

# ***‘Lean’ Requirements Planning and Scheduling***

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# Agenda

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- What do we mean by 'Lean'
- 'Lean' vs Traditional MRP
- 'Lean' Customer Service
- 'Lean' CRP
- 'Lean' Requirements Planning and Scheduling

# 'Lean'?

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- Customer Orders drive production
  - Pull resources needed to meet customer promise dates
  - Identify material and production constraints to meet those dates
- Traditional MRP pushes material and production
  - Visibility to Customer demand is a secondary consideration accessed by pegging
  - Results in 'noise' for planners

# For Customer Service:

- List of customer orders that can ship
- List of customer orders with constraints

**CISTECH** James Worthington Sales Order Planning

Sales Order Planning - Promise Date through 09/30/12  
Planner: 100 Companies: 1 - 1

Item Number	-- Dates --			Sales Order	Name	Quantity		Value		Shortage
	Prom	Req	Mfg			Open	Short	Open	Short	
<a href="#">HP06163</a> .145 6 X 16 X 1 HEADER PLATE	08/03	08/03	08/03	11201 100 1	Brainger, Inc	650	650	1,300	1,300	Expedite M013740, 08/20, 325 M013750, 09/03, 325 M013800, 09/03, 325 .P1031, P-PLAN, 08/08, 15 .P1031, P-PLAN, 08/08, 15 .P1031, P-PLAN, 08/08, 15
	08/10	08/10	08/10	11201 200 1	Brainger, Inc	375	254	750	508	M-PLAN, 08/06, 394
	08/31	08/31	08/31	11201 300 1	Brainger, Inc	625	625	1,250	1,250	M-PLAN, 08/27, 950 .P1031, P-PLAN, 08/08, 15200
	09/24	09/24	09/24	11202 100 1	Business Soluti	355	355	710	710	M-PLAN, 09/24, 680 .P1031, P-PLAN, 09/19, 10900
<b>Sub Total</b>						<b>2,005</b>	<b>1,884</b>	<b>4,010</b>	<b>3,768</b>	
<a href="#">RB05048</a> #5 X 48 GR60 REBAR	08/24	08/24	08/24	11199 100 1	Aerospace Custo	500	499	500	499	Expedite 1/11/2013 M-PLAN, 08/20, 551 .RB05048C, R111111, 08/15, 1100 Parts due in 3 weeks
	09/24	09/24	09/24	11200 100 1	Albertson's Inc	500	500	500	500	Expedite M-PLAN, 09/24, 600

Sales Order #

Qty Short

\$\$ Value

• Promise Date  
 • Request Date  
 • Mfg. Due Date

MO's to fulfill the requirement with shortages displayed

# For Operations Managers:

- Visibility of Capacity and Staffing needs

**CISTECH** The MAPICS Experts James Worthington MRP Weekly View

Sort:  Earliest Sales Order Promise Date through 09/30/12 Return  
 Planner: 100 Warehouses: 1 - 1

Past Due Prior To Start date

Weekly Buckets

Item	Description	Prior			Wk 1 07/30/12			Wk 2 08/06/12			Wk 3 08/13/12			Wk 4 08/20/12			Wk 5 08/27/12			Wk 6 09/03/12			Wk 7 09/10/12			Wk 8 09/17/12			Wk 9 09/24/12		
		Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt	Hrs	Qty	Hd Cnt
HP06163	.145 6 X 16 X 1 HEADER PLATE				5	975	.1	2	394	.0							5	950	.1										3	680	
RB05048	#5 X 48 GR60 REBAR													3	551	.1													3	600	
1001	PC, 200 MHZ, DESKTOP																												832	156	20
1002	PC, 266 MHZ, DESKTOP	1068	200	26.7							1842	345	46.0										1601	300	40.0				108	20	2
1003	PC, 300 MHZ, DESKTOP													801	150	20.0															
1100	PROCESSOR, 166 MHZ	20	200	.5							15	155	.4	5		.0	2	20	.0				15	155	.4						
1101	PROCESSOR, 200 MHZ	25	250	.6													12	120	.3							11	105	.3	15	150	
1102	PROCESSOR, 266 MHZ													20	200	.5															
1103	PROCESSOR, 300 MHZ	46	457	1.1				24	245	.6				45	450	1.1							30	300	.8				2	20	
1201	MOTHERBOARD, 200 MHZ	21	250	.5													9	100	.2							10	105	.2	824	10100	20
1203	MOTHERBOARD, 300 MHZ	6	152	.2				21	245	.5				39	450	1.0							61	1000	1.5						
1206	DRIVE, 20X MAX CD	17	350	.4													8	100	.2							9	105	.2			
TOTALS		1203	1859	30.1	5	975	.1	47	884	1.2	1857	500	46.4	908	1806	22.7	36	1290	.9				1707	1755	42.7	29	315	.7	1787	11726	44

