

A Customer's Journey When Plants Merge or De-merge

Ashet Kikani, Associate Director-Business Systems United Technologies (Carrier)

Session ID # ASUG82254



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About the Speaker

Speaker Name

Ashet Kikani, Associate Director – Business Systems, United Technologies (Carrier)

- 30+ years of industry experience and 24+ years of SAP and ERP consulting experience focusing on Materials Management, Demand Planning, Production Planning, Workflow, Accounts Payables and Cross Applications
- Experience in various industry verticals like Building and Construction, Hi-Tech, Oil & Gas, Consumer Durables, Financial Services, Food & Beverage, Automobiles etc.
- Consulted to companies like General Electric, General Motors, Ford, Anhueser Busch, Avery Denison, British Petroleum, Comark Computers, Oracle-Storagetek, Helene Curtis, Owens Corning, Bank of America, Coca-Cola, Abbott Labs and Sargento
- Considerable experience in leading teams in different geographies and diverse background
- Platinum Consultant at SAP America, Inc.

Key Outcomes/Objectives

- 1. Role of Special Procurement Key
- 2. How demand gets moved from one plant to other
- 3. Steps at go-live



Agenda

- Company Background
- Current Process
- Make-to-Stock
- Make-to-Order/Engineer-to-Order
- Post Transition
- Questions?



United Technologies



A global leader in building systems and aerospace industries

Our large investments in technology enable us to develop new and improved ways to keep people safe, comfortable, productive and on the move



OUR BUSINESSES

UTC At A Glance 🔶





Carrier



Pratt & Whitney



Collins Aerospace

BY THE NUMBERS

240,200 Employees

Otis

\$66.5B

Net sales

\$7.61*

Adjusted diluted earnings per common share from continuing operations

\$4.0B**

Total R&D investment includes company- and customer-funded

*As of December 31, 2018. Adjusted diluted earnings per share from continuing operations is a non-GAAP financial measure. For more information on this measure, please refer to the tables in our Fourth Quarter 2018 Results press release. **As of December 31, 2018.





Iconic brands delivering smart, sustainable solutions the world needs





model?

What if you have a cross-company/cross-country fulfillment

How does SAP handle it? Can SAP handle it?

What happens if you have MTS and MTO/ETOs?

