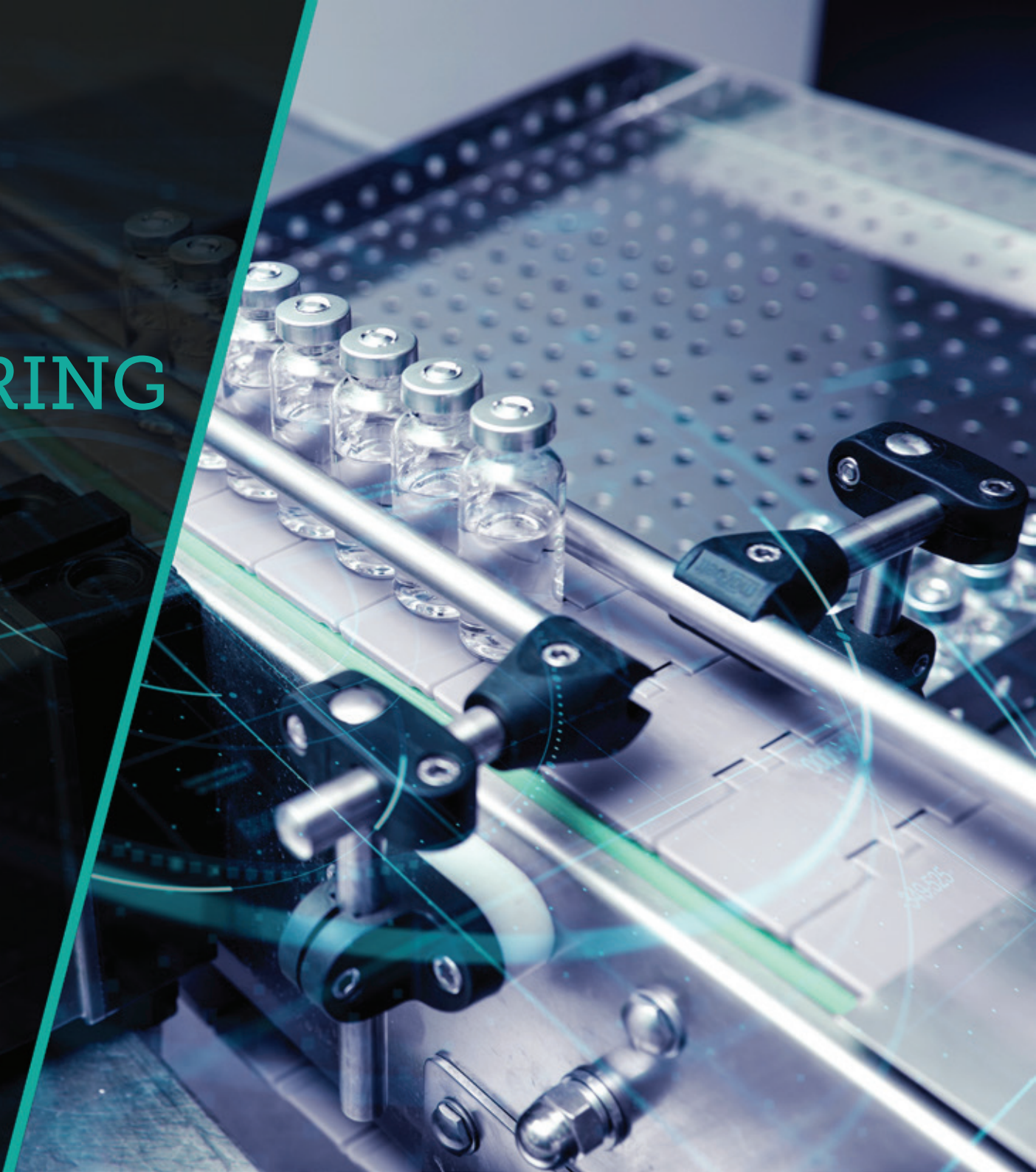


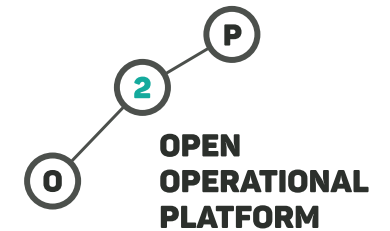
# BUILDING A SMART AND ADAPTABLE MANUFACTURING LANDSCAPE



**PROCESSWARE**  
[www.processwaregroup.com](http://www.processwaregroup.com)



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# MOVING BEYOND MOBILE, PAPERLESS AND IOT



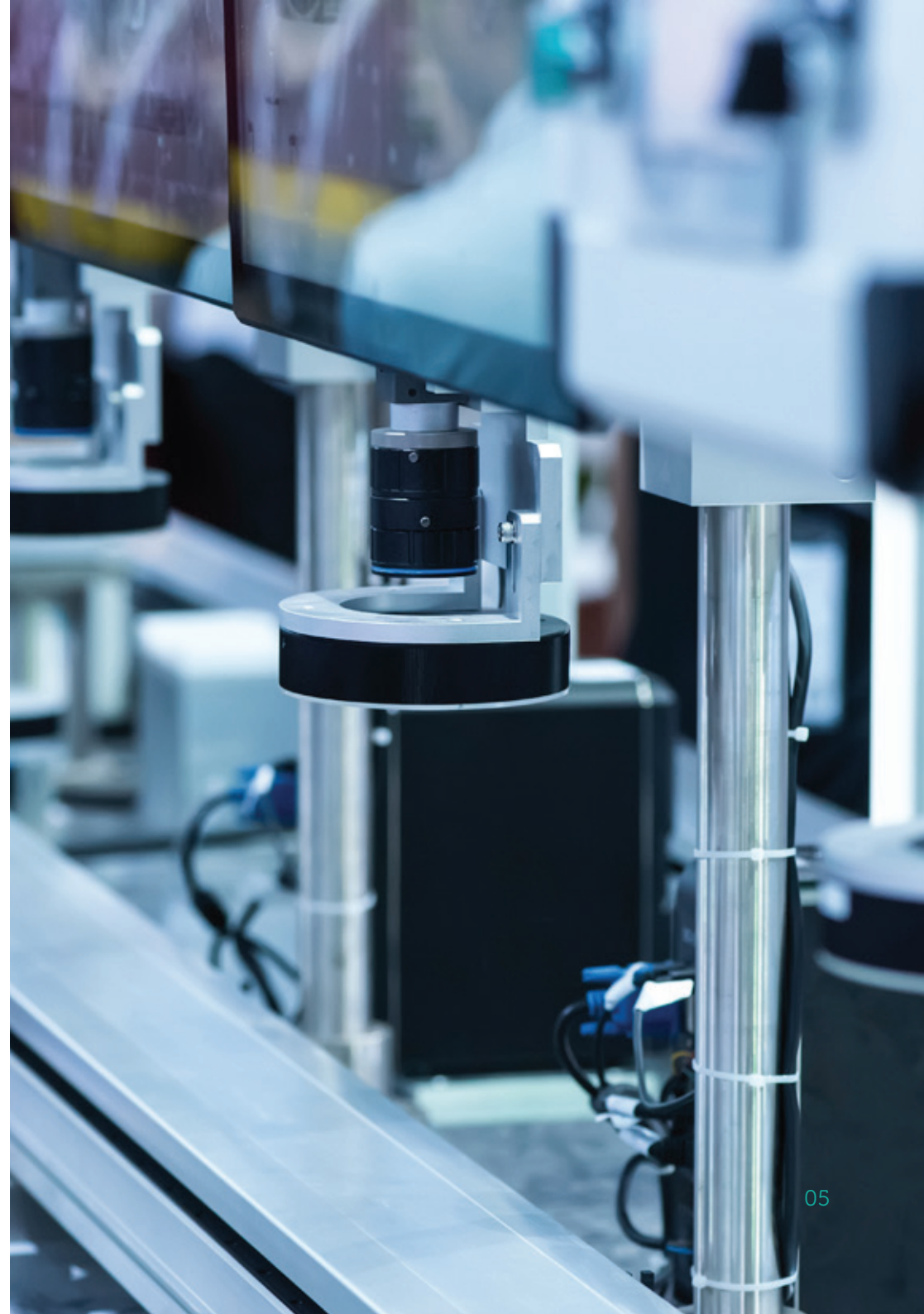
# MOVING BEYOND MOBILE, PAPERLESS AND IOT

Using such advanced technologies as mobile computing, advanced sensing and IoT creates an enormous value potential for organizations. These technologies generate information and events that create a **reliable picture of the real world**, besides allowing information to become available in useful time to make a difference. This dual ability to **collect and deliver information** anywhere, anytime is a tremendous opportunity to simplify the way organizations behave, while reducing the effort and problems that arise from taking educated guesses where decisions are required. The biggest issue however is not if you should use these technologies but **how you should use them to generate the biggest positive impact possible in your bottom line**. That's why you need to consider that just removing paper from the shop floor, although a nice step forward, is not more than a waste of resources.



# MOVING BEYOND MOBILE, PAPERLESS AND IOT

The opportunity is not to eliminate the paper, it is to have reliable information in real time to anticipate failure and improve both *efficiency and effectiveness*. You need to move beyond the immediate appeal of the mainstream message (like let's go paperless) and grab the huge potential lying beneath. That potential is based on the ability to connect intelligently different events and information to dynamically generate more information that, properly distributed, allows the entire organization to *adapt in real time to the changes that happen*. This is where you need to focus: how to map an operational landscape that dynamically orchestrates the real-time responses to achieve better efficiency and effectiveness.