Weekly Hours

Weekly Quantity

Weekly Headcount

# For Planners and Schedulers:

- Simplified alignment of resources and identification of constraints

**CISTECH** The MAPICS Experts

James Worthington

Lean Requirements Planning

Summary View

Mfg Due Date Sort

Sort: Mfg Due Date

Mfg Order Due Date through 09/30/12  
Planner: 100 Warehouses: 1 - 1

Shortages

Return

Wks	Item	Description	Req	Start	Due	Qty	Sts	Demand Summary	Comments / Shortages
	1002	PC, 266 MHZ, DESKTOP	08/17	07/27	08/01	20	10	Ship-20,08/17,08/17	<p>Due Date on M.O.</p> <p>1103, M013190, 07/16, 457 JG 082712 Will complete to stock in 2 days</p> <p>1104, P000433, 09/12, 10000 Will deliver in 3 weeks</p> <p>1105, P000433, 03/12, 560660 Jan 11, 2013, JJG Vendor will deliver in 5 days</p> <p>1106, P000433, 07/11, 190 2002, I-PLAN, 07/27, 20</p>
M013540	1 1101	PROCESSOR, 200 MHZ	08/06	08/01	08/01	100	10	Fcst-100,08/06,08/06	<p>1201, M013570, 08/01, 100 1204, P000434, 07/24, 1830 JG 082712 Items due 3 weeks from now</p> <p>1206, M013590, 08/01, 15 3001, I-PLAN, 08/01, 100</p>
M013310	1 1201	MOTHERBOARD, 200 MHZ	07/27	07/27	08/01	250	10	Ship-250,07/27,07/27	
M013570	1 1201	MOTHERBOARD, 200 MHZ	08/06	07/27	08/01	100	10	Fcst-100,08/06,08/06	
M013330	1 1206	DRIVE, 20X MAX CD	07/19	11/12	08/01	250	40	Ship-70,07/27,07/27 Sfty-89,07/19,07/19 Stck-91,07/23,07/23	expedite
M013470	1 1206	DRIVE, 20X MAX CD	07/27	07/27	08/01	100	10	Ship-100,07/27,07/27	

Blank Lines NO Shorts

# For Planners and Schedulers:

- Schedule set by earliest sales order promise date

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Sort:  Earliest Sales Order Promise Date through 08/30/12  
Planner: 100 Warehouses: 1 - 1