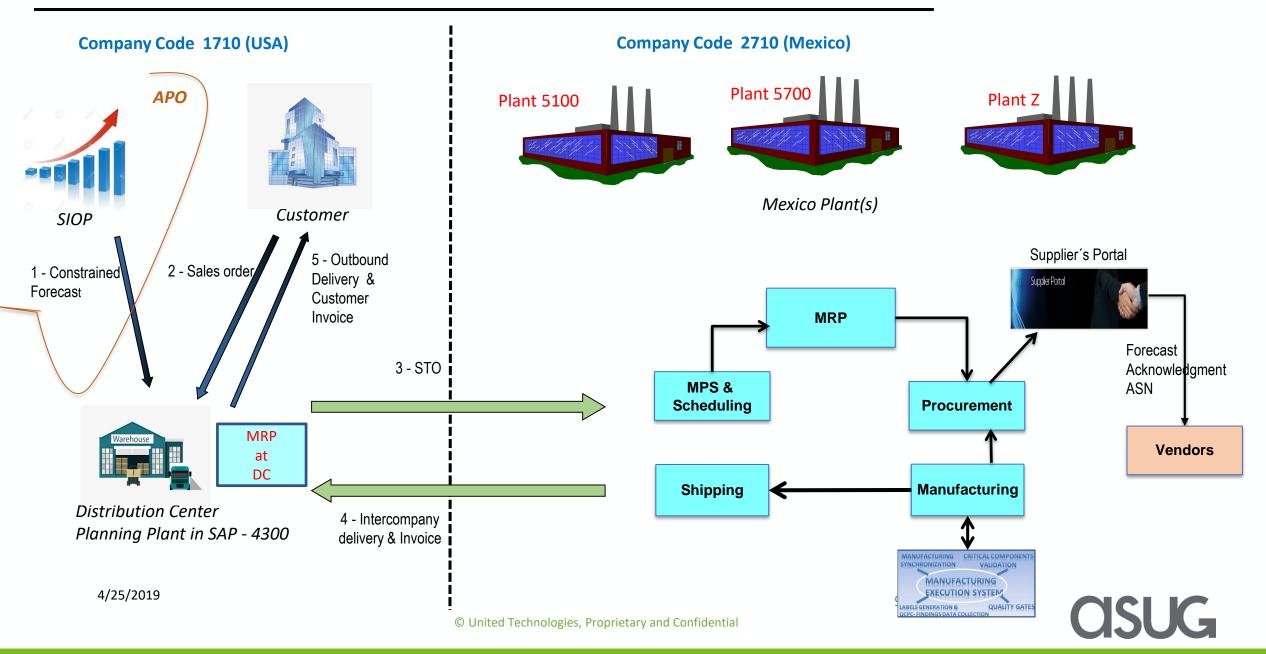
\$17.8B Net sales

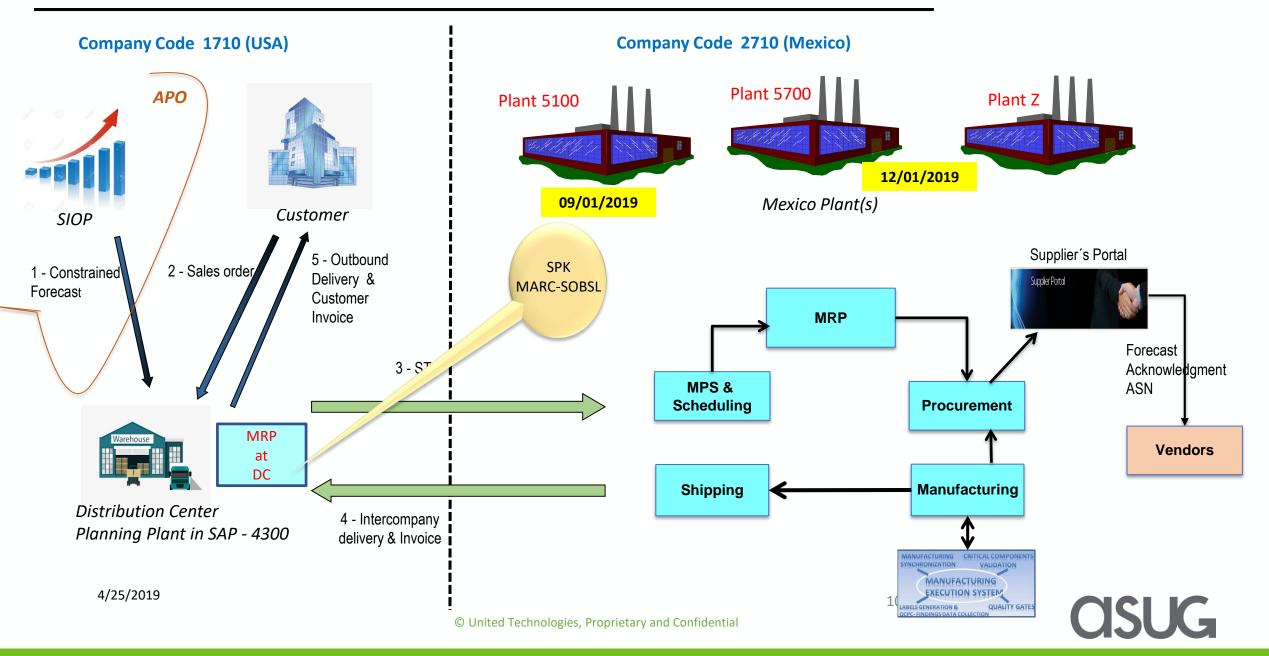
55,000

Employees

\$3.1B* Adjusted operating profit



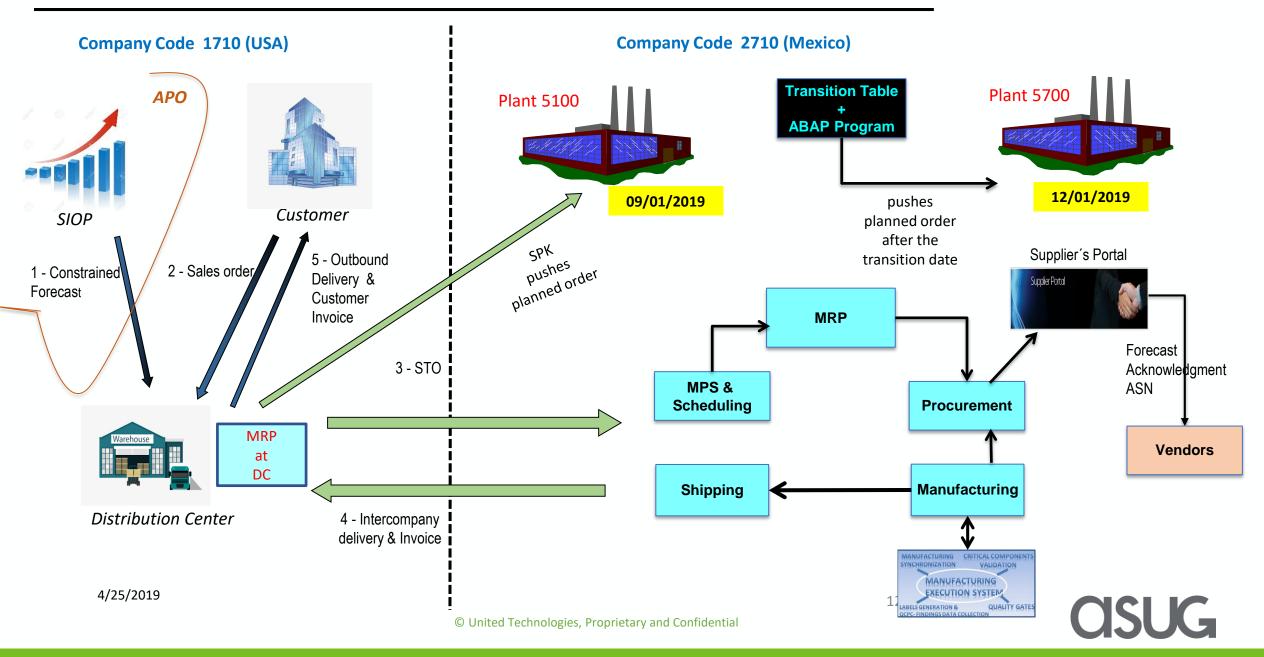




- Running forecast from APO to ECC is for 16 months, sent once a week after adjustments
- Till 09/01/2019, production will happen in Plant A (5100)
- From 12/01/2019, production will start in Plant B (5700)
