

Obsolescence Management- Unknown Parts

*Diara Beltran Cruz
Master of Engineering Management Program
Dr. Héctor J. Cruzado
Graduate School
Polytechnic University of Puerto Rico*

Abstract — *In an aerospace program, an opportunity to improve the obsolescence process was identified. The DMAIC methodology was implemented. The Bill of Materials was evaluated and it was found that there are parts with Unknown status that represent a risk of obsolescence. Program management and team performed a Risk Analysis to identify potential risks and mitigate or avoid them. The root cause was identified: suppliers do not participate to provide alert to companies in charge to maintain an external database that manages the internal obsolescence tool. The Component Engineer contacted the supplier to get the current part status in the market. The supplier's responses were used as an evidence to change the part status in the Bill of Materials. The team implemented a SharePoint file to save all suppliers responses with the new part status data.*

Key Terms — *Obsolescence Management, DMAIC, Program management, Risk Analysis*

INTRODUCTION

Every industry that depends on technology runs into this critical issue. If not managed effectively, obsolescence will have a negative impact on business [1]. Companies across the world conduct a monitoring process using an obsolescence tools to predict the life cycle status. Obsolescence Management can help the programs to plan and schedule strategies to identify potential part replacements or identify possible re-design. During the obsolescence process, the Component Engineer manages the obsolescence process and report to the customer periodically the parts status.

This project was conducted to address an obsolescence opportunity in an aerospace program. The Bills of Materials are monitored to observe the status of the parts. The company uses an obsolescence tools in to order to predict the life

cycle of every single part. This tool provides alerts when a part status change. The tool provides different status, which are the following:

- Active
- Not recommended for new design
- LTB- Last time buy
- Obsolete

There are parts in the Bill of a Materials with Unknown status. This can result in an obsolescence issue in the future.

The objective of this project was to reduce the numbers of parts without part status information. This can be done by identifying all the unknow parts and start to assess them.

LITERATURE REVIEW

Obsolescence Management is a process that helps to address the availability of the parts necessary to build a product. This is applied to Bill of Materials that represents the list of parts for a specific assembly or product that needs to be monitored in an obsolescence tool. It is important to program management and the customer to monitor the current part status of every single part of the Bill of Materials.

If the Component Engineer does not manage the obsolescence process effectively, this can negatively impact the program during design and production phases. All information must be accurate, reliable, and comprehensive [2]. Parts without proper status represent a potential risk because these parts can change to obsolete or LTB without alert. These parts need to be identified to mitigate any risk of obsolescence. For that reason, it is important to apply a Risk Analysis. This is a process that helps to identify and manage potential problems that could undermine key business initiatives or projects [3].

Using DMAIC methodology, the process can be improved to get a robust Obsolescence Management process. This improvement can help to get in good shapes Bill of Material. This avoid or mitigate an obsolescence issues in the future that negatively impact a program and the company.

METHODOLOGY

The process was evaluated. There are parts without proper life cycle status data. DMAIC methodology was used to improve the opportunity identified in the obsolescence management process, as shown Figure 1 [4]. DMAIC is a five-phase strategy for improving a wide variety of organizational processes, whether it is software development, manufacturing, or some other process [5]. Five DMAIC steps, as applied to this project, are as follows:

- Define: There are parts in the Bill of Materials with Unknown status, and this can result in an obsolescence issue.
- Measure: Bill of Materials were evaluated, and all status were identified and segregated. Per the analysis conducted, there are 320 active parts, 2 Obsolete and 60 Unknown parts, as shown in Figure 2.
- Analyze: Based on data, there are 60 parts without part status data. Root cause of Unknown parts was identified. The current database has a link that connects the data with an external obsolescence tools and many suppliers do not participate to provide alerts to companies in charge to maintain external database that manage the obsolescence. Suppliers were contacted to get the parts status for Unknown parts.
- Improve: Bill of Materials were updated with the new parts status provided by the suppliers. SharePoint file was implemented to save all the parts status data.
- Control: A Component engineer will be the owner to maintain the data in the SharePoint every 4 months.