# MOVING BEYOND MOBILE, PAPERLESS AND IOT

The key issues that you need to consider to grab this huge opportunity are far wider than the technologies you need to use and are truly disruptive to your organization. You need to focus on the process and each of its activities, how each process *interacts with all relevant internal and external stakeholders* and make that interaction *reliable, automated and safe*. You must assure that your landscape is mapped in such a way that you can easily change the way it behaves, so you can *adapt to different business or operational requirements in a very short time span*. You need to assure the proper and reliable integration of all components and processes with your business management platforms, making them as stable and as standard as possible to reduce your ownership costs. By addressing these issues and by using these technologies consistently, under a common, process-oriented framework, *you'll be effectively moving beyond the surface and reaching true value: an adaptable and intelligent manufacturing landscape that delivers sustainable return and efficient operations.*

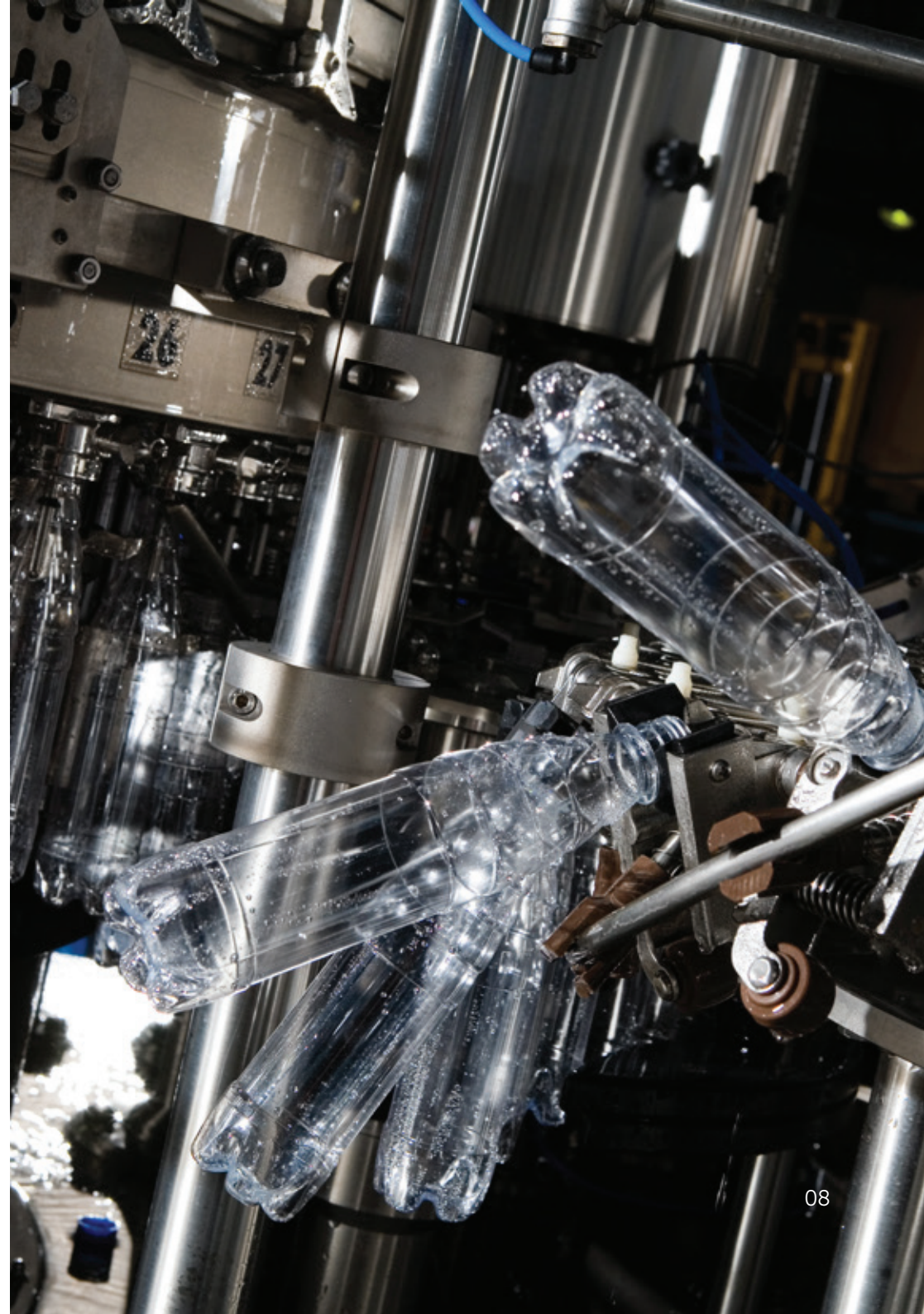


# LEVERAGING THE POWER OF A SMART LANDSCAPE



# LEVERAGING THE POWER OF A SMART LANDSCAPE

Using a common, process-oriented, rule-based framework to map your operational landscape and its underlying real-time events is the cornerstone to leverage IoT technologies and Industry 4.0 concepts. This approach will take them a step further into a stage where all possible value is extracted from the investment made, while **assuring operational sustainability and true integration**. By mapping a process and its activities under an event driven processing engine, you are able to tap in realtime to all the information made available by IoT and mobile technologies. Processing that event-based information using rule sets to dynamically determine the best possible outcome and using the same technologies to deliver information to the appropriate stakeholders (physical, electronic or human), makes your landscape **smart and adaptable**. This allows you to **change continuously**, without a predefined or static operational schema, **adjusting dynamically** to demand and events in real-time and understanding, in any given instant, the actual status of each of your processes.



# LEVERAGING THE POWER OF A SMART LANDSCAPE

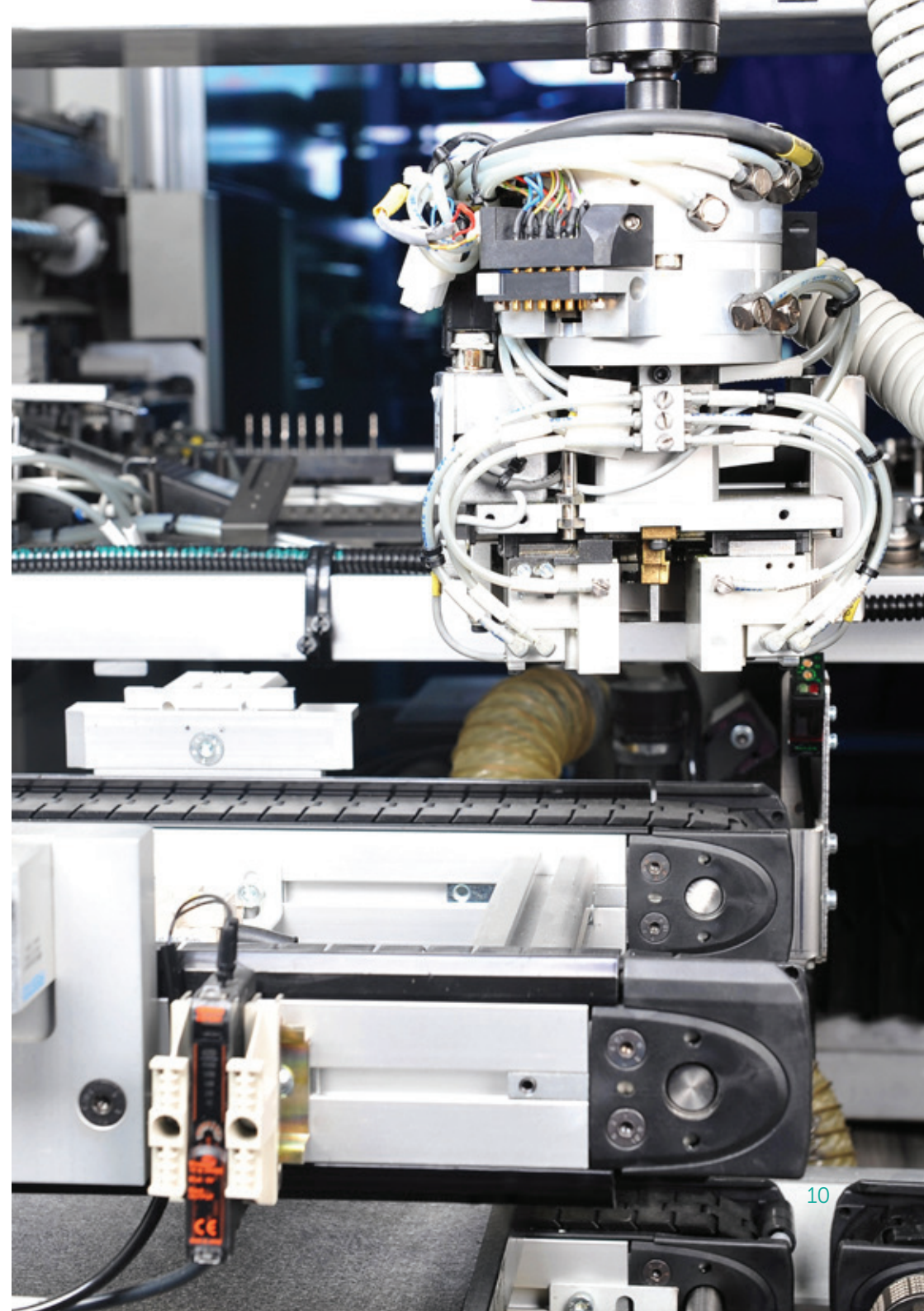
This smart landscape delivers critical advantages to your operations. It allows you to **anticipate failure**, to **trigger responses** to exceptions automatically, to **process thousands of different pieces of information** in order to assess the best possible result and to automate all integration and manual activities that are error prone and time consuming. It effectively means that you'll be able to **own, monitor, control and adjust** your operation to changing demand using **less resources and with shorter lead times**. And this is possible because we are able to converge a critical set of factors onto a common platform that is aware of the integration requirements, it possesses the required scalability to handle massive amounts of information in real time and is driven by adaptability concepts that allow it to behave dynamically in your terms.



# LEVERAGING THE POWER OF A SMART LANDSCAPE

O2P and our Manufacturing Solution deliver precisely this landscape framework, by providing you with a rule-based, configuration-driven, scalable event processing engine that maps your processes, your integration requirements and provides a state of the art rule-based engine to dynamically adjust your operation to an ever changing set of business requirements. Using our solution, you'll be able to achieve operation orchestration and assure:

- / Real-time visibility and operational control
- / Dynamic resource allocation
- / Process and operation simplification
- / High responsiveness and flexibility
- / Integration reliability and security
- / Activity and task automation
- / Significant cost and effort reduction



# LEVERAGING THE POWER OF A SMART LANDSCAPE



Our Manufacturing Solution has been deployed in the harshest scenarios around the world, delivering best of breed results. Our platform, O2P, has been designed, engineered and improved through years of research and investment to deliver state of the art scalability, performance and resilience, delivering unbeatable outcomes. We have crystalized the industry best practices in a reusable framework, designed to change when you need to with minimum effort and we are constantly providing more integration capabilities to assure that all technologies are available to you in your operational landscape. The combination of these factors enables you to achieve these results:

**99.9%**

in  
**SERVICE LEVEL  
COMPLIANCE**

**100%**

assured  
**TRACEABILITY**

**85%**

reduction in  
**ADMINISTRATIVE  
TASKS**

**40%**

increase in  
**CAPACITY**

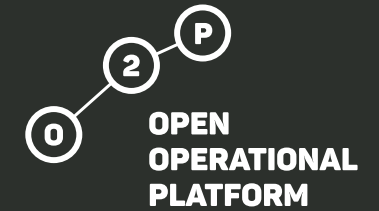
**80%**

redution in  
**LEAD TIMES**

# OPERATION ORCHESTRATION FUNDAMENTALS



# OPERATION ORCHESTRATION FUNDAMENTALS



## OUR MANUFACTURING SOLUTION IS BASED **IN THREE CRITICAL DRIVERS:**



### **RESPONSIVENESS**

Full flexibility to respond dynamically to business and operational conditions as they change, makes your organization respond in the most agile way possible in the most difficult scenarios



### **OPTIMIZATION**

Real time dynamic optimization of your processes assure the optimal decision in every possible situation and gives you the utmost efficiency and effectiveness