- Due to long lead times of components, planners/schedulers in Plant B (5700) need visibility to forecast and planned orders much before the production start date of 12/01/2019
- SPK (in planning plant) cannot be changed till go-live as Plant X needs to know what they have to manufacture till 09/01/2019

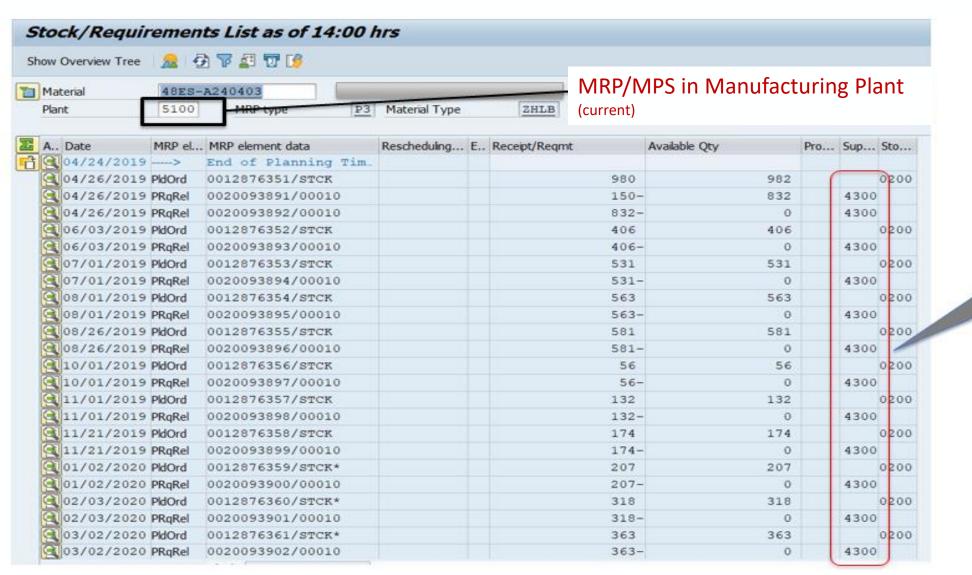
4300 - Planning Plant5100 - Current Manufacturing Plant5700 - Future Manufacturing Plant