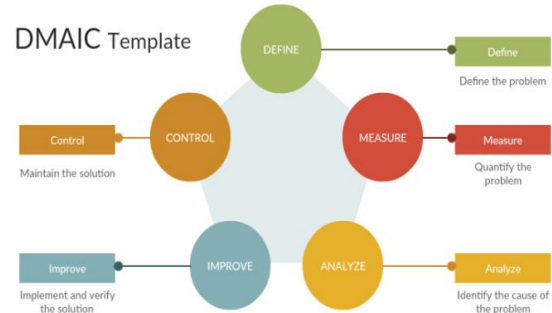


Figure 1
DMAIC Template

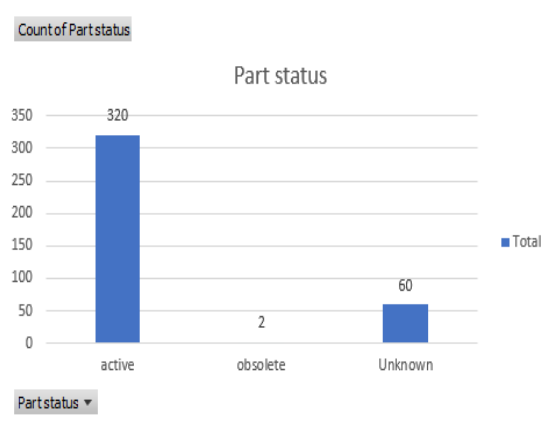


Figure 2
Current State

FUTURE STATE AND PROJECT RESULTS

The Unknown parts were updated with the data provided by the supplier. There are 377 active parts instead 320. Obsolete parts and Not Recommended for New Designs parts were mitigated with active alternates in the Bill of Materials, as shown Figure 3. A SharePoint file was created to save all the part status data for the Unknown parts. SharePoint allows different teams to eliminate wait time in information receiving and gathering from their extended teams, they can look up for information, documents themselves thus eliminating the time-consuming information requests [6].

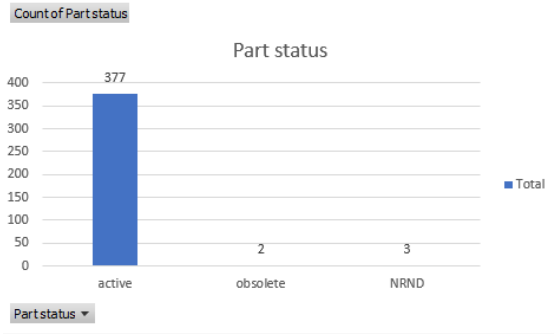


Figure 3
Future State

CONCLUSIONS

The team analyzed if use the same database or implement a new one. It is was Discussed with IT if the current database can be modified to address the issue. IT team verified if it is feasible to add an option to add manual entries and upload the evidence that provide the supplier regarding part status data. Based on their inputs the Obsolescence tool will be modify next year in the next project phase. The next phase will impact the whole organization.

In the meantime, it is was determined to create a formal process to save the data in the SharePoint file, adding all the supplier concurrences and evidence regarding part status. This addressed the issue for the Unknown parts and the data can be reused by other components engineers and programs

REFERENCES

- [1] What is Obsolescence management? April 12. Available: <https://www.gdca.com/obsolescence-management/>
- [2] 8 Tips for Successful Program Management (Update 2020). Available: <https://www.theprojectgroup.com/blog/en/successful-program-management/>
- [3] Risk Analysis and Risk Management Evaluating and Managing Risks. Available : https://www.mindtools.com/pages/article/newTMC_07.htm
- [4] DMAIC Template. Available: <https://creately.com/blog/diagrams/dmaic-process-problem-solving/>

- [5] DMAIC Process: The 5 Phases of Lean Sigma That Will Change the Way You Work Forever By Steve Tanner Last updated on May 13, 2020. Available: <https://www.simplilearn.com/dmaic-process-article>
- [6] How SharePoint Benefit Manufacturing Management Process. Available: <https://www.star-knowledge.com/blog/how-sharepoint-benefits-manufacturing-management-processes/>