SECTION A

1(a). Using material from all areas studied in this module, give specific examples of what Rebekah might need to do at each stage of this analysis.

Decision analysis is a systematic, quantitative, and visual approach to addressing and evaluating the important choices that businesses sometimes face. When you encounter personal or professional decisions, you can conduct a decision analysis to aid your process. This method requires using various decision-making tools to understand all aspects of the problem you aim to solve. By implementing its associated techniques, such as decision trees and expected value calculations, you can compare several options against one another for a more comprehensive decision. In this article, we explain the decision analysis process and provide examples you can use for guidance.

* Recognize the problem and scope the decision: Rebekah needs to be aware of the problem in hand causing the revenue of the company to decrease revenue which is ageing population in recent years eg, the company is unable to meet the needs of ageing customers. By identifying this problem a Rebekah scope her decision.

Rebekah should plan an integrated approach that takes the roles and goals of all key people involved in complex problems into consideration.

Rebekah’s aim is to focus on the cause, its key drivers, and their effect, so it’s important to define the boundaries. These boundaries should be sufficiently open to include all the relevant cause-effect relationships, but sufficiently narrow to avoid generalization and a loss of focus. Rebekah should use these boundaries to create a new, clear description of the problem she is solving.

Identify causes, effects, and key stakeholders. Within these boundaries, it’s time to focus on the causes and potential solutions. She should define the root causes of the problem the possible effects of those causes, some potential solutions, and the effects of those solutions. The key stakeholders who stand to benefit from a change in the system and how they be part of the solution, keeping in mind that a single effect can be the result of multiple causes, and a single cause can have multiple effects on a system.

Analyze future developments.

* Understand the problem: Rebekah must understand the problem causing the revenues to go down, if the problem is old age in the organization she needs to appoint new young hardworking and motivated workers in the company.
* Determine options: Rebekah need to come up with options on how to handle the problem at hand she must understand the many facets and nuances of this population.

She must come up with options to meet the needs of old consumers she can decide to give discounts on the products they are offering and she must interview the senior citizens on what they would like improved in their services.

* Evaluate this options: Rebekah needs to look for the pros and cons for the options she comes up with, that is determining how that option will be of use to the company and how can it also affect the company in other ways.

Rebekah should avoid delays while making decisions and also dedicate a day or block of time to go through the advantages, disadvantages and outcomes of your decision.

Rebekah should make decisions based on logic rather than emotions and also focus on facts. She should get advice from experts on the decision she is making because she might make a decision made before, experts will support her in the decisions she makes.

Using customer feedback is a great way to get data. Rebekah should explore other great ways of gaining data such as through research reports, industry trends and asking experts. Having reliable data will help Rebekah make the best decisions for the company.

Understanding the risks during this stage is very important because it will help Rebekah to make the right choices.

* Select the options: Rebekah needs to choose from a list of options such as

Affinity diagrams. Key use: brainstorming/mind mapping

Analytic hierarchy process (AHP) Key use: complex decisions

Conjoint analysis

Cost/benefit analysis

Decision making trees

Game theory

Heuristic methods

Influence diagrams approach (IDA)

To make the right decision and handle the problem at hand.

* Test the options: she needs to test her options by getting feedback from the customers and experts on where there might need an improvement.
* Impliment her decisions: she should now put her decisions into work.

Conclusion: Part of the decision analysis process requires examining potential uncertainties surrounding a decision. Rebekah may need to conduct research or other analysis to determine the probabilities of different outcomes. You can assess your decision based on the likelihood of its success and its ensuing potential value—or the likelihood of its failure and the corresponding potential loss.

(b). advantages of decision analysis approach

* When risk analytics systems can collect data flowing in from all areas of the enterprise, the possibilities are endless in how data can be used to improve business processes, illuminate adverse emerging trends, and/or establish and measure key risk indicators. Also, the more data collected by internal systems the more powerful risk analytics can be in uncovering opportunities that may be masked behind current risks being evaluated. It is simple – more data equals more possibilities. All that is needed is creative minds and nothing is impossible to envision as obtainable.
* An abundance of empirical data allows risk analytics systems to sift through high volumes of data to create forecasting models which can support decision making processes. Objective data helps mitigate cognitive biases that can fog mental processes involved in strategic decision making.
* Historical data injected with artificial intelligence can create random scenarios on what outcomes could happen in the future. This allows business leaders to establish risk appetites and boundaries on what they are and are not willing to accept when it comes to loss.
* Analytics processes can monitor how risks are being treated, so allocated resources can be more efficient. As no business has infinite resources at their disposal for managing risks, using data to measure risk treatment performance is critical. By monitoring risk response strategies using analytics, businesses can see the direct value being produced from their investment in enterprise risk management.
* Risk leaders who can facilitate cost effective risk response across the organization, are leaders who are adding value. Reduced risk management costs can be re-invested back into the organization – available for use in other areas. This is a classic example of how enterprise risk management creates and protects value for the business.
* Helps in collecting and analyzing data, you’re likely to find that it’s easier to reach a confident decision about virtually any business challenge, whether you’re deciding to launch or discontinue a product, adjust your marketing message, and branch into a new market, or something else entirely.
* Data is logical and concrete in a way that gut instinct and intuition simply aren’t. By removing the subjective elements from your business decisions, you can instill confidence in yourself and your company as a whole. This confidence allows your organization to commit fully to a particular vision or strategy without being overly concerned that the wrong decision has been made.
* Helps the decision maker to become more proactive when you first implement a data driven decision making process once is likely to react to it.
* Determines cost savings an organization is able to follow up on costs and also provides cost effective measures by reducing costs and providing better options for cost revenues
* Improves on revenues wise decisions made using this approach will help increase revenue and improve a company’s performance.
* Once you identify the problem one is able to come up with options to solve the problem.

