

# **Woodgrain's SAP Journey – Manufacturing Solution**

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# Key Objectives



- 🌲 **Introduction to Woodgrain Inc.**
- 🌲 **Share some insight as to where we are in our SAP journey and use of our system.**
- 🌲 **Discuss some of the specific challenges we have had in the implementation of our manufacturing and supply chain related solutions.**
- 🌲 **Share some creative tools and solutions that we have developed to help us to overcome the challenges.**
- 🌲 **Open the door for collaboration – We love to share and learn from others!**

# Woodgrain Overview

## *About Woodgrain*

- Privately-held, family-owned business founded in 1954. In its third generation of ownership.
  - Headquarters Office – Fruitland, Idaho
  - Additional Corp. Employees in Meridian Idaho
  - Approximately 3,000 Employees in the US and Chile.
- Manufacture, sell, and distribute a diverse line of millwork products
  - Doors, windows, mouldings, and other specialty wood products
- Strategically vertical integrated supply chain
  - “Tree to Trim”( Logs to finished product)
  - 25+ Locations (U.S. & Chile)
  - Woodgrain Millwork, Windsor Windows & Doors, Monarch Windows, Woodgrain Distribution, Woodgrain Lumber and Composites, Natures
- Growth mostly through acquisitions over many years, resulting in multiple company cultures, legacy systems, and organizational considerations.



# What We Do

## Woodgrain Products



lifeplast<sup>™</sup> lifetech<sup>™</sup>

Exterior Frames



Brick Mould



Mull Post



White cap – no painting required



Primed – ready to paint



Embossed – ready to stain



DecraMold<sup>®</sup> BlockShop<sup>®</sup>

Crown



Chair Rail



Casing Set



Base



Straight Moulding



Rosette



Plinth Blocks



Crown Corner



Base Corner Blocks



Finished Elegance<sup>®</sup>  
By Woodgrain Millwork using former CERFS technology



# Woodgrain's SAP Journey

- ***The Quest for a Tier 1 ERP System Began in 2011 – SAP or Oracle?***

## ***Since then...***

- ✓ HCM and Payroll Systems
- ✓ Corporate Financials on SAP system
- ✓ Distribution Division – All National Distribution Sites
- ✓ Promasa (Chile) Financials and Materials Management

## ***Manufacturing Operations***

- ✓ Millwork Division - Marion, Virginia
- ✓ Millwork Division - Fruitland Idaho
- ✓ Millwork Division - Lenoir NC, Montevallo Alabama
- ✓ Millwork Division - Albany, Americus Georgia
- ✓ Domestic Sawmill Division – La Grande, Pilot Rock Oregon, Emmett Idaho.

## ***Window Assembly Operations***

***\*West Des Moines, IA***

***\*Norwalk, IA***

***\*Monroe NC,***

## ***Nampa ID Door Division***

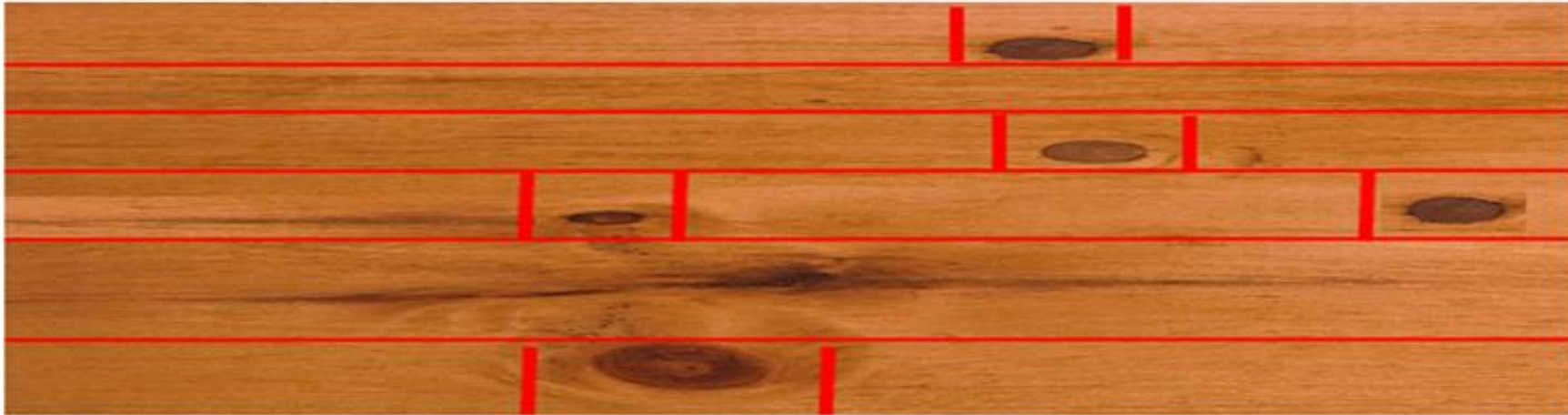
## ***Continuous Acquisitions***

# Woodgrain's Use of the System

- **HCM** Human Capital Management
  - **FICO** Finance and Controlling
  - **SD** Sales and Distribution
  - **PP** Production Planning
  - **MM** Materials Management
  - **WM** Warehouse Management
  - **TM** Transportation Management
  - **VC** Variant Configuration
- 
- Though we use most of the functional modules of SAP, Woodgrain's focus and core business is in Manufacturing.
  - Four out of Five of Woodgrain's divisions are manufacturing operations, the other is Distribution.
  - Will focus the rest of this discussion over to our manufacturing and supply chain related solutions.

# What is Unique about Woodgrain's Manufacturing Environment

- Wood products manufacturing, though relatively simple products, are manufactured in a highly dynamic environment.
- Lumber processing is a highly complex process
  - \*Thousands of optimization calculations in ripping and cross cut lumber processing.
  - \*Tens of thousands of product variations in the millwork environment
  - \*Very difficult to estimate the actual recovery out of the board
  - \*Many species and multiple lumber grade mix further complicate the process.
- This is due to the variable nature of wood products (many natural defects within the blank)
- Quantities produced against the sales order lines is highly tolerable (+/- 10% is the industry standard)
- Shipments are normally highly mixed with many products, customers, and delivery drops.