MRP 1 MRP 2 MRP 3 MRP 4 Work scheduling Plant data / stor. 1 Plant data / Material Material 48ES-A240403 Image: Comparison of the scheduling Plant Image: Comparison of the scheduling Plant data / stor. 1 Plant data / Image: Comparison of the scheduling Material Materia	laster
Procurement Procurement type F Special procurement Prod. stor. location Pushes Demand to Manufacturing Plant #	
PInd Ind. Reqmts Display: Planning Table S 1 1 11 III 2 4 5 5 5	Forecast in
Image: Table Items Sched. lines	Planning Plan
Image: Second	/2020 450 ·

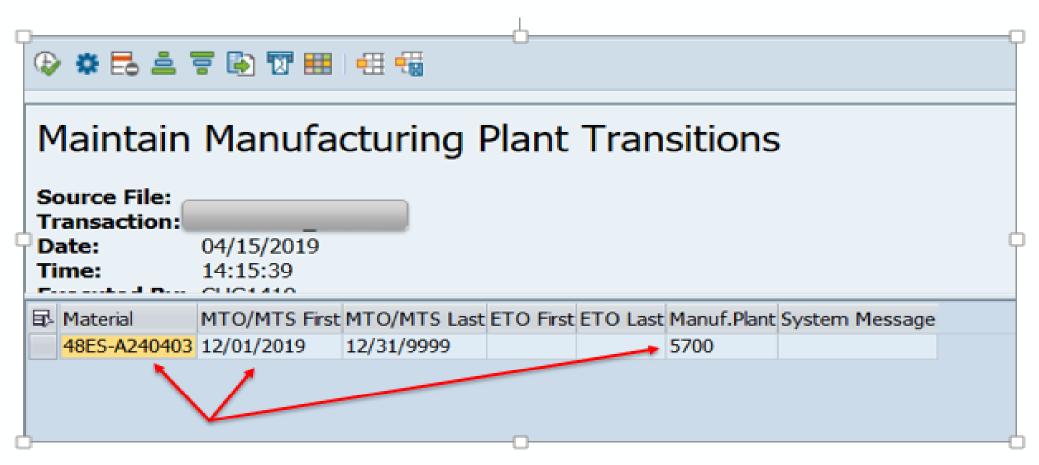
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nt	4300	MRP type P3	Material Type		ZHLB Unit	EA		
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04/01/2019	IndReq	VSF			150) —	150-	
04/25/2019	>	End of Planning Tim						
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05/06/2019	PurRqs	0020093892/00010	05/01/2019	30	832	t	332	5100
06/03/2019	PurRqs	0020093893/00010			406	;	738	5100
06/03/2019	IndReq	VSF			375	i –	363	
07/01/2019	PurRqs	0020093894/00010			531		894	5100
07/01/2019	IndReq	VSF			450	-	444	
08/01/2019	PurRqs	0020093895/00010			563	1	1,007	5100
08/01/2019	IndReq	VSF			625	-	382	
09/03/2019	PurRqs	0020093896/00010			581		963	5100
09/03/2019	IndReq	VSF			700	-	263	
10/01/2019	PurRqs	0020093897/00010			56	;	319	5100
10/01/2019		VSF			200	-	119	
11/01/2019	PurRqs	0020093898/00010			132		251	5100
11/01/2019		VSF			150	-	101	
12/02/2019	PurRqs	0020093899/00010			174		275	5100
12/02/2019	IndReq	VSF			125	-	150	
01/02/2020	PurRqs	0020093900/00010			207		357	5100
01/02/2020		VSF			125	-	232	
02/03/2020	-	0020093901/00010			318		550	5100
02/03/2020	IndReq	VSF			350)—	200	



Demand pegged to Planning Plant

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Matarial Tuna	and the second se	
Material Type	Unit	EA
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	Rescheduling E	Rescheduling E Receipt/Reqmt





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- 1. Material #
- 2. Transition Date
- 3. Manufacturing Plant

