CHAPTER 20

INTRODUCTION TO SYSTEMS DEVELOPMENT; SYSTEMS ANALYSIS

SUGGESTED ANSWERS TO DISCUSSION QUESTIONS

20.1 The approach to long-range AIS planning described in this chapter is important for large organizations with extensive investments in computer facilities. Should small organizations with far fewer information systems employees attempt to implement planning programs? Why or why not? Be prepared to defend your position to the class.

Yes, companies with few IS employees should attempt to implement planning programs. This is particularly true if the company or its computer usage is growing. The extent of the planning should be commensurate with the size of the computer facility, reliance on system information, and the potential value of the company's system.

Planning produces benefits even if the planning effort is minimal. In the smallest facility, the plan may consist simply of a few pages of thoughts and projects that are prepared and reviewed periodically by the person in charge of the system. It could also consist of a bare bones cost-benefit analysis.

A smaller company will typically have fewer funds than a large company will. Therefore, inadequate planning can be more disastrous and financially draining for small companies.

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20.2 You are a consultant advising a firm on the design and implementation of a new system. Management has decided to let several employees go after the system is implemented. Some have many years of company service.

- Tell employees what is going to happen to them as soon as possible.
- Institute a hiring freeze so staff can be reduced by attrition.
- Retrain displaced employees for other jobs.
- Offer early retirement to older employees.
- Offer retirement incentives.
- Offer displaced employees comparable positions in other divisions of the company.
- Hire a personnel-consulting firm to help displaced employees find alternative employment.
- Train displaced employees for positions in the new system.
- Encourage part-time work or job-sharing.

How would you advise management to communicate this decision to the affected employees? To the entire staff?

- The communication should be direct, so that the employees are the first to find out and are not subject to the whims of rumors and uncertainty.
- The communication should be prompt so the employees have sufficient time to seek other jobs.
- Management should offer as much employee assistance as possible to help them find new jobs. This includes recommendations from supervisors, priority consideration for other jobs in the firm, opportunities for positions in the new system, time off to search for a new job, and severance pay.

While these actions may be costly, they will provide benefits (cooperation, improved morale in the remaining employees, etc.) that will likely exceed the costs.

20.3 While reviewing a list of benefits from a computer vendor's proposal, you note an item that reads, "Improvements in management decision making—$50,000 per year." How would you interpret this item? What influence should it have on the economic feasibility and the computer acquisition decision?

The item cannot be properly interpreted without further information from the computer vendor, such as what decisions, made by which managers, are they referring to? How will the decisions be improved by the system? Unless you get very specific answers that support the calculations, the item should be ignored when making the computer acquisition decision.

Usually, a computer system will help management make better decisions. However, these decisions do not always result in a direct cost savings. The economic feasibility study should only include costs that can be directly determined. In addition to an economic feasibility study, qualitative factors, like better decision-making, should be considered. In many instances, these non-quantifiable benefits may be the most important or the majority of the benefits. Even though they are subjective and are surrounded by uncertainty, they must be considered.

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20.4 **For each of the following, discuss which data-gathering method(s) are most appropriate and why:**

a. **Examining the adequacy of internal controls in the purchase requisition procedure** -Observation of procedures, interviews with employees, and documentation reviews (of document or control flowcharts, for example) will all aid in understanding purchase requisition procedures. Each type of procedure will identify different aspects of the internal controls in the purchasing department.

b. **Identifying the controller's information needs** - An in-depth interview with the controller is one way to determine her information needs. However, managers often don't know what information they need; they say they need the information they are now getting and little else. Therefore, the interviewer/analyst must understand the manager's function and the role of that function in the organization. The interviewer should also ask the controller what information she would like to receive that she is not now receiving. Interviewing is an efficient fact-finding technique that allows a prepared and informed interviewer to ask "why" or probing questions to better identify the controller's needs.

Reviewing the reports that the controller currently receives is also a good way to identify her needs.

c. **Determining how cash disbursement procedures are actually performed** - If the cash procedures are documented, a review of that documentation will help understand how it is supposed to work. The best way to understand how cash disbursement procedures are actually performed is to interview employees, observe them, and prepare flowcharts and notes.

d. **Surveying employees about the move to a total quality management program** - By using a questionnaire, the opinions of many different employees can be gathered. Questionnaires also produce information in a standardized format. A questionnaire allows employees to think about the questions before giving answers and it is more objective than other data gathering methods. Anonymous questionnaires will encourage employees to give honest answers.

Questionnaires produce a "breadth" but not a "depth" of information. To go beyond the questions in the questionnaire, interviews should be held with selected employees. The purpose of the interviews is to probe deeper to find out why employees feel as they do.

e. **Investigating an increase in uncollectible accounts** - Interviews with employees and examination of documents will provide good initial sources of information to investigate the problem. Documents will show which accounts are uncollectible and help with an understanding of the company's collection policies. Interviews will help determine why uncollectible accounts have increased.

20.5 The following problem situations occurred in a manufacturing firm. What questions should you ask to understand the problem?
Customer complaints about product quality have increased.

- What is it, specifically, that customers are complaining about?
- Has anything happened to change product quality during the past few years?
- Is poor product quality the result of:

Poor quality raw materials?

Inadequate product specifications? If so, can they be altered to improve quality?

Low employee morale?

Changes in production procedures?

Other possibilities for poor quality

Does the company have a total quality management (TQM) program? Should they?

Accounting sees an increase in the number and dollar value of bad debt write-offs

- Has the company recently changed its credit policy? If so, why?
- Are certain customer groups more delinquent than others are?
- What collection procedures does the company employ? Are they adequate? If not, why not?
- Are early payment discounts and late payment penalties adequate?
- Are current economic conditions affecting delinquency rates?

Operating margins have declined each of the past four years due to higher-than-expected production costs from idle time, overtime, and reworking products

- Does the production scheduling system perform satisfactorily? If not, why not?
- Are there delays in receiving materials? If so, why? What are the current policies for handling the receipt of raw materials?
- What causes the overtime problem? Increasing sales, understaffed lines, inefficient workers?
- Is product rework caused poor employee performance, poor quality materials, poor production process, etc.?
- What economic conditions are affecting production costs?

20.6 Give some examples of systems analysis decisions that involve a trade-off between each of the following pairs of objectives:

There are many examples of the tradeoffs between information system objectives. One example is provided here for each pair of objectives.

a. **economy and usefulness** - the decision of how much information to give a credit manager to help in deciding whether to extend credit versus the cost of providing that information.

b. **economy and reliability** - the decision of whether to implement a new internal control procedure.

c. **economy and customer service** - the decision of whether or not to allow sales personnel to access data versus the cost of providing that information and the cost of the information being used for unintended purposes.

d. **simplicity and usefulness** - any decision about the extent to which output information should be reported in detail or in summarized form.

e. **simplicity and reliability** - any decision about whether or not to implement an internal control procedure.

f. **economy and capacity** - the decision of whether to acquire additional storage capacity.

g. **economy and flexibility** - the decision to replace older, less flexible storage mediums with newer, more flexible, and often more costly storage mediums.