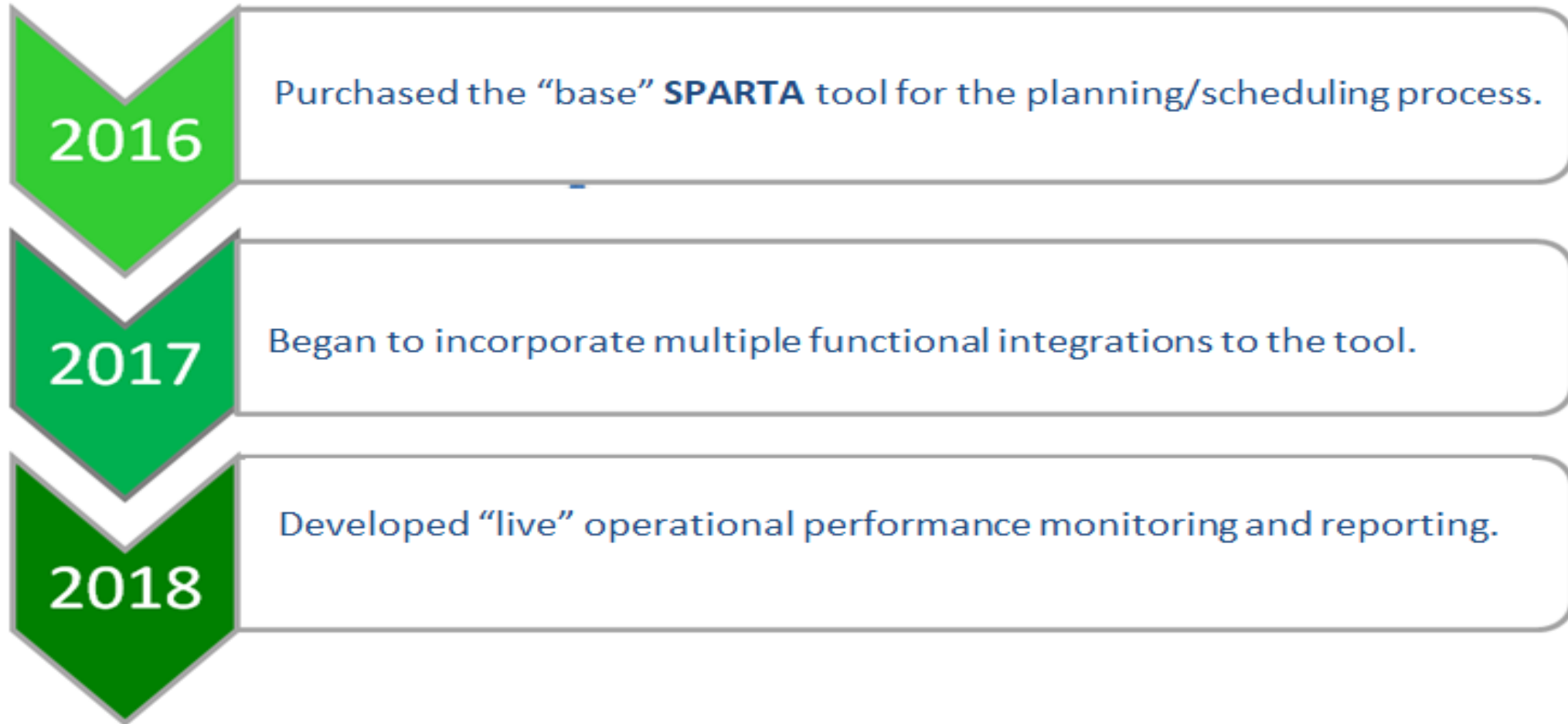


# What Woodgrain Needed

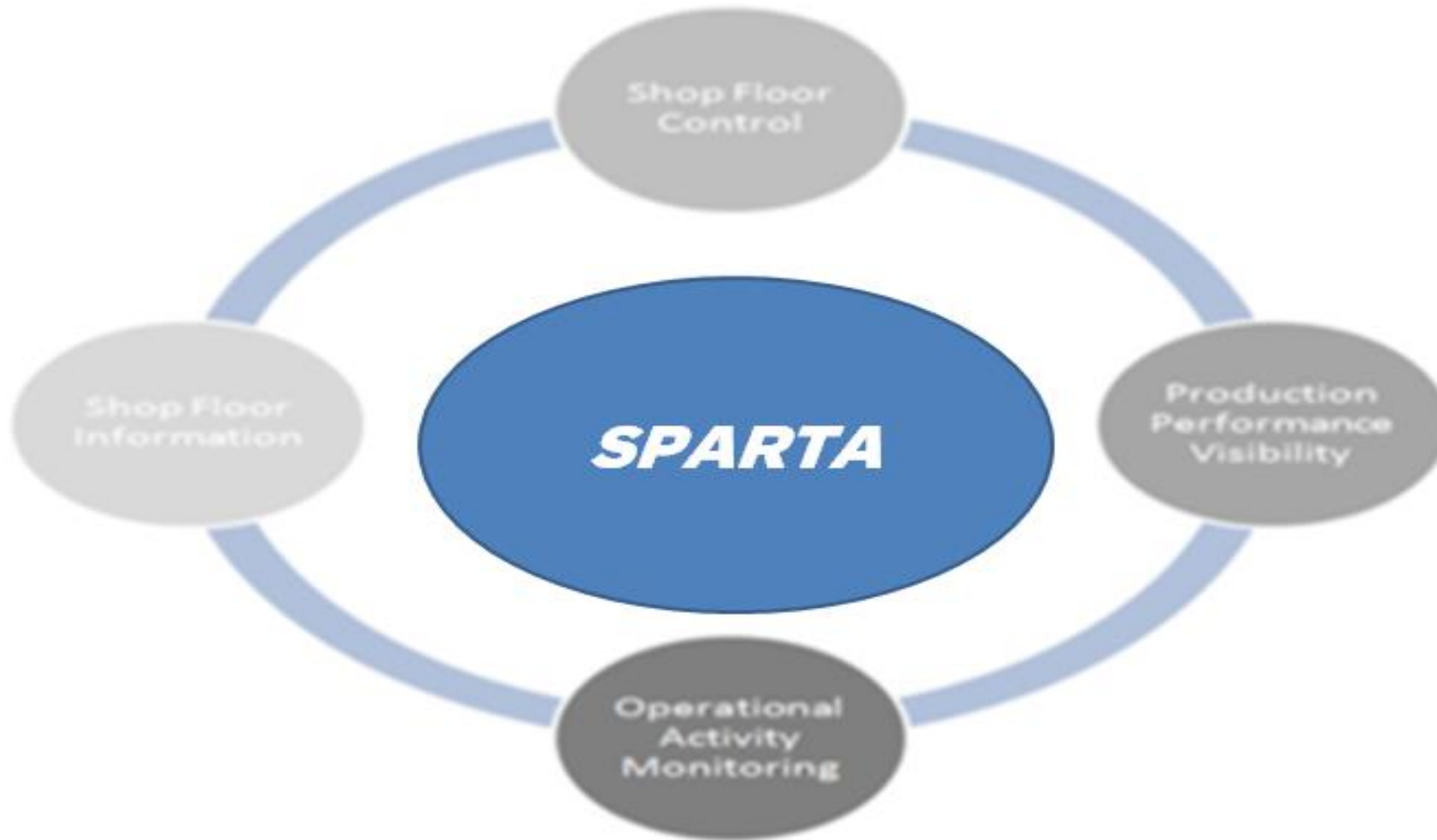
- **Planning/Scheduling taking many product characteristics into consideration**
  - \*Due to the many grades taken out of the lumber processing, many end products result based upon those grades.
  - \*Mill products therefore have many product characteristics. (Wane, paint, stain, KP, etc)
  - \*Needed a more advance solution than what ECC offered to handle characteristics based planning and scheduling.
  - \*Did not feel ready to handle an APO implementation.
- **Needed a baseline MES system**
  - \*Wanted more than just production order confirmations and issues to the orders.
- **Needed an “electronic” shop floor work instruction and schedule delivery system.**
  - \*Woodgrain had previously been a paper based schedule delivery.
- **Wanted to use standard SAP functionality but also to integrate the MES with other functional areas:**
  - \*PP – ATP data, mass scheduling with product attributes
  - \*WM – Integration to bring component materials to and from the shop floor
  - \*SD – Customer requirement information
  - \*Mfg intelligence for shop floor instructions (Mfg. drawings, SO line instruction, pack instructions, etc).
  - \*TM visibility to the shipment plan



