Department of Industrial & Systems Engineering

Systems Design Project

STAGE PRODUCTION PULL SCHEDULING

Introduction

This project aims to study and improve upon the current tools which Schlumberger uses to monitor and schedule its Foundry processes.

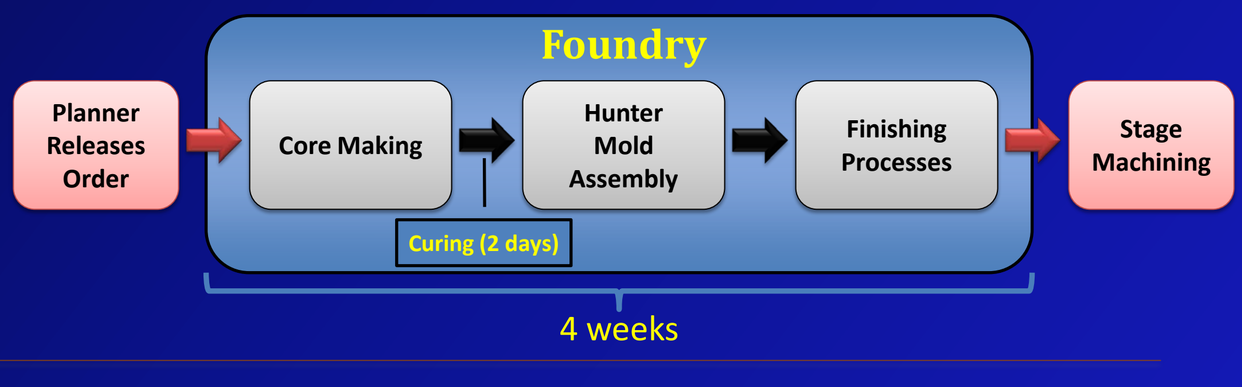
Objectives

To reduce the cycle time of orders through the Foundry by:

1. Reducing scheduling time required
2. Reducing setup time for *Core Making* and *Molding Hunter* stages through better aggregation
3. Reducing the probability of human error

Foundry Process

Products flow through the Foundry as shown below. The current scheduling system uses Kanban and is driven by pull scheduling.



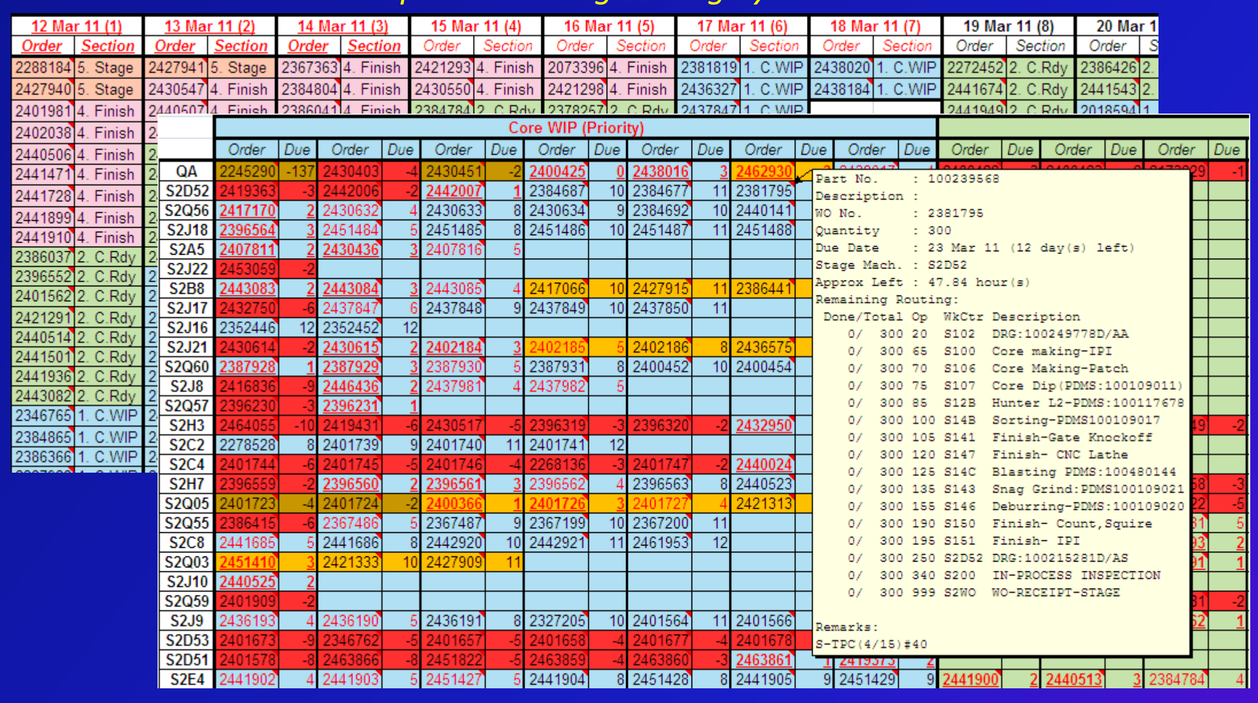
Current Scheduling Tools

1. Visual Control Board (picture with Kanban on left)
   - Kanbans are placed on the Board to keep track of orders
   - An order's priority depends on the loading of machines in the subsequent stages; less loading in subsequent stages imply a higher priority
2. Softcopy of Visual Control Board in Excel
   - Manually updated every day by Schlumberger Staff
3. MFG Pro
   - Schlumberger's program database whereby Staff enter their daily work production