20.7 For years, Jerry Jingle's dairy production facilities led the state in sales volume but recent declines worry him. Customers are satisfied with his products but are troubled by the dairy's late deliveries and incomplete orders. Production employees (not the cows) are concerned about bottlenecks in milk pasteurization and homogenization due to poor job scheduling, mix-ups in customers' orders, and improperly labeled products. How should Jerry address the problems? What data-gathering techniques would be helpful at this early stage?

Jerry could install an information system that coordinates job scheduling, tracks customer orders, and controls product labeling. The system can also help reduce bottlenecks in the milk pasteurization and homogenization process by controlling production schedules.

It appears that Jerry has conducted an initial investigation and determined that actual problems exist. Jerry now needs to conduct a more in-depth investigation to verify the nature of the problem and to identify customer and the user needs.

- The person conducting the investigation should interview the employees who process, bottle, and deliver the milk. These employees will be able to identify what is wrong with the current process and make suggestions for improvement.

- Customers should also be interviewed to find out their needs, since meeting customer's needs is the ultimate goal of the company.

- Jerry and supervisory personnel should be interviewed to get their insights about the problems and possible solutions.

Interviewing from the bottom up can result in better problem identification and solutions than from the top down. Lower level employees are more likely to accept a change in the system when they were the ones who first suggested the changes.

At this stage, Jerry and those he hires to help him will find interviewing techniques most useful in developing a problem statement. He will also probably find observation and reviewing whatever documentation is available to be of some use. A customer questionnaire may also produce useful information.

20.8 A manufacturing firm needed a specialized software program to identify and monitor cost overruns. After an extensive analysis, the company purchased prepackaged software and assigned three programmers to modify it to meet its individual circumstances and processes. After six months of work, during final testing, the company told them to stop all work until further notice. While reading the software vendor's sales agreement, the manufacturing manager found a clause stating that the software could not be changed without the prior written consent of the vendor. The firm had to pay the software vendor an additional fee so it could use the modified software in its manufacturing process. Which aspect(s) of feasibility did the manufacturing firm failed to consider prior to purchasing the software.

Of the five aspects of feasibility, the manufacturing firm failed to consider legal feasibility. Legal feasibility deals with the system's compliance with all applicable federal and state laws, regulations, and contractual obligations. In this particular case, the company failed to consider the contractual obligation not to alter the software without express written consent from the vendor.

20.9 Ajax Manufacturing installed a new bar code based inventory tracking system in its warehouse. To close the books each month on a timely basis, the six people who work in the warehouse must scan each item in a 36-hour period while still performing their normal duties. During certain months, when inventory expands to meet seasonal demands, the scan takes as many as 30 hours to complete. In addition, the scanners do not accurately record some inventory items that require low operating temperatures. A recent audit brought to management's attention that the inventory records are not always accurate. Which aspect(s) of feasibility did Ajax fail to consider prior to installing the inventory tracking system.

Ajax Manufacturing failed to consider operational and technical feasibility when implementing their inventory tracking system.

Operational feasibility considers whether the organization's personnel can and/or will use the system. For Ajax, the 30 hours required to scan all inventory in a 36-hour period was very difficult on personnel and most likely led to human error in the inventory count due to fatigue.

Technical feasibility deals with whether the technology is in place for the system to work. For Ajax, although the technology was in place and worked under normal circumstances, the scanners did not always work in the cold conditions of Ajax's warehouse. Therefore, the technology sometimes failed, which resulted in inventory errors.

SUGGESTED ANSWERS TO THE PROBLEMS

20.1 How do you get a grizzled veteran police officer who is used to filling out paper forms to use a computer to process his arrests and casework—especially when he has little or no experience using a computer? That was the problem facing the Chicago Police Department when it decided to implement a relational database system. The system is capable of churning through massive amounts of data to give officers the information they need to fight crime more effectively.

Initially, the department rolled out the case component of the CLEAR (Citizen Law Enforcement Analysis and Reporting) system that provided criminal history and arrest records. The officers hated it, complaining that the system was not user-friendly, that approval from supervisors was complex and involved multiple screens, and that they did not feel properly trained on the system. After listening to the officers' complaints for a year, the department clearly had to do something. ***(Adapted from Todd Datz, "No Small Change,"*** **CIO** ***(February 15, 2004): 66–72)***

a. Identify as many system analysis and design problems as you can.

- Apparently, the detectives were not asked what they wanted and/or needed in the new system. If they were asked for input, it was not adequately communicated to system designers or it was ignored.

- The system did not provide the service or performance the detectives wanted.

- The detectives were not trained on the new system to their satisfaction. They did not feel comfortable using it because they did not understand how to use it.

b. **What could the department have done differently to prevent the officers' complaints?**

- If the department had involved the police officers early in the planning, analysis, and design process, they could have:
  - Helped systems analysts identify what they wanted in the new system, helped design the new system, and given constructive feedback on the new system.
  - Acted as conduits or liaisons to their respective departments by communicating suggestions from their department. They also could have acted as a champion or supporter of the new system to their colleagues.

The Chicago Police Department recognized the problems with new systems and took steps to improve system performance and user acceptance. They:

- Increased the competence of their information systems group. They were a good team, but lacked the training to manage a project of this magnitude. They recruited people with the correct skills and experience to implement successfully the system.

- Increased training for all IS professionals, from entry-level developers to senior managers.

- Sent programmers to the field for six weeks to document the user problems and issues.

- Instituted joint application design sessions with teams comprised of management, users, and technical staff.

- Used police officers to train users in the field, which made a huge difference to the cop on the street. One officer commented, “There is a certain degree of comfort with other police officers.”

c. **What principles of system analysis and design were violated in this case?**

- Limited or no user input
- Poor training
- Users were not part of the development team.

20.2 Mary Smith is the bookkeeper for Dave's Distributing Company, a distributor of soft drinks and juices. Because the company is rather small, Mary performs all daily accounting tasks herself. Dave, the owner of the company, supervises the warehouse/delivery and front office staff, but he also spends much of his time jogging and skiing.