(c). Explain the potential problems of this approach.

While in decision making process persons may try to satisfy themselves rather than optimize the decision. People try to seek the decisions that will be good for them rather than instead of finding the solution that best fits the organization.

Others may make the decision for gaining their own profit rather than the organization.

Ineffective decision making may be caused by immediate making of decision due to outside circumstances that pressure the decision maker. Decisions taken under time constraints will not give enough time to collect information and make decisions.

Uncertainty is another problem of this approach: It is the scenario where information cannot be accessed or is unavailable. It becomes very difficult for the decision-maker to make the optimal decision when he does not know about the consequences of various courses of action, strategies, and alternatives.

This may lead to decisions made being biased.

When the decision is made based on inherent beliefs and points of view then it becomes biased. People’s most common error is believing a wrong decision based on biasedness.

In systematic approach the process may not be always practical and lead to delays in decision making. Nature of inter-dependence is not defined.

Classification of the inter relationships has to be done properly otherwise it could be counterproductive.

Does not cater to contingencies or particular style of functioning in the organization.

May not be applicable to smaller organizations. The theory assumes that most of the organizations are big, complex and open systems.

In qualitative approach of decision analysis: sampling may not truly reflect if one infer from a sample of 4 employees and the company has 180 employees.

Samples may be biased.

2 (a). People often over-/under-estimate event probabilities. Explain, with the help of examples, the manner in which people over-/under-estimate probabilities because of the (i) availability, (ii) representativeness and (iii) anchoring and adjustment heuristics.

I).availability: An employer who wishes to gauge the rate of unemployment in their community may encounter the problem of obtaining the relevant information from official sources. But if they are not motivated or willing to do that, they can try to think of unemployed friends. The more easily they are able to do so, the higher will be their estimate of the rate of unemployment.eg frequency riding a bicycle is risky to the extent the accidents occur frequently.

If more events likely to be reported from media are from city A and city B and most people believe that city B is where most cases are reported then they will always assume city B have the most reported cases even if the cases in A and B are similar. Category size relates to probability in as much as probability is sometimes taken to be the proportion, in the population as a whole, of instances that belong to some specific category, or possess some specific feature. A person who wants to estimate relative frequencies draws a random sample. This person brings in mind either by active search or spontaneously the sample in mind. Sampling in mind is subject to many effects that determine the ease with which examples come to mind.

II. Representatives: The representativeness involves measuring the likelihood of an event by comparing it to an existing prototype that already exists in our minds. In markets investors assume that good companies make good investments another example is when bettors assume that the best team will always win. People frequently make the mistake of believing that two similar things or events are more closely correlated than they actually are, like the best team is always associated with winning every match of good companies always make profits.

Consider Perris She is 28, single, outspoken and very bright. She majored in economics at university and, as a student, she was passionate about the issues of equality and discrimination. Is it more likely that Perris works at a bank? Or, is it more likely that she works at a bank and is active in the feminist movement? Many people when asked this question will answer that Perris works in a bank but is also active in the feminist movement. But that is incorrect. In fact, in giving that answer, they’ve actually been influenced by representativeness bias. One of the things you want to think about is that you want to judge things strictly as they are statistically or logically, rather than as they merely appear.

III. Anchoring and adjustment heuristics: influences how people assess probabilities in an intuitive manner. According to the anchoring and adjustment heuristic, people employ a certain starting point which is the anchor and make adjustments until they reach an acceptable value over time. People rely on facts provided before a decision or an estimation is made.

Facts may be completely unrelated but they impact the outcome. The anchoring index is used to measure of the impact of anchoring on experimental outcomes.

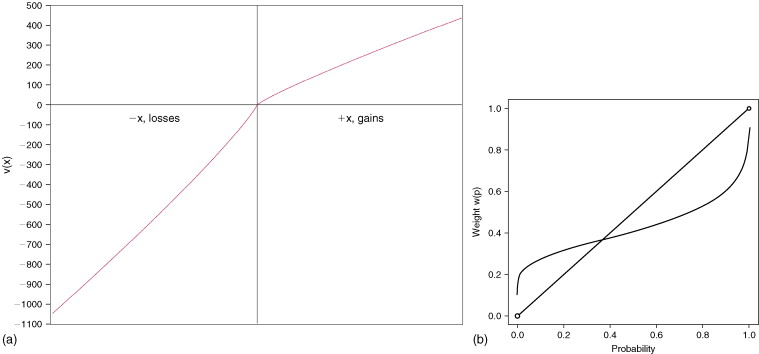
For example you’re asked two questions about a student in your class.

