



Implementation of Quality Control in a New Product for Aerospace Industry

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ABSTRACT

Aerospace Industry provides products to P&W. Now they are providing a new product, a Thermal Management System. Since it is a new product, it needs a Quality Assessment to ensure that Aerospace Industry provides defects-free products. To accomplish the defects-free goal, they need to increase the quality control in the Thermal Management System product by reaching Quality Level II by the end of the year 2016.

Key Terms — SIPOC, Thermal Management System, Quality Level

BACKGROUND

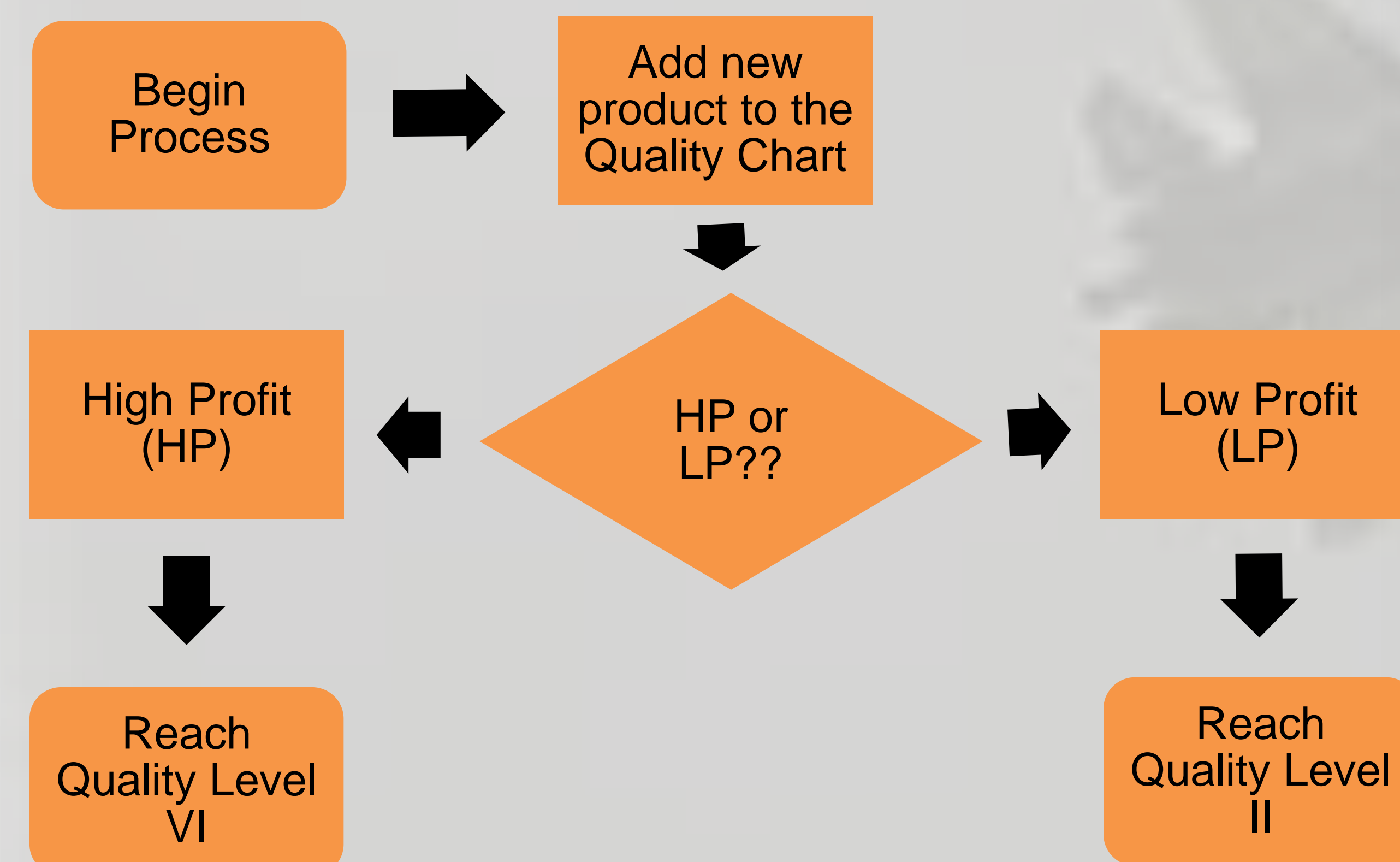


OBJECTIVES

- Increase the quality control in the new product by reaching Quality Level II by the end of the year 2016

Quality Level I

Management needs to place this product in the Product Quality Chart and categorized it as low profit or high profit product. The profit evaluation has been done by analyze the amount of work in hours between January 2013 – September 2016 and compared it to the 2080 theoretical working hours in a single year by practitioner.