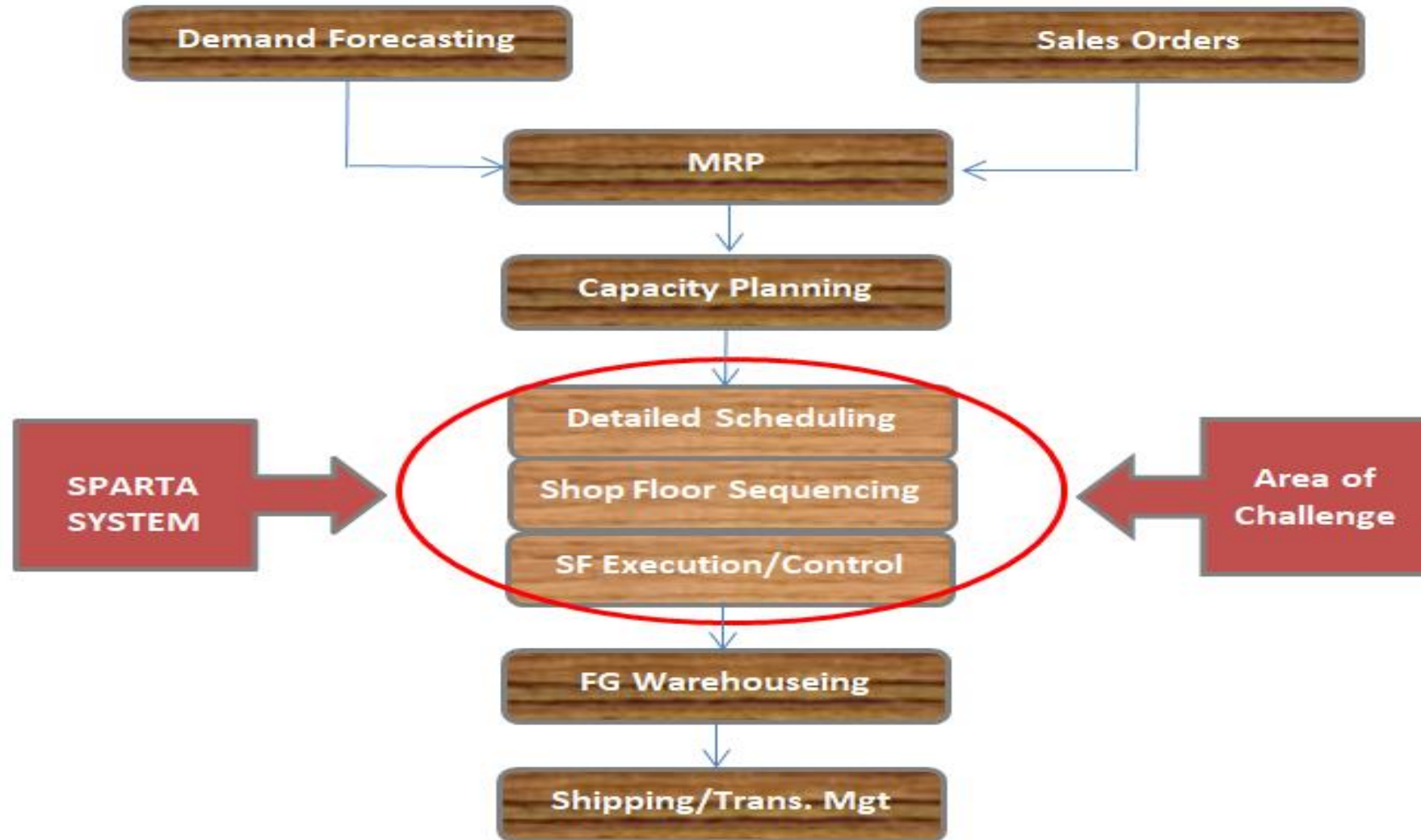
## The Challenge: Standard ECC Production Planning was Inadequate



