IT Questions

(Intermediate Financial Reporting 1)

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IT QUESTIONS (INTERMEDIATE FINANCIAL REPORTING 1)

Question 1: Accounting information systems

1. Which of the following best describes an accounting information system (AIS)?

   a) A system that captures financial transactions for recording and processing
   b) A computerized system of recording financial transactions
   c) An Excel workbook that is used to record all cash transactions
   d) A system for documenting company processes and data

2. Which of the following is **NOT** an advantage of having a computerized AIS?

   a) The ability to detect fraud in real time
   b) The ability to access financial records from outside of the office through remote servers
   c) The ability to process transactions and see financial results in real time
   d) The ability to have a controlled system in place to record financial transactions with automatic checks and balances

Solutions to MCQs

Question 1: Accounting information systems

1. Option a) is **correct**.
2. Option a) is **correct**.

Question 2

You are the financial controller for Tailored Interiors Inc. (TII), an interior design company that specializes in custom storage solutions for its clients. You report to the company's newly hired vice-president (VP) of Finance.

TII has 50 employees who have traditionally used networked PCs to meet their computing needs. The sales team also uses a proprietary, customized program to design and demonstrate the custom storage area for customers. The customized program is seven years old, and there have been some compatibility issues with the most recently purchased PCs.

TII traditionally replaces its PCs every three years to ensure that its employees are working with up-to-date hardware. The next replacement is scheduled six months from now. The VP of Finance most recently worked for a company that used Apple products for all its needs. He prefers the user-friendly interface for which Apple products are known, and knows that Apple also sells its own fully compatible interior design software. The idea of sales staff using iPads with the software to improve the customer experience, rather than a desktop PC, is also important to the VP. He has indicated that he would like TII to replace its PCs with Apple computers (Macs), depending on the use, at the next scheduled replacement date.

Other facts follow:

- TII's payroll costs an average of $35 per hour.
- The useful life in an office environment is normally five years for Macs and three years for iPads, versus about three years for PCs.
- A software engineer has quoted a price of $40,000 to upgrade the interior design software to address potential compatibility issues with the PCs to be purchased.
- A PC supplier has quoted a price of $110,000 to replace TII's current PCs with new PCs.
- Apple has quoted a price of $320,000 to replace TII's current PC network with an Apple network. The performance specifications of the Macs are comparable to the PCs above. The quote includes all necessary hardware and software, including the compatible interior design package. $50,000 of this amount relates to the one-time cost of converting the office to an Apple-based network.
- All employees are PC literate. Currently 20% of the employees are Apple literate. The cost of training the remaining employees on Apple is estimated to be $500 each for a half-day training session.

Required:

Identify the pros and cons of changing from PC-based computing to Apple-based computing.

Question 3

Exclusive Health and Wellness (EHW) is a private members-only spa facility. EHW's membership is capped at 2,500 members. There is a long wait-list to get into this exclusive facility, despite the non-refundable $25,000 initiation fee. Annual membership fees are more modest at $2,500 and are applied to services used at the facility. Services purchased in excess of the annual membership fees are paid for at the stated prices.

The membership base is not expected to change materially in the foreseeable future.

Members can request a service up to two weeks in advance. The requests for services are handled by the reservations staff, and available appointment times are assigned to members on a first-come, first-served basis. On average, about 3,500 appointments are booked, amended, or cancelled per month.