For several years, profits were good, and sales grew faster than industry averages. Although the accounting system was working well, bottlers were pressuring Dave to computerize. With a little guidance from a CPA friend and with no mention to Mary, Dave bought a new computer system and some accounting software. Only one day was required to set up the hardware, install the software, and convert the files. The morning the vendor installed the computer system, Mary's job performance changed dramatically. Although the software company provided two full days of training, Mary resisted learning the new system. As a result, Dave decided she should run both the manual and computer systems for a month to verify the new system's accuracy.

Mary continually complained that she lacked the time and expertise to update both systems by herself. She also complained that she did not understand how to use the new computer system. To keep accounts up to date, Dave spent two to three hours a day running the new system himself. Dave found that much of the time spent running the system was devoted to identifying discrepancies between the computer and manual results. When the error was located, it was usually in the manual system. This significantly increased Dave's confidence in the new system.

At the end of the month, Dave was ready to scrap the manual system, but Mary said she was not ready. Dave went back to skiing and jogging, and Mary went on with the manual system. When the computer system fell behind, Dave again spent time catching it up. He also worked with Mary to try to help her understand how to operate the computer system.

Months later, Dave was very frustrated because he was still keeping the computer system up to date and training Mary. He commented, "I'm sure Mary *knows* how to use the system, but she doesn't seem to *want* to. I can do all the accounting work on the computer in two or three hours a day, but she can't even do it in her normal eight-hour workday. What should I do?"

This is an actual case with the facts presented as accurately as possible. The objective is to familiarize students with the behavioral issues surrounding a systems change. It is less important to determine the "right answer" (there may not be one) that it is to discuss the issues.

a. What do you believe is the real cause of Mary's resistance to computers?

Employee reaction to the installation of a new information system is often diverse and unpredictable. In many cases, employees must make significant behavioral adjustments to ensure the future success of the new system. These adjustments go well beyond mere surface anxieties such as fear of the unknown. Possible causes of Mary's resistance to computers include **(phased as questions)**:

Is Mary's adverse behavior due to a perceived need to protect her ego? Is she afraid she cannot use the computer properly and would look foolish?

Since Mary was excluded from the decision to automate the office, does she feel resentment and refuse to use a system she wasn't asked to help select?

Is she fearful because computers sometimes cause people to overcommunicate? (i.e., with capabilities such as electronic mail, employees can be reached anywhere and anytime, making it difficult to get away from all the interruptions that are part of the daily grind.)

Is she worried that the computer will impose its own structure on the organization? The computer can considerably narrow that freedom causing people to view the computer as structure and constraint.

Did she have an adverse experience with previous changes to her work environment and as a result is suspicious of any new system?

b. **What events may have contributed to the new system's failure?**

The company did not involve Mary in the systems change. They did not ask for her ideas, thoughts, or input. Evidently, she was not informed of the change until the computer was moved into her office and the furniture rearranged to make room for it. It would be easy for her to get the feeling she was not a very valued employee of the company.

The company did not explain why the system was being implemented, what the company hoped to achieve with the system, and why it was so important to the company.

The changes to Mary's job and responsibilities were not explained.

Mary was not given any assurance that she would not be replaced by the system.

The company did not alleviate Mary's fear by reassuring her that training would be provided to help her adapt to the new system and her duties.

Running two systems longer than it took to test system reliability was a mistake, as was having Dave do the work.

c. In retrospect, how should Dave have handled the accounting system computerization?

Mary should have been informed of the change that was going to take place, the purpose of the change, and why it was important to the company. Discussing these things with Mary beforehand could have helped the company create an attitude of trust and cooperation and could have set an example for what they expected of Mary.

The company should have allowed Mary to make suggestions concerning the system, especially the things that would help her do her job more efficiently.

Mary should be reassured that she has control over the system and not the other way around and that the system will help her perform her job more effectively.

Education prior to systems implementation could perhaps have helped Mary adapt to the system more readily.

d. At what point in the decision-making process should Mary have been informed? Should she have had some say in whether the computer was purchased? If so, what should have been the nature of her input? If Mary had not agreed with Dave's decision to acquire the computer, what should Dave have done?

Mary should have at least been informed as soon as the decision was made to purchase the system. Preferably, Mary should have been informed at the very start when the company began thinking about the computer system. This would have allowed Mary to give valuable input and to be involved throughout the entire process.

Because Mary was only a bookkeeper and did not fully understand the necessity of the system, she should not have been allowed to make the final decision on acquiring the system. However, if Mary had been involved from the beginning it is possible that she would have been in favor of the system. Even though she should not make the final decision, if her input had been considered it would have helped her accept the decision better.

An effort should have been made to persuade her of the system's viability. If that is unsuccessful then consideration should be given to relocating her within the company. If both previous plans fail then termination is the only alternative available.

Mary should have been given an opportunity for greater input. The company should have solicited her suggestions concerning how the system would best assist her with her job and how the system could achieve success in general terms. This participation would have likely increased Mary's self-esteem and security with the new system and changed her whole

outlook about the system.

e. A hard decision must be made regarding Mary. Significant efforts have been made to train her, but they have been unsuccessful. What would you recommend at this point? Should she be fired? Threatened with the loss of her job? Moved somewhere else in the business? Given additional training?

There are advantages and disadvantages to each of the following four options. Students will come to different conclusions based on their background. It is important to bring out the pros and cons of each approach. A few of these are shown below. This problem works well when the instructor determines which students support which alternative and plays them off against each other.

1. Firing can have the following advantages:

   The company can hire a more qualified individual who can perform the job more efficiently.

   The company can rid itself of an uncooperative employee and replace her with someone with a more positive attitude.

   Firing can have the following disadvantages:

   The company sends messages to other employees and perhaps the community in general that they don't care about their employees as much as they do about profits and operations. This may lower company morale.

   The firm may have higher training and hiring costs.

   The person hired may cost more and bring unknown problems to the job.

2. Transferring employees can have the following advantages:

   The company is less likely to communicate that it does not care for its employees.

   The transferred person has experience with the company and may be of greater value to the company in another area than a newly hired person may.

   Training and hiring costs remain constant.

   Transferring can have the following disadvantages:

   Employees may resent being transferred and not perform well in their new duties.

   Employees may not be qualified for the new job and perform poorly.

   If the transferred employee is disgruntled and talks about her situation to her coworkers, it could affect company morale.

3. Persuasion can have the following advantages:

   A valuable employee may be retained and her time freed up to perform tasks that are more important.

Hiring and training costs can be kept to a minimum.

The company communicates consideration for its employees.

Persuasion can have the following disadvantages:

The employee may never truly adapt, resulting in poor job performance and an increase in errors.

Significant costs may be incurred to constantly train the employee and identify the mistakes made by the employee.

The company may make poor decisions based on incorrect information given by the employee.

It may only serve to increase even further the frustration level that already exists.

