





Key facts

- Diplom-Is is owned by TINE BA
- Ca 220 products
- 430 employees + 250 seasonal staff
- Production facility in Gjelleråsen outside Oslo
- 6 warehouses: Gjelleråsen, Bunes, Stavanger, Bergen, Trondheim and Harstad



Products

Diplom-Is' partners



MÖVENPICK®
THE ART OF SWISS ICE CREAM



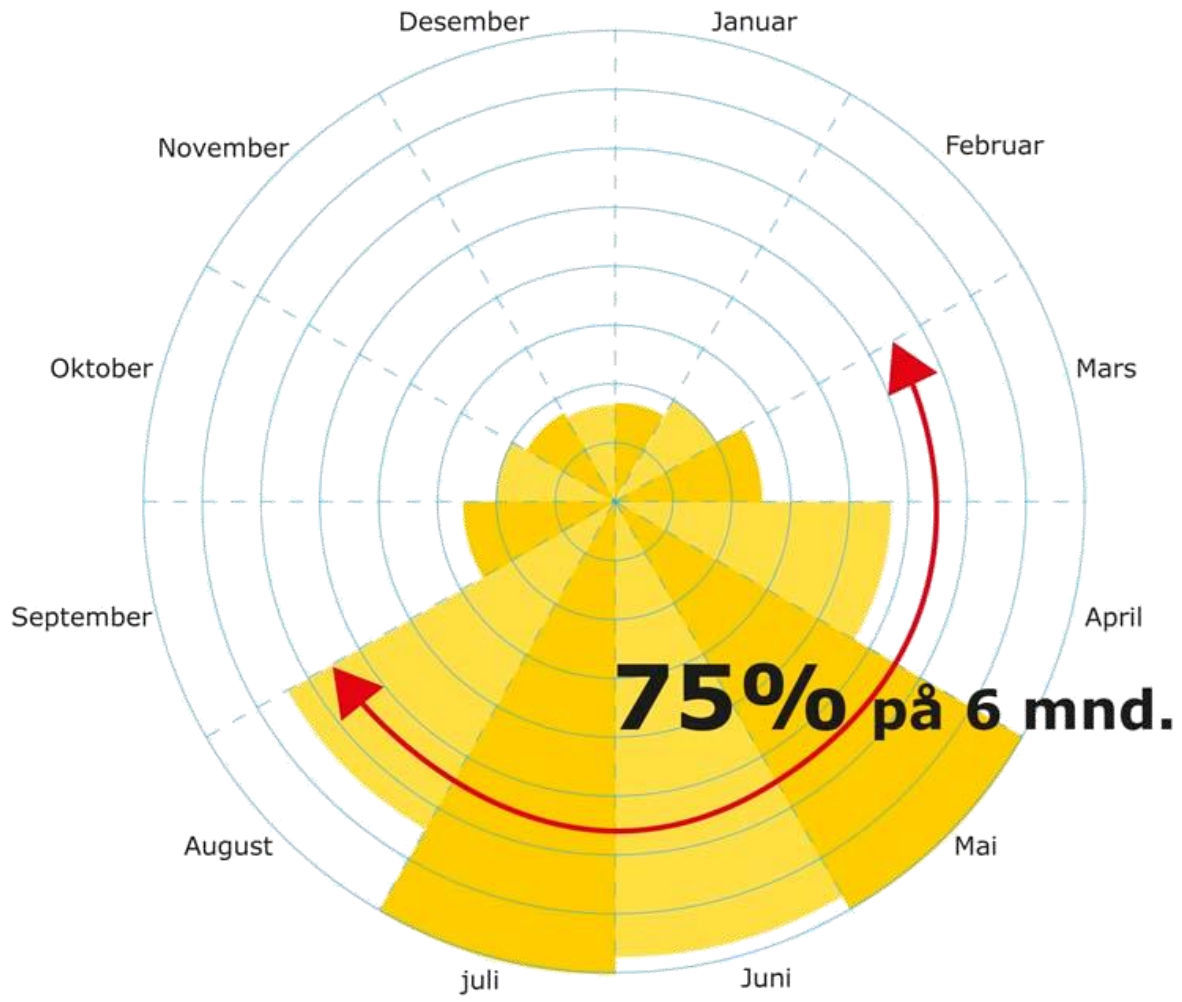


Customers



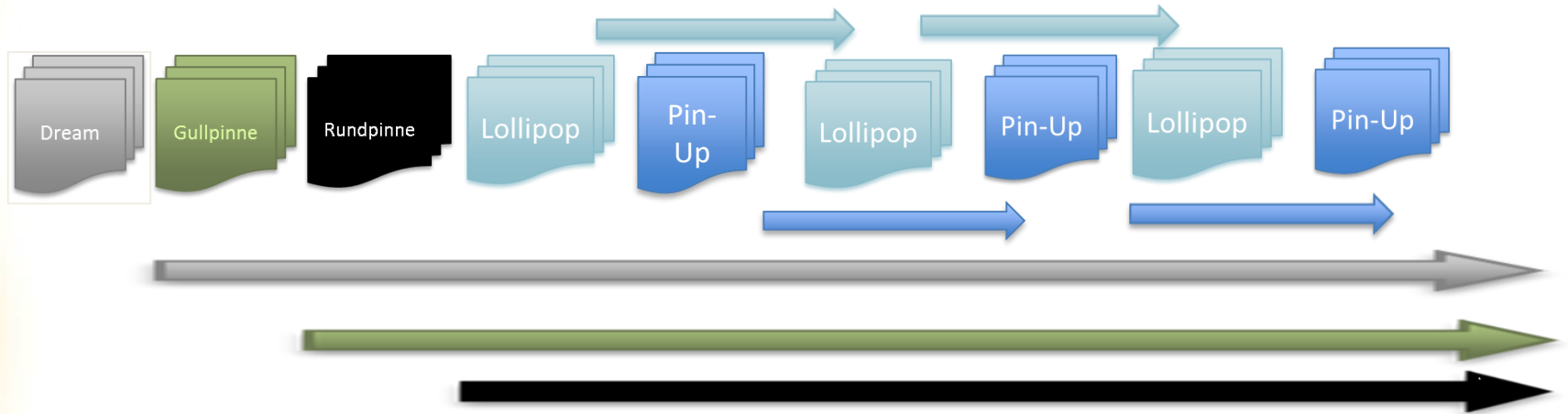
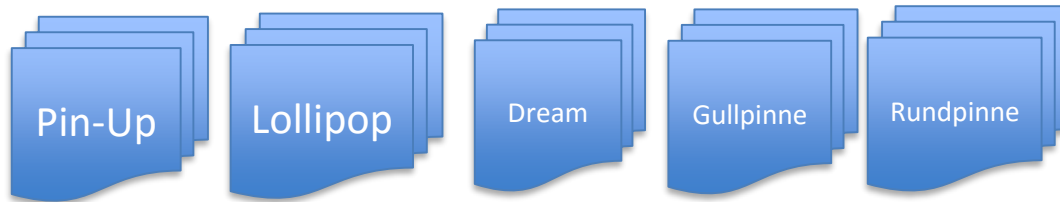


Seasonal variations





Plan Form in production





Diplom IS challenges

- Seasonality
 - Alternative stock build strategies
 - Visualize long term imbalances
- Big setup when change form
 - Group main setup groups
- Minimize setup within form
 - Optimize sequencies to minimize total setup time
- Capacity based on machine & personnel
 - Secondary resources and skills
- Long term personnel planning
 - Simulate consequences of alternative staff planning strategies (level or chase)