Following is a more thorough description of the process:

- Members complete a paper-based form in person, indicating the services they want and their desired date and time.
- If members subsequently wish to cancel their request for a service or need to change the service and/or date requested, they must advise the reservations staff (either in person or by phone) of the required changes. The staff compiles these requests on a separate list.
- Daily, a staff member retrieves the request forms, makes the necessary deletions and amendments from the compiled list, and then begins drafting a schedule by endeavouring to match the members' requests to the available appointment times. This is not always possible, as it is very common for two or more members to request the same time. This is usually accommodated by allocating appointment times shortly before or after that requested. It is not uncommon, however, for the number of requests for appointments to exceed those available for prime slots such as Saturday morning.
- Theoretically, when there is a shortage of appointment times, the reservations staff is required to "disadvantage" all members equally. For example, if Member A is awarded a prime appointment one week and Member B is displaced, then the following week Member B should be awarded the prime appointment and Member A displaced. Nevertheless, anecdotal evidence shows that this equitable practice is not followed, and many members have complained to the board of directors that the reservations staff plays favourites when awarding appointment times.
- Once the schedule has been made, members requesting cancellations, additions, and amendments in person can view the schedule to determine available alternatives before making their request. As the schedule is not available online, however, members phoning in must first ask the reservations staff to check the schedule for them and outline the available alternatives.

EHW's board of directors is tired of dealing with member complaints about the current system. It is keenly aware of the labour-intensive process, inefficiencies, and inconvenience to members who make a special trip to the facility to book appointments. The board directed the spa's executive director to investigate some options to resolve the current situation.

You, CPA, are the financial controller of EHW. You have held this position for five years, during which you have got to know many of the members quite well and understand what is important to them. The executive director has delegated the board's task to you and asked you to research available options and to make a recommendation as to how to proceed. The executive director has indicated that the proposed solution must include the following features:

- Members can create and update a profile, including contact info, health issues, and preferred service providers.
- Members can request appointment times online and amend or delete their requests up to four hours before the service time. If a cancellation is made less than four hours beforehand, the member will be charged for the service.
- Members can view the available appointment times online, in real time, to avoid requesting services in time slots that are already booked.
- If members want a specific appointment time that has already been booked, they can add themselves to a wait-list for that time. The schedule will be configured by the software program automatically. The software program will include an "equity" feature to ensure that available times in peak demand times are allocated on an unbiased basis.
- Members can view their previously booked as well as upcoming appointments.

The executive director established that the criteria considered by you should be cost, reliability, and user-friendliness. User-friendliness is important, as EHW has a number of members who are uncomfortable with sophisticated software programs.

Your research has narrowed the options to three workable solutions, all of which meet the "must have" requirements detailed above:

- ClinicWorks (CW) is a commercial software program that is widely used by healthcare providers around the world for booking appointments. Details of CW follow:
    - CW is available only as a hosted solution. It is available at a cost of $0.10 per request for time, change, or cancellation, subject to a $200 monthly minimum, based on a two-year contract.
    - Software updates and upgrades are provided on an as-needed basis by the host, at no additional charge.
    - CW can accommodate up to 25,000 users per facility.

  - CW is very user-friendly, and most people do not have any problems using the software program to book appointment times.
  - For the most part, CW is reliable. Through discussion with your counterparts at other similar facilities, however, you have determined that the system is down and unavailable to users, on average, about four hours per week on a random basis. Also, when faced with high user volume, CW can sometimes lose appointment requests. On average, about 20 requests per month are lost.
- BookIt (BI) is a commercial software program used by public and private healthcare facilities throughout North America. Details of BI follow:
  - BI is available only as a hosted solution. It is available at a cost of $0.40 per member per month, subject to a $400 monthly minimum based on a five-year contract.
  - Software updates and upgrades are provided on an as-needed basis by the host. Updates are provided at no additional charge; however, there is a $1,000 fee for each upgrade. Typically, the software is upgraded every 12 to 18 months.
  - BI can accommodate up to 50,000 users per club.
  - BI is extremely user-friendly, and people with rudimentary computer skills report that the program is easy to use.
  - BI is very reliable. You have ascertained that the host's systems are down for one hour per week for scheduled maintenance, with the outage scheduled at 3 a.m. on Wednesdays. Moreover, requests for appointment times are rarely lost.
- An experienced and well-known software developer has offered to create a customized software (CS) package for EHW. This developer has designed similar packages for spas, albeit on a smaller scale. Essentially, she has created a proprietary software program that she customizes for each facility based on the spacing of its appointment times (for example, every 60, 75, or 90 minutes), booking preferences, scheduling, number of service providers, and other criteria unique to the purchasing entity. Details of CS follow:
  - The software developer has quoted a price of $150,000 to develop the requested software.
  - CS can accommodate up to 2,500 users. This capacity can be subsequently increased to 5,000 users for $20,000.
  - The system features can be modified at a later date; however, any changes would have to be made by the software developer. Depending on the nature of the requested change and the availability of the developer, a substantive lead time may be required to alter the program. Moreover, customized modifications tend to be more expensive than upgrades and changes to commercial software packages.
  - CS's user-friendliness parallels that of the BI software package.