Mary was eventually fired and another bookkeeper hired. With the new system, there was not enough work to keep the new employee busy full time. Consequently, the employee took over additional tasks that Dave had originally been performing. This freed him up for more creative tasks and to have more personal time.

Mary was interviewed several years later. She was employed at another firm and worked extensively with computers. Mary was asked if the company could have done anything to help her adapt to the computer and she said no. She had such a mental block against the computer at the time that she doubted the company could have done anything else to help her. It required several years for her to overcome her fear and learn to use computers.

20.3 Wright Company's information system was developed in stages over the past five years. During the design process, department heads specified the information and reports they needed. By the time development began, new department heads were in place, and they requested additional reports. Reports were discontinued only when requested by a department head. Few reports were discontinued, and a large number are generated each period.

Management, concerned about the number of reports produced, asked internal auditing to evaluate system effectiveness. They determined that more information was generated than could be used effectively and noted the following reactions:

- **Many departments did not act on reports during peak activity periods. They let them accumulate in the hope of catching up later.**
- **Some had so many reports they did not act at all or misused the information.**
- **Frequently, no action was taken until another manager needed a decision made. Department heads did not develop a priority system for acting on the information.**
- **Department heads often developed information from alternative, independent sources. This was easier than searching the reports for the needed data.**

a. **Explain whether each reaction is a functional or dysfunctional behavioral response.**

1. Avoiding or delaying activity on reports during peak activity periods is dysfunctional if they contain information that could improve company performance. If the reports continue to accumulate with no action taking place (no catch up during the lulls), this is a dysfunctional behavior called avoidance. On the other hand, they may let the reports accumulate because they are worthless.

2. Having so many reports that no action or the wrong action is taken means that the department heads were unable to assimilate the supplied information properly. This dysfunctional response is a good example of information overload and indicates that the system needs to be changed to correct the problem.

3. It is dysfunctional when a department head does not refer to report data until a fellow employee follows up on critical information in order to make a decision. If delays continually take place, and result in complications and/or delays in other departments, this lack of action is dysfunctional.

4. The department head's actions are both functional and dysfunctional. Developing information from alternative sources is dysfunctional because the formal system is not producing useable information and developing the needed information from other sources has a cost. However, the fact that the department head could generate the information from other sources so action could be taken is a functional response to the problem.

b. **Recommend procedures to eliminate dysfunctional behavior and prevent its recurrence.**

The dysfunctional behavior at Wright Company was a direct result of management's failure to recognize that information systems are dynamic. Once a system is designed and implemented, it should be continually reviewed to discover and incorporate any needed improvements.

A committee composed of systems staff and users should be established to monitor the system and to educate users as to information needs and the use of information. The committee should gather information concerning what information each department needs to make accurate decisions. Allowing department heads to participate in the form, content, and volume of system

output creates a corporate culture that motivates employees to help identify ways to improve the company and its information system. In addition, participation is ego enhancing, challenging, and intrinsically satisfying.

Users who participate in developing the system know more about the technical aspects of the system and are better able to use and prioritize the information it produces, regardless of the volume produced.

Once the system is ready for implementation, the system must be properly tested to minimize initial bad impressions and the dysfunctional behavior exhibited under the old system.

20.4 **The controller of Tim's Travel (TT) is deciding between upgrading the company's existing computer system or replacing it with a new one. Upgrading the four-year-old system will cost $97,500 and extend its useful life for another seven years. The book value is $19,500, although it would sell for $24,000. Upgrading will eliminate one employee at a salary of $19,400; the new computer will eliminate two employees. Additional annual operating costs are estimated at $15,950 per year. Upgrading is expected to increase profits 3.5% above last year's level of $553,000.**

The BetaTech Company has quoted a price of $224,800 for a new computer with a useful life of seven years. Annual operating costs are estimated to be $14,260. The average processing speed of the new computer is 12% faster than that of other systems in its price range, which would increase TT's profits by 4.5%.

Tim's present tax rate is 35%, and the cost of financing (minimum desired rate of return) is 11%. After seven years, the salvage value, net of tax, would be $12,000 for the new computer and $7,500 for the present system. For tax purposes, computers are depreciated over five full years (six calendar years; a half year the first and last years), and the depreciation percentages are as follows:

Year	Percent (%)
1	20.00
2	32.00
3	19.20
4	11.52
5	11.52
6	5.76

Using a spreadsheet package, prepare an economic feasibility analysis to determine if Tim's Travel should rehabilitate the old system or purchase the new computer. As part of the analysis, compute the after-tax cash flows for years 1 through 7 and the payback, NPV, and IRR of each alternative.

As shown below, Tim's Travel would be better off economically to purchase a new system rather than updating the existing one. Tim's Travel can achieve a 13.26% return by purchasing a new system and an 11.57% return by updating the old system.

Note: For illustrative purposes, all calculations other than NPV and IRR have been rounded to zero decimal places. All costs and savings amounts are show net of tax effects.

20.5. Rossco is considering the purchase of a new computer with the following estimated costs: initial systems design, $54,000; hardware, $74,000; software, $35,000, one-time initial training, $11,000; system installation, $20,000; and file conversion, $12,000. A net reduction of three employees is expected, with average yearly salaries of $40,000. The system will decrease average yearly inventory by $150,000. Annual operating costs will be $30,000 per year.

The expected life of the machine is four years, with an estimated salvage value of zero. The effective tax rate is 40%. All computer purchase costs will be depreciated using the straight-line method over its four-year life. Rossco can invest money made available from the reduction in inventory at its cost of capital of 11%. All cash flows, except for the initial investment and start-up costs, are at the end of the year. Assume 365 days in a year.

Use a spreadsheet to perform a feasibility analysis to determine if Rossco should purchase the computer. Compute the following as part of the analysis: initial investment, after-tax cash flows for years 1 through 4, payback period, net present value, and internal rate of return.

Rossco should proceed with the purchase. The internal rate of return of 23.23% is higher than the hurdle rate of 11%. There is a positive NPV of $56,157. Payback is in 2.44 years.

20.6 A recently completed feasibility study to upgrade XYZ's computer system shows the following benefits. Compensation figures in parentheses include wages, benefits, and payroll taxes.