### **INTEGRATION**

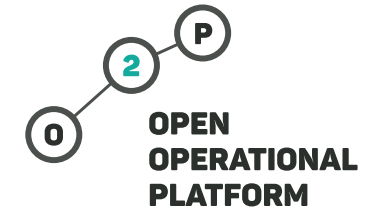
Transparent, reliable electronic integration with your ERP, sensors, industrial equipment and any kind of device assures accuracy, responsiveness and task automation

# OPERATION ORCHESTRATION FUNDAMENTALS

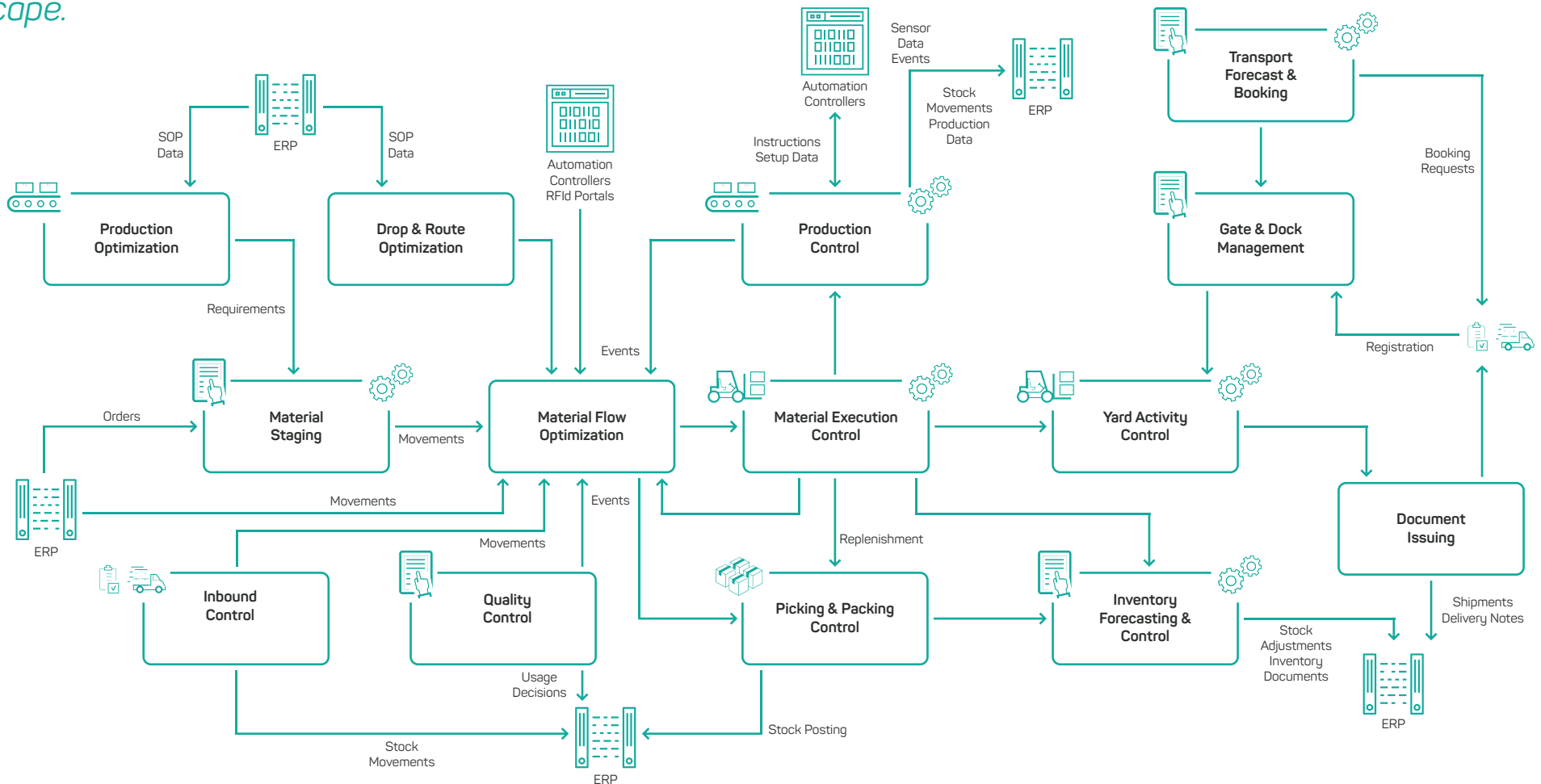
These three drivers allow operations across your landscape to work in a smart and efficient way. Your operations become connected and respond dynamically to exceptions, giving you flexibility and capacity without compromising your bottom line. This means that you'll be able to orchestrate your operations without imposing heavy and cumbersome controls while getting at the same time full visibility over your entire landscape. We've organized our solution to map your landscape in such a way that it delivers an integrated, optimized framework on which you can configure your process specificities and obtain an highly responsive and extremely fluid operation. Each solution module delivers smart, real time, connected processes that improve your efficiency and increase your ability to deliver.



# OPERATION ORCHESTRATION FUNDAMENTALS



*A smart, real-time, connected manufacturing process landscape.*



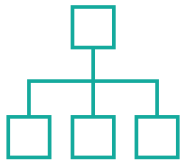
# DIVING INTO THE ORCHESTRATION COMPONENTS



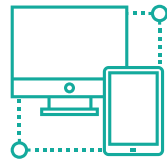
# DIVING INTO THE ORCHESTRATION COMPONENTS

## PRODUCTION PLANNING & OPTIMIZATION

Use an advanced continuous waterfall planning strategy to achieve unsurpassable accuracy, efficiency and resource capacity usage



Optimize  
**MULTI-LEVEL  
PLANNING**



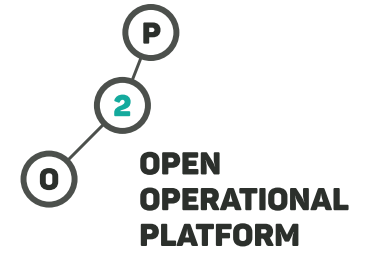
Reduce  
**MATERIAL  
WASTE**



Reduce  
**LEAD  
TIMES**



Optimize  
**RESOURCE  
USAGE**



# DIVING INTO THE ORCHESTRATION COMPONENTS

## PRODUCTION PLANNING & OPTIMIZATION

- / Use a multi level, dynamic production sourcing architecture to define efficient production streams and let O2P provide real time information to support your production decisions at each stage.
- / Plan optimal resource usage and schedule compliance by selecting the appropriate routing and matching capacity, load and requirements in real time.
- / Mix MTS and MTO planning with level cutoff to optimize capacity and responsiveness.
- / Adjust components dynamically based in alternatives, WIP stock and stock availability forecasts to optimize production schedule.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## PRODUCTION PLANNING & OPTIMIZATION

### Unsurpassable FLEXIBILITY

- / Use MTS and MTO in the same production stream
- / Adjust production planning level for capacity optimization
- / Modify components on the fly to overcome shortages

### Dynamic ADAPTABILITY

- / Continuous waterfall planning adapts in real time to demand changes
- / Adjust resources and components to ongoing production processes
- / Adapt dynamically to deviations and incidents

### Consistent OPTIMIZATION

- / Advanced BOM and structure engineering reduce waste
- / Consistent multi level planning optimizes planning schedule
- / Routing scenario generation defines optimal resources and sequency

	Date	Material	Version	Prod. Type	Req. Qty	Stock Qty	Prod. Order Qty	Open Qty	Planned Qty	UM	Planned Date
+	23-08 09:30	5A000034 - Pr. Pato, pato, corado, c/molha	TP R1	MTS	44.000	0.000	42.000	2.000	2.000	UN	2013-08-23 03:27
	23-08 14:50	abcborinha	TP R1	MTS	35.000	0.000	0.000	35.000	35.000	UN	2013-08-23 03:27
	23-08 14:50	vitela/queijad, macã/mol, ass	TP R1	MTS	35.000	0.000	0.000	35.000	35.000	UN	2013-08-23 03:27
+	23-08 00:40	5E000089 - Pr. Eso, frango/veco	SC R1	MTS	2.000	0.000	0.000	2.000	2.000	UN	2013-08-22 18:39
	23-08 00:40	ar/cogu/espim, SPML	SC R1	MTS	2.000	0.000	0.000	2.000	2.000	UN	2013-08-22 18:39
+	23-08 06:40	5F000126 - Pr. Strogonoff, frango/risotto	TP R1	MTS	231.000	0.000	200.000	31.000	31.000	UN	2013-08-23 00:37
	23-08 14:50	couca/coucam	TP R1	MTS	231.000	0.000	200.000	31.000	31.000	UN	2013-08-23 00:37
+	23-08 10:00	5F000205 - Pr. Frango, ass, bat, omelet/3	SC R1	MTS	4.000	0.000	0.000	4.000	4.000	UN	2013-08-23 03:57
	23-08 13:50	simon/tom, Hal	SC R1	MTS	4.000	0.000	0.000	4.000	4.000	UN	2013-08-23 03:57
+	23-08 12:00	5F000283 - Pr. Peit, frango, ass/arroz	SC R1	MTS	135.000	0.000	0.000	135.000	135.000	UN	2013-08-23 03:00
	23-08 12:00	simon/m, dem, g	SC R1	MTS	135.000	0.000	0.000	135.000	135.000	UN	2013-08-23 03:00
+	23-08 06:40	50000135 - Pr. Omelete	TP R1	MTS	133.000	0.000	110.000	23.000	23.000	UN	2013-08-23 00:37
	23-08 10:10	bacon/quei, bat, rosti/frango	TP R1	MTS	133.000	0.000	110.000	23.000	23.000	UN	2013-08-23 00:37
+	23-08 06:40	50000140 - Pr. Panqueca, quei, macã	TP R1	MTS	133.000	0.000	110.000	23.000	23.000	UN	2013-08-23 00:37
	23-08 10:10	coz/canela/mel	TP R1	MTS	133.000	0.000	110.000	23.000	23.000	UN	2013-08-23 00:37
+	23-08 11:00	5B000024 - Pr. Cabrito	DT R1	MTS	1.000	0.000	0.000	1.000	1.000	UN	2013-08-23 04:59
	23-08 11:00	ass/bat, corado/quei/m, ass, CRW	DT R1	MTS	1.000	0.000	0.000	1.000	1.000	UN	2013-08-23 04:59

**Production Order Planning - Step 2**

Date	Material	Version	Prod. Type	Req. Qty	Stock Qty	Prod. Order Qty	Open Qty	UM
2013-08-23 09:30	5A000034 - Pr. Brownd duck breast w/pumpkin	TP 2013-08-23 R1	MTS	44.000	0.000	42.000	2.000	UN
2013-08-23 14:50	5A000034							

**PO:** 01026974 - Pr. Brownd duck breast w/pumpkin sauce  
**Quantity:** 2.000 UoM: UN  
**Work Center:** CQE4 - Cozinha Quente Empratamento 4

