Keppel Offshore & Marine Technology Centre

NUS National University of Singapore

Designing an Item Tracking System at Keppel Shipyard

Main Objective

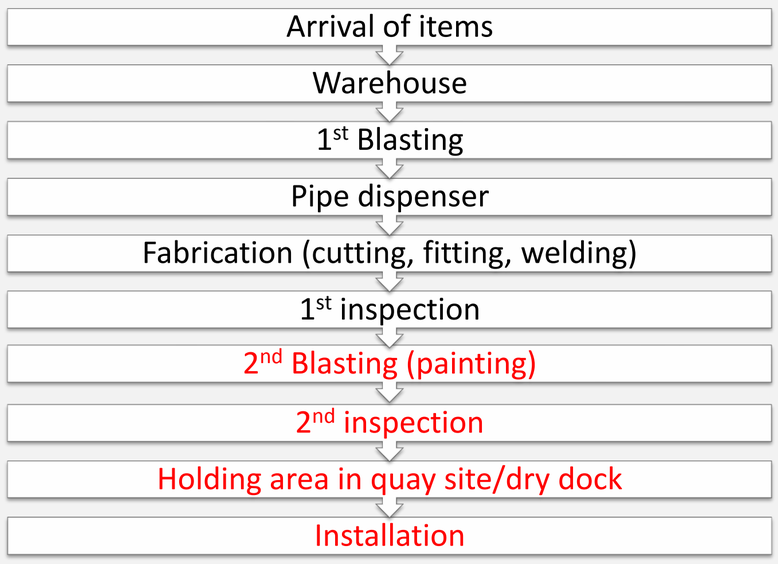
Minimize number of missing items in the holding area

Current Situation

Items are searched for only after they are discovered missing

Findings and Analysis

Current process flow in shipyard:



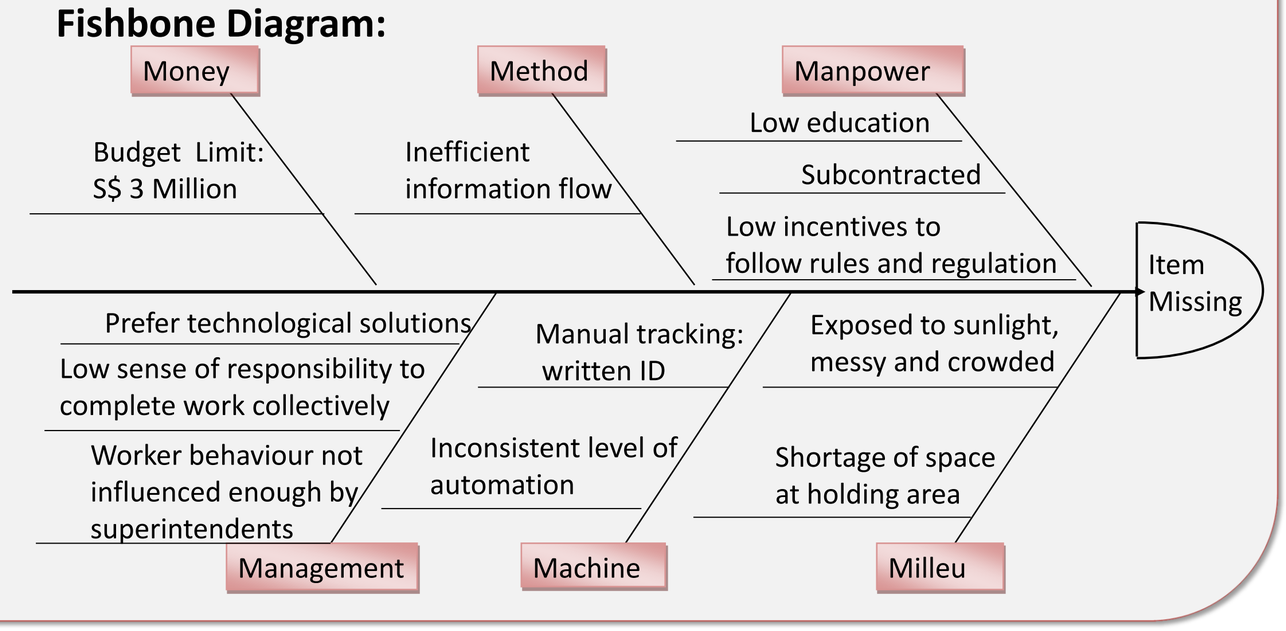
Two types of misplacement:

1. Items from different trades being put together
   - Workers may take similar items belonging to other trades by accident
2. Limited space in the holding area
   - Constant shifting
   - Difficult to locate when needed

Three main reasons for items to go missing:

1. Process and the holding area is messy
2. Information gap between management and workers
3. Low sense of responsibility among workers

