IT Questions (Corporate Finance)

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IT QUESTIONS (CORPORATE FINANCE)

Question 1

You currently work for Alpha Investments Inc. (AII) as an investment analyst with an insurance company in Eastern Canada. You recently purchased access to a national online claims database from a data broker that has data on claim settlements (injury, damage, financial payout, and so on). This data has been provided with authorization from many professionals (from medical professionals to lawyers) and is allowed to be used for predicting claim volumes and costs. Government agencies and other stakeholders use this information and have done so for many years. You intend to mine this data to forecast the types and volume of claims expected in your region for the upcoming year.

You had asked your IT assistant, Janis Lee, to run a variety of programs on this data to narrow down the information to what you need. Janis has just met with you and given you a summary of what she was able to do.

By running the programs, Janis has been able to extract not only the type of claims made, but also information on age, gender, and address of each claimant. Janis was also able to identify personal information linked to each claimant, including the name of the claimant, the extent of damage/injury, and the potential for recovery.

Janis is very excited about this development, since she has recognized some of the names. In particular, she recognized Helen Rosenberg, the vice president of market research at one of AII's competitors. Helen was in a serious car accident four months ago. Helen is key to the success of AII's competitor, and you believe the company will be at a significant disadvantage with her absence. You also know that there is no one else at the company who could take on Helen's role without negative repercussions. By using this data, you predict that the company's share price will fall significantly once the news becomes known.

You have concerns about using the data and have had a brief discussion with your supervisor. He has asked for a report outlining your concerns about this data and the implications of using it.

Required:

Discuss the implications and concerns you have about this data, in particular:

a) From the perspective of using the data to help you analyze the insurance industry and forecast future claim activity. Draw a conclusion as to whether you should use the data for this purpose.

b) From the perspective of using the data to predict share price movements for your competitor. Draw a conclusion as to whether you should use the data for this purpose.

Question 2

Judy Ericsdotter, the new marketing manager for Adaptive Wear (AW), a retailer of adaptive clothing for individuals with reduced mobility, recently proposed to the board that the company create a new website to allow customers to purchase products on the website rather than just through a catalogue and call centre. The call centre would still be available to take orders. The costs to design the website are initially $750,000. These costs are fully deductible for income tax purposes in the year incurred. Ongoing website maintenance would be $30,000 annually. Judy estimated that the number of call centre employees, each of whom is paid $35,000 annually, could be reduced by six. In addition, Elaine believes that sales would increase by 10% with no change in cost of goods sold. Currently, AW has a contribution margin of $2,100,000 annually, pays taxes at 25%, and has a policy stating that all IT projects must pay back in two years.

Required:

Using the payback method, should AW invest in the new website?

Question 3

PharmaOne Inc. is a private company that operates a chain of 30 drug stores in Western Canada. PharmaOne is considering upgrading the software in its pharmacies to allow doctors' offices to transmit prescriptions to the selected store for individual patients. Doctors would receive immediate notification if the drug they were prescribing was available, and if not, they would have the ability to amend their prescription. In addition, PharmaOne is also considering enhancing the inventory system to automatically generate orders to suppliers for product when quantities fall below a required minimum amount. Currently, doctors' offices fax in the new prescriptions, which are then entered manually into the system. In addition, the inventory report is reviewed daily, and orders of product are phoned in to suppliers.

Geoff Davis, the company's IT manager, is currently reviewing proposals from a variety of different software providers, and he hopes to make a decision in the next month, February. Geoff plans to implement the new system during March and April, at which time all of the data should be converted and the new system should be running smoothly. He has booked a three-week vacation for May, as he knows he will be very busy during the conversion process and will need a break by this time.

Required:

You currently work as a financial analyst for PharmaOne and have just been advised by the CEO about this new IT project. The CEO would like your comments on how this project will proceed and any other issues that should be addressed. He wants to ensure the implementation is successful. Prepare a report to the CEO as requested.

Question 4

Ceramic Arts Inc. manufactures ceramic floor tiles, in both natural hues (where the colour is determined by inputs used) and stamped tiles (where pattern in colour is printed on the tile). It has decided to automate its stamping process, which to date has been manual. Computerized robotics will stamp the various designs on the tiles as well as apply the final coatings. This should result in lower overall costs and ensure the stamp is evenly applied each time (previously, “mis-stamps” had to be destroyed or sold at deep discounts). The company is in the process of preparing a capital budget analysis for this robotic upgrade and has calculated a positive net present value for the project.

Required:

You currently work as a financial analyst for Ceramic Arts Inc. Your boss has asked you to provide a list of risks that should also be considered as part of the qualitative assessment of this project.