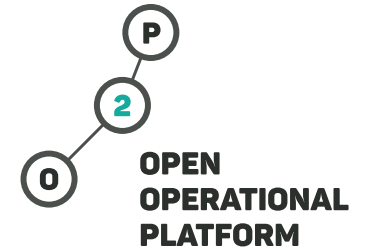
**Routing:** 0000000022-CQE4 - BC e CREW  
**Schedule Start Date:** 2013-08-23 09:30

Buttons: Next, Confirm, Cancel

# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL STAGING

A complete and optimized material staging process, responding in real time to deviations and production planning changes



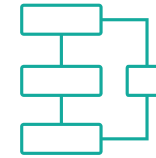
Achieve 99.9%  
**SERVICE LEVEL**



Reduce  
**LEAD TIMES**



Automate  
**REPLENISHMENT ACTIVITIES**



Optimize  
**STAGED QUANTITIES**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL STAGING

- / Plan replenishment according to your production engineering dynamically, considering actual planning, WIP component stock and ongoing staging processes.
- / Optimize component delivery to each production unit based on packaging conditions, production schedule and availability.
- / Adapt in real time to both production planning changes and staging execution results, automatically generating the adjustments in ongoing staging processes.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL STAGING

### SIMPLE Planning

- / Automatically uses production engineering and stock organization
- / Provides easy to use interfaces for quick and optimal decisions
- / Automatically defines replenishment quantities to minimize effort and cost

### AUTOMATED Activities

- / Automatically adjusts if deviations in production planning occur
- / Triggers automatic staging if execution is below required quantities
- / Provides automatic warnings to signal irregularities

### REAL TIME Follow Up

- / Real time dashboards monitor the ongoing staging vs planning process
- / Any deviation in execution is detected and notified in real time
- / Tracks staging process, anticipating service level deviations

	Date	Material	Req. Qty	Production Available Stock Qty	Warehouse Available Stock Qty	Requisitions Qty	Total Requisitions Qty	Open Qty	Planned Qty	UM
<input type="checkbox"/>	05-03 07:00	AAAC0002 -Acucar	4.016	0.000	125.000	0.000	0.000	4.016	4.016	KG
<input type="checkbox"/>	05-03 15:00	AAAC0005 -Acucar mascavado	0.076	0.000	7.000	0.000	0.000	0.076	0.076	KG
<input type="checkbox"/>	05-03 07:00	ARPU0001 -Pumpernickel	0.353	0.000	2.750	0.000	0.000	0.353	0.353	KG
<input type="checkbox"/>	05-03 07:00	ARTO0002 -Tosta mini	28.350	0.000	840.000	0.000	0.000	28.350	28.350	UM
<input type="checkbox"/>	05-03 15:00	ARTO0003 -Tosta malba	0.124	0.000	4.600	0.000	0.000	0.124	0.124	KG
<input type="checkbox"/>	05-03 07:00	ACME0001 -Mel	1.076	0.000	24.000	0.000	0.000	1.076	1.076	KG
<input type="checkbox"/>	05-03 07:00	ADAM0002 -Amendoa miolo torrada	0.216	0.000	97.000	0.000	0.000	0.216	0.216	KG
<input type="checkbox"/>	05-03 15:00	ADCH0008 -Chocolata leite 20gr	1.050	0.000	330.000	0.000	0.000	1.050	1.050	UM
<input type="checkbox"/>	05-03 07:00	ADDO0001 -Doce framboesa	0.389	0.000	33.400	0.000	0.000	0.389	0.389	KG

Observations: CRW

Item	Material	Stg. Location	Batch	Planned Qty.	Executed Qty.	UoM	Status
0001	DEPE0015 - Turkey chest	CT	-	20.000	22.454	KG	Confirmed
0002	COBRA0006 - Codfish Loins Centers	CT	-	50.000	48.000	KG	Confirmed

Parent reference:

### Requisition - Item Detail

Item: 0001  
Material: DEPE0015 - Turkey chest  
Warehouse: LI2 - Lisboa (Armazem)  
Planned Qty.: 20.000 KG  
Source Storage Type: 039

Status: Confirmed  
Plant: LIS - Lisbon, Portugal, Portela  
Stg. Location: CT  
Executed Qty.: 22.454 KG  
Source Storage Bin: C1AVES

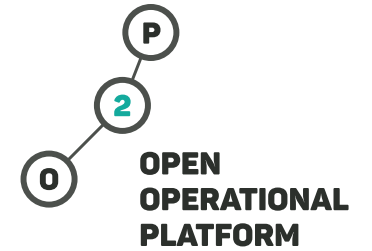
Item	Item Ref.	Batch	Planned Qty.	Executed Qty.	Exec. Qty (UoM Pack)	Operator	Exec. Date	Status
0001		BEF-194200	19.960 KG	22.314 KG	22.314000 KG	000482	2015-11-30 14:07	Confirmed
9000	0001	BEF-194704	0.140 KG	0.140 KG	0.140000 KG	000482	2015-11-30 14:07	Confirmed

Close

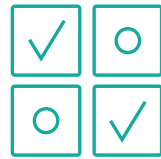
# DIVING INTO THE ORCHESTRATION COMPONENTS

## INBOUND CONTROL

Accurately control each single material goods receipt, assuring traceability and stock conditions with minimum effort.



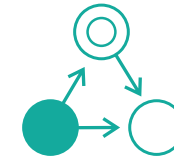
Assured  
**COMPLIANCE & TRACEABILITY**



Eliminate  
**ADMINISTRATIVE TASKS**



Integrated  
**LABELING & IDENTIFICATION**



Seamless  
**CROSS DOCKING**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## INBOUND CONTROL

- / Control each external material inbound, assuring compliance with traceability, stock conditions and consistent labeling.
- / Eliminate all administrative tasks and reduce effort required to control the inbound material flow.
- / Automate material routing based on just in time requirements and high priority processes.
- / Integrate goods receipt with advanced inbound notifications for automated control processes.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## INBOUND CONTROL

### Enforce **COMPLIANCE**

- / Assure that inbound material meets all requirements
- / Assure full traceability and quality compliance procedures
- / Assure business rules are met without increasing effort

### Increase **EFFICIENCY**

- / Eliminate all administrative tasks required to complete the process
- / Handle all exceptions on the spot
- / Route materials in real time to support JIT demand and cross docking

### Apply **AUTOMATION**

- / Automate goods receipt by using EDI advanced inbound notifications
- / Automate material identification by using vendor supplied RFID tags
- / Speed up material processing by integrating automation equipment

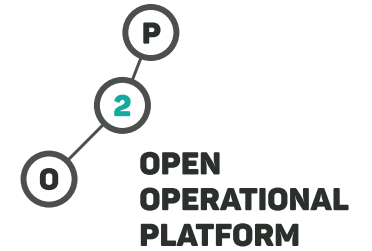
	PO	Schedule Date	Vendor	D.A.	#Mat	#Bat	#Pall	Sampling
	4500234472	2016-09-02	GENERAL NORDIC AB		1	1	4/4	0/0/0
	4500234485	2016-09-02	Lesaffre Nordic AB		0	0	0/0	0/0/0
	4500234912	2016-09-02	Sevan AB		0	0	0/0	0/0/0
	4500234913	2016-09-02	Drøgsbæk A/S		0	0	0/0	0/0/0
	4500235042	2016-09-02	StrongPoint Labels AB		1	1	1/1	0/0/0
	4500235100	2016-09-02	Easybake AB		0	0	0/0	0/0/0
	4500235232	2016-09-02	Scan AB		0	0	0/0	0/0/0
	4500235254	2016-09-02	Gärsne Mejeri Ekonomisk Förening		0	0	0/0	0/0/0
	4500235258	2016-09-02	KLS Ugglarps AB		0	0	0/0	0/0/0
	4500235265	2016-09-02	Mårtenssons AB		0	0	0/0	0/0/0
	4500235269	2016-09-02	Procurator AB		3	3	3/3	0/0/0
	4500235293	2016-09-02	Vänneriköket		0	0	0/0	0/0/0
	4500235337	2016-09-02	Continental Foods Sweden		0	0	0/0	0/0/0
	4500235341	2016-09-02	FLEXTRUS		3	3	7/7	0/0/0
	4500235360	2016-09-02	Michaud Nordic Distribution AB		0	0	0/0	0/0/0
	4500235361	2016-09-02	KGAB AB NOVAKEM		5	5	5/5	0/0/0
	4500235370	2016-09-02	Haugen Gruppen AB		0	0	0/0	0/0/0
	4500235371	2016-09-02	Haugen Gruppen AB		0	0	0/0	0/0/0
	4500235376	2016-09-02	Råkor e Lax Grossisten AB		0	0	0/0	0/0/0
	4500235383	2016-09-02	Råkor e Lax Grossisten AB		0	0	0/0	0/0/0
	4500235386	2016-09-02	Privat Trollhättan		0	0	0/0	0/0/0

TO/Item	Act	HUNum	Mat	Desc	Qty	Batch	S.A.	Done TS	P	Source	Target	Step	Op	Aging
37595215/9000	NBR	-	2110	Surdegsbague	20 KAR	L6160701	---	-	G	557/HBW	777/Z439	-	-	0004:43
37595215/5000	WMS	-	2110	Surdegsbague	20 KAR	L6160701	---	-	A	557/HBW	WMS/JXD	WMS/JXD	SCHAF1	0004:43
37595215/5001	PTA	-	2110	Surdegsbague	20 KAR	L6160701	JXD	-	X	WMS/JXD	777/Z439	777/Z439	-	0004:43

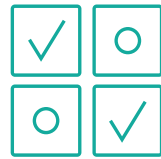
# DIVING INTO THE ORCHESTRATION COMPONENTS

## QUALITY CONTROL

Enforce and apply stringent quality procedures on material handling without compromising efficiency and accuracy.



Assured  
**COMPLIANCE & TRACEABILITY**



Eliminate  
**ADMINISTRATIVE TASKS**



Integrated  
**FOLLOW UP & ROOT CAUSE ANALYSIS**



Automatic  
**QUALIFICATION ENFORCEMENT**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## QUALITY CONTROL

- / Apply complex inspection plans with multiple control points, while assuring the user is qualified to perform the quality control process.
- / Eliminate all administrative tasks and reduce effort required to control the quality process.
- / Trace and manage every single quality incident, with full logging and tree-based incident and solution classification.
- / Monitor all processes in real time, tracking productivity against defects and providing on the spot control processes for exceptions.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## QUALITY CONTROL

### Enforce **TRACEABILITY**

- / Track all vital information for each batch and serial number
- / Maintain complete records of all activities
- / Audit every process to assure compliance

### Assure **EFFICIENCY**

- / Eliminate all administrative tasks required to complete the process
- / Track productivity and defects in real time
- / Handle exceptions and assure user qualification on the spot

### Promote **INTEGRATION**

- / Use only one solution for process and incident control
- / Integrate multiple quality measurement systems and eliminate errors
- / Distribute quality information across the landscape and increase resilience

The screenshot displays the O2P Processware interface with a search bar at the top. Below the search bar, there is a 'Details' section. The main part of the interface is a table with the following columns: Actions, ID, Creation Date, SLA Risk, SLA Level, Customer, Job, Manager, Support Call, and Status. The table contains 12 rows of data, each representing a defect record. The 'ID' column contains values like 014112, 014113, 014114, 014116, 014118, 014120, 014127, 014129, 014130, 014128, and 014152. The 'Creation Date' column shows dates from 2015-03-02 to 2015-03-03. The 'SLA Risk' column shows a green dot, and the 'SLA Level' column shows 'Baixo (5 Dias)'. The 'Job' column shows 'Defeitos'. The 'Status' column shows 'New'.

