Optimal Data Maintenance Structure (Camstar) Study

IE3100R System Design Project

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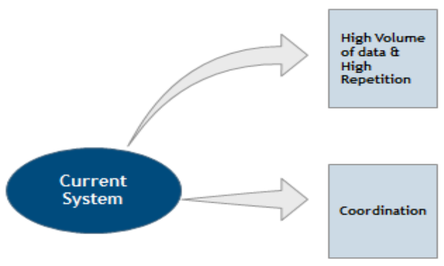
INTRODUCTION

For recent years, Infineon Technology is aiming to improve the manufacturing and testing operations globally. Camstar, the internal infrastructure software that monitors the testing progress, was implemented to its Singapore branch two years ago to kick off its paperless operations initiative. However, over the usage of the system in the past two years, the company has been experiencing inefficiencies.

EXISTING CHALLENGES

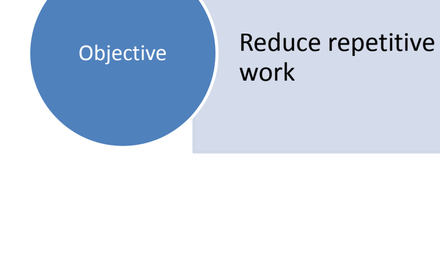


1. Large amount of repetitive work in data configuration
2. A big number of departments and engineers involved
3. Lack of coordination among engineers

OBJECTIVES &METHODOLOGY

Objective	Reduce repetitive work	Improve the process efficiency	
Methodology	Evaluate the effectiveness of data configuration process in Camstar	Identify inefficiencies of the whole process	Recommend improvements

EVALUATION



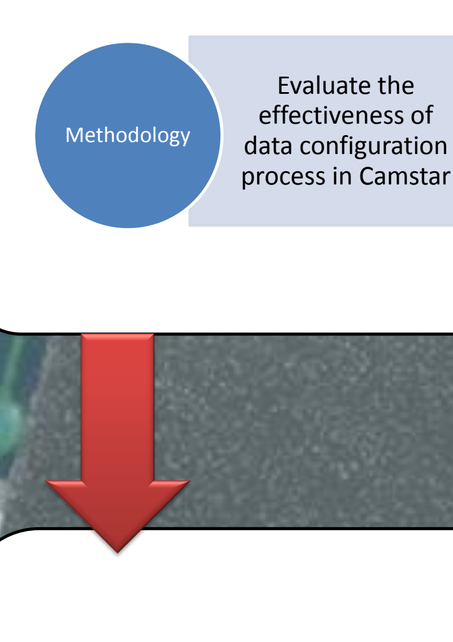


Figure 2

Quantitative analysis

- Figure 1 shows time commitment for data configuration of each departments. Workload on data configuration is unevenly distributed among the six departments.
- Figure 2 shows the amount of repetitive work of each department weekly. At least three of the six departments have high percentage of repetitive work on data configuration.

Qualitative analysis

- Larger number of engineers involved in the configuration process
- High dependency among departments in the process

PROCESS FLOW REDESIGN

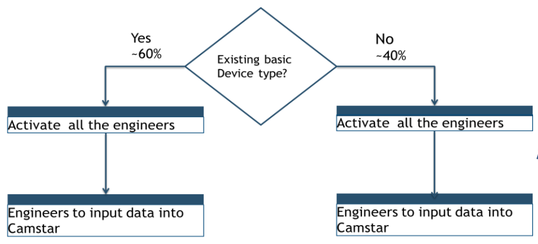
Existing Problems

- Current process flow is inefficient
- A lack of a central authority to oversee the overall process of data configuration.

Objective

- Redesign the process flow to improve the system efficiency
- Simplify the process flow and reduce the number of engineers involved through reallocation of tasks.

Current



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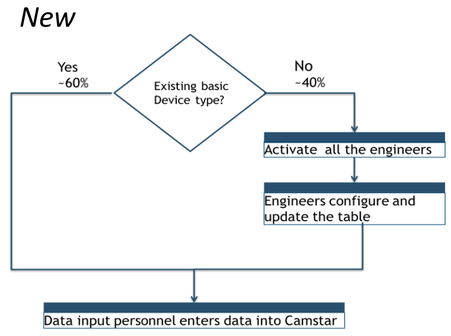
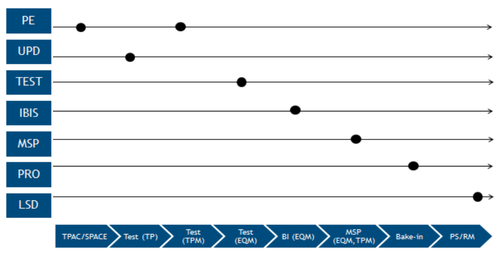


Current



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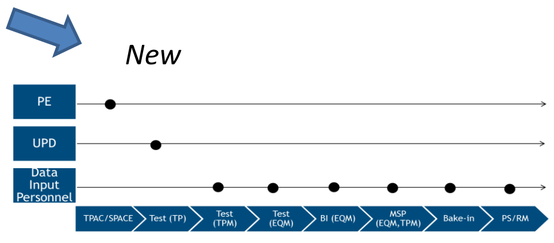
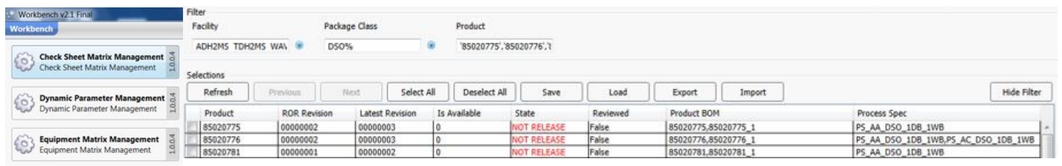


Introduction of utility tool(CSMD) to reduce manual input



Advantages

- Fewer engineers involved, save manpower
- One group update, guaranteed synchronization
- Simple coordination

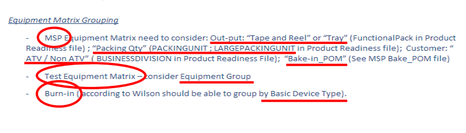
GROUPING

- **Rationale**

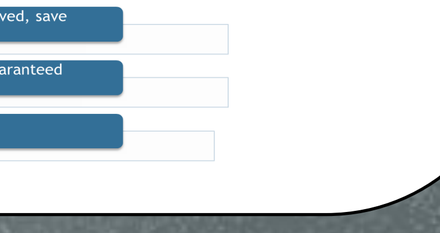
  The current system configures each product with three sections of data, namely Equipment Matrix (EQM), Toolplan Matrix (TM) and Recipe Matrix (RM). Each matrix is further referenced by other layers of data like the Process Spec (PS). As shown by the evaluation of the system, many products do share the same EQM or PS. Hence, the team has decided to use Grouping as a measure to reduce repetitive effort for the company.

- **Methodology**

  1. Investigate the existing way of configuration for EQM and PS, after which we conclude the critical information for the configuration.



  2. Group the product numbers by the above realized critical information.



  3. Figure out a naming convention for the new groups.

- **Result**

  1. EQM yields very promising result after the grouping. A reduction of 70% of the effort is achieved. As the main part of the critical information for the grouping is their basic types, we have decided to use the basic type added with alphabets as their naming convention. (e.g. M1506A)

  2. PS is not as promising as EQM, and we only targeted a portion of the product numbers. This is due to the limitations of the matrices. However, for the ones that we targeted, we still managed to reduce the effort by 60%.

Projected result of grouping for EQM