		2 🔽 🖾 🚺						
Material	48ES-	-A240403			 MRP in 	Plannir	ng Plant	
Plant	5100	MRP type P3	Material Type	ZHLB Unit	EA			
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A Date		. MRP element data End of Planning Tim.		. E., Receipt/Reqmt	Available Qty	PTO.	Sup Sto	
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04/26/2019		0020093891/00010			150-	832	4300	
04/26/2019	-	0020093892/00010			332-	0	4300	
06/03/2019		0012876352/STCK			106	406	0200	Demand
06/03/2019		0020093893/00010			106-	0	4300	
07/01/2019	-	0012876353/STCK			531	531	0200	pegged t
07/01/2019		0020093894/00010			531-	0	4300	Planning
08/01/2019		0012876354/STCK			563	563	0200	
08/01/2019	PRqRel	0020093895/00010			563-	0	4300	
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08/26/2019	PRqRel	0020093896/00010			581-	0	4300	
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🕄 01/02/2020 🖡	PRqRel	0020093900/00010			207-	0	4300	
🕄 02/03/2020 🖡	PldOrd	0012876360/STCK* *			318	318	0200	
302/03/2020 F		0020093901/00010			318-	0	4300	
303/02/2020 F		0012876361/STCK* 👍			363	363	0200	
🕄 03/02/2020 🖡	PRqRel	0020093902/00010			363-	0	4300	

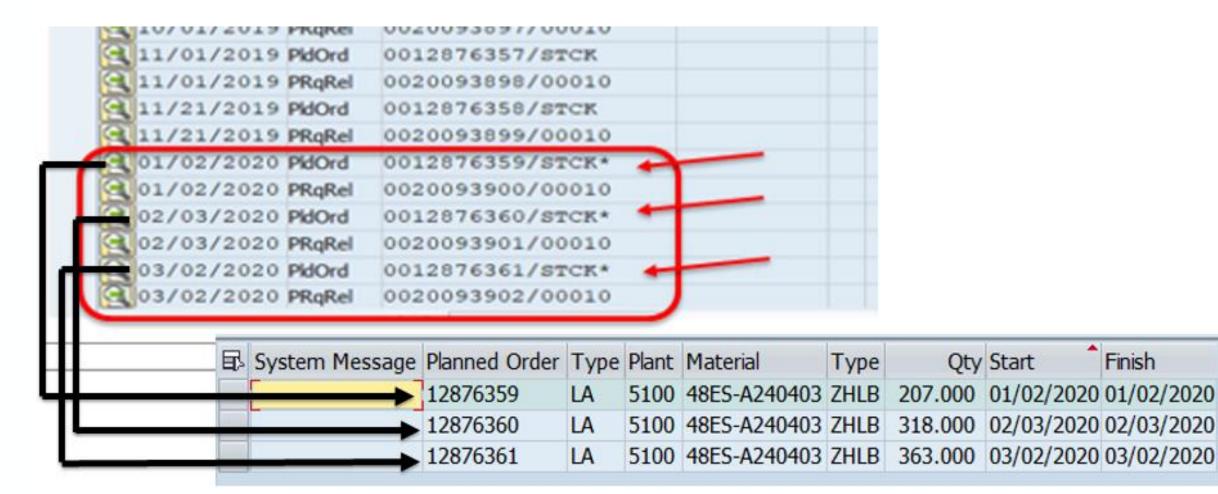
Custom ABAP Pr	ogram		
Selection Criteria			
Order type	LA	to	
Planning plant		to	
Material	48ES-A240403	to	
Manufacturing Plant	5700		
Output Options			
Email Errors (Batch Mode Only)			

Expected Results:

All demand from the planning plant after 12/01/2019, should go to another manufacturing plant

P	lanned Order Co	onversions							
B	System Message	Planned Order	Туре	Plant	Material	Туре	Qty	Start	Finish
		12876359	LA	5100	48ES-A240403	ZHLB	207.000	01/02/2020	01/02/2020
		12876360	LA	5100	48ES-A240403	ZHLB	318.000	02/03/2020	02/03/2020
		12876361	LA	5100	48ES-A240403	ZHLB	363.000	03/02/2020	03/02/2020

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Planned orders from Plant 5100 will be converted to Pur Req in 5700

Sto	ck/Requir	emen	ts List as of 14:3	4 hrs						
Show	Overview Tree	🔓 🔬	🔁 🔽 🖉 😨							
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2 A	Date	MRP el	MRP element data	Rescheduling.	. E	Receipt/Reqmt		Available Qty	0	Sup Iss
Ē	01/02/2020	PRqRel	0020093907/00010				207-		207-	51000200
9	02/03/2020	PRqRel	0020093908/00010				318-		525-	51000 <mark>200</mark>
9	03/02/2020	PRqRel	0020093906/00010				363-		888-	51000200

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Planned orders from Plant 5100 converted to Pur Reg in 5700