Sort by Sales Order Promise Date

Shorts – M.O.s and P.O's

Order	Whs	Item	Description	Req	Prom	Mfg	Qty	Sts	Demand Summary	Comments / Shortages
<a href="#">M013230</a>	1	<a href="#">1002</a>	PC, 266 MHZ, DESKTOP	08/01	08/01	08/01	200	10	Ship-145,08/01,08/17 Sfty-55,08/20,08/20	<a href="#">1103</a> , <a href="#">M013190</a> , 07/16, 457 <a href="#">1104</a> , <a href="#">P000433</a> , 09/12, 10000 Will deliver in 3 weeks <a href="#">1105</a> , <a href="#">P000433</a> , 03/12, 560660 Jan 11, 2013, JJG Vendor will deliver in 5 days
<a href="#">M013190</a>	1	<a href="#">1103</a>	PROCESSOR, 300 MHZ	08/01	08/01	08/01	457	10	Ship-182,08/01,08/17 Sfty-275,08/20,08/20	
<a href="#">M013700</a>	1	<a href="#">HP06163</a>	.145 6 X 16 X 1 HEADER PLATE	08/03	08/03	08/03	199	40	Ship-199,08/03,08/03	
<a href="#">M013680</a>	1	<a href="#">HP06163</a>	.145 6 X 16 X 1 HEADER PLATE	08/03	08/03	08/03	310	40	Ship-310,08/03,08/03	
<a href="#">M013720</a>	1	<a href="#">HP06163</a>	.145 6 X 16 X 1 HEADER PLATE	08/03	08/03	08/03	325	40	Ship-325,08/03,08/10	
<a href="#">M013740</a>	1	<a href="#">HP06163</a>	.145 6 X 16 X 1 HEADER PLATE	08/10	08/10	08/10	325	40	Ship-191,08/10,08/10 Fcst-134,08/15,08/15	
<a href="#">M013370</a>	1	<a href="#">1103</a>	PROCESSOR, 300 MHZ	08/10	08/10	08/10	245	10	Ship-245,08/10,08/10	<a href="#">1203</a> , <a href="#">M013320</a> , 07/11, 43 <a href="#">1203</a> , <a href="#">M013390</a> , 08/07, 245 <a href="#">1204</a> , <a href="#">P000434</a> , 07/24, 1373 JG 082712 Items due 3 weeks from now
<a href="#">M013320</a>	1	<a href="#">1203</a>	MOTHERBOARD, 300 MHZ	08/10	08/10	08/10	43	40	Ship-43,08/10,08/10	
<a href="#">M013390</a>	1	<a href="#">1203</a>	MOTHERBOARD, 300 MHZ	08/10	08/10	08/10	245	40	Ship-220,08/10,08/23 Sfty-25,08/20,08/20	
<a href="#">M013220</a>	1	<a href="#">1103</a>	PROCESSOR, 166 MHZ	08/15	08/15	08/15	200	10	Ship-8,08/17,08/24 Sfty-22,08/15,08/15	<a href="#">1204</a> , <a href="#">P000434</a> , 07/24, 1373 JG 082712

Each line has a "SHIP" requirement

# For Planners and Schedulers:

## •Release an M.O. from M-Plan

M-Plans Scheduled for release sorted by Sales Order Promise Date.

Sort:

Earliest Sales Order Promise Date through 09/30/12

SO Earliest Promise Date

Planner: 100 Warehouses: 1 - 1

Order	Whs	Item	Description	Req	Prom	Mfg	Qty	Sts	Demand Summary	Comments / Shortages
<a href="#">M-PLAN</a>	1	<a href="#">1002</a>	PC, 266 MHZ, DESKTOP	08/20	08/20	08/20	325	00	Ship-300,08/23,08/23 Sfty-25,08/20,08/20	<a href="#">1103</a> , <a href="#">M013500</a> , 08/16, 300 <a href="#">1104</a> , <a href="#">P000433</a> , 09/12, 10000 Will deliver in 3 weeks <a href="#">1105</a> , <a href="#">P000433</a> , 03/12, 560660 Jan 11, 2013, JJG Vendor will deliver in 5 days <a href="#">1106</a> , <a href="#">R000239</a> , 07/25, 570 jg 082712 Release PO today
<a href="#">M-PLAN</a>	1	<a href="#">RB05048</a>	#5 X 48 GR60 REBAR	08/24	08/24	08/24	212	00	Ship-153,08/24,08/24 Fcst-59,08/27,08/27	No Shorts
<a href="#">M-PLAN</a>	1	<a href="#">1003</a>	PC, 300 MHZ, DESKTOP	08/24	08/24	08/24	150	00	Ship-150,08/24,08/24	<a href="#">1103</a> , M-PLAN, 08/21, 150 <a href="#">1104</a> , <a href="#">P000433</a> , 09/12, 10000 Will deliver in 3 weeks <a href="#">1105</a> , <a href="#">P000433</a> , 03/12, 560660 Jan 11, 2013, JJG Vendor will deliver in 5 days <a href="#">1106</a> , <a href="#">R000239</a> , 07/25, 570 jg 082712 Release PO today <a href="#">2002</a> , I-PLAN, 08/21, 67
<a href="#">M-PLAN</a>	1	<a href="#">1102</a>	PROCESSOR, 266 MHZ	08/24	08/24	08/24	267	00	Ship-267,08/24,08/24	<a href="#">1204</a> , P-PLAN, 08/15, 640 <a href="#">1207</a> , <a href="#">M013210</a> , 07/11, 57 Machine broke, rerouting <a href="#">3002</a> , I-PLAN, 08/15, 1419
<a href="#">M-PLAN</a>	1	<a href="#">1103</a>	PROCESSOR, 300 MHZ	08/24	08/24	08/24	150	00	Ship-150,08/24,08/24	<a href="#">1203</a> , <a href="#">M013460</a> , 08/09, 300 <a href="#">1203</a> , <a href="#">M013530</a> , 08/16, 150 <a href="#">1204</a> , P-PLAN, 08/15, 640

Click to Create M.O

M-Plan Quantity



# For Planners and Schedulers:

- Schedule by Workcenter – Automatic Sort by Sales Order Promise Date

Sort:

SO Earliest Promise Date ▾

Earliest Sales Order Promise Date through 09/30/12

→ Workcenter: 9000 Warehouses: 1 - 1

Order	Whs	Item	Description	Req	Prom	Mfg	Qty	Sts	Demand Summary	Comments / Shortages
<a href="#">M013230</a>	1	<a href="#">1002</a>	PC, 266 MHZ, DESKTOP	08/01	08/01	08/01	200	10	Ship-145,08/01,08/17 Sfty-55,08/20,08/20	<a href="#">1103</a> , <a href="#">M013190</a> , 07/16, 457 <a href="#">1104</a> , <a href="#">P000433</a> , 09/12, 10000 Will deliver in 3 weeks <a href="#">1105</a> , <a href="#">P000433</a> , 03/12, 560660 Jan 11, 2013, JIG Vendor will deliver in 5 days
<a href="#">M013190</a>	1	<a href="#">1103</a>	PROCESSOR, 300 MHZ	08/01	08/01	08/01	457	10	Ship-182,08/01,08/17 Sfty-275,08/20,08/20	
<a href="#">M013370</a>	1	<a href="#">1103</a>	PROCESSOR, 300 MHZ	08/10	08/10	08/10	245	10	Ship-245,08/10,08/10	<a href="#">1203</a> , <a href="#">M013320</a> , 07/11, 43 <a href="#">1203</a> , <a href="#">M013390</a> , 08/07, 245 <a href="#">1204</a> , <a href="#">P000434</a> , 07/24, 1373 JG 082712 Items due 3 weeks from now
<a href="#">M013320</a>	1	<a href="#">1203</a>	MOTHERBOARD, 300 MHZ	08/10	08/10	08/10	43	40	Ship-43,08/10,08/10	
<a href="#">M013390</a>	1	<a href="#">1203</a>	MOTHERBOARD, 300 MHZ	08/10	08/10	08/10	245	40	Ship-220,08/10,08/23 Sfty-25,08/20,08/20	
<a href="#">M013300</a>	1	<a href="#">1100</a>	PROCESSOR, 166 MHZ	08/15	08/15	08/15	200	10	Ship-8,08/17,08/24 Fcst-92,08/15,08/15 Sfty-100,08/20,08/20	<a href="#">1204</a> , <a href="#">P000434</a> , 07/24, 1373 JG 082712 Items due 3 weeks from now
<a href="#">M-PLAN</a>	1	<a href="#">1002</a>	PC, 266 MHZ, DESKTOP	08/20	08/20	08/20	325	00	Ship-300,08/23,08/23 Sfty-25,08/20,08/20	<a href="#">1103</a> , <a href="#">M013500</a> , 08/16, 300 <a href="#">1104</a> , <a href="#">P000433</a> , 09/12, 10000 Will deliver in 3 weeks <a href="#">1105</a> , <a href="#">P000433</a> , 03/12, 560660 Jan 11, 2013, JIG Vendor will deliver in 5 days <a href="#">1106</a> , <a href="#">R000239</a> , 07/25, 570