# The Fix: SPARTA Central to Everything Manufacturing Related.



# Where Sparta Fits into the Overall Process



# What Does SPARTA Look Like? - Mass Scheduling

**Scheduling Detail**

Order   Order   Product Memo   Mass Processing   MassUDRoute

Work Center	Text	Operation Description	Oper Start	Length	ANG...	Material S	Qty	U...	Prod Ord #	Material #	Width	Finish...	Material Description	Profile Dw	UPC #
6160WC		STAND ALONE MLDR	02/19/2020	79.5000		MSPT	11,200	EA	1252763	10009904	1.1250	RAW	DSTL PFJ 1-1/8 X 1-1/8 X 79-1/2 RAW	180724	
		STAND ALONE MLDR		80.5000		MSPT	21,280	EA	1252759	10009546	1.1250	RAW	DSTL PFJ 1-1/8 X 1-1/8 X 80-1/2	180724	
		STAND ALONE MLDR				MSPT	28,000	EA	1252761	10009546	1.1250	RAW	DSTL PFJ 1-1/8 X 1-1/8 X 80-1/2	180724	
		STAND ALONE MLDR	02/20/2020			MSPT	28,000	EA	1252760	10009546	1.1250	RAW	DSTL PFJ 1-1/8 X 1-1/8 X 80-1/2	180724	
		STAND ALONE MLDR	02/19/2020	84.5000		MSPT	12,320	EA	1252762	10009547	1.1250	RAW	DSTL PFJ 1-1/8 X 1-1/8 X 84-1/2	180724	
		STAND ALONE MLDR		96.5000		MANC	12,320	EA	1252781	10009548	1.1250	RAW	DSTL PFJ 1-1/8 X 1-1/8 X 96-1/2	180724	
		STAND ALONE MLDR	02/20/2020			MSPT	21,280	EA	1252782	10009548	1.1250	RAW	DSTL PFJ 1-1/8 X 1-1/8 X 96-1/2	180724	
6160WC							<b>134,400</b>								
6261WC		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG	02/19/2020	168.0000		MANC	792	PAK	1252737	10001075	2.2190	PRIME	CASE 0356 PFJ 11/16X2-1/4 (12/14')PK PRM	396	0956249304
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MANC	432	PAK	1252738	10001075	2.2190	PRIME	CASE 0356 PFJ 11/16X2-1/4 (12/14')PK PRM	396	0956249304
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG			10.0	MSPT	40,824	LF	1252768	10000525	2.2180	PRIME	CASE 0356 PFJ 11/16 X 2-1/4 X 14' PRM	396	0956249876
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MSPT	40,824	LF	1252769	10000525	2.2180	PRIME	CASE 0356 PFJ 11/16 X 2-1/4 X 14' PRM	396	0956249876
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MSPT	13,608	LF	1252770	10000525	2.2180	PRIME	CASE 0356 PFJ 11/16 X 2-1/4 X 14' PRM	396	0956249876
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG			8.0	MANC	13,608	LF	1252731	10000520	2.2180	PRIME	CASE 0324 PFJ 11/16 X 2-1/4 X 14' PRM	407	0956249848
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG		84.0000	10.0	MSPT	7,056	PAK	1252747	10001392	2.2190	PRIME	CASE 0356 PFJ 11/16 X 2-1/4 (5/7')PK PRM	396	0956241516
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG	02/20/2020			MSPT	288	PAK	1252748	10001392	2.2190	PRIME	CASE 0356 PFJ 11/16 X 2-1/4 (5/7')PK PRM	396	0956241516
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MSPT	1,584	PAK	1252749	10001392	2.2190	PRIME	CASE 0356 PFJ 11/16 X 2-1/4 (5/7')PK PRM	396	0956241516
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MSPT	10,656	PAK	1252750	10001392	2.2190	PRIME	CASE 0356 PFJ 11/16 X 2-1/4 (5/7')PK PRM	396	0956241516
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG	02/19/2020		11.0	MSPT	10,512	PAK	1252751	10001394	2.2190	PRIME	CASE 0376 PFJ 11/16 X 2-1/4 (5/7')PK PRM	346	0956241516
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MANC	9,216	PAK	1252755	10003216	2.4690	PRIME	CASE 0361 PFJ 11/16X2-1/2 (5/7') PK PRM	343	0956245185
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MSPT	9,216	PAK	1252757	10003216	2.4690	PRIME	CASE 0361 PFJ 11/16X2-1/2 (5/7') PK PRM	343	0956245185
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG	02/20/2020			MANC	480	PAK	1252754	10003216	2.4690	PRIME	CASE 0361 PFJ 11/16X2-1/2 (5/7') PK PRM	343	0956245185
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MANC	896	PAK	1252756	10003216	2.4690	PRIME	CASE 0361 PFJ 11/16X2-1/2 (5/7') PK PRM	343	0956245185
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG	02/19/2020		13.0	MANC	1,656	PAK	1252744	10001390	2.2190	PRIME	CASE 0366 PFJ 11/16 X 2-1/4 (5/7')PK PRM	344	0956241516
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG				MSPT	4,104	PAK	1252745	10001390	2.2190	PRIME	CASE 0366 PFJ 11/16 X 2-1/4 (5/7')PK PRM	344	0956241516
		RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG	02/20/2020			MSPT	7,056	PAK	1252746	10001390	2.2190	PRIME	CASE 0366 PFJ 11/16 X 2-1/4 (5/7')PK PRM	344	0956241516
	RESAW MLD GESSO SAND VACUUMCOAT TRIM PKG	02/19/2020		7.0	MSPT	30	EA	1252719	10010567	4.7500		PP TEST MATERIAL (PARENT)			
6261WC							<b>172,838</b>								
6262WC		Lineal Line	02/18/2020	144.0000		MACM	48	PAK	1252722	10001402	2.7187	PRIME	CRWN 0052 PFJ 9/16 X 2-3/4 (5/12')PK PRM	503	0956241517
		Lineal Line				MACM	168	PAK	1252752	10001406	5.2187	PRIME	CRWN 0045 PFJ 9/16 X 5-1/4 (5/12')PK PRM	1509	0956241517

# What Does SPARTA Look Like? - Shop Floor Execution

The screenshot displays the SPARTA Shop Floor Execution interface. At the top, three smaller windows are shown: 'Enter Final Picked for Production Order' (labeled PP), 'Material Master' (labeled MM), and 'Create TO' (labeled WM). The 'Create TO' window shows: Order: 1002341, Material: 13004204, Reqtmt Qty: 127.000. Below these is a menu bar with icons for Confirmation, Issue, and Request Components. The main area is titled 'Work Center Priority Detail' and shows a table of work center priorities. A 'Packing Instruction' dialog is open, showing details for production order 000001002341. A 'Text Editor' dialog is also open, containing a message: 'Please double check the end work on this order. Customer has stressed that the tolerances must be met exactly. Notify Joe when the order starts in production please.' On the right, a 'Doc Mgt' window shows a technical drawing. A 'TM' (Time Management) window is also visible at the bottom right.

Light	Text	Work Center	Order Number	Kit Number	Material Number	Description	Quantity	Unit	EA	0.000	PI	Load Date	Machine Dwg #	Profile Dwg #
☐		6141WC	1002360	100	13003858	EXFL PFJ 1-1/4X4-9/16								
☐		6141WC	1002341	110	13001411	EXFL PFJ 1-1/4 X 4-9/16								
☐		6141WC	1002327	120	13001239	EXFH PFJ 1-1/4 X 4-9/16								
☐		6141WC	1002329	130	13001243	EXFL PFJ 1-1/4X 4-9/16 X 81-5/8 LH3H PRM	432.000	EA	0.000					
☐		6141WC	1002344	190	13001417	EXFL PFJ 1-1/4 X 4-9/16 X 82 LHS PRM	504.000	EA	0.000			03/21/2016	180604	180412
☐		6141WC	1002345	200	13001504	EXFH PFJ 1-1/4 X 4-9/16 X 32 PRM	1,260.000	EA	0.000					180411

