



Incoming raw material receiving optimization

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Abstract

Every company seeks for new ways to grow their business, but such growth adds new challenges in the operation. Increment in overtime expenses and backlogs are the most common challenges nowadays; lack of communication and poor resources utilization contribute to worsen those challenges. The process from receiving to disposition on Amgen® was analyzed with the objective to reduce the overtime expense and eliminate backlogs. It was proven that aligning business prioritization between departments, implementing a schedule to support the prioritization process and understanding workload is possible to reduce overtime expenses and eliminate backlogs. Where? At which company?

Introduction

After the business crisis in 2008, all the companies are searching for the best combination on their business model in order to satisfy the customer. This is a big challenge for the new era manager because now they have to use their resources to manage more workload than before, even though more resources are needed. Since the last quarter of 2012 the production on Amgen® increased significantly causing an increase in backlogs, and overtime on the Incoming Quality Assurance area. Appraisal analyses are often not sufficient to make decision on a complex business structure. A scheduling process will be designed to help the departments to align their priorities and help the company to manage the workload.

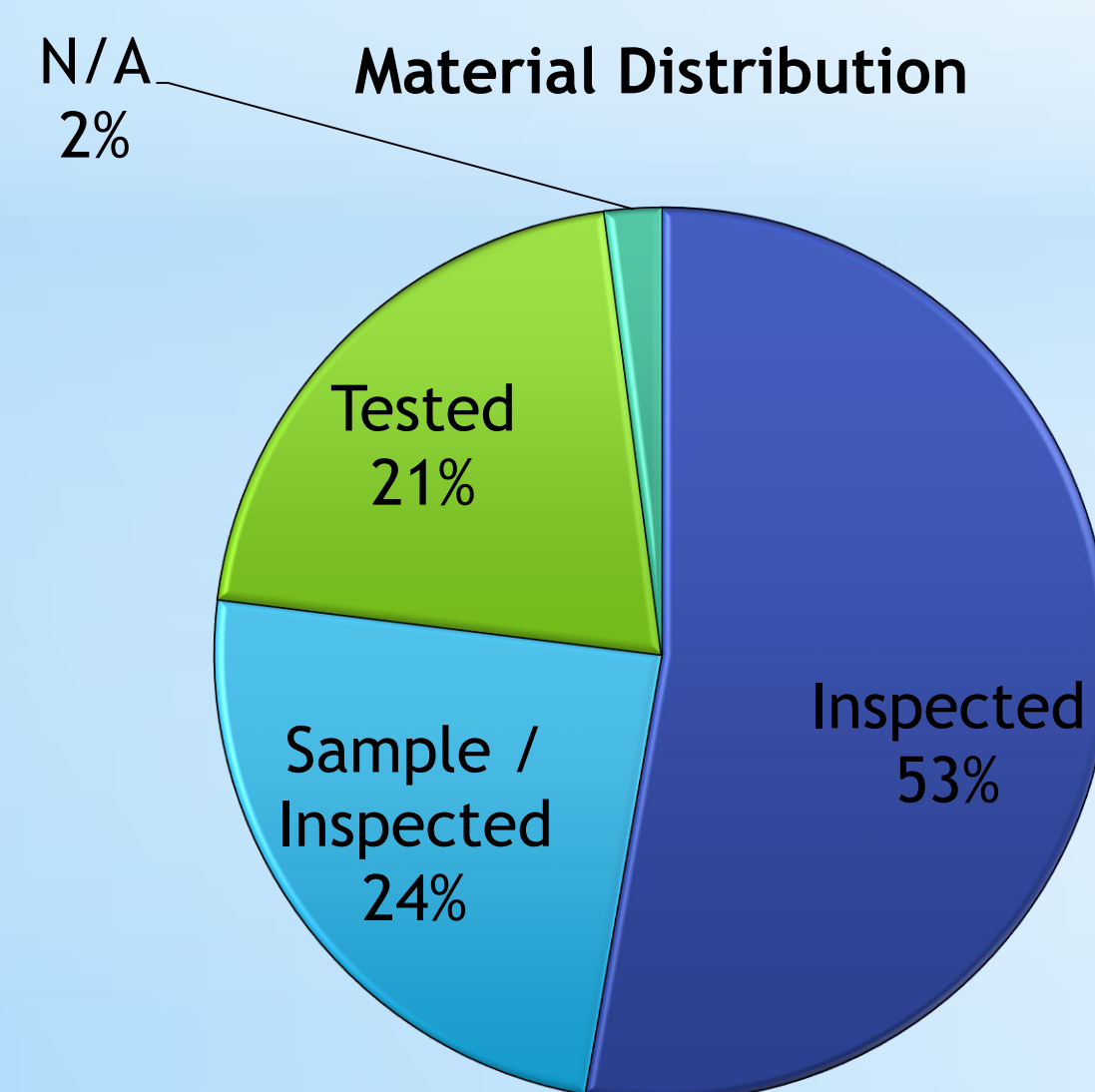


Figure 1
Material Distribution

The detailed capacity analysis reinforced and proved the initial hypothesis. The increase in overtime and backlogs in the IQA area was caused by the unexpected arrival of material to the area and the communication gap. The detailed results of the analysis are presented in Table 1. An area for improvement was found in the IQA process. A selection of materials was identified as a possible prospects for change their inspection process. As part of this initiative were identified some materials that their inspection could be changed. Figure 1 presents the material distribution of the IWR (Inspect While Receiving). One of the purposes of the capacity model is to link it with the direct inbound schedule in order to determine the workload in IQA. Initially the use of an optimization model to schedule the receipts was considered, but this can't be possible due to business constraints. It was decided to create a tool for buyers so they can balance the numbers of lots received daily in order to comply with the IQA capacity. The first step was to create a schedule that had the necessary information and is called Direct Inbound Schedule. The direct inbound schedule would be the source of the scheduling tool. The programmed sheet would extract the items numbers, the dates and the lots. In the output sheet have the workload each date based on the capacity model and the direct inbound schedule. This tool gives buyers the ability to balance the amount of daily receipts so IQA can process all the lots received.