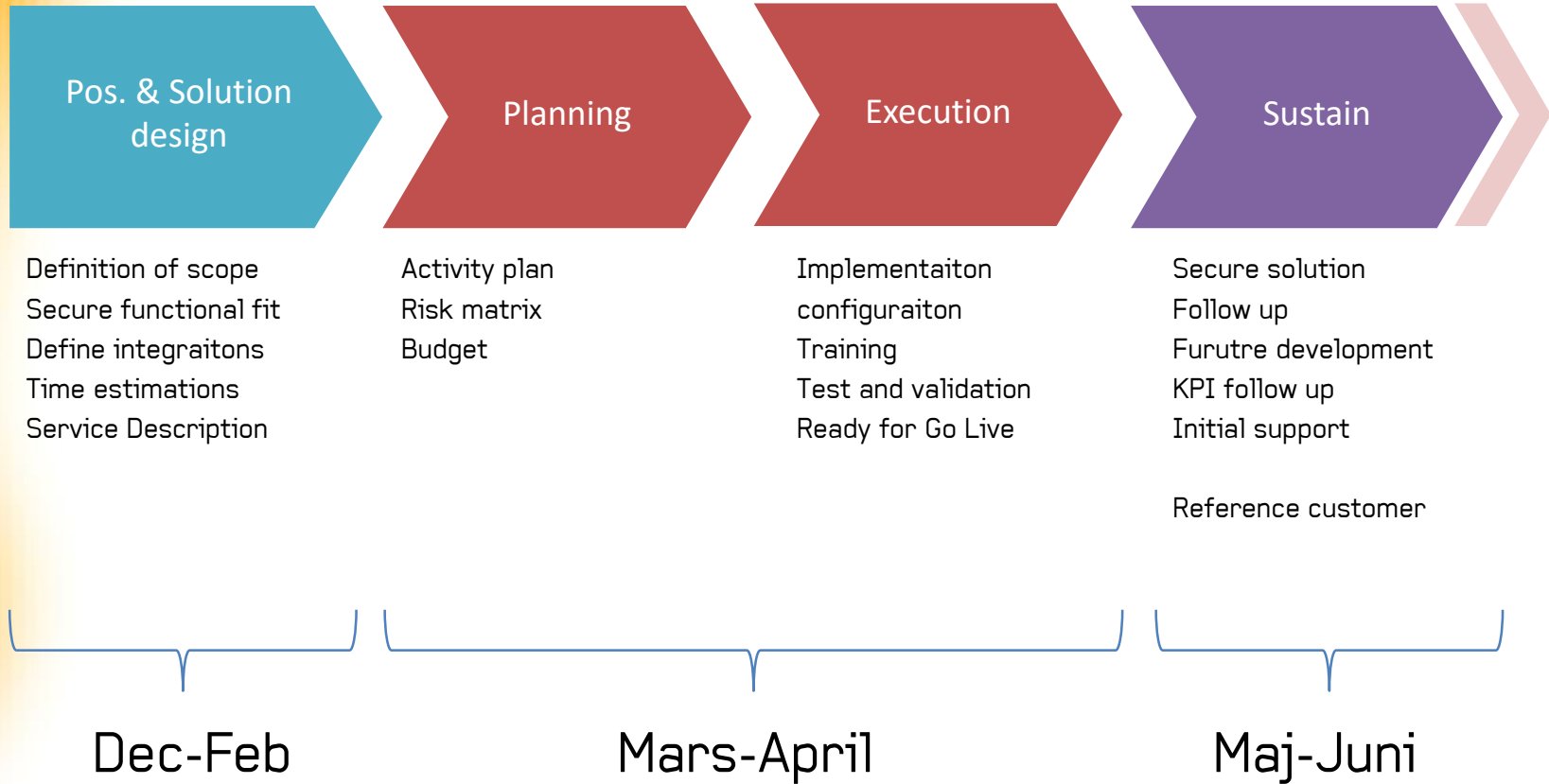


Project





Project method





Objectives

- Make planning more efficient in terms of time to make a production plan, both long term and short term plan
- Create possibilities to see consequences of long term decisions in the production plan and simulate different scenarios.
- Improve Supply chain planning to get an effect on following areas:
 - Higher service to customer
 - More efficient stock planning
 - More efficient production



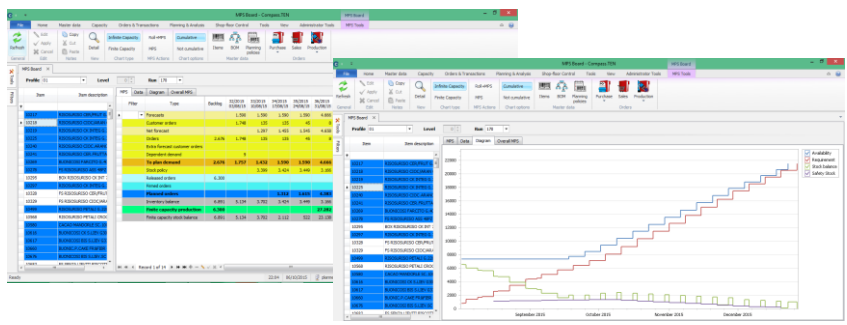
Scope

- Create a supply plan through the supply chain from DC to production warehouse. When doing this also considering season stock on temporary warehouse.
- Create this output from the long term planning process:
 - Stock build plan
 - Personnel plan
 - Machine load plan
 - Purchase plan
 - Network supply plan
- Create this output from the short term planning process:
 - Realistic production plan considering these main user defined restrictions
 - Machine capacity
 - Personnel capacity
 - Max forward planning rules
 - Optimized output in planning based on setup time matrixes
 - Alarms and reports to support in issues in short term planning
 - Send back a short term manufacturing plan to M3 for execution