# What Does SPARTA Look Like? - Shop Floor Execution

Work Center Priority Detail

WorkCenter: Operation Date: 03/12/2018

Star	Work Center	Operation	Prod Ord #	Run S	Material #	Material Description	UoM	Order Q	Run S	Cumulated Quantity	Dur (Hrs)	BF	BF Cumulat	Ship To Name
○○○	6011WC	MLD 1 & 2	1071447	225	0027949	CASE 0356 PNE 1SD 2/6 TPK	SET	288	225	296	0.01-	656	675	MENARDS HOLIDAY CITY BOARD PL
○○○	6011WC	MLD 1 & 2	1071448	225	0027950	CASE 0356 PNE 1SD 2/8 TPK	SET	288	225	296	0.01-	656	675	MENARDS HOLIDAY CITY BOARD PL
○○○	6011WC	MLD 1 & 2	1071449	225	0027951	CASE 0356 PNE 1SD 3/0 TPK	SET	288	225	296	0.01-	656	675	MENARDS HOLIDAY CITY BOARD PL
○○○	6011WC	MLD 1 & 2	1071450	225	0027951	CASE 0356 PNE 1SD 3/0 TPK	SET	288	225	296	0.01-	656	675	MENARDS HOLIDAY CITY BOARD PL
○○○	6011WC	MLD 1 & 2	1071406	226	0000781	CASE 0366 PNE 11/16 X 2-	LF	37,800	226	0	3.15	4,922	0	
○○○	6011WC	MLD 1 & 2	1071408	227	0000784	CASE 0376 PNE 11/16 X 2-	LF	15,120	227	0	1.26	1,969	0	
○○○	6011WC	MLD 1 & 2	1071416	230	0000923	CAP DEC4 PNE 7/8 X 1-5/8	LF	23,520	230	0	2.18	2,940	0	
	6011WC					<b>256,024</b>						<b>56,461</b>	<b>24,242</b>	
○○○	6013WC	MLD 3 & 4	1071479	301	0000766	CAP 0292 PNE 9/16 X 1-1/8	LF	16,800	301	17,222	0.04-	1,312	1,345	
○○○	6013WC	MLD 3 & 4	1071442	302	0020200	CAP 0292 PNE 17/32 X 1-3/	EA	1,400	302	1,400	0.00	875	875	MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4	1071443	302	0020200	CAP 0292 PNE 17/32 X 1-3/	EA	1,400	302	1,400	0.00	875	875	MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4	1071414	305	0000922	CAP DEC2 PNE 3/4 X 1 X 7-	LF	24,640	305	24,949	0.03-	2,567	2,600	
○○○	6013WC	MLD 3 & 4	1071472	310	0000716	BASC 0163 PNE 11/16 X 1-	LF	10,920	310	0	0.91	1,109	0	
○○○	6013WC	MLD 3 & 4	1071467	315	0000688	COVE 0100 PNE 11/16 X 11	LF	26,880	315	0	1.12	1,497	0	
○○○	6013WC	MLD 3 & 4	1071463	320	0028149	QRND 0106 PNE 21/32 X 21	EA	1,920	320	0	0.96	1,200	0	MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4	1071451	325	0020284	QRND 0106 PNE 21/32 X 21	EA	1,920	325	1,920	0.00	800	800	MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4	1071452	325	0020284	QRND 0106 PNE 21/32 X 21	EA	11,520	325	1,920	3.20	4,800	800	MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4	1071464	326	0000290	QRND 0106 OAK 11/16 X 1	LF	33,600	326	0	3.50	1,751	0	
○○○	6013WC	MLD 3 & 4	1071468	330	0000694	QRND 0106 PNE 11/16 X 11	LF	67,200	330	0	2.80	3,501	0	
○○○	6013WC	MLD 3 & 4	1070146	335	0000859	WSTL 1195 PNE 11/16 X 2-	LF	10,752	335	10,905	0.02-	1,848	1,875	
○○○	6013WC	MLD 3 & 4	1071413	335	0000876	S4S 1220 PNE 7/16 X 2 X 7	LF	10,080	335	0	0.84	1,050	0	
○○○	6013WC	MLD 3 & 4												MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4												MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4												MENARDS HOLIDAY CITY BOARD PL
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○○○	6013WC	MLD 3 & 4												MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4												MENARDS HOLIDAY CITY BOARD PL
○○○	6013WC	MLD 3 & 4	1071460	430	0020710	BASE 0263 PNE 17/32 X 4-	EA	480	430	0	0.81	911	0	
○○○	6013WC	MLD 3 & 4	1071461	430	0028110	BASE 0263 PNE 17/32 X 4-	EA	1,944	430	0	3.24	3,645	0	
○○○	6013WC	MLD 3 & 4	1070147	435	0000861	HDRL 1203 PNE 1-1/4 X 2-1	LF	8,064	435	8,660	0.07-	2,100	2,255	
○○○	6013WC	MLD 3 & 4	1071465	440	0000666	CRWN 0049 PNE 9/16 X 3-5	LF	9,856	440	0	1.37	2,053	0	
○○○	6013WC	MLD 3 & 4	1071459	445	0020311	CRWN 0048 PNE 17/32 X 4-	EA	540	445	0	0.90	1,013	0	MENARDS HOLIDAY CITY BOARD PL
	6013WC					<b>287,749</b>						<b>48,913</b>	<b>20,586</b>	
○○○	6015WC	MLD 5 & 6	1071476	501	0000744	S4S 0239 PNE 3/4 X 3/4 X	LF	33,600	501	35,132	0.09-	2,100	2,196	
○○○	6015WC	MLD 5 & 6	1071477	505	0000751	S4S 0254 PNE 1/2 X 3/4 X	LF	91,000	505	93,566	0.14-	4,741	4,875	

- Order start date alerts
- Progress tracking against order quantity – global visibility
- Conversions to Millwork specific units of measure (BF)
- Run Sequencing to drive production execution timing

# The Autopsy

## *Moving to Proactive Operations Activity Monitoring*



"I'm stumped.  
We'll have to wait for  
the autopsy."

# Operations Activity Monitoring

## The Challenge.....The Fix

- Woodgrain needed a special tool in order to monitor the activity of the operation as a whole.
- The tool needed to holistically consider all logistical elements within the supply chain to answer many Q's:
  - \*How many deliveries have been created?
  - \*What are the combined STOs and SOs targeted for a shipment?
  - \*What is the net inventory availability in both E stock and unrestricted stock accounts?
  - \*What materials are in transit to the various distribution centers?
  - \*What is our total backlog situation?
  - \*What is the status against those production orders?
- This visibility was crucial in being able to control the timing of delivery creation to ensure quality information flow to TM in a high variability environment
- We initially had to resort piecing many reports together to see the holistic activity of the operation (no good SAP standard tool existed for our needs)
- Was it a challenge? We were previously advised by another consulting firm that it would be impossible to piece such a cockpit together.
- Development, testing, testing, and more testing.....it evolved into the single most utilized transaction in the Woodgrain organization.....the all coveted "Z Activity" report.