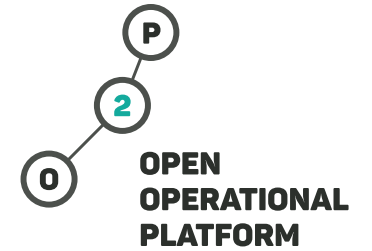
Actions	ID	Creation Date	SLA Risk	SLA Level	Customer	Job	Manager	Support Call	Status
	014112	2015-03-02	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][COP ][TRO ...								
	014113	2015-03-02	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][COP ][TRO ...								
	014114	2015-03-02	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][COP ][FOR ...								
	014116	2015-03-02	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][AEQ ][BAN ...								
	014118	2015-03-02	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][AEQ ][BAN ...								
	014120	2015-03-02	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][CF ][MANT ...								
	014127	2015-03-02	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][COP ][TRO ...								
	014129	2015-03-03	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][COP ][TRO ...								
	014130	2015-03-03	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][COP ][FOR ...								
	014128	2015-03-03	●	Baixo (5 Dias)		Defeitos			New
	[corrected ][COP ][FOR ...								
	014152	2015-03-03	●	Baixo (5 Dias)		Defeitos			New

The screenshot displays the O2P Processware interface with a search bar at the top. Below the search bar, there is a 'Details' section. The main part of the interface is a detailed view of a defect record. The 'ID' is 14116 and the 'Job' is 'Defeitos'. The 'Problem' is 'Assaeto', 'Status' is 'New', 'SLA Level' is 'Baixo (5 Dias) (5d)', 'Risk Level' is 'Baixo, 26%', 'Needs New Version' is unchecked, 'Version' is empty, 'Related to' is empty, and 'Solution' is '(None)'. The 'Updated' date is 2015-03-02 09:44:28, 'Created by' is 'Ducamar Bernardo Mancabo', 'Manager' is empty, 'Created' date is 2015-03-02 09:44, 'Assigned' is empty, 'Team Time' is 1d 7h 15m, and 'Customer Time' is 0m. Below this, there are two sections: 'TP 2276 (2015-03-03) Reported by Ducamar Bernardo Mancabo' and 'Compartmento: Galley 1>2109>2109 (F00011555680023000) Reported by Ducamar Bernardo Mancabo'. Below that, there is a 'SubCompartmento: Galley 1>2109>Cocottes YCL (F00011555680023001) Reported by Ducamar Bernardo Mancabo'. Below this, there is a 'Notes' section with a '+' icon. The first note is 'Note 47570 by Ducamar Bernardo Mancabo, 02/03/2015 09:44:28' with a 'Creation' icon. The note content is '[corrected ][AEQ ][BAN ]' and 'Correção:Corrigido|Sector/Unidade:Arm. Equipamento|Componente:Bandeja'. Below the notes, there is a 'Related Issues' section with 'No Issues related.' and a 'Close' button.

# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL FLOW OPTIMIZATION

Real time, rule based, dynamic, adaptable decisions to assure the right material gets to the right spot on the right time



Rule Based  
**OPERATION SPLITS**



Dynamic  
**RESOURCE ALLOCATION**



Optimized  
**FLOW DECISIONS**



Real Time  
**RULE APPLICATION & DECISION TAKING**

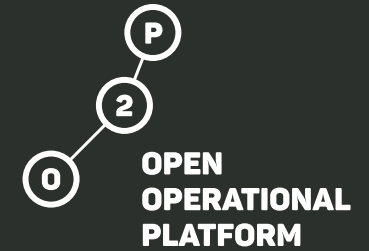
# DIVING INTO THE ORCHESTRATION COMPONENTS

## **MATERIAL FLOW OPTIMIZATION**

- / Design and setup the rules that allow each single material movement to be split and controlled the optimal way in your organization
- / Automatic selection of appropriate resources to execute each movement in order to reduce cost and execution time.
- / Full real time tracking of each movement execution in real time, handling each event and exception on the spot and taking optimal decisions to assure delivery of the material to the right spot on the right time.

# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL FLOW OPTIMIZATION



### Rule-based **OPTIMIZATION**

- / Configure rules to define how each flow must be handled
- / Use rules to support optimal resource selection in each condition
- / Define rules to manage exceptions



### Real time **CONTROL**

- / Monitor each flow in real time, tracking all events
- / Intuitive dashboards monitor workload and status
- / Each event is handled in real time to react instantly



### Adaptable **DECISIONS**

- / Adjust priorities to keep up with each flow deadline
- / Release movements to optimize load and capacity
- / Reconfigure flows as events signal different conditions

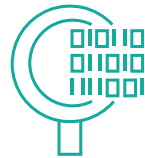
# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL EXECUTION CONTROL

Real time, efficient material handling control to accurately execute each flow instruction



Accurate  
**MOVEMENT  
EXECUTION**



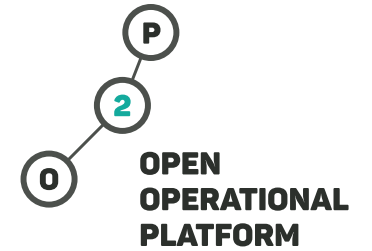
Full  
**TRACEABILITY &  
CONTROL**



Efficient  
**OPERATION**



Real Time  
**FEEDBACK**



# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL EXECUTION CONTROL

- / Intuitive, simple and efficient interfaces designed for mobile operation allow accurate execution of each material flow instruction.
- / Real time events are generated to allow the material flow optimization engine to adapt to the actual operation conditions.
- / Report every single exception on the spot, assuring efficient and real time handling of the information.
- / Get immediate feedback as the execution flows, preventing deviations from targets and assuring an absolutely accurate operation.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## MATERIAL EXECUTION CONTROL

### Absolute **EFFICIENCY**

- / Intuitive and simple mobile interfaces to support operations
- / Report exceptions on the spot
- / Easy and immediate feedback for continuously accurate execution

### Complete **TRACEABILITY**

- / Track each and every execution event
- / Control and collect all data from every operator
- / Accurate material execution assures full batch traceability

### Consistent **CONTROL**

- / Every single movement is tracked and controlled in real time
- / Feed each execution to the optimization engine, adapting in real time
- / Map all resources, controlling all events for optimal performance



PRODUCTION O2P Open Operational Platform

Start Page SY001 PR003 MD050 MD043 OPX40 SY042 OP032 SY006 TH004

Search

Details - Warehouse: 100 - Schema: Material Flow Dashboard - View: Material Flow

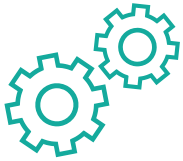
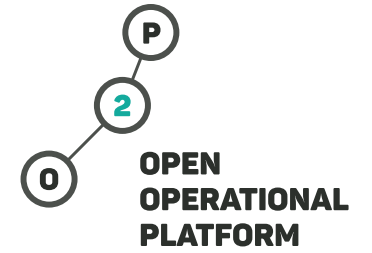
Start > TO/Item: 37595215/9000 [Last Refresh: 2016-09-01 21:32:22, Count: 3, Time: 00:00:00]

TO/Item	Act	HUNum	Mat	Desc	Qty	Batch	S.A.	Done	TS	P	Source	Target	Step	Op	Aging
37595215/9000	NBR	-	2110	Surdegsbague	20	KAR L6160701	---	-	-	G	557/HBW	J77/2439	-	-	0D04:43
37595215/5000	WMS	-	2110	Surdegsbague	20	KAR L6160701	---	-	-	A	557/HBW	WMS/IXD	WMS/IXD	SCHAF1	0D04:43
37595215/5001	PTA	-	2110	Surdegsbague	20	KAR L6160701	IXD	-	-	X	WMS/IXD	J77/2439	J77/2439	-	0D04:43

# DIVING INTO THE ORCHESTRATION COMPONENTS

## PICKING & PACKING CONTROL

Pick and pack optimized multi-level containers with lightning fast operation, absolute accuracy and full traceability.



Efficient  
**OPERATION**



Complete  
**TRACEABILITY**



Zero  
**DOWNTIME**



Total  
**ACCURACY**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## PICKING & PACKING CONTROL

- / Mobile, voice and speech enabled intuitive interfaces help operators achieve benchmark productivity.
- / Multi-level picking and packing, with automatic batch determination and replenishment synchronization assure zero stock outs.
- / Integrated packing labeling, with variable weight material control assure full accuracy.
- / Pick by drop and pick by material simultaneous capability, based on actual transport container configuration, with zero stock checks and automatic on the spot inventory.



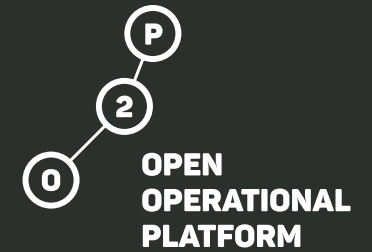
O2P PROCESSWARE / Open Operational Platform

Start Page OP027 x OP037 x

	2013 08-26	2013 09-02	2013 09-09	2013 09-16	2013 09-23	2013 09-30	
<b>DPP0009 - Porco</b> <i>na.s/osso</i>	Req	0	15.271	15.271	0	0	30.542
	PO	0	0	0	0	0	0
	Stock	349.535	2508.437	2493.166	2477.895	2477.895	318.993
	Open	0	0	0	0	0	0
	Sugg						0
<b>DPP0011 - Porco</b> <i>antremeada cor</i>	Req	0	100.905	0	103.76	0	204.665
	PO	0	0	0	0	0	0
	Stock	0	0	0	0	0	0
	Open	0	100.905	100.905	204.665	204.665	204.665
	Sugg						0
<b>DPP0012 - Porco</b> <i>perna s/osso</i>	Req	0	135.468	272.421	116.234	144.12	686.321
	PO	0	0	0	0	0	0
	Stock	30.406	367.552	232.084	0	0	0
	Open	0	0	0	0	38.201	56.279
	Sugg						0
<b>DPP0013 - Porco</b> <i>pernil</i>	Req	0	0	0	0	0	0
	PO	0	0	0	0	0	0
	Stock	0	0	0	0	0	0
	Open	0	0	0	0	0	0
	Sugg						0
<b>DPP0015 - Porco</b> <i>perna afiambre</i>	Req	3.024	116.316	167.241	2.373	17.255	330.65

# DIVING INTO THE ORCHESTRATION COMPONENTS

## PICKING & PACKING CONTROL



### Benchmark **PRODUCTIVITY**

- / Pick by voice and mobile interfaces for unsurpassable productivity
- / Synchronized, multi-level replenishment eliminate picking stops
- / On the fly picking strategy determination for optimal performance



### Complete **TRACEABILITY**

- / Batch and serial number control
- / Full operator activity tracking
- / Assured multi-level packing control without efficiency loss



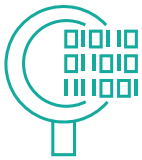
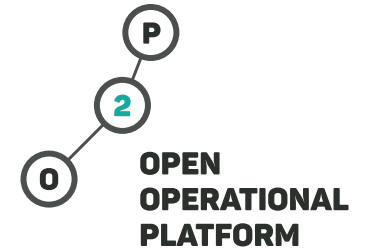
### Tight **INTEGRATION**

- / Pick cross docked or pre picked packages on the fly
- / Pack and material integrated labeling
- / Automatic ERP posting

# DIVING INTO THE ORCHESTRATION COMPONENTS

## PRODUCTION CONTROL

An advanced, real time, paperless production control infrastructure to monitor and improve shop floor processes.