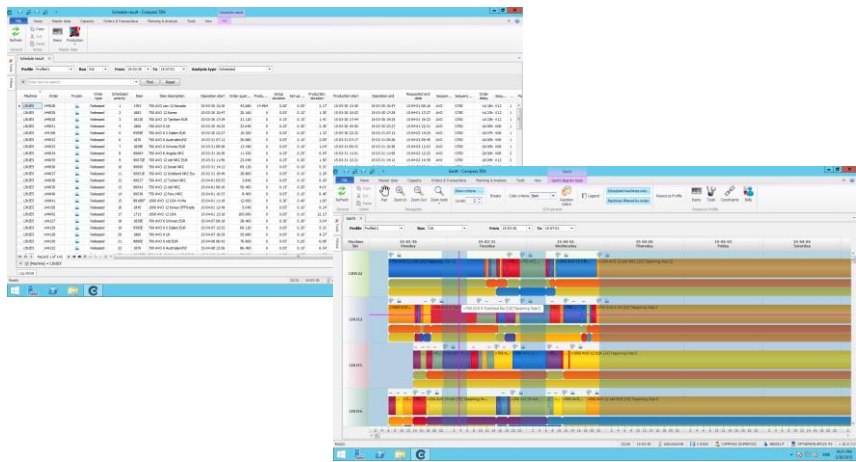


The One Plan Approach

MPS with stock build up



Detailed set up minimized schedule



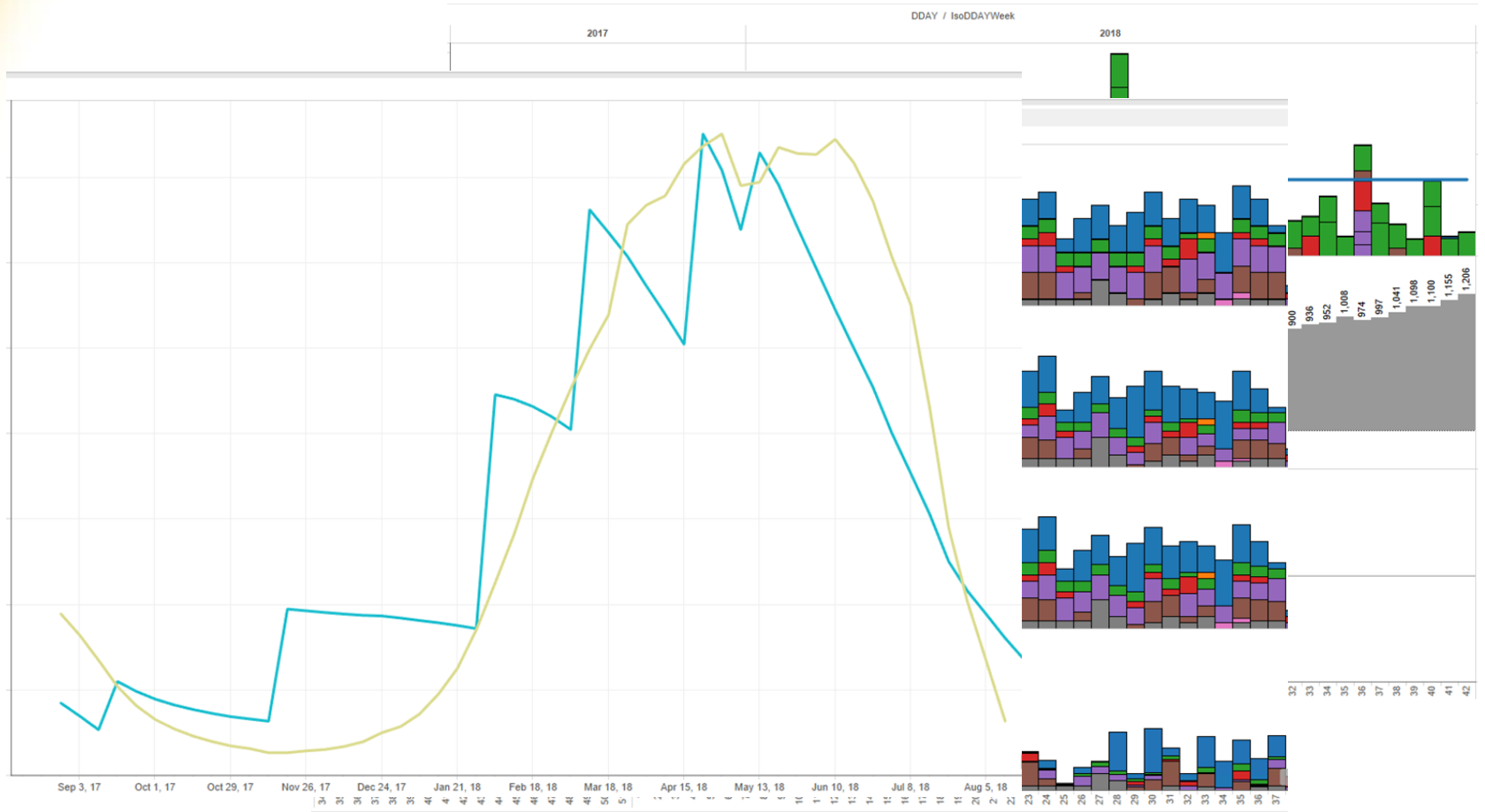


Planning model



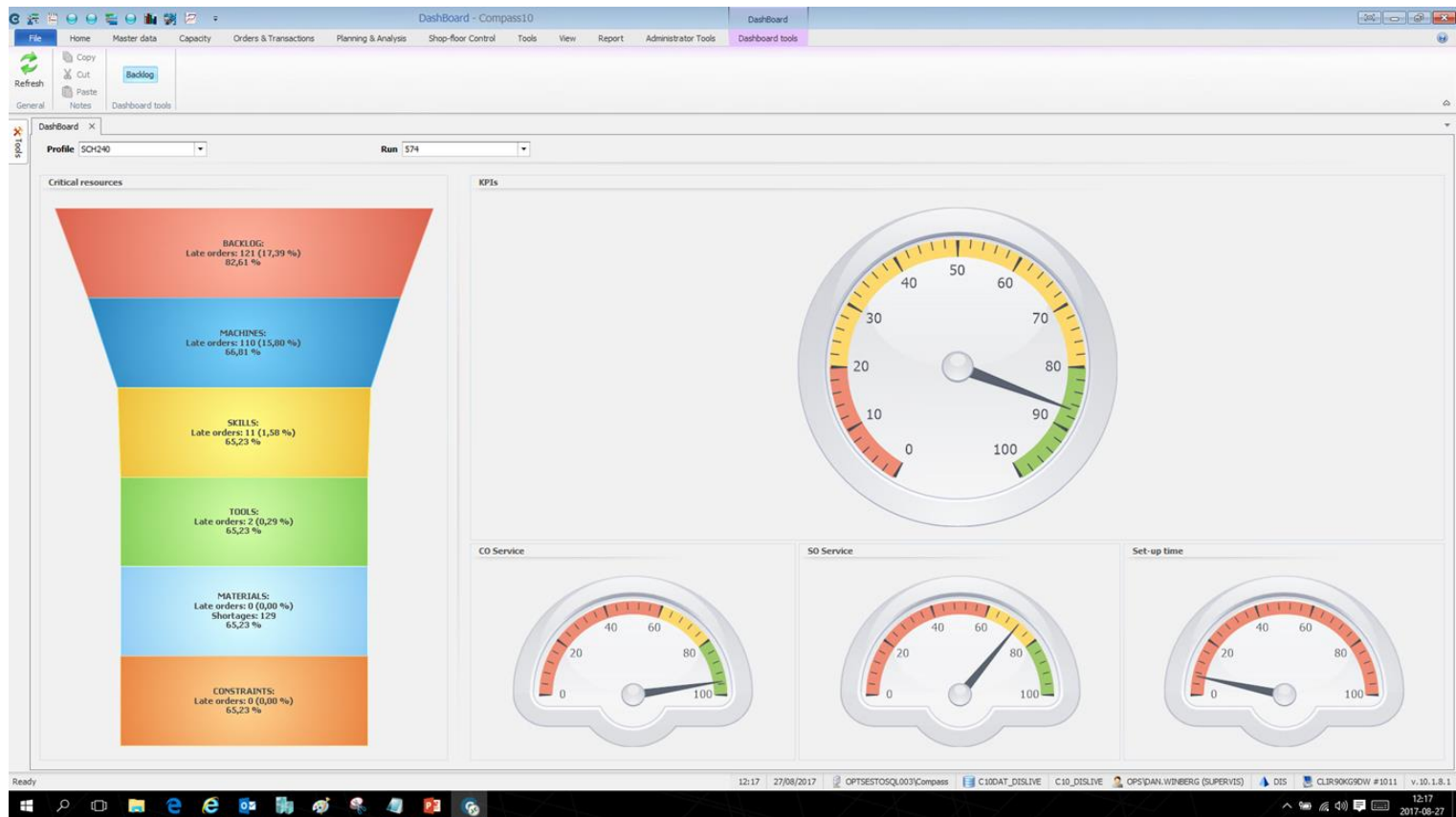


Long term





Dashboard





Short term schedule

OPTSESTOAPP007 - Remote Desktop Connection Manager v2.7

Frozen operations view - Compass10

File Edit Session View Remote Desktops Tools Help

File Home Master data Capacity Orders & Transactions Planning & Analysis Shop-floor Control Tools View

Refresh Edit Copy Lock sequence Lock machine only Unlock operation Find locked operation Setup calculation Production