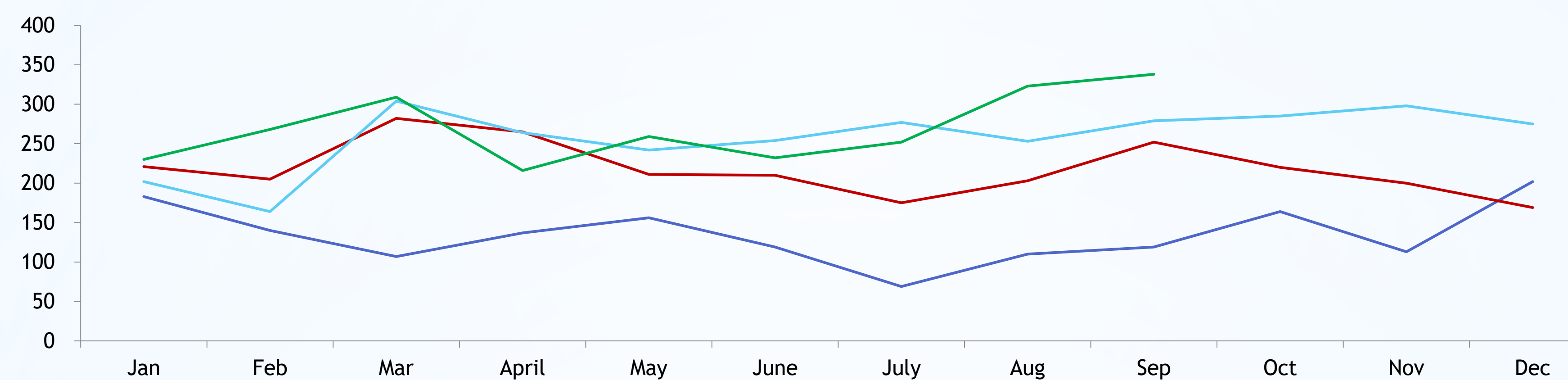


Figure 2
RM & Components Lot Received Since 2010

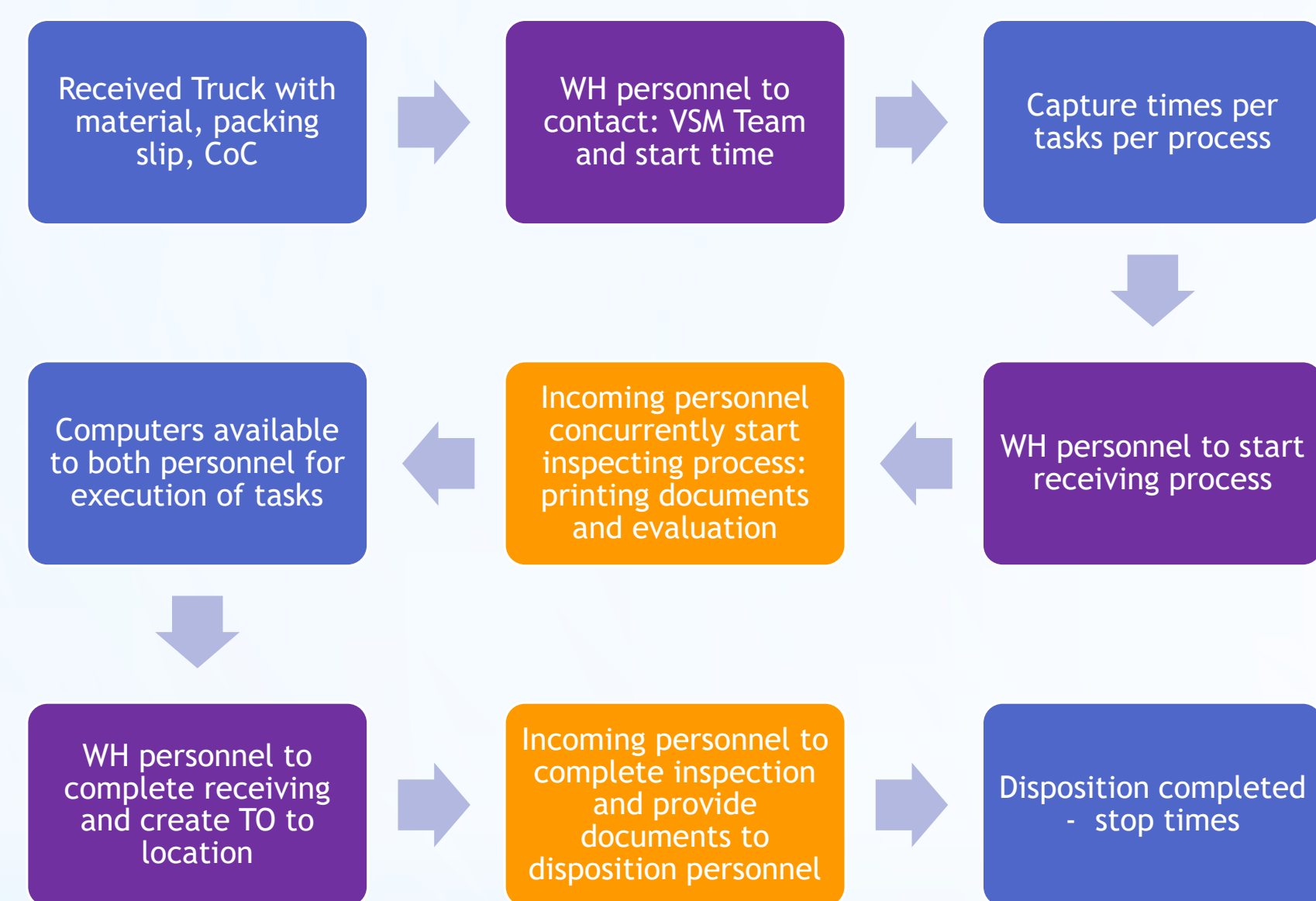


Figure 3
Inspected while receiving process

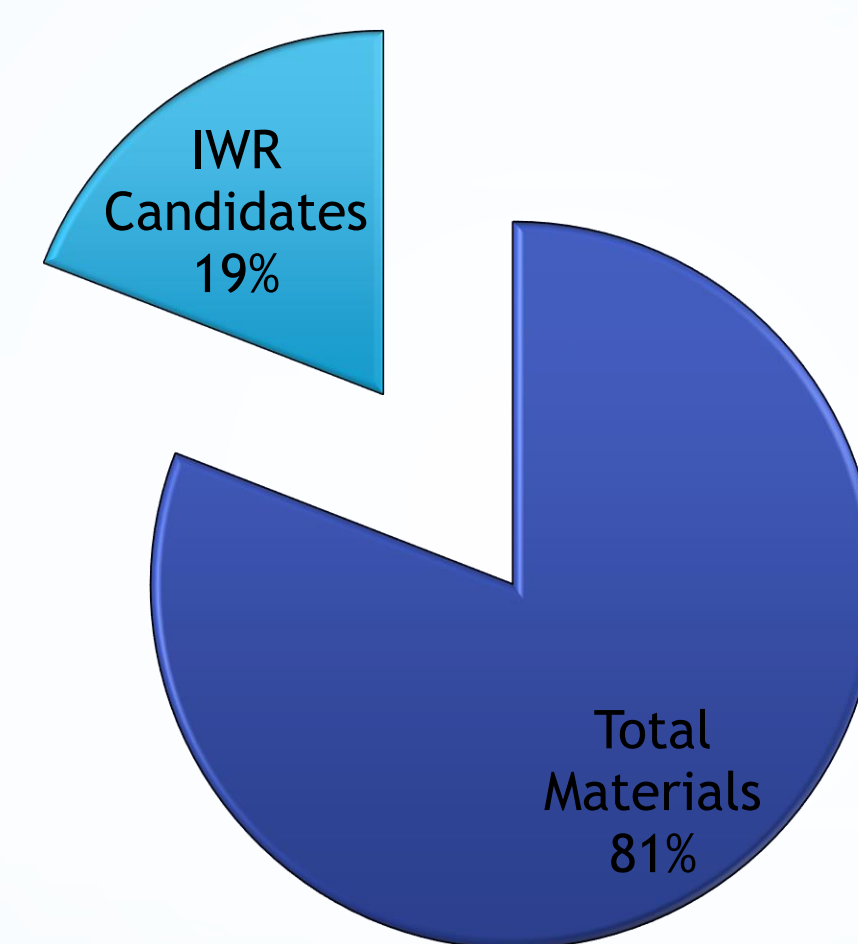


Figure 4
IWR material distribution

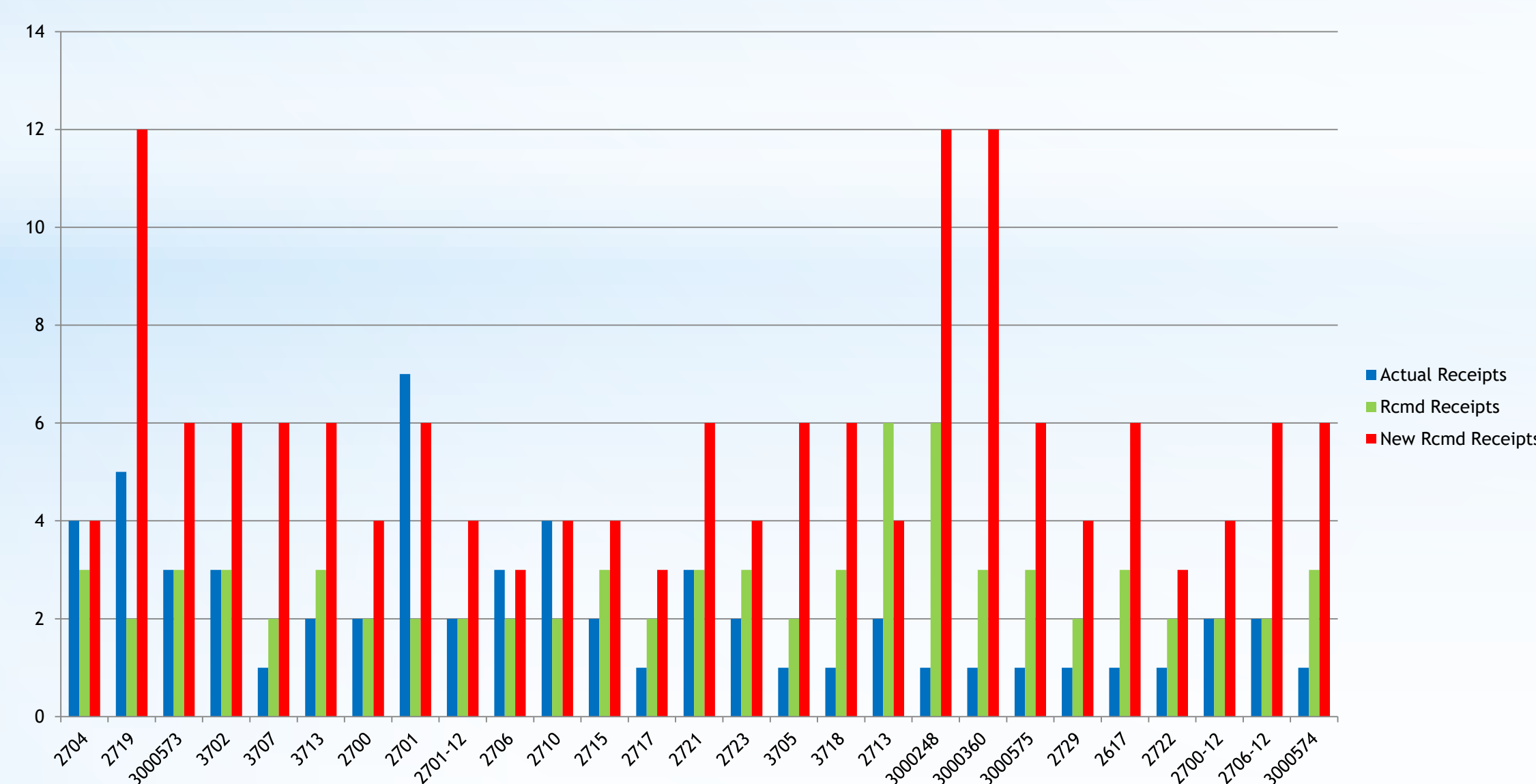


Figure 5
Lots Received

Table 1
IQA capacity model results

Components	Q3	Q4	2013	2014
Man-Hrs. Requirements	648.3	349.9	2667.8	2228.8
Available Man-Hrs (per FTE)	331	215.4	1276.8	1276.8
Headcount Requirement (100%)	2	1.6	2.1	1.7
Headcount Requirement (~85%)	2.3	1.9	2.5	2.1
Balance (~85%)	1.7	2.1	-2.5	-2.1
Balance (100%)	2	2.4	-2.1	-1.7
Current Loading	196%	162%	209%	175%
Printed Materials				
Man-Hrs. Requirements	255.2	199.2	1148.7	976.4
Available Man-Hrs (per FTE)	331	215.4	1276.8	1276.8