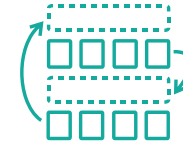
Absolute  
**ACCURACY & TRACEABILITY**



Assure  
**EFFICIENCY**



Real Time  
**PROCESS CONTROL**

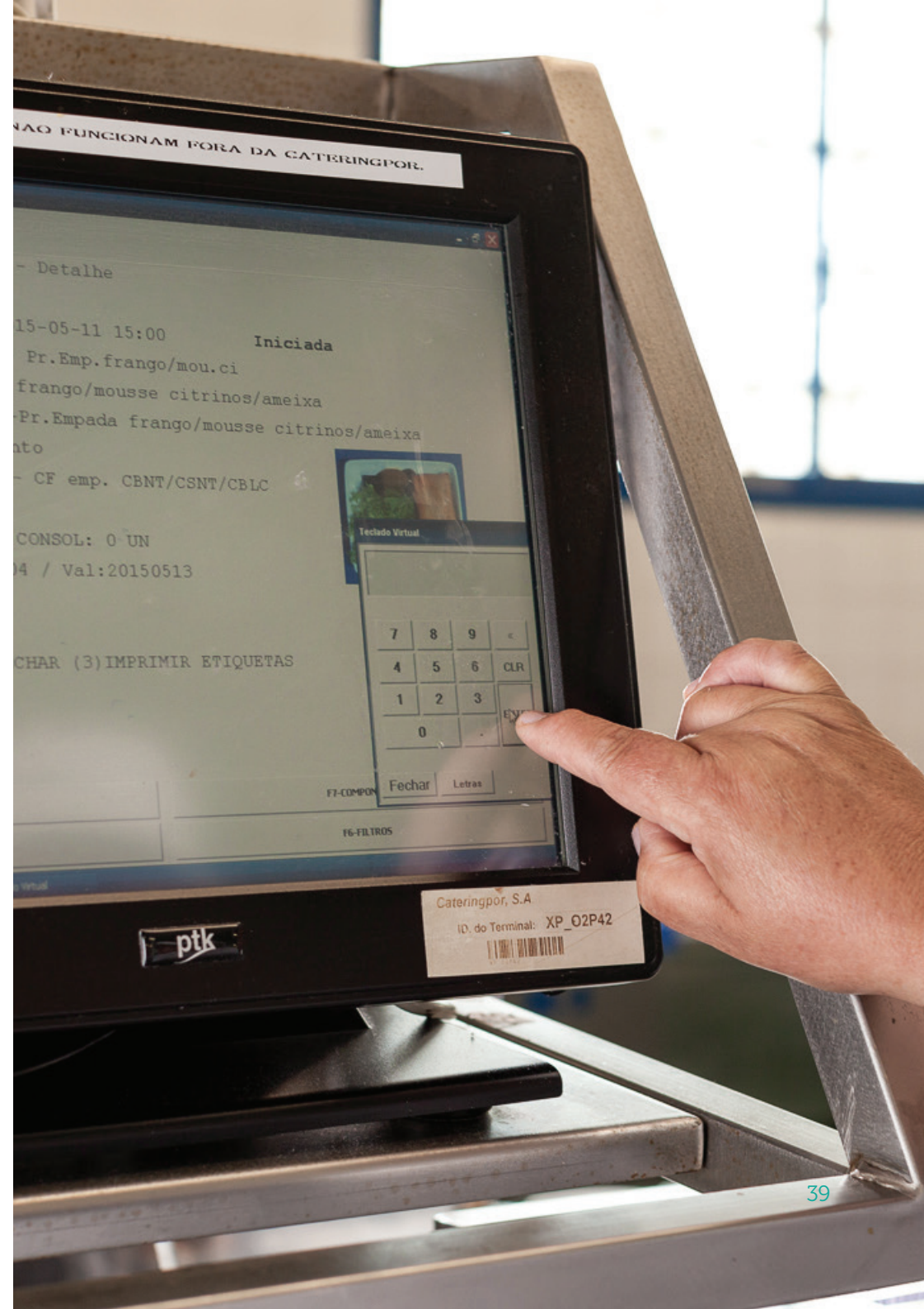


Become  
**RESPONSIVE**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## PRODUCTION CONTROL

- / Monitor your production processes across your entire facility landscape in real time, detecting deviations from planning as they happen and provide corrective measures to assure deadline fulfillment.
- / Collect critical production data on the spot, tracking resource usage, material consumption, times and quality events without any additional effort.
- / Eliminate mistakes and superfluous administrative tasks and achieve unbeatable efficiency.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## PRODUCTION CONTROL

### Real time **MONITORING**

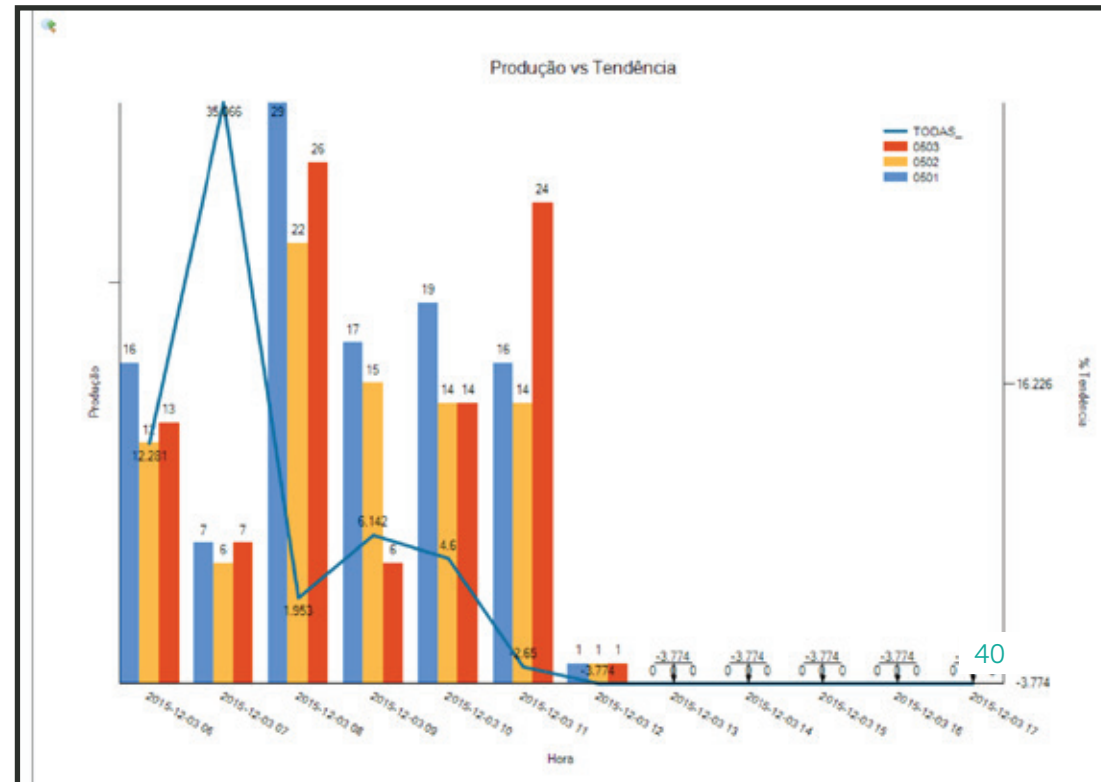
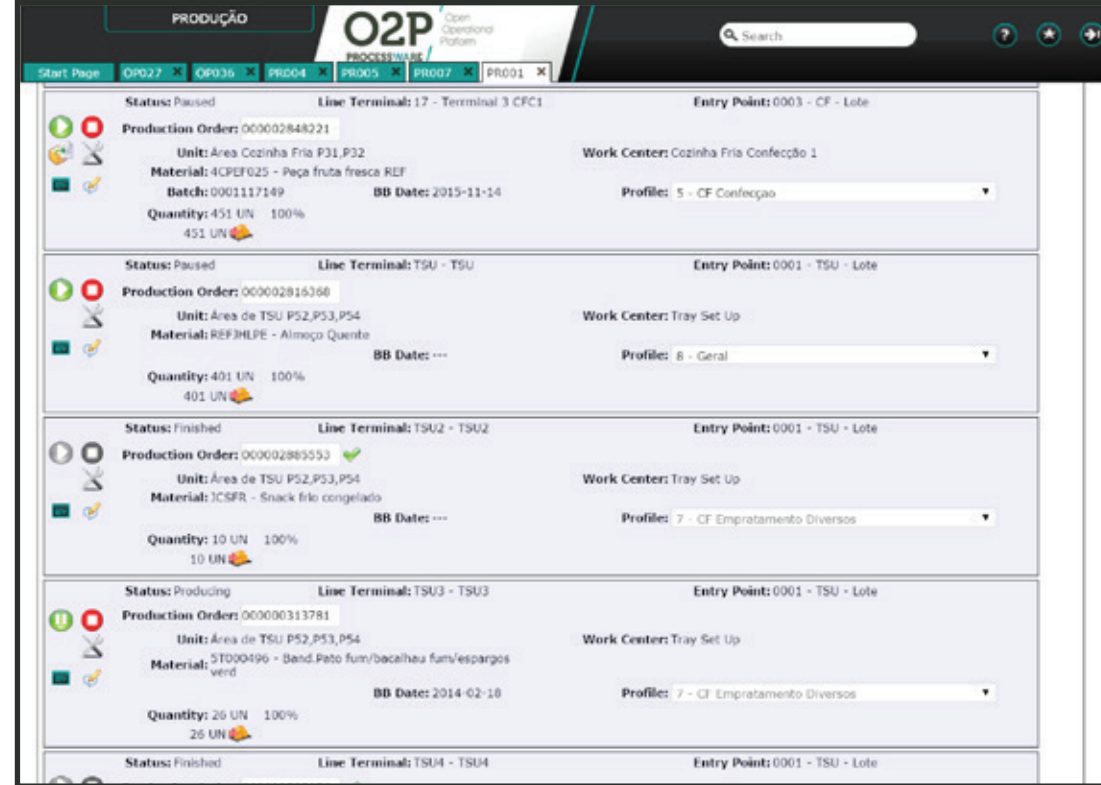
- / Track actual times and resource usage against planning
- / Track actual material consumptions and productions against planning
- / Achieve real time process control with dynamic warning detection

### On the spot **CONTROL**

- / Simple user interfaces allow paperless and efficient floor operation
- / Control all process activities without additional effort
- / Integrate sensors and line controllers for full process automation

### Complete **TRACEABILITY**

- / Track actual batches and serial numbers consumed
- / Record each activity and user for auditing purposes
- / Generate quality information for produced materials and by products



# DIVING INTO THE ORCHESTRATION COMPONENTS

## INVENTORY FORECASTING & CONTROL

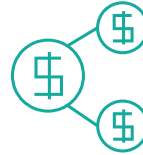
Automated inventory planning with predictive consumption and highly efficient control processes allow your organization to achieve unbeatable stock accuracy.