General Cancel Paste Freeze operation Find Locked operation tools Master data

Frozen operations view x Production order schedule analysis

Profile SCH240 Run 578 Stored To 30/10/2017

| Machine | Machine description | Frozen operations... | Machine | Frozen | Production Order ID | Operation | Order type | Item | Item description | Scheduled quantity | Setup duration | Production duration | Operation start | Operation end | Requested end date | Lateness class | Order delay | Sequence crit. 1 | Sequence crit. 2 | Sequence crit. 3 | Sequence crit. 4 |
|---------|---------------------|----------------------|---------|----------|---------------------|-----------|------------|------------|------------------|--------------------|----------------|---------------------|---------------------|---------------|--------------------|----------------|-------------|------------------|------------------|------------------|------------------|
| GLA | GLA | 16 | STR | 68025 | 10 | Released | 00869 | Item 00869 | 1209 | 0.00' | 3.06' | 15/08/2016 07:00:00 | 15/08/2016 10:06:00 | 15/08/2016 | Green | -04 13h | KRO | JRDB | 1777171*60 | MEL,GLU | |
| KRO | KRO | 49 | STR | 68026 | 10 | Released | 00869 | Item 00869 | 3120 | 0.00' | 8.00' | 15/08/2016 10:06:00 | 16/08/2016 10:06:00 | 16/08/2016 | Green | -04 13h | KRO | JRDB | 1777171*60 | MEL,GLU | |
| LI | LI | 53 | STR | 68027 | 10 | Released | 11635 | Item 11635 | 3120 | 2.12' | 8.00' | 17/08/2016 07:00:00 | 18/08/2016 09:12:00 | 17/08/2016 | Green | 00 09h | KRO | KAR | 1777171*60 | MEL,GLU | |
| LI | LI | 66 | STR | 68028 | 10 | Released | 11635 | Item 11635 | 3120 | 0.00' | 8.00' | 18/08/2016 09:12:00 | 19/08/2016 09:12:00 | 18/08/2016 | Green | 00 09h | KRO | KAR | 1777171*60 | MEL,GLU | |
| LI | LI | 31 | STR | 1252657 | 10 | Firmed | 11479 | Item 11479 | 3920 | 16.45' | 10.53' | 22/08/2016 07:00:00 | 23/08/2016 10:38:15 | 03/10/2016 | Red | -394 13h | KAK | KAR | 99*76*251 | MEL | |
| RCL | RCL | 13 | STR | 1252658 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 25/08/2016 10:38:15 | 26/08/2016 13:31:40 | 04/10/2016 | Blue | -394 10h | KAK | KAR | 99*76*251 | MEL | |
| SOP | SOP | | STR | 1252659 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 26/08/2016 13:31:40 | 30/08/2016 08:25:00 | 05/10/2016 | Blue | -364 15h | KAK | KAR | 99*76*251 | MEL | |
| STR | STR | 17 | STR | 1252660 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 30/08/2016 08:25:00 | 31/08/2016 11:18:20 | 06/10/2016 | Blue | -364 12h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1252661 | 10 | Firmed | 11479 | Item 11479 | 1872 | 0.00' | 5.12' | 31/08/2016 11:18:20 | 01/09/2016 08:30:30 | 07/10/2016 | Blue | -364 15h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1252662 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 01/09/2016 08:30:30 | 02/09/2016 11:23:50 | 10/10/2016 | Blue | -384 12h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1252666 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 02/09/2016 14:17:10 | 05/09/2016 14:17:10 | 11/10/2016 | Blue | -364 09h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1252667 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 05/09/2016 14:17:10 | 07/09/2016 09:10:30 | 12/10/2016 | Blue | -354 14h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1252668 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 07/09/2016 09:10:30 | 08/09/2016 12:03:50 | 13/10/2016 | Blue | -354 11h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1252670 | 10 | Firmed | 11479 | Item 11479 | 1872 | 0.00' | 5.12' | 08/09/2016 12:03:50 | 09/09/2016 09:16:00 | 14/10/2016 | Blue | -354 14h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1253031 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 09/09/2016 09:16:00 | 03/10/2016 12:09:20 | 17/10/2016 | Blue | -144 11h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1253032 | 10 | Firmed | 11479 | Item 11479 | 3920 | 0.00' | 10.53' | 03/10/2016 12:09:20 | 05/10/2016 07:02:40 | 18/10/2016 | Blue | -134 16h | KAK | KAR | 99*76*251 | MEL | |
| | | | STR | 1252699 | 10 | Firmed | 07517 | Item 07517 | 6232 | 2.00' | 7.59' | 06/10/2016 07:00:00 | 07/10/2016 08:58:23 | 16/09/2016 | Red | 204 08h | BAL | VAN,SJO | 230**167*169 | MEL,GLU | |
| | | | STR | P0000043 | 10 | Firmed | 11357 | Item 11357 | 42780 | 2.00' | 178.15' | 21/10/2016 07:00:00 | 15/11/2016 07:20:01 | 30/10/2016 | Red | 154 07h | KAK | VAN | 240**236*70 | MEL,NTT | |