1. **Production**
   a. **Market forecasts, which take two $400 person-days a month, will be more accurate with software making the calculations.**
   b. **Effective inventory control will prevent part stockouts and reduce inventory by $1,000,000. XYZ's cost of capital is 20%.**
   c. **Detailed evaluations of plan changes will increase production flexibility, reduce sales losses, and eliminate two clerks ($75,000 each).**
2. **Engineering**
   a. **Computerized updating of bills of material and operations lists will save 40% of an engineer's ($100,000) and 25% of a clerk's ($60,000) time.**
   b. **Computerized calculations of labor allocations, rates, and bonus details will save 40% of a clerk's ($80,000) time.**
3. **Sales. Improved reporting will enable the five-person sales staff to react more quickly to the market, producing a $10,000 per person sales increase.**
4. **Marketing. Revised reports and an improved forecasting system will increase net income by $50,000.**
5. **Accounting**
   a. **Quickly determining new product costs will save 30% of the accountant's ($100,000) time.**
   b. **An incentive earnings system will save 40% of the payroll clerk's ($60,000) time.**

As a board member, which of the benefits can you defend as relevant to the system's cost justification? Calculate how much XYZ will save with the new system.
Adapted from the SMAC Exam

Acceptable Items:	Cost Savings
1 (a) More accurate market forecasts with software making the calculations reduces costs	$ 9,600 ($400/day * 2 days/month * 12 months
1 (b) Effective inventory control reduces inventory by $1,000,000, allowing company to reduce carrying costs and earn money on freed up capital	$200,000 (20% * $1,000,000)
1 (c) Eliminating 2 clerks saves money Improved flexibility and reduced sales losses hard to incorporate into cost justification.	$150,000 (2 * $75,000)
2 (a) Computerized updating of bills of materials and operations lists saves money	$ 40,000 (40% of $100,000) $ 15,000 (25% of $60,000)
2 (b) Computerized calculations of labor allocations, rates, and bonus details saves money	$ 20,000 (40% of $80,000)
5 (a) Quickly determining new product costs will save money	$ 30,000 (30% of $100,000)
5 (b) An incentive earnings system will save money.	$ 24,000 (40% of $60,000)
Rejected Items:	
3 Sales increases hard to incorporate into cost justification due to lack of support for vague estimates.	
4 Benefits of revised reports and improved forecasting system hard to incorporate into cost justification due to lack of support for vague estimates.	
TOTAL SAVINGS	$488,600

20.7 The following list presents specific project activities and their scheduled starting and completion times:

Activity	Starting Date	Ending Date
A	Jan. 5	Feb. 9
B	Jan. 5	Jan. 19
C	Jan. 26	Feb. 23
D	Mar. 2	Mar. 23
E	Mar. 2	Mar. 16
F	Feb. 2	Mar. 16
G	Mar. 30	Apr. 20
H	Mar. 23	Apr. 27

a. Using a format similar to that in Figure 18-3, prepare a Gantt chart for this project. Assume that each activity starts on a Monday and ends on a Friday.

Project Planning Chart

b. Assume today is February 16 and activities A and B have been completed, C is half completed, F is a quarter completed, and the other activities have not yet commenced. Record this information on your Gantt chart. Is the project behind schedule, on schedule, or ahead of schedule? Explain.

Partially Completed Gantt chart

Once the activity bars have been filled in to reflect the activities that have been fully or partially completed, it is a simple matter to evaluate whether the project is on schedule by looking down the column corresponding to the current week. In this case, Activity C is one-half week shy of the current date (Feb. 16), and Activity F is one-fourth week short. Therefore, the project is behind schedule.

c. Discuss the relative merits of the Gantt chart and PERT as project planning and control tools.

Advantages of PERT:

Indicates which activities are critical as well as how much slack is available in the noncritical activities. This provides a basis for allocating resources to activities.

Provides a measure of the uncertainty associated with project time and cost estimates.

Indicates how to complete the project faster by speeding up certain activities.

Shows the order in which activities must be completed. (For example, activity A must be completed before activity B can start.)

Advantages of GANTT Charts:

It is easier to prepare than a PERT chart.

Does not involve complex calculations and is thus less susceptible to error.

The calendar format is easier to interpret visually.

Is easier to update for completed activities.

Makes it easier to determine whether a project is on schedule.

Graphically shows the entire schedule for a project.

Shows progress to date and the current project status.

Shows a schedule of when each project should start and end.

20.8 Recent years have brought an explosive growth in electronic communication. Laptops, netbooks, e-readers, personal digital assistants, sophisticated cell phones, fax machines, e-mail, teleconferencing, office productivity software, and sophisticated management information systems have changed the way information is received, processed, and transmitted. With the decreasing costs of computer equipment and the increasing power of automation, the full impact of computerization has yet to be felt. Although the development of computer applications is directed at being user friendly or user oriented, the integration of computers into the organization has had both positive and negative effects on employees.

Adapted from the CMA Examination

a.Describe the benefits companies and employees receive from electronic communications.

Greater optimization of organizational resources, increasing productivity and profitability.

More timely information for management decision making.

Easier and quicker access to corporate data.

More technological advancements, which sustains or increases the organization's competitive status and ensures employees of marketable technological skills.

Standardized procedures and operations. Once a procedure or operation is standardized, computers will repeat the same logical procedures.

b. **Discuss the organizational impact of introducing new electronic communication systems.**

The initial cost of some electronic communication systems is a major capital purchase, requiring special procedures for capital acquisitions. With the increase in technology, the organization will increase its comparative advantage. Small companies who cannot afford the technology may be squeezed out of the market.

Employees may experience a loss of confidence and fear change and/or the loss of their jobs.

c.**Explain**

1. **Why an employee might resist the introduction of electronic communication systems**

They may fear and resist change. This may include the fear that they will be replaced by automation and lose their employment.

They do not know what the system is and how it will help them on the job.

Embarrassment of not knowing how to use the system.

2. **The steps an organization can take to alleviate this resistance.**

Communication of information as to why the system is being implemented and how it will affect each employee's job. The intent should be to reinforce job security.

Education and training of employees on how to use the system by providing system manuals and designated user support.

Giving employees the opportunity to make suggestions for improving the system.

20.9 PWR manufactures precision nozzles for fire hoses. Ronald Paige, an engineer, started the corporation and it has experienced steady growth. Reporting to Ronald are six vice presidents representing marketing, production, research and development, information services, finance, and human resources. The information services department was established last year when PWR began developing a new information system consisting of a server connected to each employee's personal computer. The PCs can download and upload data to the server. PWR is still designing and developing applications for its new system. Ronald received a letter from the external auditor and called a meeting with his vice presidents to review the recommendation that PWR form an information systems steering committee.

Adapted from the CMA Examination

a. **Explain why the auditors would recommend an information systems steering committee and discuss its specific responsibilities. What advantages can the committee offer PWR? What advantages can such a steering committee offer PWR?**

1. Because information systems span functional and divisional boundaries, organizations establish an executive level steering committee so that the company, from an overall organizational perspective, focuses on:

Planning and overseeing the information systems function.

Setting priorities to ensure that the highest priority items are considered first.

