MILESTONE 2 – PROBLEM ANALYSIS

Synopsis

There's an old saying that suggests, "Don't try to fix it unless you understand it." With those words of wisdom, the next milestone of our project is to study and analyze the existing system. There is always an existing business system, regardless of whether it currently uses a computer. The problem analysis phase provides the project team with a more thorough understanding of the problems, opportunities, and/or directives that triggered the project. Indeed, the analyst frequently uncovers new problems and opportunities. The problem analysis phase may answer the questions, "Are the problems worth solving?'" and "Is a new system worth building?'"

The purpose of the problem analysis phase is threefold. First and foremost, the project team must gain an appropriate understanding of the business problem domain. Second, we need to answer the question, "Are these problems worth solving? Are these opportunities worth pursuing?" Finally, we need to determine if the system is worth developing. The problem analysis phase provides the systems analyst and project team with a more thorough understanding of the problems, opportunities, and/or directives that triggered the project. In the process, they frequently uncover new problems and opportunities.

In this milestone you will perform *Cause-Effect Analysis* on the Employee Self-Service System (ESSS) and document your findings using the *Problems, Opportunities, Objectives, and Constraints Matrix*. The PIECES framework, originally developed by James Wetherbe, and then adapted by the authors, can serve as a useful tool to classify the various problems, opportunities, and directives identified in Milestone 1.

Second, you will develop a *Context Diagram* to begin to understand the proposed system and whether or not it is worth developing. A *Context Diagram* looks at the system as a whole and how it interacts with the world around it.

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The third step in this milestone moves us from the problem analysis phase into the requirements analysis phase, which will be covered more fully in Milestone 3. You will make a list of system requirements and classify them as either functional or non-functional.

Objectives

After completing this milestone, you should be able to

⇒ Perform *Cause-Effect Analysis* to be able to thoroughly understand a system's problems, opportunities, and/or directives that triggered the project.
⇒ Use and understand the PIECES framework for classifying problems, opportunities, and directives.
⇒ Complete the *Problems, Opportunities, Objectives, and Constraints Matrix*.
⇒ Create a *Context Diagram* for the proposed system.
⇒ List functional and non-functional requirements for the system.

Prerequisites

Before starting this milestone the following topics should be covered:

1. The problem analysis phase — Chapters 3 and 5.
2. The requirements analysis phase — Chapters 3 and 5.
3. PIECES Framework — Chapter 3 and 5.
4. Milestone 1 Solution.

Assignment

Now that we have completed the survey of the system and gained approval to proceed, we can attempt to gain a better understanding of the current system and to evaluate whether the proposed system is worth developing.

Activities

1. Create a *Problems, Opportunities, Objectives, and Constraints Matrix*, using the interview presented in this milestone plus the results of Milestone 1. Use the PIECES framework as a model to classify the problems, opportunities, and directives.
2. Create a *Context Diagram* of the proposed system, using the interview presented in this milestone and interview from Milestone 1.
3. Create a tentative list of requirements for the proposed system, classifying each as a functional or non-functional requirement.

Your instructor will specify the deliverable format and software to be used. Deliverables should be neatly packaged in a binder, separated with a tab divider labeled "Milestone 2," and optionally accompanied with a Milestone Evaluation Sheet.

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References:

Milestone 1 Solution

Provided by your instructor.

Case Background

Case Study Introduction

Transcript of Interview with Dotty Jones

Exhibit 2.1

Transcript of Interview with Jack Mills

Milestone 1, Exhibit 1.1

Templates

See the online learning center website for the textbook.

Deliverables:

Problems, Opportunities, Objectives, and Constraints Matrix:
Due: __/__/__ Time:_____

Context Diagram:
Due: __/__/__ Time:_____

Tentative List of Functional and Non-Functional Requirements:
Due: __/__/__ Time:_____

ADVANCED OPTIONS

Write a detailed study report for the phase. This deliverable was not discussed in the narrative because students need to be exposed to modeling (data, process, and interface) before this report can be completed. For those ambitious individuals who are familiar with those skills and wish to be challenged, use the detailed study report outline found in Chapter 5 of the textbook as a guideline.

Another advanced option is to develop one or more fishbone diagrams for problems outlined in the case. To complete this advanced option, you may need to make some assumptions about causes and effects.