Record 8 of 8 Record 5 of 18

Locked operation detail: 1252657

| Order operations | Alternative machines | Machine | Machine description | New priority | Frozen start time | Frozen end time | Frozen quantity | Frozen | Operation | Operation description | Original priority | Machine | Machine description | Scheduled quantity | Set Up | Lab. Dur | Start time | End | Setup end | Production start | Production end |
|------------------|----------------------|---------|---------------------|--------------|-------------------|-----------------|-----------------|--------|-----------|-----------------------|-------------------|---------|---------------------|--------------------|--------|----------|--------------------|--------------------|-------------------|-------------------|----------------|
| STR | STR | STR | STR | 5 | | | | | 10 | Filling | 5 | STR | STR | 3919,50 | 16,45' | 10,53' | 22/08/2016 10:3... | 25/08/2016 10:3... | 24/08/2016 07:... | 25/08/2016 10:... | |

Record 1 of 1

Ready 18:19 29/08/2017 OPTSESTOAPP007/Compass C10DAT_DS_LIVE C10_delive PLANNET DIS OPTSESTO001 #1010 v.10.1.8.1

18:19 2017-08-29

18:19 2017-08-29



Short term demand

Customer Order delivery program - Compass10

Customer Order delivery program

CO delivery plan tools

Refresh Copy Cut Paste View Comments Network analysis Gantt by order

General Notes View Network analysis Gantt by order

Lot sizing groups MPS Board Schedule result Customer Order delivery program

Profile: SCH240 Run: 612 Stored To: 15/12/2017

| Customer order | CO line | Delay (dd) | Lateness class | Delivery date | Promise date | Reques... date | Remaining quantity | Delivarable quantity | Missing quantity | Order quantity | Shipped quantity | Item | Item description | Customer | Company name | Lateness class description | Status | Warehouse | Warehouse Description | Type |
|----------------|---------|------------|----------------|---------------|--------------|----------------|--------------------|----------------------|------------------|----------------|------------------|-------|------------------|----------|--------------|----------------------------|--------|-----------|-----------------------|----------|
| MP420-2330 | 0 | -1d 0h | ● | 15/08/2016 | | 16/08/2016 | 2070,00 | 2070,00 | | 2 070 | | 11655 | Item 11655 | | | Early | 240 | | | Released |
| MP420-3018 | 0 | 7d 11h | ● | 24/08/2016 | | 16/08/2016 | 4320,00 | 4320,00 | | 4 320 | | 11707 | Item 11707 | | | Late | 240 | | | Firmed |
| MP420-2031 | 0 | 7d 21h | ● | 01/11/2016 | | 16/08/2016 | 2160,00 | 2160,00 | | 2 160 | | 11558 | Item 11558 | | | Late | 240 | | | Planned |
| MP420-0260 | 0 | -4d 13h | ● | 15/08/2016 | | 19/08/2016 | 2304,00 | 2304,00 | | 2 304 | | 00869 | Item 00869 | | | Early | 240 | | | Released |
| MP420-2041 | 0 | 3d 10h | ● | 23/08/2016 | | 19/08/2016 | 90,00 | 90,00 | | 90 | | 11656 | Item 11656 | | | Late | 240 | | | Firmed |