Question 5

Solar Construction Limited (SCL) has a cash balance of $300,000 on January 1, 2020. It produces custom-made sunrooms to size specifications set by the customer. SCL has decided to upgrade its IT system to a fully automated system that it will track an order, direct the production line to produce and package the required components (steel, glass, seals) based on customer specifications, update the finished goods inventory once production is completed, delete from inventory on installation, and prepare the invoice. SCL is at the initial stages of planning this upgrade. Most of the needs analysis has been completed. The timing and cost estimates for the project are as follows:

1. Needs analysis, review of proposals, and selection of the new system — October 1 to December 31, 2019
2. A system selection consultant has already been hired and will be paid $50,000 on February 15.
3. Testing of the new system — March 1 to April 30
4. Implementation — May 1 to June 30. This will allow the new system to be fully up and running during key construction months.

Costs estimates:

Hardware — payable January 1	$450,000
Software — 50% payable January 31; 50% payable May 31	$280,000
Ongoing maintenance costs — payable June 1	$40,000
Staff training — payable June 30	$20,000
Additional staff required during the testing and implementation stages — $27,000 per month January 1 to June 30	$162,000

The company has already prepared its cash budget for its operations that shows the net cash flows for each month as follows:

	Jan	Feb	Mar	Apr	May	Jun
Net cash flows from operations	$(90,000)	$(45,000)	$90,000	$170,000	$220,000	$250,000

Required:

Prepare a **cash budget** (projection of net cash flows and cash balance) for the six months to June. Determine the highest amount that the company will have to borrow under its line of credit to finance this upgrade.

Solutions

Solution to Question 1

CPA Way step: Assess the Situation

As an investment analyst, using non-traditional data may provide an advantage in predicting claim movements before peers in the industry. Therefore, there are benefits to using this data. However, there are several risks associated with this data that need to be addressed and further investigated. For my analysis, there are two major areas of concern:

1. Implications and concerns about using the data to help AII predict claims (and therefore to forecast premiums and payouts).
2. Implications and concerns about using the data to predict share price movements for AII's competitor.

Each of these situations is addressed separately below:

1. Implications and concerns about using the data to predict claims

CPA Way step: Assess the Situation

Detailed claim volumes will ensure that the forecasts are more plausible and realistic. With this more detailed information, the forecasts for the expected payouts can be better predicted. The use of the information on claims will help to forecast revenues that might be achieved by AII, since revenues will have to be set at a point where costs are recovered, plus a premium. This is the benefit to using this data.

CPA Way step: Analyze Major Issue(s)

The following are areas of concern and implications:

- What is the origin of the data, and how was it gathered? AII purchased the data specifically for the purpose of forecasting claim volumes. The data broker sells this data for just this reason. The data has been provided by a variety of professionals, and they have given their permission for this specific use.
- It appears that the data broker has the right to sell this data for these specific uses. Therefore, AII appears to be within its legal rights to use this data to predict claim volumes.
- Was the data gathered originally on an anonymous basis or was it made anonymous afterwards by deleting personal information? It appears that the data was gathered initially with personal information attached; otherwise, Janis would not have been able to identify the claimants. However, for making the AII predictions, the personal information is not necessary or required. Therefore, this data can still be used without the personal information being attached.

- As the information is being used at an overall level instead of a personal level, there are likely no ethical issues about using the data to predict claim volumes.
- Is the data accurate and valid? There is a risk that the data is not accurate or valid for AII's purposes. However, this data is sold and used by various government agencies and other industry agencies, so it is likely that the data is accurate and useful for predicting claim volumes.
- One remaining issue is that Janis was able to identify some of the personal information. Why is that? Whose responsibility is it to ensure the data is completely anonymous? The data broker should be informed of this issue immediately
- Because data security has become a major legal issue, this situation should be discussed with a lawyer to determine if the breach of basic data security should be reported to law enforcement.

CPA Way step: Conclude and Advise

Therefore, assuming the personal information can be deleted and only the anonymous data is used to predict claim volumes, the data can be used legally and ethically. However, it is important that AII inform the data broker immediately so that it can take appropriate action to ensure the personal information is deleted.

2. ***Implications and concerns about using the data to predict share price movements for AII's competitor***

CPA Way step: Assess the Situation

For the second issue, there are significant ethical and legal implications. AII will certainly have an advantage if it uses the information to make share price predictions.

CPA Way step: Analyze Major Issue(s)

However, significant risks are associated with using this data, as follows:

- Clearly, this is private and personal information about Helen Rosenberg that has not been made public. It is also unlikely that Helen gave her permission to release her personal information. Therefore, even though AII has access to the data, using it would be unethical.
- A second consideration is the validity and accuracy of the information. How can AII know that the data relates to *the* Helen Rosenberg of market research at AII's competitor? The identification process may have caused errors in any of the identifying information.
- It is likely illegal to use this personal information because it was not part of what AII actually purchased and was not intended to be used for AII's purposes.

CPA Way step: Conclude and Advise

AII should not use the personal information on Helen Rosenberg to make share price predictions about its competitor. After discussions with the lawyer on the legal ramifications of this breach of privacy, AII will have a better idea of how to handle this situation. In the meantime, Janis should ensure that all the personal information is kept somewhere very secure. It will likely need to be deleted, and Janis will need to ensure that the deletion is permanent.