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	04/26/2019	-	0020093892/00010					832-		0		4300	
	06/03/2019	PldOrd	0012876352/STCK					406		406			0200
G	06/03/2019	PRqRel	0020093893/00010					406-		0		4300	
G	07/01/2019	PldOrd	0012876353/STCK					531		531			0200
G	07/01/2019	PRqRel	0020093894/00010					531-		0		4300	
G	08/01/2019	PldOrd	0012876354/STCK					563		563			020
9	08/01/2019	PRqRel	0020093895/00010					563-		0		4300	
9	08/26/2019	PldOrd	0012876355/stck					581		581			020
9	08/26/2019	PRqRel	0020093896/00010					581-		0		4300	
9	10/01/2019	PldOrd	0012876356/STCK					56		56			020
9	10/01/2019	PRqRel	0020093897/00010					56-		0		4300	
9	11/01/2019	PldOrd	0012876357/STCK					132		132			020
9	11/01/2019	PRqRel	0020093898/00010					132-		0		4300	
9	11/21/2019	PldOrd	0012876358/STCK					174		174			0200
9	11/21/2019	PRaRel	0020093899/00010					174-		0		4300	
9	01/02/2020	PurRqs	0020093907/00010					207		207		5700	p200
9	01/02/2020	PRqRel	0020093900/00010					207-		0		4300	
	02/03/2020		0020093908/00010					318		318		5700	0200
9	02/03/2020	PRqRel	0020093901/00010					318-		0		4300	
9	03/02/2020	PurRqs	0020093906/00010					363		363		5700	0200
2	03/02/2020	PRqRel	0020093902/00010					363-		0		4300	

Planned orders from Plant 5100 converted to Pur Req in 5700



Stock/Requir	remen	ts List as of 15:	33 H	hrs						
Show Overview Tree	8	b 🔽 🖉 😨								
Material Plant	48ES-	MRP type	YAC,	13 SEER, 2 ton, Material Type	208	-1 ZHLB Unit		EA		2
A Date	MRP el	MRP element data		Rescheduling	E	Receipt/Reqmt		Available Qty	Sup	Iss
4 💽 04/17/2019	Stock							0		
Q 01/02/2020	PldOrd	0012877583/stck			52		207	207		
Q 01/02/2020	PRqRel	0020093907/00010					207-	0	5100	0200
Q 02/03/2020	PldOrd	0012877584/stck			52		318	318		
Q 02/03/2020	PRqRel	0020093908/00010					318-	0	5100	0200
3/02/2020	PldOrd	0012877585/stck			52		363	363		
303/02/2020	PRqRel	0020093906/00010					363-	0	5100	0200