2. Specific steering committee responsibilities include:

Developing a master plan to strategically develop and maintain the company's information system, incorporating short-term and long-term goals.

Approving or rejecting systems project proposals.

Assuring internal control considerations.

Establishing the company's information system policies and procedures.

Coordinating and approving hardware and software acquisitions.

Coordinating development projects and monitoring their progress without getting overly involved in technical details or specific project administration.

Reviewing the performance of the information systems function.

3. The advantages of an information systems steering committee include:

Ensuring top management participation, guidance, and control of the IS function

Facilitating coordination and integration of IS activities among departments and functions, increasing goal congruence and reducing goal conflict.

Improving interdepartmental communications.

More effective management control over systems resources allocations.

b. **Identify the PWR managers most likely to serve on the committee.**

The six vice-presidents or their representatives.

One or more members of the Information Systems Department.

The controller.

A member of the Financial and/or Internal Audit Departments.

Other areas, if any, which are affected by the information systems function.

The chairperson is usually the chair of the IS department or another influential vice-president with strong IS skills and an active interest in the IS function. The IS steering committee should meet only when necessary to carry out its functions.

20.10 Businesses often modify or replace their financial information system to keep pace with their growth and take advantage of improved IT. This requires a substantial time and resource commitment. When an organization changes its AIS, a systems analysis takes place. Adapted from the CMA exam

a. Explain the purpose and reasons for surveying an organization's existing system.

To gain an understanding of the existing system and how it functions.

To determine the constraints of the current system.

To assess the strengths and weaknesses of the existing system and to identify problems that need to be resolved.

To provide design ideas for the new system and to identify available resources.

To provide information about users' information needs.

b. Explain the activities commonly performed during systems analysis.

Initial Investigation

Verify the nature of the problem and the needs of the users.

Gather the information needed to evaluate the feasibility of the request.

Systems Survey

Study and review the existing organizational structure to determine how it functions.

Collect and review internal documents and reports to determine design, content, use, frequency of preparation, etc.

Develop and use questionnaire forms to determine processing frequencies, input/output volumes, and other information.

Conduct personal interviews to confirm and expand upon data gathered from the questionnaire.

Develop flowcharts, models, and diagrams to document the existing system.

Study external data sources, including companies who develop or who similar systems, consultants specializing in such systems, customers, industry trade associations, and government agencies.

Observe activities to determine how the system actually works, rather than what people or the documentation say should be done.

Feasibility Study

Conduct a study to determine whether to continue with the project.

Information Needs and System Requirements

Define and document the information needs of the users.

Define and document the requirements of the new system.

Systems Analysis Report

Summarize and document analysis activity findings.

c. **Systems analysis is often performed by a project team composed of a systems analyst, a management accountant, and other knowledgeable and helpful people. What is the management accountant's role in systems analysis?**

Most systems analysis work is performed by systems people. However, the management accountant is an important part of the development team and would be of assistance in

providing information about various aspects of the system, including:

- Management's needs for required reports and their format.
- System requirements.
- Source documents in use.
- The relevance, reliability, and timeliness of input/output data.
- The internal controls which exist and which should be incorporated into any new or redesigned system.

20.11 Don Richardson, JEM Corporation's vice president of marketing, is part of a management team that for several months has been discussing plans to develop a new line of business. Rumors about the major organizational changes that may be required to implement the strategic plan have been circulating for months.

Several employees who are anxious about the expected changes confronted Don. The sales manager said, "It is imperative that we speak to you right away. The employees are very apprehensive about the proposed changes, and their job performance has slacked off." The accounting manager added, "That's right. My staff are asking me all sorts of questions about this new line of business, and I don't have any answers for them. They're not buying the 'We will make an official announcement soon' line any longer. I suspect that some of them are already looking for jobs in case the department changes phase out their positions."

Implementing organizational change is one of the most demanding assignments an executive faces. It has been suggested that every change requires three steps: unfreezing the current situation, implementing the change, and refreezing the effected change. This view, however, lacks the specific details needed by an operating manager who must initiate the change. Adapted from the CMA Examination

a. Explain why employees resist organizational change.

Uncertainty and fear. Employees become anxious and nervous when they fear the unknown. They worry about losing their jobs and their ability to meet new job requirements. If they do not understand the change or its implications or mistrust those initiating the change, there is even more uncertainty and fear of the unknown.

No perceived need. Employees may not perceive the need for change, preferring to maintain the status quo. Many people believe that what has proven successful in the past will be satisfactory for the future.

Lack of time. Employees may not have or may be unwilling to expend the time and effort required to learn how to use the new system with its attendant new procedures.

Interpersonal relationships threatened. Changes may disrupt existing social networks, which threatens the social stability of the organization. People often have emotional attachments to their duties or to the people they work with and don't want to change.

Personal characteristics and background. Generally speaking, the younger people are, the fewer years they've been with the company, and the more highly educated they are, the more likely they are to accept change.

Manner in which change is introduced. Resistance is often a reaction to the methods of instituting change rather than to change itself. Employees may not feel the change is beneficial if the employee was not consulted or did not participate in the decision-making.

Amount of trust. If previous dealings with management have not created a feeling of trust, confidence, and cooperation, users may feel they are trying to "put something over on me."

Experience with prior changes. If employees have had a bad experience with prior changes, they will be more reluctant to cooperate with planned changes.

Top management support. Employees sense top management attitudes toward a proposed system and the extent of top-level support. When there is a lack of support, lower-level employees may think, "If top management doesn't support it, why should I?"

Communication. Employees often do not know why changes are made. Unless it is clear that a change is not an indication of poor performance, they may react negatively to it.

Disruptive nature of the change process. Requests for information and interviews are

disruptive of the normal routine and place additional burdens on people.

b. Discuss ways JEM Corporation can alleviate employee resistance to change.

- Employee participation. Encourage employees to participate in the change planning and implementation. Employees who express their opinions, suggest ways to improve the system, and hear the positions of others are more likely to accept change.

Keep the lines of communication open. Inform managers and users of systems changes as soon as possible. Clear and frequent communication about the need for change and the expected results of the change will alleviate employee fears. The company should listen to employee grievances and help to resolve problems.

Provide feedback on employee suggestions. If they are not told why their suggestions were not implemented, they may foster bad feelings toward the new system.

Train. Teach the employees how to use the system. Effective use or support cannot be obtained if users do not understand the system. Acceptance of the system is not likely if an individual believes that the computer is controlling him or has usurped her position

Satisfy user needs. Design the form, content, and volume of system output to satisfy user needs and they are more likely to welcome the changes.