Automate  
**PLANNING**



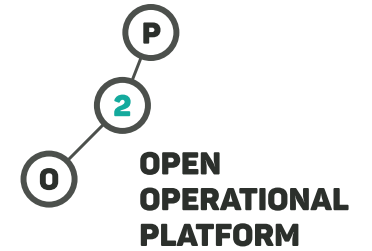
Integrate  
**CONTROL**



Reduce  
**STOCK  
COST**



Benchmark  
**STOCK  
ACCURACY**



# DIVING INTO THE ORCHESTRATION COMPONENTS

## INVENTORY FORECASTING & CONTROL

- / Integrate inventory planning and predictive consumption forecast to deliver an accurate, reliable stock forecast and reduce stock cost.
- / Dynamically monitor actual stock consumption and adjust stock forecasts on the spot, with automatic generation of counting instructions, based on user defined rules.
- / Use highly efficient stock counting interfaces and processes to achieve lightning fast, process integrated stock counts and prevent deviations from impacting your bottom line.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## INVENTORY FORECASTING & CONTROL

### Reliable **FORECASTING**

- / Rule-based, predictive stock consumption forecast
- / Dynamic stock forecasting uses predictive consumption for accuracy
- / Reduce stock cost with accurate prediction of stock levels and requirements

### Efficient **CONTROL**

- / Automated inventory document creation
- / Rule based difference detection and approval
- / On the process stock count and control

### Real time **MONITORING**

- / Each single event is used to adjust consumptions and forecasts
- / Detected differences and deviations are monitored as they happen
- / Comprehensive, easy to use, date driven stock requirement real time dashboards

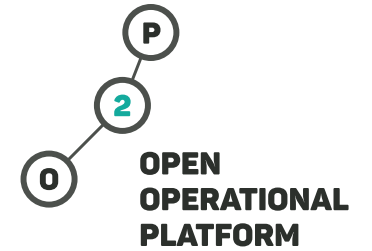
Item	2013 08-26	2013 09-02	2013 09-09	2013 09-16	2013 09-23	2013 09-30	
DPP0009 - Porco das/osso	0	15.271	15.271	0	0	0	30.542
DPP0011 - Porco entrecada.cor	0	100.905	0	103.76	0	0	204.665
DPP0012 - Porco perna s/osso	0	135.468	272.421	116.234	144.12	18.078	686.321
DPP0013 - Porco pernil	0	0	0	0	0	0	0
DPP0015 - Porco perna afiambra	3.024	116.916	167.241	2.373	17.255	24.441	330.65

Ano	Inventário	Unidade	Estado Doc.	Material	Descrição	Estado Item	Qtd Contada Total	Stock Total	Diferença Total	Diferenças
2015	0000000369	CQ	●	2AAR0019	Arroz de Lombardo (VS)	✓	10 KG	999 KG	-989 KG	⚠
2015	0000000369	CQ	●	2ZBE0004	Molho Bechamel VS	✓	10 KG	0 KG	10 KG	⚠
2015	0000000369	CQ	●	2ZMQ0052	Molho p/Filetos peixe espada(VS)	✓	10 KG	0 KG	10 KG	⚠
2015	0000000369	CQ	●	2ZMQ0057	Molho p/Almondegas c/sab.portug.(VS) N/P	✖	10 KG	999 KG	-989 KG	⚠
2015	0000000369	CQ	●	2ZPE0012	Pesto manjericao	●	50 L	0 L	50 L	⚠
2015	0000000369	CQ	●	3BBO0029	Almondegas c/sabo.portugueses (VS) N/P	●	25 KG	0 KG	25 KG	⚠
2015	0000000369	CQ	●	3BBO0030	Almondegas c/sab.portugueses UN (VS) N/P	●	60 UN	999 UN	-939 UN	⚠
2015	0000000369	CQ	●	3BEM0008	Empadão vitela c/alecrim VS	●	150 KG	0 KG	150 KG	⚠
2015	0000000369	CQ	●	3BNQ0013	Novilho pic.biol.p/emp.c/alecrim VS	●	100 KG	0 KG	100 KG	⚠
2015	0000000369	CQ	●	3GAM0001	Amêndoa laminada torrada	●	20 KG	0 KG	20 KG	⚠
2015	0000000369	CQ	●	3GCA0016	Caldo peixe confeccionado	●	50 L	0 L	50 L	⚠
2015	0000000369	CQ	●	3GSA0012	Salsicha aves picada	●	20 KG	0 KG	20	⚠
2015	0000000369	CQ	●	3JPU0001	Purê batata	●	60 KG	0 KG	60	⚠
2015	0000000369	CQ	●	3SLA0005	Lasanha de legumes VS	●	30 KG	0 KG	30 KG	⚠
2015	0000000369	CQ	●	3SMA0004	Massa fusilli cozida	●	60 KG	0 KG	60 KG	⚠
2015	0000000369	CQ	●	3SMA0079	Massa fusilli temperada c/azeite	●	60 KG	0 KG	60 KG	⚠
2015	0000000369	CQ	●	3VAC0002	Açorda tomate e coentros (VS) N/P	●	250 KG	0 KG	250 KG	⚠
2015	0000000369	CQ	●	3VAL0011	Alho francês picado	●	600 KG	0 KG	600 KG	⚠

# DIVING INTO THE ORCHESTRATION COMPONENTS

## DROP & ROUTE OPTIMIZATION

Use rules to define constraints and let O2P optimize your distribution chain in real time, adjusting automatically to demand changes



Optimize  
**MULTI-LEVEL  
PACKAGING**



Increase  
**TRUCK VOLUME  
USAGE**



Reduce  
**DROP HANDLING  
TIME**



Reduce  
**ROUTE COST &  
TIME**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## **DROP & ROUTE OPTIMIZATION**

- / Optimize each drop, aggregating multiple documents for the same customer and providing the most volume efficient way of delivering each material.
- / Plan optimal routes that take into consideration delivery time windows agreed with the customer and truck type limitations in specific geographical areas.
- / Optimize truck volume usage by improving multi customer container packing, respecting customer delivery restrictions.
- / Provide iterative, scenario-based, rule driven planning that adjusts dynamically as demand changes in real time.

# DIVING INTO THE ORCHESTRATION COMPONENTS

## DROP & ROUTE OPTIMIZATION

### Fully DYNAMIC

- / Analyze multiple scenarios to choose the optimal solution
- / Adapt in real time to demand
- / Allocate resources on the fly as demand and planning changes

### Fully OPTIMIZED

- / Optimize multi-level packing up until truck loading
- / Optimize route complying with time and material restrictions
- / Optimize all activities across the distribution process

### Fully CONFIGURABLE

- / Use rules to control route and drop optimization
- / Use rules to define packaging and delivery restrictions
- / Use rules to map information and resource allocation

O2P PRODUCTION  
Open Command Station

Start Page | SY001 | PRO01 | MD050 | MD043 | OPX40 | SY042 | OP012 | SY006 | TM004 | OPX03 | WM000

Search

Details [ Resume: #Transport Zones: 37 #Internal/External Routes: 44/111 #Drops: 1650 #P/PP: 1290/1736 ]

Selected Filters  
Warehouse: 100 Search original TZ/CT: True Planning Interval: 2016-09-01 00:00 to: 2016-09-01 23:59 Transport: BOTH

[ Refreshed: 21:42:47. # Results: 55. Search time: 00:00:03 ]

Plan	Close Time	Transport Zone	Transp. Type	ETD/ETA	#Routes	#Dlvy	#FP / Vol (M3)	#PP / Vol (M3)	Pick Ship
2016-09-01 10:00	Alvesta			06:00 / 09:03	3	14	4/4.52	15/7.97	
2016-09-01 10:00	Borlänge			04:00 / 09:20	4	11	0/0	12/4.52	
2016-09-01 10:00	Gävle			06:00 / 09:24	6	55	1/0.94	25/12.82	
2016-09-01 10:00	Munköping			06:00 / 10:13	4	14	0/0	10/3.48	
2016-09-01 10:00	Kalmar			06:00 / 06:45	1	1	0/0	1/0.49	
2016-09-01 10:00	Karlstad			06:00 / 11:06	2	18	0/0	30/10.93	
2016-09-01 10:00	Kumla			04:00 / 11:13	2	23	1/1.2	35/13.73	
2016-09-01 10:00	Linköping				0	1	0/0	0/0	
				06:00 / 08:51	4	10	0/0	14/4.25	
				06:00 / 12:01	2	34	1/0.95	43/19.81	
				06:00 / 08:32	5	12	1/1.2	20/4.05	
				06:00 / 06:52	1	2	0/0	2/0.24	
				11:50 / 03:54	1	2	0/0	2/0.24	
				11:55 / 06:59	1	14	1/1.2	20/4.05	
				06:00 / 08:57	1	2	0/0	5/3.05	
				06:00 / 22:57	10	103	12/13.91	114/62.97	
				12:00 / 21:14	1	39	1/0.94	25/12.82	
				06:00 / 14:50	10	37	1/1.02	55/23.56	

Route Map

[Without Scenario(C:32)]

Map Satellite

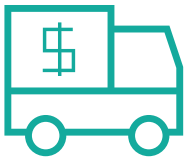
2 (3/8) GÄVLE GROSSISTVERKSAMHET  
46 (7/8) WMS GÄVLE SSP  
5 (6/8) GEFLA ÅNGKÖK AB  
14 (5/8) KÖKET LUNCH e CATERING AB SIKVIK  
Maserfrakt Distribution AB Ulton AB

Route Color	# Points	Origin	Destination	ETA	ETD	Distance (Kms)	Time	Cost	#1ZP	#1ZPP	#1ZRC	#1ZP	#1ZPP	#1ZRC
98320	8	Maserfrakt Distribution AB	Maserfrakt Distribution AB	06:00	08:33	31.22	02:33	32	0	16	0	0	6	0
	1	Maserfrakt Distribution AB	PRODUKTIONSKÖKET GÄVLE	06:00	06:00	9.78	00:10	10						
	1	PRODUKTIONSKÖKET GÄVLE	GÄVLE GROSSISTVERKSAMHET	06:10	06:25	0	00:15	0						
	1	GÄVLE GROSSISTVERKSAMHET	A e G FOOD	06:25	06:40	5.34	00:25	6						
		A e G FOOD	KÖKET LUNCH e CATERING AB											

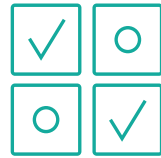
# DIVING INTO THE ORCHESTRATION COMPONENTS

## TRANSPORT FORECAST & BOOKING

Use predictive forecasts to improve transport allocation and manage bookings in an integrated distribution planning environment.