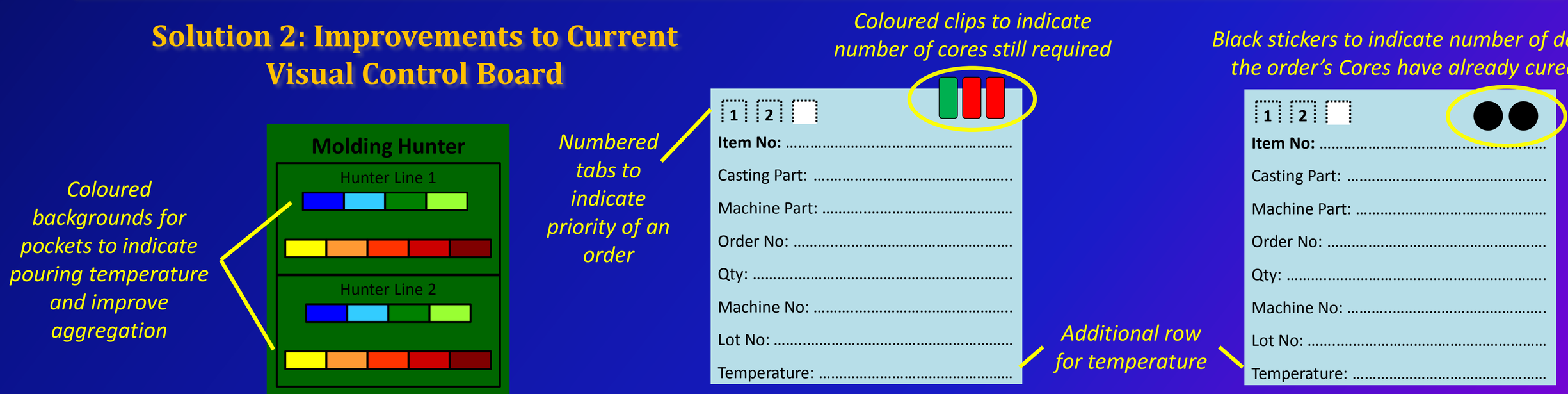
Solution 1: Excel Visual Control Board

1. Methodology
   - Uses Excel to extract data from Schlumberger's MFG Pro database
   - Generates an Excel Visual Control Board using extracted data
2. Features
   - User friendliness
   - Order priority sorting for each of the sections
   - Due date sorting
   - Identifies *Core Making* aggregation
3. Highlights
   - Reduces scheduling time from 2 to 3 hours to less than 30 minutes
   - Integrates their three scheduling tools into ONE

Screen capture showing sorting by due date



Solution 2: Improvements to Current Visual Control Board



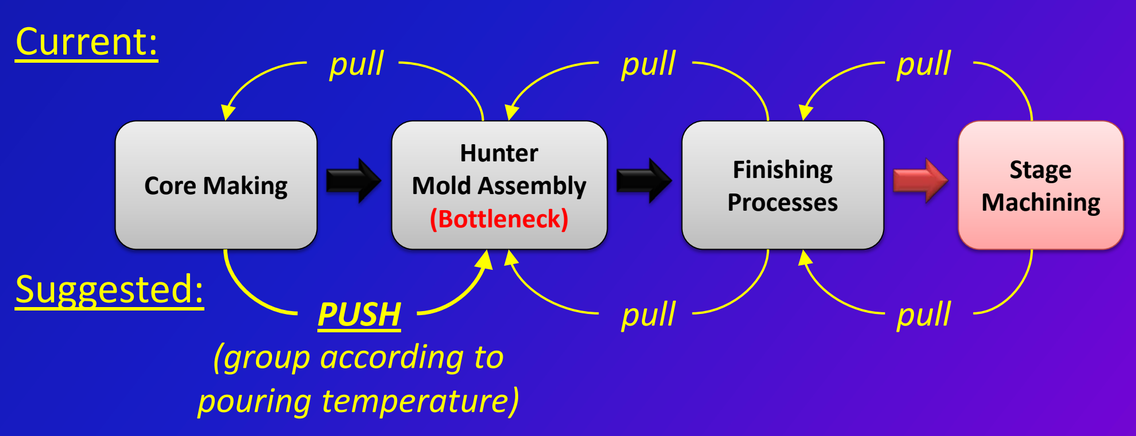
Further Exploration

Current pull scheduling results in groups of orders reaching Hunter with pours of varying temperatures

- Waiting time for cooling
- Cannot pass through without delay

Suggest to push from Core Making to Hunter in aggregated temperatures

- Reduce waiting time
- Start of pull is closer to Stage Machining



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