Headcount Requirement (100%)	0.8	0.9	0.9	0.8
Headcount Requirement (~85%)	0.9	1.1	1.1	0.9
Balance (~85%)	3.1	2.9	-1.1	-0.9
Balance (100%)	3.2	3.1	-0.9	-0.8
Current Loading	77%	92%	90%	76%

Table 2
Direct Inbound schedule results

Metrics	Targets	Baseline (August/13)	Current (October/13)
Receiving Backlog	0	5 Trailers	0 Trailers
IQA 2013 Backlog	0	18 IM, 23 TM	
IQA Release Inspected Material	3 Days	Adherence 92%	Adherence 95%
IQA Release Testing Material	15 Days	Adherence 56%	Adherence 64%
Overtime	3%	Receiving : 20% Incoming: 10%	Receiving : 5% Incoming: %

Cost Analysis

From the IQA capacity model is obtained scenario 1 assumed that associate work utilization is 100% and the process is steady. The capacity model for scenario 1 shows that they need 10 associates in order to comply with the demand. Scenario 2 assumed that associate work utilization is 85% and the process has variability. The capacity model for scenario 2 shows that they need 12 associates in order to comply with the demand and the process variability. The scenario 1 shows an annual savings of \$205,920.00 due to the reduction of 3 associates. Scenario 2 shows an annual savings of \$68,640.00 due to the reduction of 1 associate. After analyzing the results of the pilot plan, it was concluded that the IWR are viable. The next steps were performing a cost analysis impact after adding all proposed items to the process. 192 materials were added to the process, with a decrease in the lead time from 3 days to less than 1 day, causing a decrease in safety stocks of these products and leading an annual savings of \$393,924.94. The direct inbound schedule is the base start point for all the cost saving involve in the previous cost analysis.

Recommendations

In order to maximize the resources, the company has to Cross Training on IQA Area in order to align their resources with the business needs; also Implement 6s in the IQA area to improve their efficiency and to sustain their commitment with ZERO safety incidents. A daily meeting is recommended in IQA area discussing the Direct Inbound Schedule, that recommendation came out after identifying a communication gap in the department. After analyzing the capacity model, scenario 2 was implemented to absorb the process variability. For now, the IWR Materials arrive at the site on Friday to give the IQA area more time during the week to focus in their other materials.

Good Communication is the key of success