| MP420-2038 | 0 | -8d 0h | ● | 15/08/2016 | | 23/08/2016 | 720,00 | 720,00 | | 720 | | 11655 | Item 11655 | | | Early | 240 | | | Released |
| MP420-3019 | 0 | 5d 10h | ● | 30/08/2016 | | 24/08/2016 | 1512,00 | 1512,00 | | 1 512 | | 11707 | Item 11707 | | | Late | 240 | | | Firmed |
| MP420-3013 | 0 | -5d 15h | ● | 19/08/2016 | | 24/08/2016 | 900,00 | 900,00 | | 900 | | 11706 | Item 11706 | | | Early | 240 | | | Released |
| MP420-0367 | 0 | -11d 13h | ● | 15/08/2016 | | 26/08/2016 | 384,00 | 384,00 | | 384 | | 00869 | Item 00869 | | | Early | 240 | | | Released |
| MP420-2042 | 0 | -3d 13h | ● | 23/08/2016 | | 26/08/2016 | 270,00 | 270,00 | | 270 | | 11656 | Item 11656 | | | Early | 240 | | | Firmed |
| MP420-1568 | 0 | 63d 10h | ● | 02/11/2016 | | 30/08/2016 | 304,00 | 304,00 | | 304 | | 11578 | Item 11578 | ZTRF | TRAN | Late | 240 | | | Planned |
| MP420-2039 | 0 | -14d 0h | ● | 16/08/2016 | | 30/08/2016 | 630,00 | 630,00 | | 630 | | 11655 | Item 11655 | | | Early | 240 | | | Released |
| MP420-2749 | 0 | 34d 07h | ● | 05/10/2016 | | 31/08/2016 | 288,00 | 288,00 | | 288 | | 11680 | Item 11680 | ZTRF | TRAN | Late | 240 | | | Planned |
| MP420-2183 | 0 | -1d 15h | ● | 30/08/2016 | | 31/08/2016 | 384,00 | 384,00 | | 384 | | 11665 | Item 11665 | ZTRF | TRAN | Early | 240 | | | Firmed |
| MP420-3022 | 0 | -1d 13h | ● | 30/08/2016 | | 31/08/2016 | 1188,00 | 1188,00 | | 1 188 | | 11707 | Item 11707 | | | Early | 240 | | | Firmed |
| MP420-3015 | 0 | -12d 15h | ● | 19/08/2016 | | 31/08/2016 | 1530,00 | 1530,00 | | 1 530 | | 11706 | Item 11706 | | | Early | 240 | | | Released |
| MP420-2044 | 0 | -11d 00h | ● | 22/08/2016 | | 02/09/2016 | 1008,00 | 1008,00 | | 1 008 | | 11690 | Item 11690 | ZTRF | TRAN | Early | 240 | | | Firmed |
| MP420-2478 | 0 | -19d 00h | ● | 15/08/2016 | | 02/09/2016 | 288,00 | 288,00 | | 288 | | 11679 | Item 11679 | ZTRF | TRAN | Early | 240 | | | Stock |
| MP420-0793 | 0 | -18d 13h | ● | 15/08/2016 | | 02/09/2016 | 384,00 | 384,00 | | 384 | | 00869 | Item 00869 | | | Early | 240 | | | Released |
| MP420-2043 | 0 | -10d 13h | ● | 23/08/2016 | | 02/09/2016 | 450,00 | 450,00 | | 450 | | 11656 | Item 11656 | | | Early | 240 | | | Firmed |
| MP420-2040 | 0 | -21d 0h | ● | 16/08/2016 | | 06/09/2016 | 990,00 | 990,00 | | 990 | | 11655 | Item 11655 | | | Early | 240 | | | Released |
| MP420-5087 | 0 | -8d 13h | ● | 30/08/2016 | | 07/09/2016 | 1296,00 | 1296,00 | | 1 296 | | 11707 | Item 11707 | | | Early | 240 | | | Firmed |
| MP420-2751 | 0 | 27d 07h | ● | 05/10/2016 | | 07/09/2016 | 384,00 | 384,00 | | 384 | | 11680 | Item 11680 | ZTRF | TRAN | Late | 240 | | | Planned |
| MP420-2184 | 0 | -8d 15h | ● | 30/08/2016 | | 07/09/2016 | 672,00 | 672,00 | | 672 | | 11665 | Item 11665 | ZTRF | TRAN | Early | 240 | | | Firmed |