- The estimated useful life of the CS is 10 years.
- Through discussion with your colleagues who use similar systems, you have established that CS is extremely reliable and that it is available 24 hours per day, as there are seldom any system failures. Moreover, requests for appointments are never lost.

Required:

Use the CPA Way to analyze this situation and to prepare a memo to EHW's executive director, making a recommendation for resolving the current situation.

Question 4

Discuss the benefits of using a computerized accounting information system.

Question 5

Companies often use information systems to gain and maintain a competitive advantage in their industry. Briefly discuss how they accomplish this.

Solution to Question 2

Pros of switching TII's computer network from PCs to Macs:

- The VP of Finance is advocating for the switch.
- Macs typically last a minimum of five years versus three years for PCs, so the current three-year replacement cycle could be expanded to five years. However, the iPads would have to be replaced every three years, which is the same as the current cycle.
- Apple includes fully compatible interior design software. This negates the need to maintain and upgrade separate software every time the PCs are replaced.
- The $40,000 capital cost of upgrading the proprietary design software when the computers are replaced can be avoided.

Cons of switching TII's computer network from PCs to Macs:

- There is likely to be considerable disruption to the normal flow of operations and lost production time during the training and conversion period.
- Some employees may resist the change given their unfamiliarity with the Apple product. This may hamper productivity and foster employee resentment.
- Switching from a PC to an Apple environment entails considerable costs, including the following:
  - one-time cost of $50,000 to convert TII's PC network to an Apple network
  - explicit training cost of $20,000
  - lost revenue in the period the employees are in training and therefore not doing work that generates revenues
- Excluding the one-time start-up costs, Macs are marginally more expensive than PCs on an annual basis:
  - ($320,000 – $50,000 conversion cost) / 5 years = $54,000 per year for the Macs
  - ($110,000 + $40,000 software upgrade) / 3 years = $50,000 per year for the PCs

Solution to Question 3

Preamble:

CPA Mindset

As a CPA, you must approach your assignment in a professional manner by analyzing the issues objectively and performing your work competently and carefully while maintaining an appropriate level of confidentiality.

Communicate

Prepare a memo outlining the analysis below, addressed to the facility's executive director. The memo should include an assessment of the situation, an analysis of the major issues, and a conclusion that includes your advice or recommendation.

MEMO:

To: Executive director, Exclusive Health and Wellness (EHW)
From: Financial controller, CPA

Assess the Situation

The current system for requesting and allocating appointment times is a frequent cause of member complaints, as it is inefficient, inequitable, and inconvenient. The board of directors has established a number of features the proposed solution must have, as well as the criteria to be considered in the decision-making process.

Through research, three solutions were identified. All three solutions satisfy the board's "must have" features. Consequently, my recommendation will be based on the selection criteria provided by you: cost, reliability, and user-friendliness.

According to feedback from members, user-friendliness and reliability matter most. The cost of the system, while always a consideration, is somewhat less important to prosperous individuals who paid $25,000 to join the facility.