Study Report: **Due: __/__/__**
Time:_____

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Fishbone Diagrams:	**Due: __/__/__** **Time:_____**

Milestone's Point Value: **____**

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The following is a copy of the transcripts of an interview between Dotty Jones, Manager of Employee Relations, and Kira Webster, a systems analyst working on the ESSS project. Dotty is the key user contact for this project. The goal of this interview is gather additional details about the problems Mr. Mills talked about in the initial interview and to obtain the necessary information to complete the Problems, Opportunities, Objectives, and Constraints Matrix.

Exhibit 2.1

Scene:	*Kira Webster is meeting with Dotty Jones, Manager of Employee Relations, at Ms Jones' office. Ms. Webster scheduled the interview with Ms. Jones to talk about the problems that exist with the current system.*
Dotty:	Good morning, Kira. How can I help you today?
Kira:	I wanted to ask you some questions based on what Mr. Mills and I talked about a few days ago. He told me that you would be able to provide me with the additional information that I needed in order to understand how you use the current Employee Information system and the problems you have been experiencing.
Dotty:	I will help all I can.
Kira:	That's great. Mr. Mills mentioned the problems you are having with the employee directory — that it is always out of date and that it consumes a great deal of Alice's time to maintain. Is there anything else that you can add?
Dotty:	Well it definitely should be online and integrated with our E-mail system. In this day and age it is ridiculous to put that out in hardcopy. It changes too much and it requires too much effort from our end to maintain. Alice's time could be better utilized elsewhere. In fact I want to see that micro system go away.
Kira:	What should replace it?
Dotty:	Something that everyone can access via the Web from any location.
Kira:	But wouldn't Alice still have to maintain the data that is viewed via the Web?
Dotty:	In some cases, but if we provided a mechanism to allow employees to update their own data and their data alone it would cut down on the amount of time Alice would spend from 12 hours per week to probably 1 or 2. And what is great is she would only have to enter the changes into one system and the changes would be available real-time. Which means all the other systems would have access to the employee's latest, most current information.
Kira:	What happens if the system went offline? Wouldn't people still want a paper copy for back-up purposes?
Dotty:	I don't think the company directory part of the system would be so crucial that minor downtime would be a problem. Aren't there ways to have backup websites or something? What is crucial, though, is that the system be secure. Could you imagine what would happen if a headhunter got into that web site? It would be like going to a smorgasbord.
Kira:	Mr. Mills indicated the current mainframe system was too costly to operate and maintain. Can you explain what he meant?

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Dotty: Sure. I'm sure you know that mainframes, although very powerful and useful, are extremely expensive computers. In order for the company to recoup the cost of the machine, it charges for the use of the machine in terms of computer cycles and data storage. We had over 11,500 change transactions alone last year and that doesn't account for transactions to correct errors in the data, plus the transactions to initially input new employee data. And since the current system is over 10 years old, it requires a significant amount of IS labor to support it in terms of enhancements, fixes, backups, and so on. All of those costs come out of our budget since we are the owners of the system.

Kira: Wouldn't you have the same types of costs in a new system?

Dotty: To a degree, but the new servers and software, I am told, cost almost 300 times less than mainframes and therefore the operating cost is significantly cheaper. Also, the IS support to maintain a high-quality new system should be cheaper. That is if we develop it correctly to be flexible and easily adaptable to changes. I expect we could save up to 50 percent of our operating costs.

Kira: Mr. Mills mentioned that reports were a problem with the current system. Can you elaborate?

Dotty: For one thing the system does not have an ad-hoc query and reporting facility that we as users can use. Currently, if we need a new report we have to submit a request to IS. Depending on the backlog and the priority of the request, IS may not have time to work on it for months. By then we may not need it anymore. I am positive if we had such a facility it would not only make our job easier but it would also cut down on IS's workload also because we wouldn't have to bug them as much.

Kira: Who should have access to the ad-hoc reporting feature? All employees?

Dotty: No. Employees should see only their own data except for the online directory. So they don't need the ad-hoc feature. Just managers.

Kira: Mr. Mills was extremely sensitive about the United Way program having less than desirable employee participation. Is that really a fault of the current system?

Dotty: I don't think so, but you know us users. If something is not right it must be the system's fault. What Mr. Mills is really saying is that he wants the new system to provide a facility that makes it easy for employees to sign up and manage their deductions from their desk. Also, he wants to provide managers with the tools to monitor the participation activity in case they have to provide encouragement, if you know what I mean.

Kira: I believe I'm getting the picture.

Dotty: Right now the process to sign up is cumbersome and time consuming for the employees. And there are no reports for the managers to monitor participation.

Kira: I think that covers all my questions – for right now, at least. I may have to bug you again, though.

Dotty: Anytime. Kira. I'm glad to help if it leads to a system that solves our problems.

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