Exercise

Draw lines in pencil connecting the items on the right to the appropriate DMAIC phases on the left.

Define	Establish the current state
Measure	Develop the future state
Analyze	Sustain the gains
Improve	Develop the project charter
Control	Determine the root causes

Exercise

Classify these projects	DMAIC	Other
Implement the new ERP system we have decided to use		
Reduce errors in processing purchase requisitions		
Reduce wave solder defects		
Open a new branch office in the next town		
Reduce billing cycle time		
Install a web-based ordering system		
Reduce non-manufacturing time from order to sell		
Reduce scrap in the coiling department		
Eliminate cracking of molded housings		
Reduce installation & warranty costs		
Increase the percentage of quotes that produce a PO		

Exercise

Critique this problem statement using the checklist below. The important thing is to identify things that are missing.

Customers are dissatisfied with telephone support wait times for calls handled through our call center in Uzbekistan. Our records show an average wait time of 8 minutes. 10% of wait times exceed 20 minutes.

Exercise (cont'd)

- ❑ Who is affected by the problem?
- ❑ What is happening?
- ❑ What are the "gaps"?
- ❑ What are the consequences of not solving the problem?
- ❑ Where does the problem occur?
- ❑ When does the problem occur?
- ❑ When did the problem start?

Exercise

A project has been launched to reduce the cycle ~~lead~~ time for designing and building prototypes for non-standard mounting brackets. Use the information given in the slide below to answer the following questions:

(a) What are the outputs from this workflow?

(b) Who are the customers that receive these outputs?

(c) What are the inputs to this workflow?

(d) Who are the suppliers that provide these inputs?

Exercise (cont'd)

When a customer sends us a purchase order (PO) to design and build a prototype for a non-standard bracket, they provide us with the functional requirements, specifications, a sketch, and desired delivery date. We begin by developing a design specification for the desired bracket. The customer must approve the design specification. If they do, we develop an assembly drawing, which the customer does not have to approve. We build the prototype from the assembly drawing, test it for conformance to the functional requirements and specifications, then ship it to customer.

Sometimes a customer will order a quantity of production parts based on an approved prototype. When this happens, the drawing is released to Manufacturing (MFG).

Exercise 1

Create a process map based on the information given here. Do not make unwarranted assumptions! Use the blank slide below or a separate sheet of paper.

You have two types of material, A and B. When the need arises, take the material to a processing center. There are two steps in the process. For Process 1, the A and B materials must be processed in separate Type 1 machines. If there are two Type 1 machines available, load the A material into one machine, the B material into another, and run the two machines at the same time. If there is only one machine available, you have to run the two loads sequentially.

When Process 1 is completed, move on to Process 2. Process 2 requires Type 2 machines. If there are two Type 2 machines available, load the A material into one machine, the B material into another, and run the two machines at the same time. If there is only one machine available, you can process the A and B material together in the same machine. This will take longer than processing the A and B materials in separate machines, but not as long as running two loads sequentially. When Process 2 is completed, organize the material in an orderly configuration, take it back to your original location, and store it for subsequent use.

Description of the prototype development process

When a customer sends Sales a purchase order (PO) to produce a prototype for a non-standard bracket, Sales meets with Product Engineering (PE) to review the functional requirements, specifications, sketch, and desired delivery date. PE creates an initial design specification, then reviews it with the customer. If the customer is not satisfied, PE makes the required changes, then meets with the customer again.

After the customer approves the design spec, copies go to Quality Engineering (QE) and Manufacturing Engineering (ME) for review. If either group has any problems with it, PE makes the required changes, then meets with the customer again. If the customer is happy with the revised design spec, copies go back to QE and ME.

After QE and ME approve the design spec, it goes to Drafting to create an assembly drawing. The first draft goes to PE for review. If PE is not satisfied with the drawing, it goes back to Drafting for revision, then back to PE.

After PE approves the drawing, it goes to QE and ME for review. If either group has any problems with it, it goes back to Drafting to make the required changes. Drafting sends the drawing back to PE for review. If PE is satisfied with the changes, the drawing goes back to QE and ME again.

Prototype development process (cont'd)

After QE and ME approve the drawing, it goes to Proto. This is a special production area, separate from manufacturing, whose purpose is to build prototypes quickly. The Proto operators have a lot of experience, and can build almost anything.

Proto builds the prototype, then tests it for conformance with the functional requirements and specifications. If the prototype passes the tests, PE arranges for it to be shipped to the Customer.

What happens if a prototype fails one or more of the tests? No one on the team seems to know.