Workable solutions that have been identified include the following:

- ClinicWorks (CW) — a hosted solution commercial software package widely used by healthcare providers around the world
- BookIt (BI) — a hosted solution commercial software package widely used by public and private healthcare facilities in North America
- Customized software (CS) — a customized solution designed by a software developer with considerable industry experience

Analyze Major Issue(s)

The “must have” features are online member profiles, online applications, online changes, real-time access to the schedule by the members, and an unbiased wait-list for appointments completed by the software program.

As such, the major issues to be considered are the stipulated criteria: cost, reliability, and user-friendliness.

The relative benefits of the alternatives being considered are summarized in the following table:

	ClinicWorks (CW)	**BookIt (BI)**	**Customized software (CS)**	**Best option**
Nature	Hosted	Hosted	Owned	
Reliability — availability	Satisfactory — unavailable four hours per week on a random basis	Good — unavailable one hour per week on a scheduled basis during non-peak hours	Excellent — seldom, if ever, unavailable	CS
Reliability — lost appointment requests	Satisfactory — 20 lost appointment requests per month	Excellent	Excellent	BI and CS
User-friendliness	Good	Excellent	Excellent	BI and CS
Cost over 10 years	$42,000* (0.10 × 3,500 × 12 × 10)	$120,000* (0.40 × 2,500 × 12 × 10) + upgrade costs of $6,000 to $10,000 if required	$150,000 + cost of future modifications if required	CW

* CW and BI costs should be discounted to reflect the time value of money.

Reliability

CS is the most reliable, and the BI-hosted software is almost as dependable. In this respect, both systems seldom, if ever, lose requests for appointment times. CS is available 24 hours per day, and BI is nearly as good, having a scheduled down time of one hour per week for maintenance. This should not be a major issue, however, as the planned outage is scheduled at a non-peak time.

The board’s goals of reducing member complaints and improving the convenience of the current booking system are best met by CS and BI, as CW loses requests for appointments and is unavailable to users for about four hours per week, including peak times. Clearly, CW is not as dependable as the alternatives and will likely result in ongoing complaints to the board.

User-friendliness

The BI-hosted solution and the CS solution are both extremely user-friendly, whereas the CW-hosted solution is somewhat less user-friendly. As one of the board's goals is to reduce member complaints, this criterion suggests that either BI or CS should be acquired. Simply put, some members will struggle to use the CW software and are likely to complain to the board about it.

Cost

CW is the least expensive solution, followed by BI and the CS solution. If cost were the only criterion, EHW should choose CW. Cost, however, while always a consideration, should not be used as the primary criterion in this situation as, in my judgment, it is less important to members than reliability and user-friendliness. The BI software, which is clearly superior to CW by the other two criteria, has only a small incremental cost for each member — approximately an additional $3 per year[1]!

The cost of the BI software is approximately 80% of the cost of the CS solution, and these two options are fairly equal with regard to reliability and user-friendliness.

Conclude and Advise

The board's goal is to improve its current booking system for members with a view to reducing member complaints and gaining efficiencies in the organization. You provided three criteria that should be considered in the decision-making process: cost, reliability, and user-friendliness. Of these, cost is the least important given the affluence of our membership base.

The CW software system is the least reliable and least user-friendly and accordingly is not the best solution for EHW. While a compelling argument can be made for both the BI-hosted solution software and the CS alternatives, I recommend that EHW purchase the BI system, with cost as the determining factor. While CS is slightly more reliable, it is only negligibly so, and is not worth the additional cost. Moreover, in the unforeseen event that our needs change in the future, we can upgrade or change the hosted system quickly and without concern for the sunk cost of the customized system.

Note: This case purposefully included facts that were not really germane to the decision-making process. For example, information on the following items was given:

- the challenges of modifying the CS package
- the cost to upgrade the capacity of the CS package from 2,500 to 5,000 users

[1] $120,000 – $42,000 = $78,000; $78,000 / 2,500 members = $31.20 per member; $31.20 per member / 10 years = $3.12 per member per year.