Solution to Question 2

AW is considering launching an e-commerce website where its customers can purchase its products. Currently, all sales are made via a catalogue and call centre. This option will remain as part of the business model.

Payback period:

Initial investment = –750,000 × (1 – 0.25) = –562,500

Cash flows:

	Annual
Incremental sales (10% × $2,100,000)	$210,000
Savings for six people: 6 × $35,000	210,000
Ongoing website maintenance costs	(30,000)
Incremental before-tax operating income	390,000
Tax @ 25%	(97,500)
Net after-tax cash flow	$292,500

PBP = 562,500 / 292,500 = 1.92 years

AW should accept the project and invest in the new website because the payback period of 1.92 years is less than the two-year requirement.

Solution to Question 3

Memo to: CEO
From: Financial Analyst
RE: Upgrade of IT Infrastructure

When preparing a capital project analysis for any IT project, many issues must be considered. For this particular project, I have the following concerns, which should all be addressed to ensure the upgrade is successful:

1. This project appears to be an IT investment that will expand and improve existing systems because it will change the manner in which doctors' offices interface with the company. The improvements will also allow purchase orders to be made to the suppliers. These upgrades should make the operations more efficient and improve interaction with the doctors. However, implementing these changes will likely take more than two months, as currently planned, and more resources. This is particularly true because there are 30 locations that will have to implement the improvements Therefore, I believe the time and resources required for this change have been significantly underestimated.
2. It appears that the IT manager has not consulted the users regarding the planning, needs assessment, and development of this project. A team should be put in place to represent the users of this new system, including pharmacists, pharmacists' assistants, accounting, purchasing, physicians, and any other users. This team should then be responsible for choosing the appropriate software upgrades, as it better understands the shortcomings in the current system as well as the ways these shortcomings can be improved. This team will also have a better understanding of the time needed to properly implement the new system.
3. A cost-benefit analysis needs to be completed. Other improvements could potentially be made at the same time. It does not appear that this analysis has been properly completed.
4. Testing will be critical, as the new system will interface with outside stakeholders such as doctors' offices and suppliers. One pharmacy should be chosen as a test site to ensure the development has been done properly. This pharmacy should be of average size and volume so that the load of data can be properly tested. At the same time, the test site can be used to see how long training, data conversion, and final implementation may take. If changes are required, testing should be redone to ensure that all potential errors have been fixed.
5. In terms of implementation and data conversion, the new system should be run in parallel with the old system for a while to ensure that it is operating properly and reliably. Personnel will have to be properly trained at each location. The company will have to decide if each location will be done in sequence, or whether some locations can be done simultaneously. This will take longer than two months.
6. Costs for each stage need to be estimated. One major question is the amount of time and resources it will take to convert data to this new system. Will the company have to hire additional staff to help with this input and conversion? Costs should be

estimated for hardware (at 30 locations), software, service contracts, and use of internal resources.

7. The estimate of two months is too short for a successful implementation across 30 pharmacies. In addition, how will users react? Will they embrace or object to the changes? If users are involved in the initial stages as suggested, it is more likely that the changes will be embraced and successfully implemented.

Based on the current plan, it is likely that testing will not be adequate, training and conversion will not go well, and final users will not accept the changes. All of this will lead to a costly and unsuccessful IT improvement project. However, if the suggestions above are implemented, risks of failure will be reduced significantly.

Solution to Question 4

As requested, below is a list of potential areas of risks that are specific to this new robotics implementation:

1. Testing may take longer than anticipated. It will take time for the equipment to be tested to ensure that stamp is applied properly with no smears or missing sections.
2. The new system may not integrate properly with the company's existing systems. Is there a current system that needs to be integrated with the new system? Is there an automated or computerized part of the current production process that the new robotic system would need to integrate with? If so, the integrated systems need to be tested to ensure that errors, crashes, and duplication of work are avoided.
3. The system needs to be tested at the right load level to ensure the new automated robots can handle the production output.
4. Employees may not embrace the new changes, causing problems or delays with implementation, resulting in higher costs. How will the current employees react? Will people be laid off, making employees resist the changes? Will operators be properly trained to ensure the new equipment works properly? If acceptance is poor, these factors will result in higher costs and low employee morale.

Solution to Question 5

	January	February	March	April	May	June
Net cash inflows from operations	($90,000)	$45,000	$90,000	$170,000	$220,000	$250,000
Consultant		($50,000)				
Hardware	($450,000)					
Software	($140,000)				($140,000)	
Ongoing maintenance						($40,000)
Staff training						($20,000)
Additional staff	($27,000)	($27,000)	($27,000)	($27,000)	($27,000)	($27,000)
Net cash flow	($707,000)	($32,000)	$63,000	$143,000	$53,000	$163,000
Opening cash balance	$300,000	($407,000)	($439,000)	($376,000)	($233,000)	($180,000)
Closing cash balance	**($407,000)**	**($439,000)**	**($376,000)**	**($233,000)**	**($180,000)**	**($17,000)**

The maximum amount that SCL will require to draw down on its line of credit will be $439,000 at the end of February.