

Milestone

No.2



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 (opportunities, and directives) worth solving"? 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 Equipment Check-Out System (ECS) 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.

Assignment

Now that we have completed the preliminary investigation of the system and gained approval to proceed, we can attempt to gain a better understanding of the current system. In this assignment we will use our results of Milestone 1, plus the Case background information and the user interview, in order to perform cause-effect analysis. The results of this activity will provide us a better understanding of the problems, opportunities, and constraints of the current system.

Submit

1. A completed **Problems, Opportunities, Objectives, and Constraints Matrix**, as shown on **page 181** in your text (which shows only a single problem – you will have 5 or 6). For each problem, provide the causes and effects, system objectives, and constraints. Draw a horizontal line to separate each problem. Use the interview or facts presented in Exhibits 1.1 and 2.1.

The following is a transcript of an interview between Dan Stantz's staff and you, a systems analyst from Information Systems Services (ISS). Your goal for this initial interview is to obtain facts about the problems and opportunities that have triggered the Equipment Check-Out project request, plus other general information that could help prepare the *Problems, Opportunities, Objectives, and Constraints Matrix*.

Exhibit**2.1**

Scene: *The Equipment Depot. You have scheduled to meet with the Equipment Depot staff just after the 3:00 PM shift change when Oscar Barrett finishes work and Janine Peck starts her shift. S.P. Marsh, the third shift employee has agreed to come in for the meeting. You are sitting on stools behind the counter.*

You: Well it looks like everyone is here. I'm sorry to be delaying Oscar's getting home for the day. I'm especially sorry S.P. had to make a special trip in.

S.P.: That's OK. This is about when I wake up anyway. Oscar said he was going to buy me breakfast.

You: Well, thank you anyway. If anything, this underscores how important this proposed system is to you and to the company. I assume that Mr. Stantz has clued each of you in on the project that I am working on?

S.P.: Yes, Dan told us. (*The others nod.*) We certainly need the help.

You: I hope I can help you. I've been charged with developing a new system, probably computer-based, to help streamline equipment check-out. But clearly I can't do anything until I understand how your current system operates. Mr. Stantz gave me an overview of the operations, but I need to learn more so that I truly understand

what you are trying to do, the problems you face, and opportunities for making some improvements.

Oscar: I don't know about the others, but I would be willing to stay here all night if that is what it takes to get things straightened out around here. I'm glad you showed up about a half hour early. Did you notice the long line of employees and how busy we get?

You: Yes, I did. I assume those employees were returning equipment they had checked out earlier in the day?

Oscar: Yes and no. *Some were returning things they had checked out days, even months ago.* And then some of them were checking out equipment they are going to need for tomorrow's jobs.

Janine: And some were both checking in and checking out.

You: According to Mr. Stantz it sounds like you have the same rush of employees at the beginning of the shift.

Oscar: Yes. *The first and last half hour of each shift we get overwhelmed with employees wanting to check in or check out equipment. That's why we each generally get in early and clock out late – so we can help each other handle the load. It still is discouraging that it takes so long to process a check-in or*

check-out – anywhere from 2 to 5, maybe 10 minutes to process a check-out, and about 2 minutes to process a check-in. We get the feeling that the employees have come to really resent us and are unhappy with the service provided by the Equipment Depot.

S.P.: But you should understand that we do a lot more than just check equipment in and out.

You: I'm sure you do. Perhaps first I should get a better understanding of your overall operations. Could you begin by identifying all the transactions that the Equipment Depot must handle? In other words, what events take place that trigger the need for you people to complete some type of task? I think we have identified the first two – equipment check-in, and a check-out.

S.P.: For one thing, I periodically receive an employee hiring notice from a supervisor.

(S.P. walks over to one of several black notebooks labeled Maintenance Employee Records and opens it up. It contains a simple one-page form labeled GB Manufacturing Maintenance Employee Registration.)

The notice looks like this. It has some general information about the employees such as their ID, name, skill classifications, building they are assigned to, supervisor, and other details. We must have one of these records before an employee is authorized to check out equipment. I would estimate there are more than 200 employee registrations that we maintain. The

supervisor usually brings this notice to us and introduces the new employee. This is a simple task. I merely alphabetically insert the form into the notebook.

You: Could I get a photocopy of several of those. You can mark out the names if you want.

S.P.: Let me clear it with Dan first. But I don't see why not.