Build trust. If employees perceive management as fair and honest and have confidence in management's abilities, they are more likely to cooperate and less likely to resist change.

Get management support. Top management should make it clear that they fully support the system and everyone else to do so. When management is supportive of the changes, employees are more willing to accept the change.

Allay fears. To the degree possible, management should provide assurances that there will be no major loss of jobs or changes in job responsibilities.

Sell the system but control user expectations. Emphasize that the system may provide greater job satisfaction, more important and challenging tasks, and increased advancement opportunities. Do not oversell the system and create unrealistic expectations. When employee expectations are not met, the “seller” and the system will be blamed.

Properly test the system prior to implementation to minimize initial bad impressions.

Avoid emotionalism and threats. When logic vies with emotion, logic loses. Threatening behavior or employee intimidation often strengthens resistance to change

Keep the system simple. Avoid complex systems that cause radical changes.

20.12 **Remnants, Inc., with headquarters in St. Louis, manufactures designer clothing. The company markets and services its products by region, with each functioning as a profit center. Each region has a manager, an accounting department, a human resources department, and several area offices to market and service the products. Each area office has sales, service, and administrative departments whose managers report to an area manager.**

The New York area office departed from the standard organizational structure by establishing a branch office to market and service the firm's products in Boston. A branch manager who reports directly to the New York area manager heads the local office.

The Boston branch manager is encouraging the New York area manager to consider a new information system to handle the local branch's growing information needs. The NewYork area manager and the eastern region manager want to establish a project team with employees from the region, area, and branch office. The team will assess the information needs at the Boston branch office and develop system recommendations. The following employees have been appointed to the project team, with Keith Nash as chairperson:

Eastern Region Office

Kurt Johnson, Budget Supervisor
Sally Brown, Training Director

New York Area Office

Keith Nash, Administrative Director

Boston Branch

Heidi Meyer, Branch and Sales Manager
Bobby Roos, Assistant Branch and Service Manager
Joe Gonzalez, Salesperson
Juana Martinez, Serviceperson

a. **Project team members contribute their skills to help accomplish a given objective. Characteristics of group members can influence the functioning and effectiveness of a project team. Identify some of these characteristics.**

- Personality. Aggressive employees often influence a task force by their nature, directing resources to meet their needs first at the expense of the needs of the company.

- Position and influence. A project team with different levels of management may find members using their leadership positions to influence group actions. Other employees can feel less inclined to contribute if their viewpoint conflicts directly with that of their supervisor.

- Skills. Group members who possess IS skills often use their knowledge to influence decisions to meet their own needs without considering the entire company's needs.

b. **Due to the team's composition, what sources of conflict can you see arising among its members? Do you think the group will succeed in its objective to develop an information system for the Boston branch office? Why or why not?**

- **Conflicts among offices.** Regional officers may be at odds with local managers concerning Boston office needs and company resources available to meet these needs.

- **Conflicts among positions.** Conflicts may arise between the needs assessments offered by managers and those offered by users. In addition, conflicts may arise concerning the IS needed and the finances available to fund it.

- **Conflicts along divisional lines**. Such conflicts result as local offices battle for a fair share of a company's limited resources. With the number of people on the team from the Boston Branch, decisions made may favor that branch over the other offices.

- **Conflicts along functional lines.** When assessing a company's needs, priority is often given to a local or influential group. This particular task force is weighted heavily with accounting and finance types. No representation exists for manufacturing, operations, marketing, research, or services.

- **Conflicts among user groups.** Conflicts between the needs of the sales staff and the service employees may arise over the use of resources.

Each student will have a different opinion about whether or not the group will succeed. The student's answer should be based on the conflicts listed and how important each conflict is.

c. What contribution would a person who holds a position as budget supervisor make in a project team such as this one?

The budget supervisor can contribute insight concerning the amount of funds available for the Boston branch to finance the IS project. As the budget supervisor has access to future financial projections, he can assess the economic feasibility of any potential project.

20.13 Managers at some companies face an ongoing systems development crisis: IS departments develop systems that businesses cannot or will not use. At the heart of the problem is a "great divide" that separates the world of business and the world of IS. Few departments seem able or ready to cross this gap.

One reason for the crisis is that many companies are looking for ways to improve existing, out-of-date systems or to build new ones. Another is the widespread use of PC-based systems that have spawned high user expectations that IS departments are not meeting. Users seek more powerful applications than are available on many older systems.

The costs of the great divide can be devastating. An East Coast chemical company spent over $1 million on a budgeting and control system that was never used. The systems department's expertise was technical excellence, not budgets. As a result, the new system completely missed the mark when it came to meeting business needs. A Midwestern bank used an expensive computer-aided software engineering (CASE) tool to develop a system that users ignored because there had been no design planning. A senior analyst for the bank said, "They built the system right; but unfortunately they didn't build the right system."

a. What is the great divide in the systems development process? What causes the gap?

The "great divide" is the gap between the information needs of business managers and the information produced by IS. The great divide occurs because of the following:

Many systems are seriously outdated and do not produce the needed information.

Better-educated end users are demanding more powerful information systems and better results from information systems that aren't performing.

Poor communications among system designers, end users, and business managers results in the development of ineffective information systems.

IS people who do not understand operations and the management of the business.

b. What would you suggest to solve this great divide information crisis?

- A first step in effective systems design is a thorough business analysis to understand how a business operates and how its business functions relate. This helps systems professionals and business managers to communicate effectively when developing an integrated system.

- Businesses could hire managers with a systems background so they can be a liaison between the systems department and the finance and accounting departments, helping business managers to communicate their needs clearly. These managers should be willing and able to get involved in the IS development process.

- More involvement and interaction between the systems staff and end users. End users should take an active role in the development process. In particular, designers should work closely with end users to assess needs and to develop specific working solutions.

- A more integrated approach to systems development involving all the necessary parties: designers, programmers, business managers, and end users.

- Management should provide employees with the training needed to make the system

work right.

c. Discuss the role a systems designer, business manager, and end user can take to narrow the great divide.

Systems designers can involve end users and managers in the design and development process. This reduces the behavioral problems associated with a new system and improves the probability that the system will meet the desired business objectives. They should also make a concerted effort to understand the business processes of the company.

Business managers can support the design team's efforts to encourage end-user involvement in the development process. In addition, business managers can communicate regularly with systems developers to insure that the system is meeting business objectives.

The **end user** can help bridge the great divide by taking a cooperative, interactive role in the development process.

d. Who plays the most vital role in the effective development of the system?

All players play important roles in the systems development process. The "information crisis" is in large part the result of an overreliance upon the systems analyst to meet the needs of managers and end users without their cooperation and input. It is also a result of analysts not taking the time to understand the business processes at their company.