# Operations Activity Monitoring

**Plant Activity Overview**

The screenshot displays a SAP Plant Activity Overview table with columns for Delvy Week, Document #, Line, Material, Material Description, Bft, Ship-To Name, Doc Qty, ReqDelvDt, Delivery Date, Div. qty, Delivery, Shipment Number, PlanLoadStart, and Net Weight. The table is filtered for document 4500159691 and shows a total net weight of 8,166.140. Three red callout boxes highlight specific areas: 'Sales Visibility' points to document 2049021; 'Delivery Visibility' points to delivery 91110295; and 'TM Visibility' points to a transport management screen showing details for shipment 100121369, including carrier information and a timeline of activities from planning to execution.

Delvy Week	Document #	Line	Material	Material Description	Bft	Ship-To Name	Doc Qty	ReqDelvDt	Delivery Date	Div. qty	Delivery	Shipment Number	PlanLoadStart	Net Weight
2018/17	4500159691				2,970		35,660							8,166.140
2018/18	2049021			STOP 0846 PNE 13/32 X 1-11/32 X 84	788	MENARDS HOLIDAY CITY B	1,440	04/30/2018	04/30/2018	1,440	91110295	6100121369	04/30/2018	1,772.640
2018/18	2049021			BASE 0623 PNE 17/32 X 3-7/32 X 192"	1,400	MENARDS HOLIDAY CITY B	480	04/30/2018	04/30/2018	480	91110295	6100121369	04/30/2018	2,188.800
2018/18	2049021			BASE 0263 PNE 17/32 X 4-7/32 X 96	911	MENARDS HOLIDAY CITY B	486	04/30/2018	04/30/2018	486	91110295	6100121369	04/30/2018	2,050.434
2018/18	2049021													4,100.868
2018/18	2049021													1,890.720
2018/18	2049021													1,178.208
2018/18	2049021													1,178.208
2018/18	2049021													1,178.208
2018/18	2049021													1,178.208
2018/18	2049021													1,993.572
2018/18	2049021													1,415.106
2018/18	2049021													3,573.108
2018/18	2049021													2,358.125
2018/18	2049021													1,519.020
2018/18	2049021													3,071.952
2018/18	2049021													2,218.632
2018/18	2049021													1,875.500
2018/18	2049021													1,771
2018/18	2049021													3,494.700
2018/18	2049021													2,096.820
2018/18	2049021													1,614.060
2018/18	2049021													1,550.700
2018/18	2049021													1,085
2018/18	2049021													49,799.881
2018/18	2049149	10	10020199	LATT 0265 PNE 7/32 X 1-23/32 X 96"	1,350	MENARDS HOLIDAY CITY B						100121370	04/30/2018	1,623.240
2018/18	2049149	20	10020284	QRND 0106 PNE 21/32 X 21/32 X 96"	3,200	MENARDS HOLIDAY CITY B						100121370	04/30/2018	4,408.320
2018/18	2049149	30	10028149	QRND 0106 PNE 21/32 X 21/32 X 144	2,400	MENARDS HOLIDAY CITY B						100121370	04/30/2018	5,399.040
2018/18	2049149	40	10028106	CRNR 0205 PNE 1-1/16 X 1-1/16 X 96	2,042	MENARDS HOLIDAY CITY B						100121370	04/30/2018	4,594.240
2018/18	2049149	50	10020336	SHOE 0129 PNE 21/32 X 13/32 X 144"	1,463	MENARDS HOLIDAY CITY B						100121370	04/30/2018	1,918.800
2018/18	2049149	60	10028110	BASE 0263 PNE 17/32 X 4-7/32 X 96	1,823	MENARDS HOLIDAY CITY B						100121370	04/30/2018	4,100.868
2018/18	2049149	70	10015570	CASE 0356 PNE 1/2 X 2-1/4 X 84"	3,938	MENARDS HOLIDAY CITY B						100121370	04/30/2018	5,672.160
2018/18	2049149	80	10027949	CASE 0356 PNE 1SD 2/6 TPK	656	MENARDS HOLIDAY CITY B						100121370	04/30/2018	1,178.208
2018/18	2049149	90	10027950	CASE 0356 PNE 1SD 2/8 TPK	656	MENARDS HOLIDAY CITY B						100121370	04/30/2018	1,178.208

# Operations Activity Monitoring

In-Transit Date	InTran Qty	OH minus Delivery	Rem Qty	SO OnHa...	On Hand Qty	Remaining Qty BF	BF Qty minus Delivery	Demand Type	Ship-To Party
		0			540	492.210	0		
04/19/2018	23,490	22,500	0	0	22,500	0	879.750	STO	2003
04/19/2018	41,888	0	238-	0	0	6.902-	0	STO	2003
04/19/2018	5,456	0	80-	0	0	14.584-	0	STO	2003
04/19/2018	41,850	39,700-	200-	0	85,250	5.200-	1,032.200-	STO	2003
04/19/2018	7,430	0	0	0	0	0	0	STO	2003
04/19/2018	11,286	116	86-	0	11,316	5.822-	7.853	STO	2003
04/19/2018	9,802	0	730-	0	0	95.046-	0	STO	2003
04/19/2018	6,935						0	STO	2003
04/19/2018	11,515						0	STO	2003
04/19/2018	7,212	0					0	STO	2003
04/19/2018	9,596	0					0	STO	2003
		17,084-					144.597-		
04/18/2018	5,016	330					68.739	STO	2004
04/18/2018	10,126	0					0	STO	2004
04/18/2018	27,880	5,322	5				296.435	STO	2004
04/18/2018	68,049	851					44.337	STO	2004
04/18/2018	41,775	39,700-					1,032.200-	STO	2004
04/18/2018	28,920	358					27.960	STO	2004
04/18/2018	8,577	0					0	STO	2004
04/18/2018	18,360	396					20.632	STO	2004
04/18/2018	34,602	41					2.243	STO	2004
04/18/2018	26,971	1,207	8				47.194	STO	2004
04/18/2018	3,792	0					0	STO	2004
04/18/2018	11,329	121	577-	0	10,873	105.187-	22.058	STO	2004
04/18/2018	67,680	447	480-	0	17,247	25.008-	23.289	STO	2004
04/18/2018	5,870	0	494-	0	0	102.900-	0	STO	2004
04/18/2018	2,010	347	0	0	6,473	0	90.359	STO	2004
04/18/2018	10,896	0	144-	0	0	18-	0	STO	2004
		30,280-			667,571	357.192-	388.954-		
04/18/2018	1,369	308	0	0	5,564	0	96.250	STO	2005

I/C  
Transfer  
Visibility

Multiple Net Inventory Position Visibility

Stock/Requirements List as of 18:17 hrs

Show Overview Tree

Material: 00020200 CAP 0292 PNE 17/32 X 1-3/32 X 96"

