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| CHAPTER LEARNING OBJECTIVE QUESTIONS |  |

12-1 What Is Systems Development?

12-2 Why Is Systems Development Difficult and Risky?

12-3 What Are the Five Phases of the SDLC?

12-4 How Is System Definition Accomplished?

12-5 What Is the Users’ Role in the Requirements Phase?

12-6 How Are the Five Components Designed?

12-7 How Is an Information System Implemented?

12-8 What Are the Tasks for System Maintenance?

12-9 What Are Some of the Problems with the SDLC?

Learning Catalytics™ is a student response tool that helps you generate class discussion, customize your lecture, and promote peer-to-peer learning based on real-time analytics. Learning Catalytics uses students’ smartphones, tablets, or laptops to engage them in more interactive tasks.

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| SO WHAT? |  |

## Banking on IoT

1. *Sports are one area in which the collection and analysis of data have had a huge impact on how teams manage personnel and strategize during games. Take a minute to list or brainstorm all of the different types of data and analysis that could be useful in improving decisions for sports teams.*

Student answers will vary depending on the sport. An example from football includes sensors on the players that record the physical punishment each player has experienced during the game. Players that are showing any signs of fatigue or impairment can be quickly removed from the game and examined. Physical injuries could be reduced by giving players chances to rest before significant injuries occur.

1. *The article looked at the enhanced functionality that could come from a smart refrigerator with Internet connectivity. Can you identify any potential drawbacks or complications that may arise from this connectivity?*

Student answers will vary. One potential problem could occur when your refrigerator sends in orders to restock items, but you actually emptied the refrigerator before going on vacation and forgot to tell it that you would be out of town for the next two weeks.

1. *Take a minute to think about your home or apartment. What types of things would you like to see connect to the Internet? How would this connectivity make your life better or more efficient?*

Student answers to this question will vary widely. Having the ability to have the level of dog food in the bin automatically monitored and reordered when needed would be great for this writer personally.

1. *What are the potential pitfalls of drastically increasing the number of financial transactions you or a company is responsible for in a given period of time (e.g., buying groceries or raw materials in very small quantities)?*

It may be harder to monitor a large number of very small transactions effectively to ensure that they are all legitimate and authorized.

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| COLLABORATION EXERCISE 12 |  |

*Using the collaboration IS you built in Chapter 1 (page 25–26), collaborate with a group of students to answer the following questions. If you haven’t built your collaboration IS yet, reread Collaboration Exercise 1 and Chapter Extension 10. Meet with your team and build a collaboration IS that uses tools like Google Docs, SharePoint, or other collaboration tools. Do not forget the need for procedures and team training.*

1. *From the description given, define the scope of the project.*

The scope of this project is to develop an information system application that will enable each partner to share his/her property listings with the other partners.

(LO: 4, Learning Outcome: Discuss the role of information systems in supporting business processes, AACSB: Analytical Thinking)

1. *Consider the technical feasibility of the two alternatives:*
2. *Name and describe criteria you would use for alternative a.*

Technical feasibility refers to whether existing information technology is likely to be able to meet the needs of the new system. Email is an existing information technology that all parties are most likely familiar with.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Name and describe criteria you would use for alternative b.*

The partners may not have any prior knowledge of and use of cloud-based applications and reservations systems based in the cloud. These technologies may be new to the partners but are not new in general. The partners would have to investigate cloud-hosted reservations systems and vendors.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Is it possible to know, without further investigation, whether either alternative is technically feasible? Why or why not?*

At this stage, technical feasibility is difficult to judge without more information. None of the partners involved have enough technical knowledge personally to accurately assess this. The partners should rely on the advice of consultants to assist them in assessing technical feasibility.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Consider organizational feasibility:*
2. *Explain what organizational feasibility means in the context of an interenterprise system.*

Organizational feasibility concerns whether the new system fits within the organization’s customs, culture, charter, or legal requirements. Because this idea concerns an interenterprise system, we would need to evaluate the criteria for all three organizations.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *List criteria you would use for assessing organizational feasibility for these alternatives. Differentiate criteria between the two alternatives if you think it is important to do so.*

Both systems will require that each organization accept the new business processes that will be associated with the system and agree to integrate these processes into the organization. The processes associated with alternative a will be much less technical on the surface but will also be less efficient. Each organization will need to assess the effect on its staff to adopt and incorporate the business processes associated with these two options.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Is either alternative a or b more likely to be organizationally feasible than the other? Explain your answer.*

Option b appears to require a more significant organizational commitment on the part of the partners and their organizations’ staff; however, both options will require a degree of organizational change in order to be adopted successfully.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Consider schedule feasibility:*
2. *List criteria you would use for schedule feasibility for these alternatives. Differentiate criteria between the two alternatives if you think it is important to do so.*

Option b requires a more significant development project. Option a basically just involves the partners agreeing to develop a business process for emailing information. Each partner would need to evaluate if he/she has the time to devote to the entire project of option a.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Is either alternative a or b more likely to be schedule feasible than the other? Explain your answer*

Option a has a much shorter implementation timeframe than does option b.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Consider cost feasibility:*
2. *List sources of the major development costs for alternative a.*

Time for the partners to develop the business process of email sharing of property listings; legal costs for developing the partnership agreement.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *List sources of the major operational costs for alternative a.*

Operational costs in this case will be the time commitments to continue to send property listings to each partner using email.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *List sources of the major development costs for alternative b.*

Time for the partners to investigate cloud-based reservation hosting systems; creation of the shared database; creation of the business processes that will be used with the new system; legal costs for developing the partnership agreement.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *List sources of the major operational costs for alternative b.*

Ongoing costs of the hosted system; maintenance of the system if changes are needed; time to contribute information to the new system and to use it.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Which alternative is likely to be cheaper to develop?*

Alternative a is less expensive to develop.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *List and describe factors that may make alternative a cheaper to operate.*

Option a will be less expensive to operate since the underlying technology, email, will not be very changeable. The partners will either use the capability as is, or will eventually abandon it due to its inefficiency.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *List and describe factors that may make alternative b cheaper to operate.*

Once created, Option b will provide a more convenient and effective solution than Option a. The partners will not have the inefficiencies and wasted time associated with emailing each other, so in terms of their time spent with the system, option b may be cheaper to operate.