20.14 Joanne Grey, a senior consultant, and David Young, a junior consultant, are conducting a systems analysis for a client to determine the feasibility of integrating and automating clerical functions. Joanne had previously worked for the client, but David was a recent hire.

The first morning on the job, Joanne directed David to interview a departmental supervisor and learn as much as possible about department operations. David introduced himself and said, "Your company has hired us to study how your department works so we can make recommendations on how to improve its efficiency and lower its cost. I would like to interview you to determine what goes on in your department."

David questioned the supervisor for 30 minutes but found him to be uncooperative. David gave Joanne an oral report on how the interview went and what he learned about the department.

Describe several flaws in David's approach to obtaining information. How should this task have been performed?

Ms. Grey did not give Mr. Young adequate instructions about how to conduct the interview and what information to obtain. A senior consultant must exercise closer supervision and provide better guidance to junior employees. Perhaps Ms. Grey should have performed the interview while Mr. Young observed.

The consultants did not prepare for the interview. They should have studied available documentation to learn what the department does and what the supervisor's job responsibilities are. Then they should have prepared an interview guide listing the topics to be discussed and the questions to be asked.

Mr. Young provided an oral report rather than a written report of his findings. An interviewer should take notes during the interview, and polish them immediately afterward, in order to provide documentation for future analysis and reference.

Mr. Young's opening statements to the supervisor were negative in tone. He should attempt to establish rapport with the interviewee, avoid making negative or threatening statements, and be positive about the goals of the study.

Mr. Young should have asked the supervisor to explain how the department works. Most of the talking should have been done by the supervisor while Mr. Young listened and took notes.

The interview should have been scheduled ahead of time and the department supervisor should have had time to prepare for the interview.

SUGGESTED ANSWERS TO THE CASES

20-1 Audio Visual Corporation (AVC) manufactures and sells visual display equipment. Headquartered in Boston, it has seven sales offices with nearby warehouses that carry its inventory of new equipment and replacement parts. AVC has a departmentalized manufacturing plant with assembly, maintenance, engineering, scheduling, and cost accounting departments as well as several component parts departments.

When management decided to upgrade its AIS, they installed a mainframe at headquarters and local area networks at each sales office. The IS manager and four systems analysts were hired shortly before they integrated the new computer and the existing AIS. The other IS employees have been with the company for years.

During its early years, AVC had a centralized decision-making organization. Top management formulated all plans and directed all operations. As the company expanded, decision making was decentralized, although data processing was highly centralized. Departments coordinated their plans with the corporate office but had the freedom to develop their own sales programs. However, information problems developed, and the IS department was asked to improve the company's information processing system once the new equipment was installed.

Before acquiring the new computer, the systems analysts studied the existing AIS, identified its weaknesses, and designed applications to solve them. In the 18 months since the new equipment was acquired, the following applications were redesigned or developed: payroll, production scheduling, financial statement preparation, customer billing, raw materials usage, and finished goods inventory. The departments affected by the changes were rarely consulted until the system was operational.

Recently the president stated, "The systems people are doing a good job, and I have complete confidence in their work. I talk to them frequently, and they have encountered no difficulties in doing their work. We paid a lot of money for the new equipment, and the systems people certainly cost enough, but the new equipment and new IS staff should solve all our problems."

Two additional conversations regarding the new AIS took place.

BILL TAYLOR, IS MANAGER AND JERRY ADAMS, PLANT MANAGER

JERRY: Bill, you're trying to run my plant for me. I'm the manager, and you keep interfering. I wish you would mind your own business.

BILL: You've got a job to do, and so do I. As we analyzed theinformation needed for production scheduling and by top management, we saw where we could improve the workflow. Now that the system is operational, you can't reroute work and change procedures, because that would destroy the value of the information we're processing. And while I'm on that subject, we can't trust the information we're getting from production. The documents we receive from production contain a lot of errors.

JERRY: I'm responsible for the efficient operation of production. I'm the best judge of production efficiency. The system you installed reduced my workforce and increased the workload of the remaining employees, but it hasn't improved anything. In fact, it might explain the high error rate in the documents.

BILL: This new computer cost a lot of money, and I'm trying to make sure the company gets its money's worth.

JERRY ADAMS, PLANT MANAGER AND TERRY WILLIAMS, HUMAN RESOURCES MANAGER

JERRY: My best production assistant, the one I'm grooming to be a supervisor, told me he was thinking of quitting. When I asked why, he said he didn't enjoy the work anymore. He's not the only one who is unhappy. The supervisors and department heads no longer have a voice in establishing production schedules. This new computer system took away the contribution we made to company planning and direction. We're going back to when top management made all the decisions. I have more production problems now than I ever had. It boils down to my management team's lack of interest. I know the problem is in my area, but I thought you could help me.

TERRY: I have no recommendations, but I've had similar complaints from purchasing and shipping. We should explore your concerns during tomorrow's plant management meeting.
Adapted from the CMA Examination

Evaluate the preceding information, and answer the following questions:

1. Identify the problems the new computer system created and discuss what caused them.

The problems stem from a total lack of communication at AVC. The failure to communicate has existed for years and exists between all levels of management.

Top management did not adequately plan for the IS upgrade and did not involve non-IS employees in the process. In addition, through lack of direction or control, top management has allowed the IS group to change not only information systems but also operating systems and procedures without operating management approval. Further, there appears to be a lack of concern by IS over the problems the new systems have created for operating management. A new computer system was purchased and a new IS team was hired; however, top management failed to win the confidence of current operating management who are accustomed to a more decentralized approach.

Communication problems continued during the systems design phase. The IS group failed to involve operating management in systems changes and apparently operating management failed to communicate their interest in being involved. As managers in a decentralized atmosphere they could have forced IS to communicate but they chose to ignore the problem. Therefore, the failure to communicate properly can be traced to both the IS and user groups. This problem was worsened by top management not adequately planning the conversion process and their failure to perceive the potential problems between IS and operating management.

The new systems are now complete. Operating management realizes that there has been a centralization of decision-making and a loss of operating flexibility resulting in employee morale problems. Yet, they are still unable or unwilling to communicate with top management, who continue to be unaware of operating problems with the new IS system.

2. How could AVC have avoided the problems? How can they prevent them in the future?

The problems could have been avoided by top management doing a better job of planning and communication, holding meetings between the IS staff and user groups throughout the systems design and implementation process, and by top management soliciting input from both user groups and IS staff in order to more closely monitor the project's progress.

To avoid future problems, AVC management needs to review organizational relationships to ensure proper organization and to insist on better cooperation and communication. In addition, top management should evaluate management personnel to determine if interpersonal problems are a roadblock to good internal communication.