Is the tallest student in your class taller or shorter than 7ft?

What is your guess about the tallest student?

Most of the students will go for the second question which is guessing the average height of the student.

(b). Explain, with the help of a diagram and numerical examples, the manner in which people over-/under-weight probabilities as described by Prospect Theory.



Individuals make decisions based in perceived gains instead of losses.

The prospect theory says that investor’s value gains and losses differently, placing more weight on perceived gains versus perceived losses.

An investor presented with a choice, both equal, will choose the one presented in terms of potential gains.

Prospect theory is also known as the loss-aversion theory.

The prospect theory is part of behavioral economics, suggesting investors chose perceived gains because losses cause a greater emotional impact.

The certainty effect says individuals prefer certain outcomes over probable ones, while the isolation effect says individuals cancel out similar information when making a decision. Underlying explanation for an individual’s behavior, under prospect theory, is that because the choices are independent and singular, the probability of a gain or a loss is reasonably assumed as being half instead of the probability that is actually presented.

3(a). Outline the relative strengths and weaknesses of using (i) individuals and (ii) selected groups of experts for making subjective probability judgments.

Subjective probability is derived from an individual’s own experience on whether a specific outcome is likely to occur.

Strengths on individuals

Reflects the subject's opinions and past experience.

The subjective approach allows us to compute probabilities of events that are not repeatable. A classic example concerns betting at the racetrack. In order to decide on how to bet, we must first determine how likely we feel it is that each horse will win.

Occurs on how frequent the outcome has occurred.

You can use your opinions and beliefs to come to a conclusion of the likelihood that you think an event will occur.

While dealing with unknown variable you can use subjective probability when you have unknown variables in a situation. In situations where you don't have much information, you can draw on your knowledge, experience and personal opinions to help you make decisions and loosely predict the probability of an event occurring. This can benefit your business by helping you to predict future outcomes and prepare.

Subjective probability can also be useful when you need to make an estimate. Estimation occurs in many career fields, and you can use subjective probability to help you make estimates. Using subjective probability to draw on your past experience and professional knowledge can help you estimate as accurately as possible.

Many applications in finance and statistics, and it can be especially useful in situations like.

(b). Explain why quasi behavioral methods may be better than mathematical aggregation methods? Higher external validity than most true experiments, because they often involve real-world interventions instead of artificial laboratory settings. Higher internal validity than other non-experimental types of research, because they allow you to better control for confounding variables than other types of studies do.

They are often conducted to evaluate the effectiveness of a treatment—perhaps a type of psychotherapy or an educational intervention.

They are ease to use compared to mathematical aggression which are complex.

They are no time consuming compared to mathematical aggression methods which are tiresome and time consuming.

Mathematical aggression may provide biased information since the value produced may not be the actual value.

Quasi-experimental research involves the manipulation of an independent variable without the random assignment of participants to conditions or orders of conditions. Among the important types are nonequivalent groups designs, pretest-posttest, and interrupted time-series designs.

Quasi-experimental research eliminates the directionality problem because it involves the manipulation of the independent variable. It does not eliminate the problem of confounding variables, however, because it does not involve random assignment to conditions. For these reasons, quasi-experimental research is generally higher in internal validity than correlational studies but lower than true experiments.

(c). Describe the Nominal Group technique and explain how it improves upon the Delphi method.

Nominal group is a highly controlled small group process for the generation of ideas.

Individuals begin by writing down their ideas, then selecting which idea they feel is best.

Nominal group is used when: Some group members are much more vocal than others.

Some group members think better in silence.

There is concern about some members not participating.

The group does not easily generate quantities of ideas.

Some or all group members are new to the team.

The issue is controversial or there is heated conflict.

You form groups a problem is identified and each has to come up with an idea the mentor then has to state this ideas on a chart and the group members have to discuss each idea in turns. Discussion may clarify meaning, explain logic or analysis, raise and answer questions, or state agreement or disagreement. The group may also combine ideas into categories.

The recorded ideas in relation to the original question using motivating or list reduction have to be prioritized. Typically, the solution with the highest total ranking is selected as the final decision. Other variations include estimating the amount of work required to implement each solution by assigning it a point value; the higher the point value, the more work involved.

The Delphi Technique relies on questionnaires to gather information and insights from a panel of experts who remain anonymous to decision-makers for the purposes of candor while the Nominal relies on a moderator who records the ideas produced during an individual brainstorming session. Group members read their ideas aloud to the moderator. Each idea is discussed solely for the purposes of gathering information rather than debate. Nominal Group Technique is often used to inform less consequential decisions. It can be performed quickly and relies on the knowledge of participants without the time to conduct any further research. Because of this, it is often used to make the small- to-medium sized decisions which require some discussion without the need for additional or third-party opinions.