ASSIGNMENT 4

4

**DMAIC PLAN / STATUS**

CSE 6329 -- SOFTWARE MEASUREMENT AND QUALITY ENGINEERING

Professor Dennis J. Frailey

**Spring, 2018**

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| --- | --- |
| NAME(s) | ID Number(s) |
| **<your names go here>** | **<ID #s gohere>** |

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| **Grading Comments (student – do not write inside this box)** | | | |
| **<total goes here>** | 1. **Define -- CTQs (Critical to Quality) (10 points)** | | |
| **/ 5** |  | |
| **/ 5** |  | |
| **<total goes here>** | 1. **Measure – Organizations, Process Flow and Swim Lane Diagram (20 points)** | | |
| **/ 8** | **Identify All Organizations** |  |
| **/ 8** | **Identify All Process Steps** |
| **/ 4** | **Other Info** |
| **<total goes here>** | 1. **Analyze -- Root Cause Analysis (25 points)** | | |
| **/ 10** | **Technique 1** |  |
| **/ 10** | **Technique 2** |
| **/ 5** | **Root Cause(s)** |
| **<total goes here>** | 1. **Analyze -- Causal Model (20 points)** | | |
| **/ 15** | **Identify All Possible Causes** |  |
| **/ 5** | **Relationships Make Sense** |
| **<total goes here>** | 1. **Analyze -- Most Important Root Causes / Flow Diagrams (15 pts)** | | |
| **/ 5** | **Cause 1** |  |
| **/ 5** | **Cause 2** |
| **/ 5** | **Cause 3** |
| **<total goes here>** | 1. **Improve -- Recommendations (10 points)** | | |
| **/ 6** | **Good Recommendations** |  |
| **/ 4** | **Legibility, Correct English, etc.** |
| **<total>** | **Grand Total** | | |

This is the template. **Delete this page and all red text** in this template.

Red text consists of instructions to you. Blue text indicates where you should provide information. To generate your DMAIC plan, **delete** all red text**. Replace** all blue text with suitable words, formulas, figures, etc.

Note that the number of points assigned to each item can be found on the cover sheet (first page of this template).

**DMAIC Plan / Status**

This document consists of our DMAIC plan and the results obtained so far, so as to provide a status report on execution of that plan.

**DEFINE**

**Charter (from management):**

**Business Problem:** The customers are complaining that there are increasing numbers of failures in our newer products and that correction of software failures is too slow. GAMMA, one of our most important customers, is also one of the ones complaining the most about this problem, although we are losing other customers because of this. We must correct this in order to satisfy our customers, especially GAMMA.

**Goal:** Determine the causes of the slow response and higher failure rate and correct them. Reduce the response time by at least 50% and reduce failure rate to what it has traditionally been in the past.

**Scope:** The entire business process of the company may be affected by this. No part of the company is off limits.

**Timeline:** We must resolve this by the end of the year.

**Resources:** We have obtained the assistance of several UTA students who have taken a course that covered the appropriate methods. We want them to develop a more complete DMAIC plan.

**Definition (from team assigned to solve the problem)**

**The problem:** Slow response to software failures and higher failure rates.

**The customers:** Several, notably GAMMA Corporation.

**Voice of the customer:** See memo from GAMMA. Customer quality requirement is software that runs properly, with minimal failures, and rapid response to correcting the software when it does fail.

**CTQs:** Measurable attributes that are critical to quality for this customer.

| CTQ #1 | How Measured | Why it is Critical |
| --- | --- | --- |
| <Replace TBDs with required information. This is task 1.1.>  In this column explain what you are measuring and what information need you are satisfying. | <TBD>  Include specific base measures and compound measures to be used. | <TBD>  Here you should explain why this is so important for the customer. |

| CTQ # 2 | How Measured | Why it is Critical |
| --- | --- | --- |
| <TBD> | <TBD> | <TBD> |

**Target process(es) to be improved:** All processes in the company. Note: we will begin by analyzing the customer support process but any part of our organization’s process may be subject to improvement based on findings from our analysis. Specific processes needing improvement are defined as a result of the analysis.

**Project Targets:** Reduce response time by at least 50%; reduce failure rate.

**MEASURE**

**Organizations/People (Roles) Involved:**

Fill in the table below, summarizing all the organizations involved.

<Task 1.2.1. List organizations and what they do in the table below>

|  |  |
| --- | --- |
| **Organization/Role** | **Summary of what it does** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Process Flow:**

Here you explain the process IPC follows to respond to a customer complaint, showing every step of the process from complaint to final installation of the corrected software. You should show a swim lane diagram, illustrating the process. This diagram should show each organization involved in responding to a customer problem and should show the approximate time required for each step. Briefly explain the role of each of the organizations involved, and explain what happens on each of the steps they perform. You should mention any steps of the process that you found to be a significant causal factor in the problem (for example, if there’s a part of the process you think is contributing to the problem and needs to be improved). You could also show such steps on the swim lane diagram by making them a different color or otherwise marking them. Feel free to show other diagrams as well if you think they will help explain things.

<Task 1.2.2 – 1.2.3 your process explanation and swim lane diagram goes here. You may use multiple pages if convenient.>

**Data to Collect:**

* Interviews with key people involved in the process described above. Interviews are intended to extract their perspectives on the process as well as numeric data, where available.
* International Products Corporation Data relevant to this problem (from IPC Data Report)

**Collect Data:** Interview results have been collected and are summarized in various supplementary files.

**ANALYZE:**

**Root Cause Analysis:** Here you discuss your root cause analysis. You should select at least two root cause analysis techniques, and explain each of the techniques you used, showing diagrams where appropriate, and identifying the root causes you found.

<Task 1.3 root cause analysis goes here. It may take several pages.>

Causal Map: Here you should show a causal map that shows all root causes and the complete path from each root cause to the final problem.

<Task 1.4 causal map goes here. It should take approximately one or two pages.>

**Collect Data:** To be performed, if necessary, to identify most critical root causes. For purposes of this assignment, assume no additional data is needed beyond what is provided in the supplementary handouts and other assignment materials.

**Prioritize Root Causes:** Below is information on each of the three most important root causes, including a flow diagram of each of the three target sub-processes that must be improved to fix the three root causes.

| Root Cause /Target Sub-process 1: |
| --- |
| <Task 1.5a description of root cause, descriptive name of sub-process, and flow diagram. Take as much space as necessary> |

|  |
| --- |
| Root Cause /Target Sub-process 2: |
| <Task 1.5b description of root cause, descriptive name of sub-process, and flow diagram. Take as much space as necessary> |

|  |
| --- |
| Root Cause /Target Sub-process 3: |
| <Task 1.5c description of root cause, descriptive name of sub-process, and flow diagram. Take as much space as necessary> |

**IMPROVE:**

**Create Solutions:**

Here you describe your proposed solutions for improving the problem. The solutions should include each of the three most important root causes. For example, you should indicate which root causes to address first, what to do about them, which ones have the biggest impact, etc. You should illustrate your proposed solution by showing how you would modify the detailed flow diagrams you produced in the previous step.

**Also, if one or more of your root causes occurs on the original swim lane diagram, please indicate where on that chart the root cause appears.**

<Task 1.6 discussion of solutions goes here. It should take approximately one paragraph for each root cause.>

**Test the Solutions:** To be performed

**Assess Risks of Implementation:** To be performed

**Create full implementation plan:** To be performed

**Deploy the plan:** To be performed

**CONTROL:**

**Control Plan:** To be performed

**Monitor and Control:** To be performed

**Update training, process documents, procedures, etc.:** To be performed

**Develop Response Plan:** To be performed