Record 1 of 3703

Customer order detailed delivery program - Customer :

| Delivery date | Allocated quantity | Warehouse | Warehou... | Production Order ID | Order type | Operation | Split | Purchase order | PO line | Supplier | Company name | Order type |
|---------------|--------------------|-----------|------------|---------------------|------------|-----------|-------|----------------|---------|----------|--------------|------------|
| 15/08/2016 | 2070,00 | 240 | | 68034 | Released | 10 | 1 | | | | | |

Record 1 of 1

Lot sizing groups Schedule result detail Customer order detailed delivery program

Ready 10:58 06/09/2017 OPTSESTOSQL003\Compass C:\DDAT_DISLIVE C:\id_drive OPS\IAN.WINBERG (SUPERVIS) CLR90K9DOW #1011 v.10.1.8.1 10:59 2017-09-06



Result

Budsjettprosessen – før Compass bruke vi ca 21 dager, i fjor (1 år med Compass) en uke, i år, forventet 3 dager

Kontinuerlig løpende plan på 108 uker

Tidligere har vi aldri klart å holde 6 uker løpende plan, Alltid noe som skule endres som aldrig ble gjort i rett tid

Løpende prognoser til samtlige leverandører

Vi har slitt med å være forutsigbare mot våre leverandører da vi ikke hadde løpende planer

Intern Distribusjon – meget tidsbesparende da alle behov kommer opp i rapporter sortert pr lagersted pr uke



Result

Vesentlig mindre timer brukt til planlegging. Compass jobber meget raskt og riktig ihht styringsparameter
Utfordringer i starten er vel å forstå konsekvensen av parameterne

Særdeles bra oversikt med alle rapporter om status fremover i tid. Imponerende hvilken oversikt vi har pr i dag og best av alt vi bruker ikke tid på å lage de. Disse er en direkte konsekvens av planene i Compass

Vi har øket antall produkter med ca 40% i 17 i forhold til 16.