This information is largely irrelevant and can be ignored in the analysis as, at the outset, it is established that the club has 2,500 members and that this number is unlikely to change in the foreseeable future. As such, a steady state exists in which the need for subsequent modifications to the software is highly unlikely given the utilitarian nature of the program. Your learning takeaway should therefore be to focus on identifying and analyzing relevant information and ignoring or only mentioning in passing any extraneous details.

Note that this is only one acceptable solution. If you judged that cost was very relevant to the decision, you could make an argument for the purchase of the CW software.

Solution to Question 4

One of the benefits of using a computerized accounting information system is that it enables a company's accountants to maintain a single integrated database in which information related to all financial transactions, payroll, and tax filings is held in a central location. This increases efficiency, as employees have to enter a data set only once, but it can be used for multiple purposes. Take, for example, employee hours. Employee hours can be used for submitting the company payroll, determining compensation expense for the financial statements, and determining the cost of units manufactured.

Another benefit of a computerized accounting information system is that it reduces the overall volume of data (that is, entering data once into an integrated system versus entering the same data multiple times in decentralized systems). This normally reduces the incidence of human error and the amount of oversight required to ensure any errors are found and corrected. As a result, the integrity of the accounting system is improved, as the data it contains is likely to be more accurate. For example, assume that as a result of a company using an integrated, computerized AIS, a junior accountant's data entry is reduced from 4,000 items per month to 2,000 items per month. If the accounting clerk normally makes one input error in every 500 entries, the number of errors should drop from eight per month to four per month.

Similarly, while systems must remain in place to verify the accuracy of data input, as the number of errors decreases, the likelihood that they will all be found increases, which again improves the integrity of the accounting system. By storing the data in a single location, the risk that the data is not entered into all relevant locations is also eliminated.

Solution to Question 5

Two of the primary ways companies gain a competitive advantage over their competitors are (i) to be low-cost producers, and (ii) to differentiate their product or service sufficiently so that they can charge a premium price for it.

Information systems can facilitate this in various ways, including the following:

- Reducing costs by automating as many stages in the process as possible. An example of this automation is provided later in this solution.
- Providing real-time information, perhaps though a dashboard interface, that facilitates follow-up on key success factors in a timely manner. For example, preferences and purchase trends of repeat customers can be monitored with a view to differentiating your service by proactively offering items of possible interest to your customers. Similarly, inventory levels and overdue receivables can be easily monitored to ensure the optimum level of inventory is maintained and bad debt expense is minimized.

An example of using information systems to maintain a competitive advantage is the computerized integration and automation of a supermarket's point-of-sale software, online payment service provider, inventory records, and general ledger. In this respect, the following steps are often followed when you go through the checkout at your local supermarket:

- The clerk scans the UPC code, negating the need to key in the item manually, thus saving time and reducing errors.
- The cost of the item is added to your order.
- Promotion discounts are automatically applied.
- Taxes are automatically added to your invoice.
- The amount owing is totalled.
- You are provided with an itemized list of your purchases.
- If paying by electronic means, the amount owing is sent to the card-reading device. Payment is then approved and processed by the payment service provider.
- The inventory records of the store are updated (and in some cases reorders of stock are automatically triggered).
- The supermarket's sales, cost of goods sold, cash, and GST/PST/HST owing are updated.

Moreover, many stores offer self-checkout services to further reduce their costs by reducing the need for sales clerks. Stores that employ these systems and processes can reduce their costs, and those savings can then be passed onto consumers, or reinvested in the company. This provides the business with a competitive advantage over competitors whose systems are not automated to the same extent.

Maintaining a competitive advantage is as important as achieving the advantage in the first place. So, while it can be successfully argued that automating the checkout process isn't really a competitive advantage because almost everyone does it, consider what would happen to a once-dominant store that did not automate. It could lose customers and market share as its budget-conscious customers left to shop at competitors who were able to offer lower prices due to lower operating costs.