In order to classify a product as high profitable the amount of hours worked in a year needs to be five times the theoretical working hours in a single year by practitioner. According to that number management will assign a Quality Level Goal between I – V. After assigned the Quality Level Goal, the process will reach Quality Level I

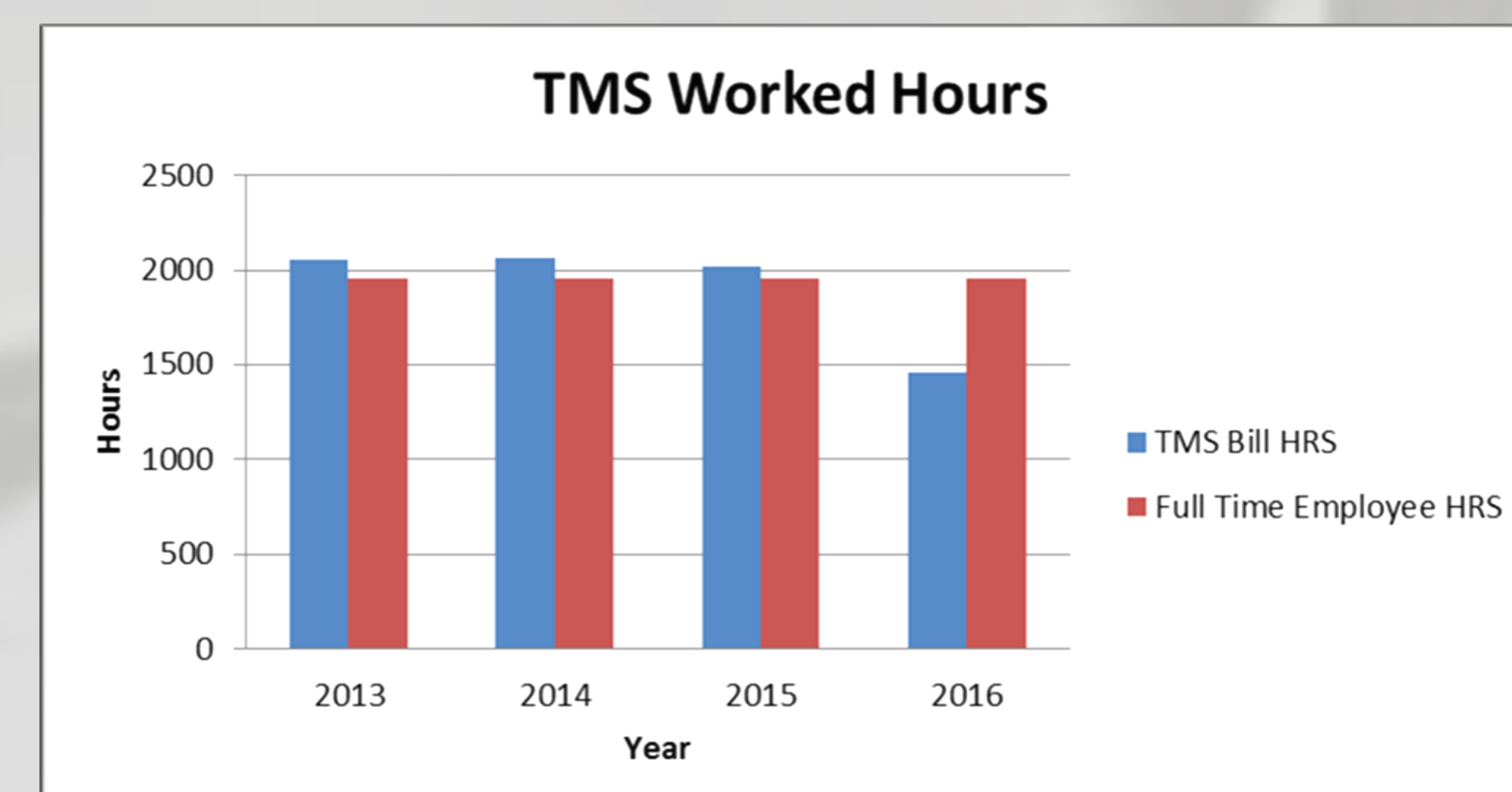
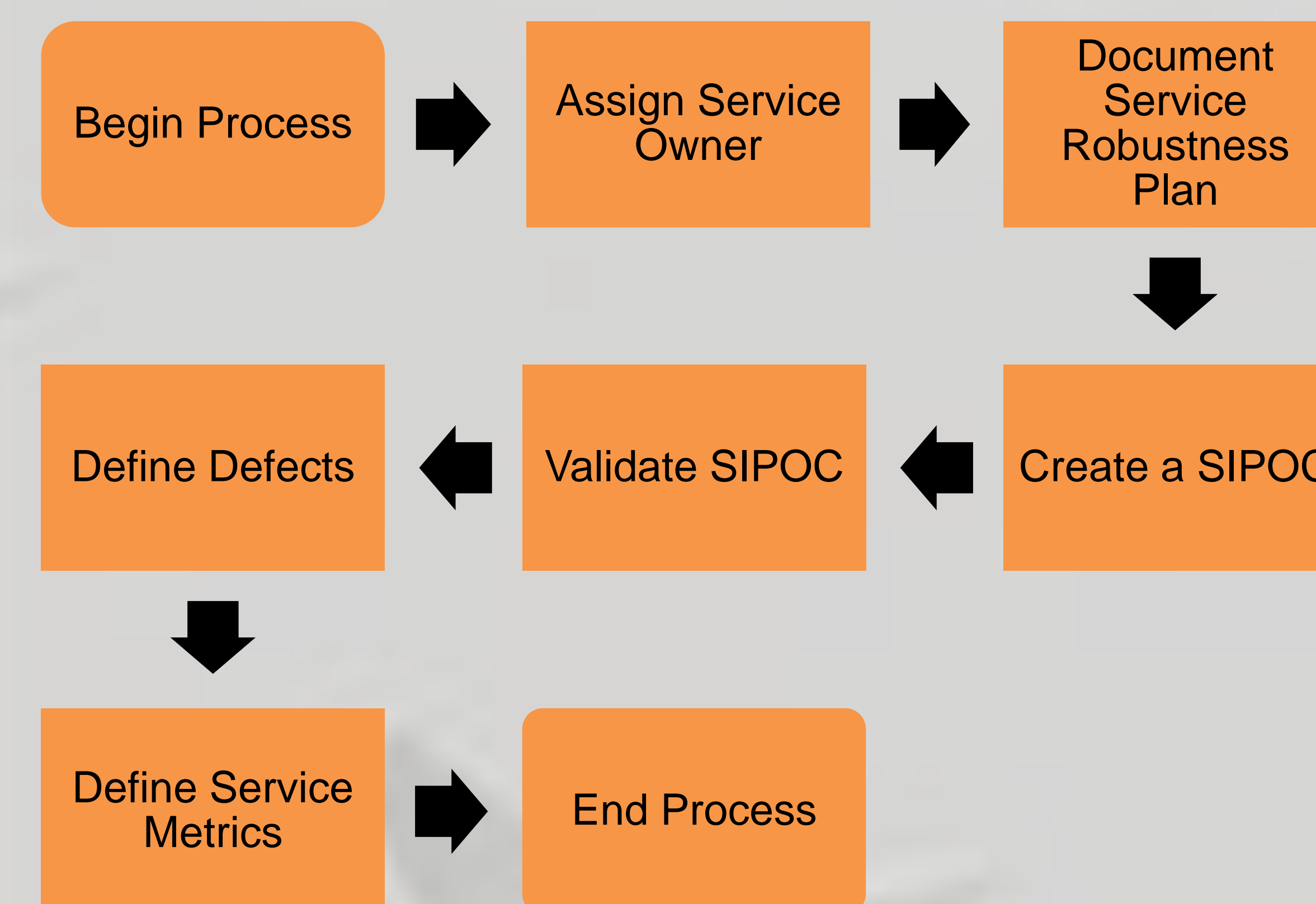