Plant: 1105 MRP Type: PD Material Type: FERT Unit: EA

A. Date	MRP el...	MRP element data	Rescheduling...	E. Receipt/Reqmt	Available Qty	Sto...
04/26/2018	Stock				0	
04/26/2018	StocSt	9003 SLoc Mot Planne			0	9003
04/26/2018	CustSt	0002049021/000250			1,400	
04/26/2018	Delvry	0091110295/000250/0.		1,400-	0	10
04/26/2018	CustSt	0002049149/000150			1,400	
04/26/2018	Delvry	0091110296/000150/0.		1,400-	0	10
04/26/2018	CustSt	0002050186/000230			0	
05/10/2018	P80Ord	0001147653/80		1,400	1,400	10
05/10/2018	CusOrd	0002050186/000230/0.		1,400-	0	
04/26/2018	CustSt	0002054792/000130			0	
05/10/2018	P80Ord	0001147654/80		1,400	1,400	10
05/10/2018	CusOrd	0002054792/000130/0.		1,400-	0	
04/26/2018	CustSt	0002070869/000130			0	
05/31/2018	P80Ord	0001147655/80		1,400	1,400	10
05/31/2018	CusOrd	0002070869/000130/0.		1,400-	0	

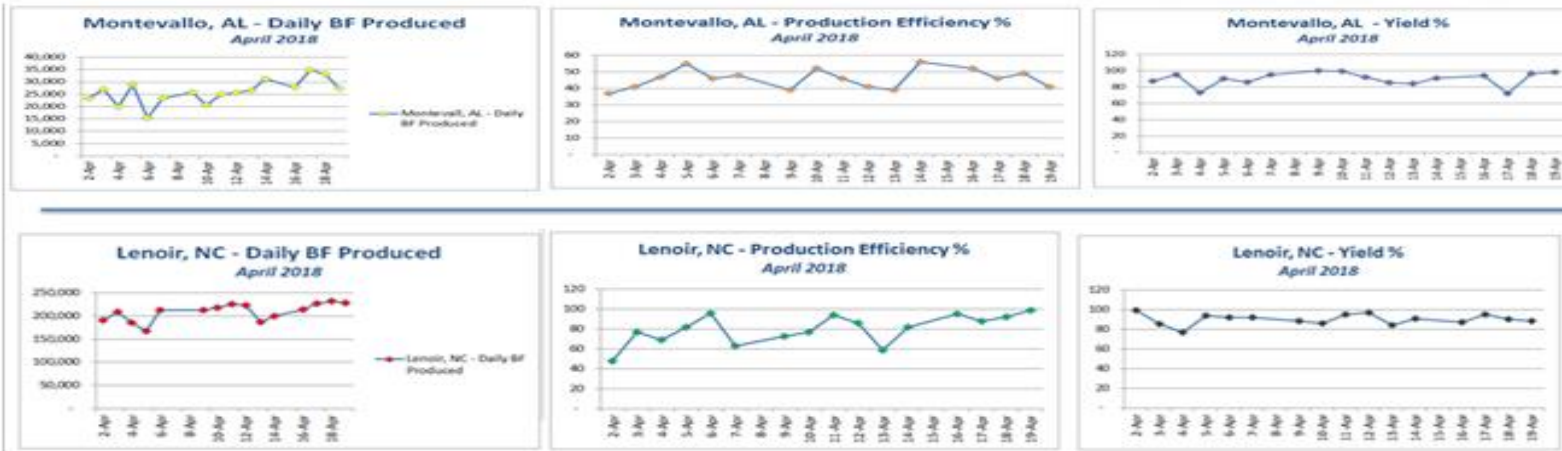
Multiple Plant  
Supply Chain  
Integration

# Production Performance Visibility

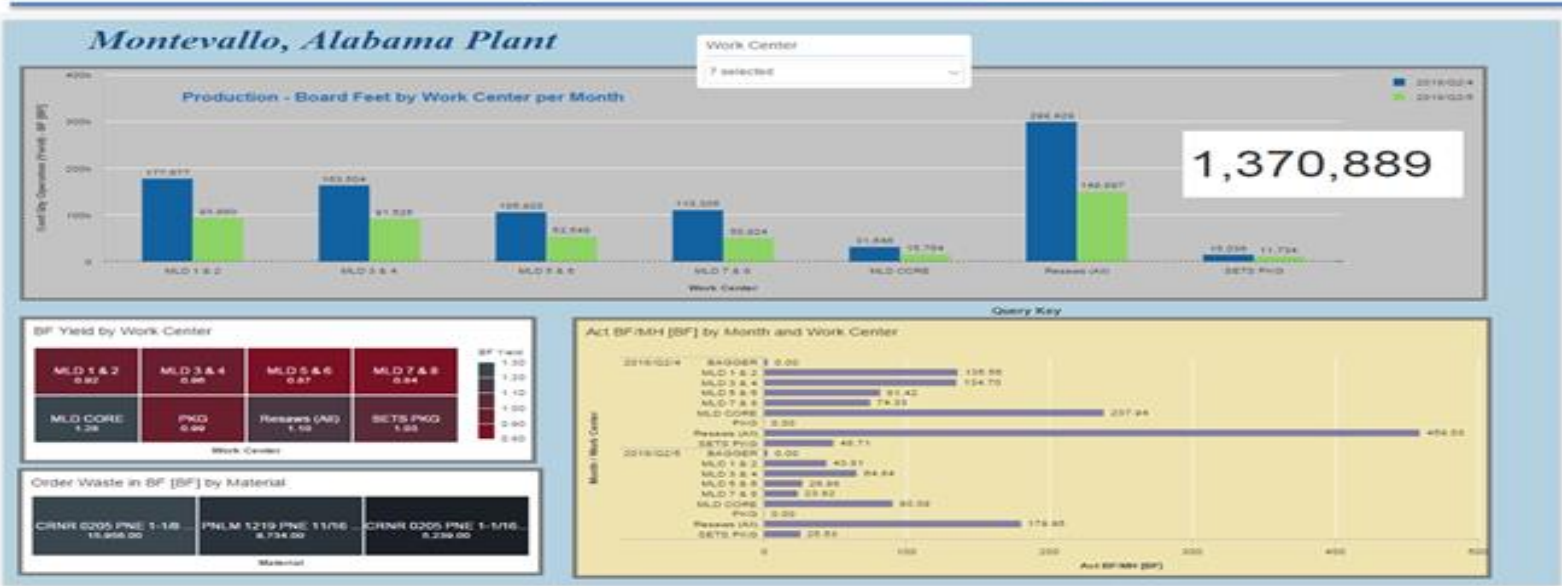
- How do we know if we are effective in our manufacturing operations?
- BW Analysis to combine data from ECC and labor hours from Work Force
  - Dashboard visibility.....Lumira yesterday, Cloud Analytics tomorrow



