The following are the historical records of cybersecurity breach for the two payment methods:

  - For Method A, 3 breaches were incurred at 70 companies using this method during the past 2 years.
  - For Method B, 7 breaches were recorded at 150 companies using this method during the past 2 years.

(b) (*2 points*) Determine which payment method (A or B) is more secure based on a beta distribution mean, using uninformative prior probabilities. Show your work.

Company ABC wants to build a cybersecurity program from scratch. You are asked to select one of the security metrics models to measure its effectiveness.

(c) (*1 point*) Identify a security metrics model which is most appropriate for this cybersecurity program. Justify your answer.

One year later, the security metrics model is up and running.

(d) (*1 point*) Recommend the most appropriate way to improve the security metrics model identified in part (c). Justify your answer.

END OF EXAMINATION
Afternoon Session

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