(LO: 4, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Given your answers to questions 12-5 through 12-8, which of the alternatives do you believe is likely to be feasible? It could be both, just one, or neither. Justify your answer.*

Alternative a will be relatively simple to create. The main emphasis will be agreeing on the business processes that will be used to facilitate the interenterprise communication that will accomplish the goals of the alliance. Because this process relies on email, there is much inefficiency, including the fact that emails are easily ignored or response to them is delayed.

Alternative b will be more complex to create and will require an investment by the partners to fund both its development and on-going operation. It will be far more efficient and should provide more rental revenue due to the improved quality of information and the speed in which it is available. This system will be more expensive to operate because the database needs to be maintained and data backed up.

Both alternatives are feasible.

(LO: 4, Learning Outcome: Discuss the role of information systems in supporting business processes, AACSB: Analytical Thinking)

1. *What would you say if one of the three principals were to ask you at this point, “Is it worthwhile for me to even consider this idea anymore?” Justify your answer. Without more data, you cannot make a true assessment, but apply your knowledge, experience, and intuition to formulate a response to that question.*

The partners need to determine if the value generated by option b will justify its cost. I recommend that they obtain proposals on developing option b. Once an approximate cost is determined, they can evaluate whether this cost appears to be justified or whether they should just go slow at the beginning and develop the simple email-based system. They should bear in mind, however, that the email system, due to its inefficiencies, may not generate the same level of revenue as the shared-database system probably would.

(LO: 4, Learning Outcome: Discuss the role of information systems in supporting business processes, AACSB: Analytical Thinking)

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| CASE STUDY 12 |  |

## When Will We Learn?

1. *Describe three reasons why cases like this will remain relevant 40 years from now. Describe three developments that could make these cases obsolete. Which will pertain? Will such cases be relevant 40 years from now? Justify your opinion.*

Three reasons why this case will be relevant in 40 years from now: Failure to learn from past mistakes; assuming advances in technology will eliminate the need to understand what we need; failure to understand the complexity of developing ISs. Three developments that could make the case obsolete: Models of success (like AccessCT) are used to guide projects so that success becomes the standard outcome, not the exception; businesspeople take an active role in IS and apply best practices to IS development rather than letting IS development be “someone else’s problem”; businesspeople recognize that we must know and understand requirements clearly before attempting to build anything, particularly something as nebulous as an IS. Student opinions will vary as to which scenario will play out.

(LO: 5, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *Read the Executive Summary of the First Data report located at* <http://portlandtribune.com/documents/artdocs/00003481205618.pdf>. *Applying your knowledge about the SDLC, describe what you think are the three major reasons that Cover Oregon failed.*

The Executive Summary provides a good overview of challenges and difficulties encountered on this project. One of the strongest themes learned from this material was the lack of a single point of authority for the project. There were numerous examples of contradictory decisions and teams working at cross purposes. Many good project management practices were ignored. Budget limitations prevented some of the needed contributors from participating (e.g., a systems integrator). The lack of management oversight is also a strong theme that emerged.

(LO: 5, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *In Case Study 8 (pages 223-225), you learned that three vendors had been considered as outside contractors, but two of them bowed out of the competition. Describe three reasons that they may have done so.*

The conflicts between the user agency (Cover Oregon) and the developer agency (Oregon Health Administration) may have been obvious. The shifting requirements could have been troublesome. The warnings from the QA organization were undoubtedly red flags. The lack of funding could have made them turn and run.

(LO: 5, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Analytical Thinking)

1. *The project was known to be in trouble, but it seemed to have a life of its own. Ying Kwong, a technology analyst at Oregon’s Department of Administrative Services, said in May 2013 that the Cover Oregon project reminded him of the science fiction movie* The Blob*: “You simply don't know how to shoot this beast, because it does not have a known anatomy with the normal vital organs that make it tick.”12 Had you been a senior manager at Cover Oregon, what would you have done when the problems became apparent?*

In a highly political environment like this, it is perhaps understandable that no one was able to stop this project. For many people employed in government agencies, it is better to stay out of the limelight and hope the blame falls somewhere else when the hatchet finally falls. Potentially, a senior manager could have joined forces with a reputable journalist who could have “blown the whistle” on the project and gotten the public’s attention before the disaster (and waste of resources) was fully realized.

(LO: 5, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Reflective Thinking)

1. *In a June 2014 survey, a majority of Oregonians held Governor Kitzhaber responsible.13 But in 2015, Kitzhaber was reelected to a historic fourth term. Unfortunately, a month later, he resigned amid an unrelated influence-peddling scandal.14 Bruce Goldberg, former head of OHA and acting head of Cover Oregon, was fired on March 18, 2014, yet he continued to draw a full salary until July 18.15 Given these results, does it seem likely that anyone will bear the consequences for these mistakes? If so, who?*

It does not sound like anyone has learned any lessons from this debacle. The people bearing the consequences are the citizens of Oregon for the wasted resources and a healthcare exchange that (possibly) is of lower quality than they deserve.

(LO: 5, Learning Outcome: Discuss best practices for selecting, evaluating, and managing information systems projects, AACSB: Reflective Thinking)

For an example illustrating the concepts found in this chapter, view the videos in [mymislab.com](http://mymislab.com/).