Pur Req in 5700 converted into Planned orders after MRP run

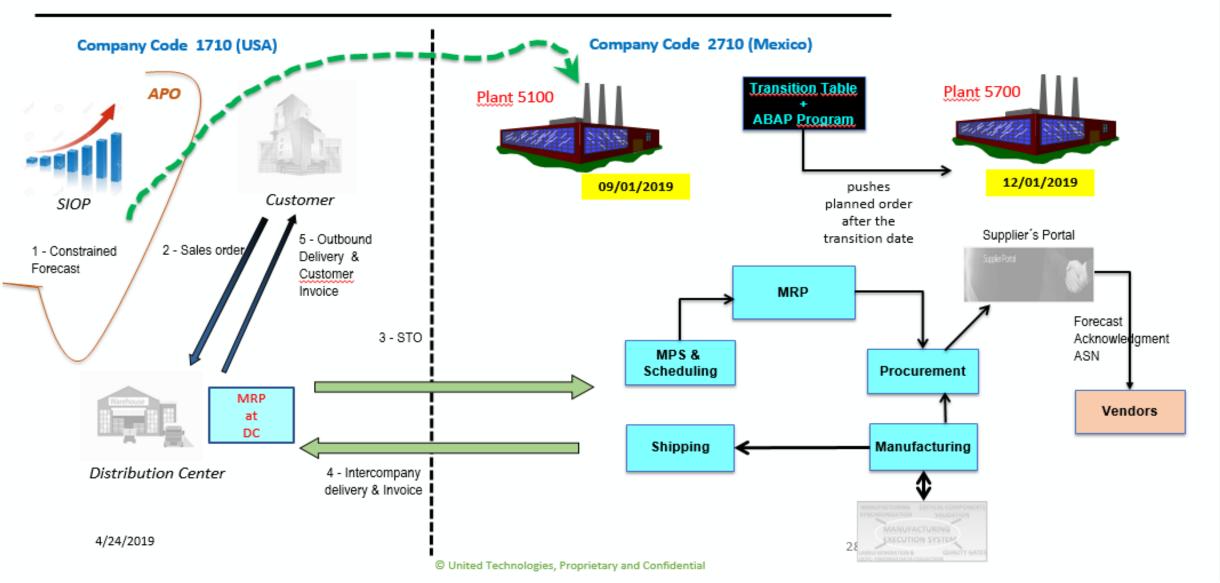


Material	48ES-	-A240403	YA	C, 13 SEER, 2 ton, 2	08-1										
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01/02/2020	and the second second	0020093907/0					207-			5100	0200				
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303/02/2020	Sh	how Overview Tree	2 ₫			13 SEER, 2 ton, 1	208-1								Planned Orders
9 03/02/2020	Sh	how Overview Tree Material Plant	A8ES-7	1 7 23 7 19 1240403 MRP type	YAC, 1	13 SEER, 2 ton, Material Type		ZHLB Unit	EA				2		converted to Prd
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303/02/2020	Sh	how Overview Tree Material Plant A. Date 04/24/2019	▲ ④ 48ES-2 5700 MRP el Stock	MRP type	YAC, 1	13 SEER, 2 ton, Material Type		1		able Qty	0		2	Sto	converted to Prd
03/02/2020	Sh	how Overview Tree Material Plant A Date 04/24/2019 05/06/2019	▲ ④ 48ES-2 5700 MRP eL Stock >	MRP type	YAC, 1	13 SEER, 2 ton, Material Type		eipt/Reqmt	Avai	able Qty	0	Pro	2		converted to <u>Prd</u> Orders in Manufacturing Pl
303/02/2020	Sh	A Date 05/06/2019 01/02/2020	28 2 48ES-2 5700 5700 MRP el Stock > PrdOrd PrdOrd	MRP type MRP element data	YAC, 1 M3	13 SEER, 2 ton, Material Type		ept/Regmt 2(Avaik	able Qty	0 207	Pro	Sup Iss	0200	converted to <u>Prd</u> Orders in
903/02/2020	Sh	A Date 04/24/2019 05/06/2019 01/02/2020	▲ ④ ▲8ES-2 5700 MRP eL Stock →> PrdOrd PRqRel	Image: Second state Image: Second state MRP element data Image: Second state End of Planning 009000070657/ 0020093907/0001 Image: Second state	YAC, 1 M3	13 SEER, 2 ton, Material Type		eipt/Regmt 2(2(Avai 07 07-	able Qty	0 207 0	Pro	2	0200	converted to <u>Prd</u> Orders in Manufacturing Pl
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MTO/ETO are different

- We have KMATs and nested KMATs
- We use Super BOMs
- Extensive use of VC
- VC drives the BOMs
- By some estimate, we can make an ETO in about 500 billion combinations
- For forecasting L1 components, we use the concept of Planning Materials
 - KMATs are not forecasted, planning materials tied to the KMAT is forecasted
 - Planning Materials have super mini-BOMs, KMATs have super BOMs
- Forecast for Planning Materials gets exploded into multiple L1 components and goes directly to manufacturing plant, not to the planning plant

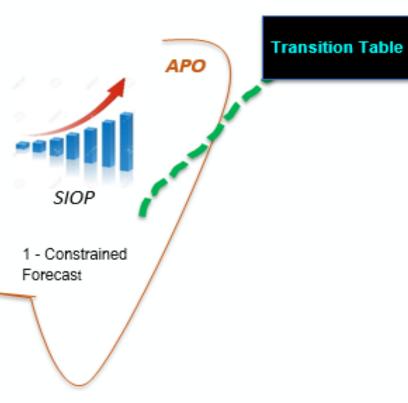




Company Code 2710 (Mexico) Company Code 1710 (USA) Transition Tat.e Plant 5700 APO Plant 5100 ABAL Crogram 12/01/2019 09/01/2019 pushes Customer SIOP planned order after the Supplier's Portal 5 - Outbound transition date 2 - Sales order/ 1 - Constrained Delivery & Forecast Customer Invoice MRP Forecast 3 - STO Acknowledgment MPS & ASN Scheduling Procurement MRP Vendors at DC Manufacturing Shipping Distribution Center 4 - Intercompany delivery & Invoice 4/24/2019 28