# Visibility – How are we Doing?



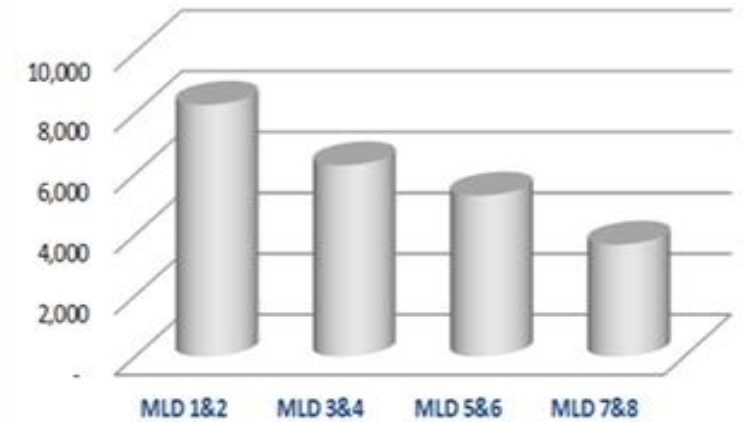
## Performance Metrics – BW to Lumira



## Montevallo, AL - Top 5 High Waste Materials



## Montevallo, AL - Performance by Moulder April 2018



# Visibility – How are we Doing?

Actual Finish Exec.	Work Center		Std BF/MH	Act BF/MH	Performance %
			BF	BF	%
04/02/2018	6011WC	MLD 1 & 2	306	165	54
	6013WC	MLD 3 & 4	270	65	24
	6015WC	MLD 5 & 6	171	78	46
	6017WC	MLD 7 & 8	176	57	33
04/03/2018	6011WC	MLD 1 & 2	348	135	39
	6013WC	MLD 3 & 4	212	70	33
	6015WC	MLD 5 & 6	198	87	44
	6017WC	MLD 7 & 8	192	63	33
04/04/2018					41
					21
					19
04/05/2018					46
					41
					50
04/06/2018					32
					42
					58
04/09/2018					31
					45
					48
					27
04/10/2018					59
					38
					42
					51
					44

## Small Mouldings

10,000 Lineal Feet = 500 Board Feet



## Large Mouldings

10,000 Lineal Feet = 3,000 Board Feet



# Major Accomplishments

## Manufacturing

- Removed the old paper based scheduling and shop floor instructions – moved to electronic delivery.
- Placed many plants onto MRP based planning.

## Warehouse

- Implemented a complete WM system – capability to track material at the bin level, provide system guidance to pick and delivery to production, put away in the warehouse, and WM replenishment process.

## Master Data Governance

- Moved all of the Woodgrain plants/divisions away from site specific material/vendor/customer master data maintenance to a corporate level governance.

## Transportation Management

- Implemented SAP TM and moving towards a centralized TM function to leverage transportation resources and route optimizations across multiple divisions.

## HR Management

- FIORI implementation for employee self service.

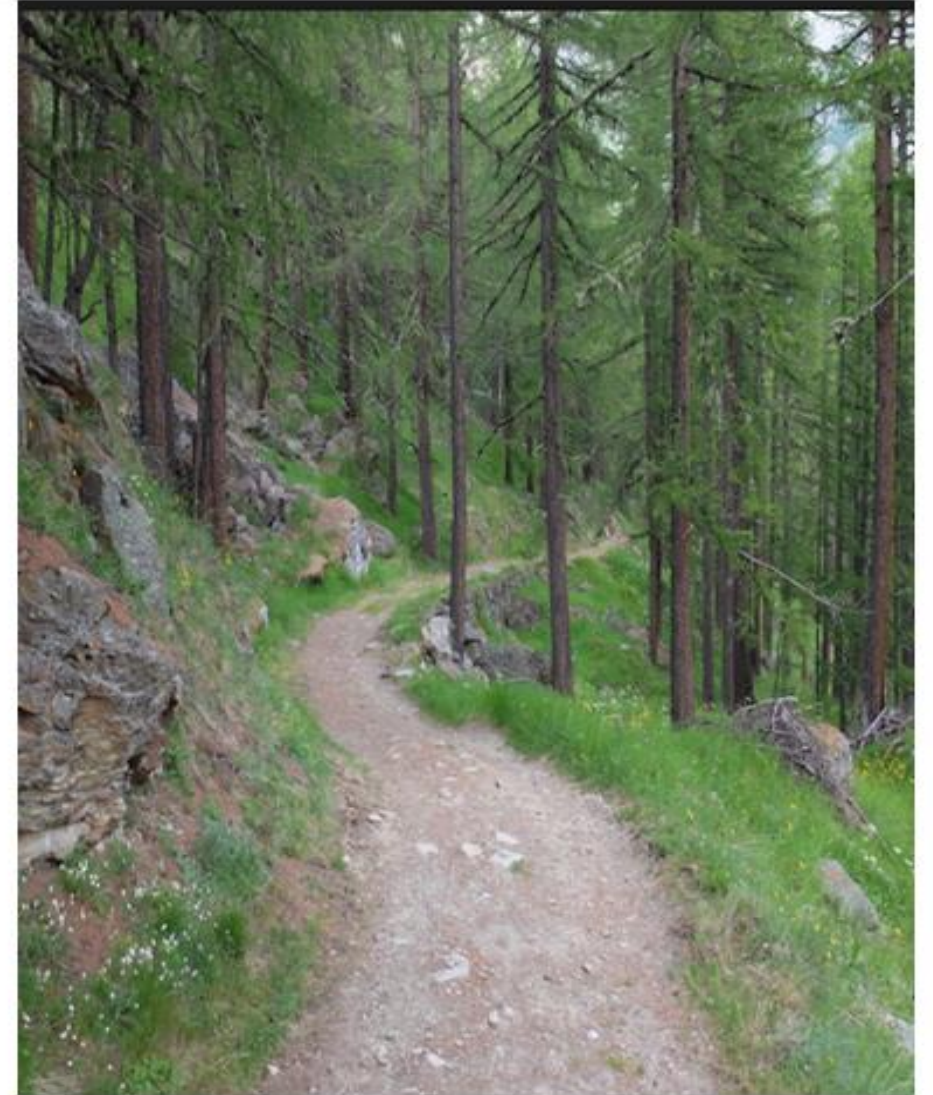


# What's Next for Woodgrain?

## *What's Next for Woodgrain?*

*Beyond the Manufacturing Arena...*

- Finalize our SAP implementations (2 more divisions remain)
- Moving into our most complex implementations now
  - \*Unveiling the world of Variant Product Configuration
- Integration of ERP to work center control systems.
- Advancement in our TM solution – Centralizing the transportation function.
- Rollout of the SAP CX (CRM) solution
- Move from HCM to Success Factors.



# Questions?

For questions after this session, contact us at [tstenkamp@woodgrain.com](mailto:tstenkamp@woodgrain.com) and [jchalin@woodgrain.com](mailto:jchalin@woodgrain.com).



# Thank you.

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