Figure 1
TMS Worked Hours Profitability Assessment

Quality Level II

- Service Owner: Most experience practitioner
- Document it: ✓



This product has one supplier that is P&W. The process is TMS. The input for this process is the physical components and their performance. The output is the temperature at the requested stations. The customer is P&W as well.

Table 1
TMS SIPOC

Thermal Management System SIPOC				
Suppliers	Inputs	Process	Outputs	Customers
P&W TMS	TMS Components	TMS	TMS Temperatures	P&W TMS

The products will have two defects

- **No energy balance:** The TMS model needs to have energy balance.
- **No mass balance:** The TMS model needs to have mass balance.

Metrics:

- **Zero defects:** 100% Inspections
- **Worked Hours:** > 173.3 hours

CONCLUSION

Placing the product in the Product Quality Chart and doing the Profitability Assessment Aerospace Industry already reach Quality Level I. Since management found out that only one practitioner work with this product, management classified the product as a Low Profit. The SIPOC automatically gets approved by the customer and Aerospace Industry already knew the defects for this process. Aerospace Industry needs to inspect 100% of the product before release to ensure zero defects. Quality Level II before EOY 2016 has been accomplished.

BIBLIOGRAPHY

[1] Pedro A. Marques, Jose G. Requeijo, "SIPOC: A Six Sigma Tool Helping on ISO 9000 Quality Management Systems", 3rd International Conference on Industrial Engineering and Industrial Management, XIII Congreso de Ingeniería de Organización, Barcelona-Terrassa, September 2nd-4th 2009

[2] Young Hoon Kwak, Ph.D. and C. Williams Ibbs, Ph.D. "Assessing Project Management Maturity"