Oscar: *The supervisor may also send us a skill classification update notice, which requires me to update an employee's registration form.*

S.P.: *And of course, the supervisor will provide us with employee termination notices. In fact, I received one this morning. These are difficult to process. If I'm lucky, I can process one in about 10 minutes. We have to go through and examine the check-in and out records for that employee to decide what equipment the employee has in his or her possession and communicate that to the supervisor. Employees who are quitting usually check in their equipment on their last day. But if they are fired, we rely upon the supervisor to get the equipment and check it in to us. They tend to not be very prompt and reliable in doing that.*

Janine: Now S.P., let's not do any finger pointing.

S.P.: Sorry, but it is true.

You: What else do you folks process?

Janine: When employees aren't here turning in equipment, I am frequently busy with ordering new equipment.

You: What triggers or initiates the need to order new equipment?

Janine: Usually it is the supervisors. They may have a job that requires a special piece of equipment. If they or the employee tries to check out the needed equipment and we don't carry it, the supervisor submits a new equipment request. Sometimes we initiate a request when an employee reports losing a tool.

You: Then that starts a Purchase Order cycle with the Accounts Payable department getting involved?

Janine: No, thank goodness. That's the way we used to do it, and it took forever to scan through vendor catalogs and find the cheapest price. But about six months ago we signed a contract with equipmentdeals.com to be our exclusive supplier. The three of us are authorized to buy anything they have as long as we don't go over budget.

You: So this equipmentdeals.com is the cheapest?

S.P.: They may not be the lowest cost on every single item, but with the contract that was negotiated we have significant yearly savings. Plus we save a lot of labor for Accounts Payable and us.

You: So this new system doesn't have to do anything with purchasing?

Janine: I wouldn't say that. Once we place an order it will take a couple days to a couple weeks to come in. The supervisor or employee may call us several times to check the order status. *When the order comes in, then need to notify the employee*

who wanted it so he or she can check it out. Right now we keep a log with information, but it doesn't work very well.

You: Okay. I'll see what I can do about that.

S.P.: Related to that, when we purchase equipment to replace something an employee lost, we record the cost on the original check-out sheet so we have a record of it.

Oscar: Then when an employee finds lost equipment, we try to take care of it. Let me emphasize the word "try."

Janine: Right. Sometimes we can locate the owner of the equipment, update their checkout records, and notify them that the equipment has been found. *More often than not the equipment that is returned cannot be identified. Going through our check-in and check-out forms to match them with the employee is too tedious.*

You: Can't you match them by serial number or something?

Oscar: I can on the big pieces that we track by serial number – things like air compressors and compound miter saws. But we have a lot of small things, such as specialize router bits, that don't have a serial number and are too small to attach one to. We call those untracked equipment, because we don't track them individually. That also applies to inexpensive pieces, such as drills, that just aren't worth tracking individually. A drill is a drill.

You: So how do you match up a found drill with a lost drill?

Oscar: Sometimes I can make an educated guess though. I can locate any submitted reports of lost equipment and see if it appeared on the report. But I frequently find that there are multiple employees that reported a similar piece of equipment missing, such as a drill or router.

You: What else do you do?

S.P.: We also follow up on damaged equipment returns. Some can be repaired. I have to see to it that the equipment is sent out for repair and then make sure we get it back. We record the repair cost on the original check-out sheet so we have a record of the employee who caused the damage.

You: So you track repair costs and lost equipment costs by employee?

S.P.: I wish. *The supervisors always want to identify the employees who seem to have the most damage and most lost equipment. There's no way we could go through all those records that manually.* Maybe you can build that into your system.

You: I'll see what I can do. At some point I will need to learn the details about how each of you processes those transactions. For now let's move on to some other items. I would now like to gain a little better understanding of the records or files you maintain. Can you tell me a little about them? I saw the employee notebooks. Are there others you can tell me about?

Janine: I can't think of anything that wasn't already mentioned.

Oscar: Me neither.

You: Okay then. That list of employees with damages or lost equipment leads us into the topic of reports.

Do you generate any reports?

Oscar: *Very few—and that's the problem. I would like to generate all kinds of reports to help us do our job, but it is almost impossible to do so.* For example, I would like to have a year-end inventory report.

Janine: Yeah, and a report of all checked-out equipment, by employee.

S.P.: I tell you what we could use, *it would be nice to be able provide the employees with a periodic statement detailing what equipment they have checked out and are expected to have in their possession.*

Oscar: All that is great, but *if we really want to cut into our dollar losses on lost, stolen or damaged equipment, we need that report listing employees having a history of excessive equipment losses or damage.*

Janine: The bottom line is that we seem to collect volumes of records, but *we don't have any ability to quickly obtain reports or information that we need to do our job.*

You: I get the picture. I will certainly see what I can do about that. This was some really helpful information. I look forward to meeting with each of you over the next few weeks to learn even more details about your current checkout operations. But I see we are out of time. So thanks again for permitting me to meet with you.