Cross-Company, Cross-country Fulfillment Model – MTO/ETO

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SAP ECC

SPK have no role to play in MTO/ETO scenario as the L1 component demand gets exploded the instant the Planning Material forecast reaches ECC

MSIK

Planning Book: [Live] DEMAND PLAN REVIEW BOOK / DP REVIEW VIEW 📛 / 🛎 🕤 🗊 🛃 , 💠 📫 , 🥪 , 🛼 🛤 , 🐡 , 📆 , 👔 NTO/MTS Flag 🕇 4 NTO , Product (Level 0) 🕇 4 Details (al) Ship-From Location 1 4 5100 / CARRIER MEXICO - C → Production Line/ Sou † ↓ CMXC_SPP-S Selected Objects 📄 📄 Design 📲 Graphic | 🔍 100% 1 . 1 9 . 0 6 Product (Level 0) Product (Level 0) Prc 48VL00240003000 48VL00240003000 48' Unit P 01/2019 P 02/2019 P 03/2019 P 04/2019 P 05/2019 P 06/2019 P 07/2019 P 08/2019 P 09/2019 P 10/ DP REVIEW VIEW Product (Level 0) 48VL^^30^^^3^^ 48VL^^30^^^3^^ 48' Total EA 1,230 1,230 1,230 1,230 1,230 1,230 1,230 1,230 1,230 48VL00360003000 48VL00360003000 48 48VL^^24^^^3^^^ EA 610 610 610 610 610 610 610 610 610 Final Forecast (Constrained) 48VL^^30^^^3^^^ EA 410 410 410 410 410 410 410 410 410 48VL^^36^^^3 EA 210 210 210 210 210 210 210 210 210 < > < > Selection profile Y 🐚 SHIVHAS .% AQ-1000 . TEST_0920_1 TEST_SP · . ORT_7_21 il. 🕈 👪 🕂 🏂 🛄 **Planning Materials** Planning Book/Data View Description CCSPBDEMREV CCSDVDEMFIN REVIEW FINAL FO CCSDVDEMFIT REVIEW FINAL FO CCSDVDEMREV DP REVIEW VIEW CCSSOPEOPT S&OP EXPORT > COSPRENGPE • • • • 8. . 🔳 Macros For data view: CCSDVDEMREV > St Directly Execut. Macros > Default < > < > 540 » DA2 (2) 100 ~ cida2 INS = 1

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5100 48VL^^24^^^3^^^		5700	201904		
5100 48VL^^30^^^3^^^		5700	201904		
5100 48VL^^36^^^3^^^		5700	201904		



Cross-Company, Cross-country Fulfillment Model – MTO/ETO

	List out	put			
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5100 🗗	48VL^^30^^^3^^^	201901	EA	247.984	
	48VL^^30^^^3^^^	201902	EA	400.080	
	48VL^^30^^^3^^^	201903	EA	413.087	
5700	48VL^^30^^^3^^^	201904	EA	406.914	Split foreca
	48VL^^30^^3^^^	201905	EA	413.086	
	48VL^^30^^3^^^	201906	EA	406.914	
	48VL^^30^^^3^^^	201907	EA	410	-
	48VL^^30^^3^^^	201908	EA	413.085	
	48VL^^30^^3^^^	201909	EA	406.915	
	48VL^^30^^3^^^	201910	EA	413.086	
	48VL^^30^^3^^^	201911	EA	406.914	
	48VL^^30^^3^^^	201912	EA	410	
	48VL^^30^^3^^^	202001	EA	416.385	
	48VL^^30^^3^^^	202002	EA	403.615	
	48VL^^30^^^3^^^	202003	EA	413.085	2
	48VL^^30^^^3^^^	202004	EA	292.232	
	48VL^^30^^^3^^^	202005	EA	0	

L1 component forecast

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Task	MTS	MTO/ETO
Forecast in APO	No Change	 Remove forecast in "old" Manufacturing Plant Enter forecast in "new" Manufacturing Plant
Special Procurement Key	Change key pointing to "new" Manufacturing Plant	No change – Keep it blank
Transition Table	Remove all entries	Remove all entries
Capacity	Update new values (if different)	Update new values (if different)



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Presentation Materials

Access the slides from 2019 ASUG Annual Conference here: http://info.asug.com/2019-ac-slides





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