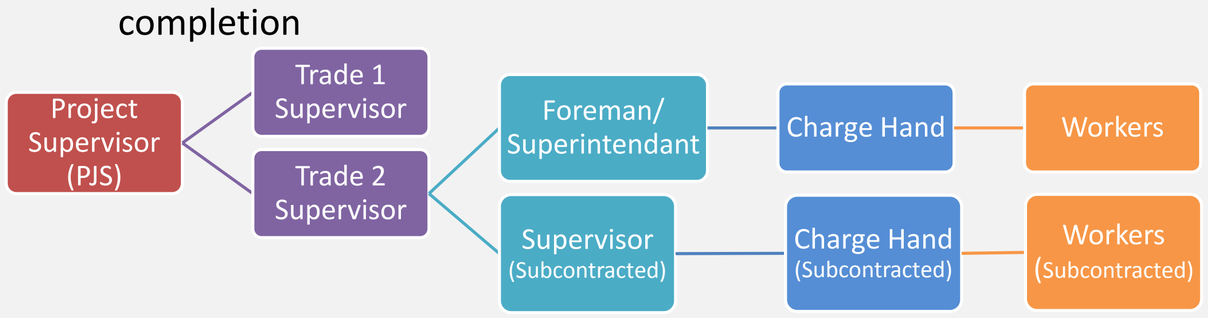
Fishbone Diagram:



Proposed Solutions

Managerial Approach

a. Proper charge hand training
   - More effective communication flow from superintendents to workers
   - Instill a sense of responsibility among workers towards project completion



b. Collective rewards based on performance
   - Discourage 'stealing' of items in order to complete own project
   - Collective improvement

Area Management

a. Setting up of lot and crane booking system
   - Divide rig holding area into lots of 2m width each
   - More orderly arrangement of items to ease search and maximise area usage

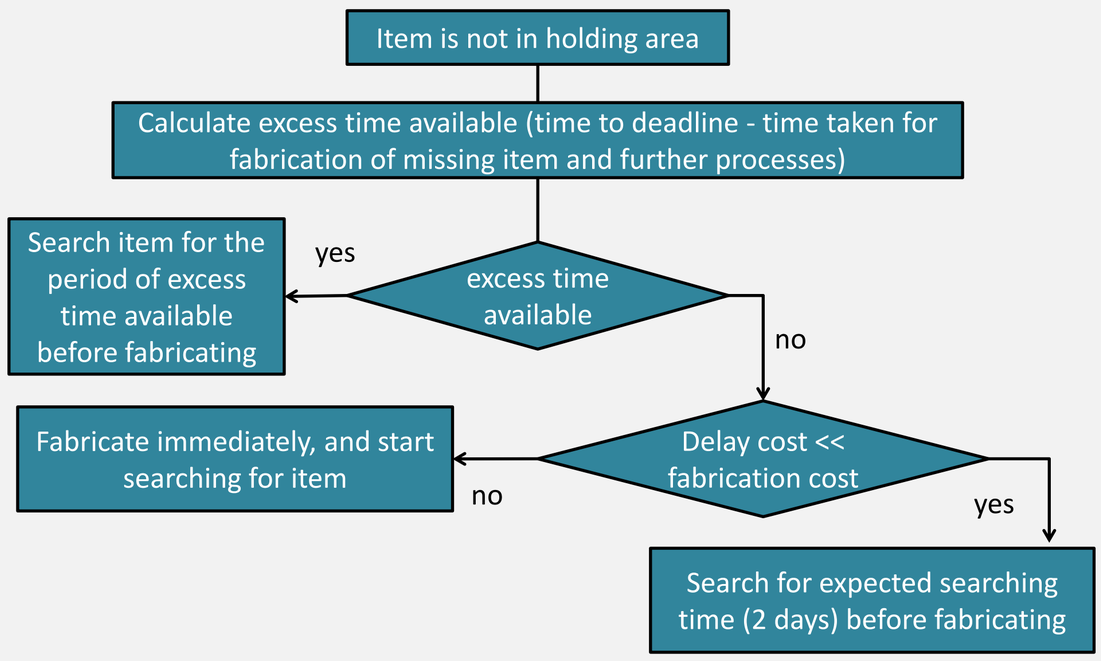
b. Coloured flags to mark lots
   - Visual aids for workers to identify their lots
   - Know where to find items

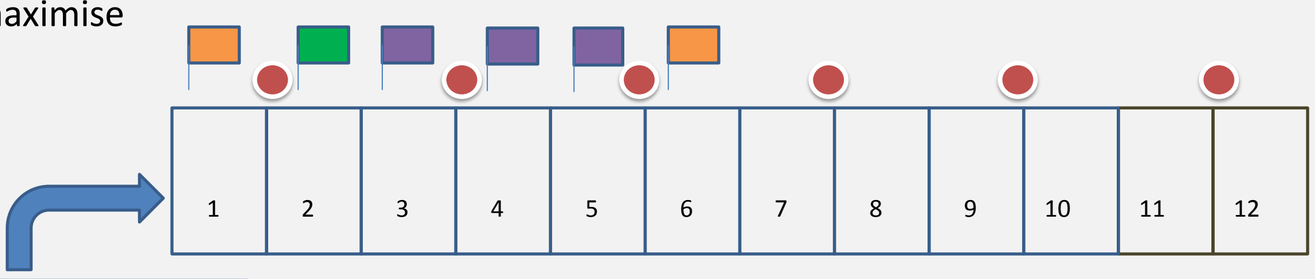
c. Passive RFID
   - Monitor position of items and occupancy rate

Guideline

In the event that items go missing:

- Ease decision making process by trade supervisors





Red circles indicate RFID readers. Flags are put according lots booked by each trade.

Implementation Plan

Objective: To slowly introduce change in order to yield a higher success rate by slowly conditioning the workers for the change

Flowchart guideline → Managerial approach → Division of holding area → Booking system setup → Set up and test of partial RFID system → Full implementation of RFID system → Combination and evaluation of approaches → Continuous improvement and maintenance

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