M.O.s and M-Plans can be displayed

## Sales Order Line items

Manufacturing Due Date

Customer Order Promise Date  
+ Manufacturing Due Date



- Planner releases M.O.
- Component availability check
- Review exception messages
  - Reschedules of M.O.s
- Material Req based on start date of M.O.
- Shortage reports/Screens

- Planner or Shop Floor releases M.O.
- Automatic Component availability check
  - No Review exception messages
  - No Reschedules of M.O.s
- Material Requirements align to Promise Date
- Short Items show on screen linked to M.O.

Shop floor  
Execution

Shop floor  
Execution

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# Demonstration

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# Summary

# Sales Order Planning

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- Visibility of Sales Orders that can Ship Immediately
- Visibility of Production Status directly related to Individual Customer Orders.
- Flexibility to View Production Status of Sales Orders by Item, Customer, Planner, or Business Unit
- Hyperlinks to Inventory and Production Status.
- Bookings Visibility by Dollar and Customer
- Material Plan Visibility Impacting Bookings or Planned Shipments thru a given Date Range
  - by Promise Date, Request Date, or Mfg. Due Date.

# Capacity and Labor Planning

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- Displays Weekly Material Plan and Load requirements.
- Hourly Load and Material Requirements Displayed in Weekly Buckets
- Past Due Visibility for Hours and Material
- Selection by Planner, Buyer, Vendor, Item, Workcenter
- Hours and Headcount requirements are calculated based on Routing Information.
- Immediate Calculation of Load Requirements for planned orders, released orders, active orders, or ALL.
- Date Range Selection is by MFG Due Date, or Sales Order Promise Date

# 'Lean' Planning and Scheduling

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- Planning Tool Links Shop Floor Activity, Customer Requirements, and Production Plan
- Automatic Scheduling for Shop Floor by Sales Order Promise Date thru Multiple Levels in the Product Structure.
- Ability to View Production Plan based on Sales Order Promise Date, Request Date, or Mfg. Due Date by Planner, Item, Workcenter or Business Unit.

# 'Lean' Planning and Scheduling

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- Immediate Feedback of Requirements which can be released to Production with no Material Shortages, and Shortages which impact the current plan.
- Interactive Real Time Shop Floor Notes for Status, Follow-up and Execution for each Department to Streamline Production Meetings.
- Vendor Material Requirements Displayed Instantaneously Impacting the Production Plan to meet Customer Sales Order Promise Date.



# Implementation Considerations

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- Use existing XA data
  - PDM/EPDM and CO, PO, MO, REP status
  - MRP with Source of demand (Populated by AVP)
- Accessible through web browser
- 4-5 days installation, education, testing
- 2-3 days go live and training
- Assistance available for data cleanup
  - Planner codes, buyer and vendor numbers, manufactured items vs purchased items, etc.

# Technical Requirements

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- XA R6.0 and higher
- PMC, PDM/EPDM, MRP/AVP
- iSeries Web Server setup
- No charge IBM Web Development tool (CGI Dev)

# Next Steps

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- Discuss status and requirements
- Tailored presentation
- Project proposal with costs and timing

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*Questions?*

*Thank you!*