Reduce  
**TRANSPORT COSTS**



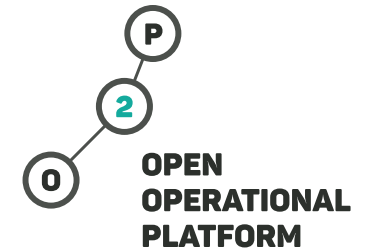
Eliminate  
**ADMINISTRATIVE TASKS**



Improve  
**WORKLOAD VISIBILITY**



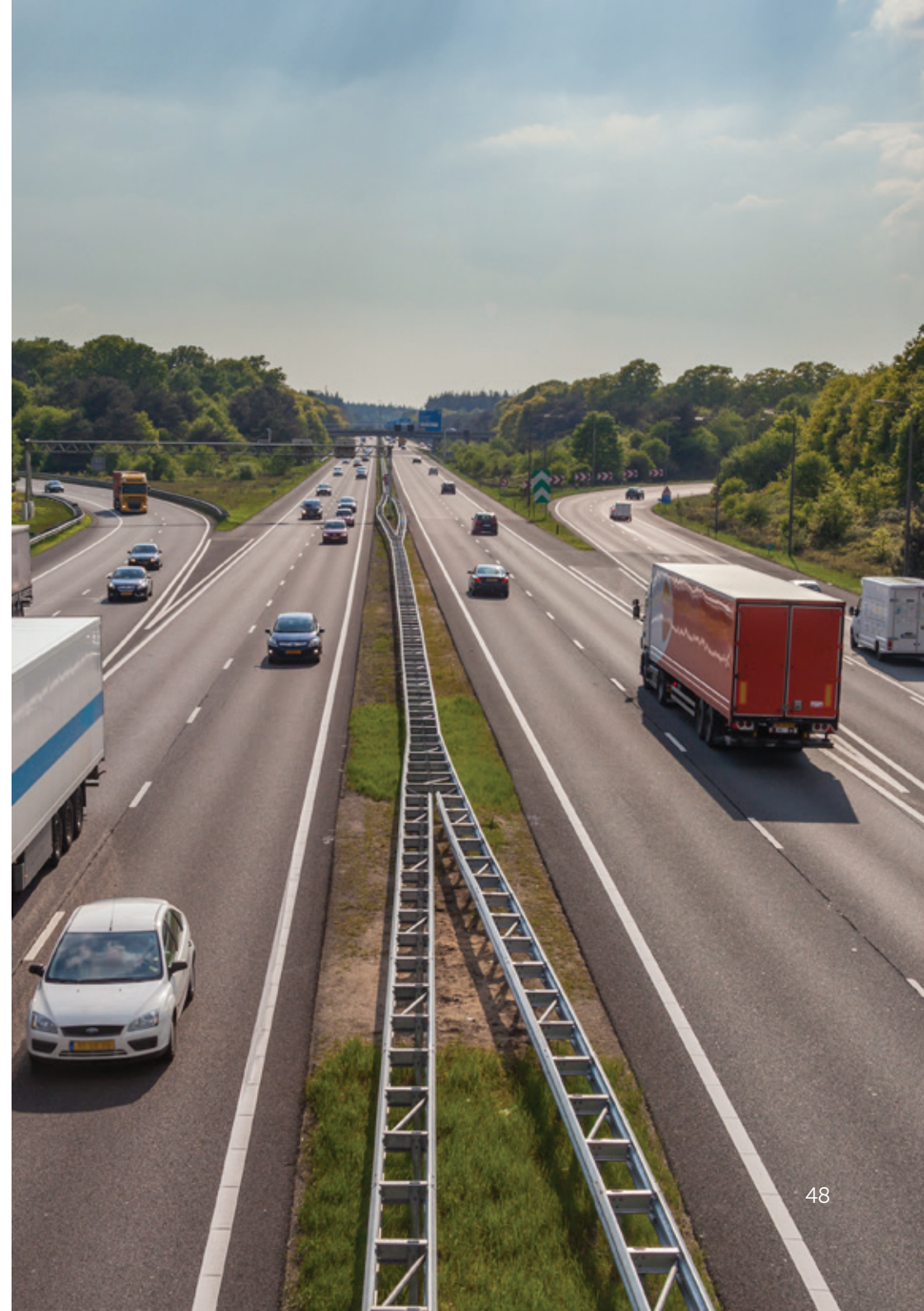
Control  
**TRANSPORT REQUESTS**



# DIVING INTO THE ORCHESTRATION COMPONENTS

## TRANSPORT FORECAST & BOOKING

- / An advanced predictive, rule-based forecast engine generates highly accurate transport load requirements in advance to allow you to plan your transport operation.
- / Load prediction is used to book transport requests and plan loading and execution effort requirements, allowing you to optimize your capacity.
- / Fully integrate your forecasts with 3rd party transport brokers and link transport requests to actual route planning.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## TRANSPORT FORECAST & BOOKING

### Advanced FORECASTING

- / Predictive, rule based forecasting for multi-tier transport requirements
- / Uses historic data, seasonal variations and rule-based prediction
- / Iterative forecast adjustment over time for increased accuracy

### Accurate PLANNING

- / Intuitive dashboards allow forecast analysis
- / Forecasts extend to multi-leg distribution networks
- / Plans truck usage considering multiple packaging possibilities

### Complete AUTOMATION

- / Automatically links to transporters and brokers for booking registration
- / Automatically integrates with route planning for booking release
- / Automatically generates loading resource requirements and schedule

	Close Time	Transport Zone	QP	Type	#Fz FP	#Fz PP	#Fz Vol	#Ch FP	#Ch PP	#Ch Vol	Tot Vol	Tot Wei	Tot POS	St
	2016-09-02 11:45	Long Haul - Strömsåskbruk	24h	TR	0	10	4.77	0	5	2.06	6.83	1903.4	5	
	2016-09-02 11:45	Ext Long Haul - Nordland	24h	TR	10	33	26.82	0	17	2.45	29.27	6666.6	17	
	2016-09-02 11:50	Ext Long Haul - Östersund	24h	TR	2	8	13.76	0	7	8.6	22.36	1941.2	13	
	2016-09-02 11:55	Ext Long Haul - Sandøyvall	24h	TR	1	9	5.03	0	6	1.59	6.62	1610.05	4	
	2016-09-02 12:00	Killy	24h	TR	19	66	62.77	0	14	6.33	69.1	14335.1	38	
	2016-09-02 12:00	Ext Long Haul - Glåve	24h	TR	2	12	6.68	2	7	4.39	14.07	4074.52	9	
	2016-09-02 12:15	Ext Long Haul - Minköping	24h	TR	1	20	11.78	0	10	0.92	12.7	2576.35	6	
	2016-09-02 12:20	Ext Long Haul - Linköping	24h	TR	5	60	35.65	0	45	13.03	49.48	13239.61	27	
	2016-09-02 13:00	Long Haul - Karlstad	24h	TR	0	11	4.95	0	3	0.41	5.37	1656.92	4	
	2016-09-02 14:00	Beljan	24h	TR	1	0	1.05	0	0	0	1.06	461.48	1	
	2016-09-02 14:00	Danmark Fly	24h	TR	2	1	2.67	0	1	0.03	2.7	387.73	3	

	Close Time	Transport Zone	QP	Type	#Fz FP	#Fz PP	#Fz Vol	#Ch FP	#Ch PP	#Ch Vol	Tot Vol	Tot Wei	Tot POS	St
	2017-01-17 14:00	Martin o Servers Umeå	24h	TR	10	1	12.11	0	4	0.92	13.03	2588.63	8	
	2017-01-17 14:00	Freezing Food	24h	TR	36	2	37.73	0	0	0	37.73	12648.11	20	
	2017-01-17 14:00	Ice Västerås	24h	TR	64	0	71.48	0	0	0	71.48	19828.8	38	
	2017-01-17 14:00	Svensk Cater	24h	TR	20	1	24.19	0	0	0	24.19	2002.42	13	

Close Time	Transport Zone	QP	Type	#R	#Fz FP	#Fz PP	#Fz RC	#Fz Vol	#Fz POS	#Ch FP	#Ch PP	#Ch RC	#Ch Vol	#Ch POS	Tot Vol	Tot Wei	Tot POS
2017-01-17 14:00	Dagab Jordbrn	24h	TR	3	151	0	0	173.83	92	0	0	0	0	0	173.83	30366.44	92
Totalizers				3	151	0	0	173.83	92	0	0	0	0	0	173.83	30366.44	92

Target	Book. Ref.	Transporter	#Fz FP	#Fz PP	#Fz RC	#Fz Vol	#Fz POS	#Ch FP	#Ch PP	#Ch RC	#Ch Vol	#Ch POS	Tot Vol	Tot Wei	Tot POS
Dagab Jordbrn	0	0	66	0	0	76.24	41	0	0	0	0	0	76.24	13394.06	41
	2	2	85	0	0	97.58	52	0	0	0	0	0	97.58	16972.38	52
	17961	XR Logistik AI	85	0	0	97.58	52	0	0	0	0	0	97.58	16972.38	52
	18020	GÖTENE KYLT	66	0	0	76.24	41	0	0	0	0	0	76.24	13394.06	41

	Close Time	Transport Zone	QP	Type	#Fz FP	#Fz PP	#Fz Vol	#Ch FP	#Ch PP	#Ch Vol	Tot Vol	Tot Wei	Tot POS	St
	2017-01-17 17:30	Long Haul - Uppsala	24h	TR	4	44	27.16	1	50	19.19	46.35	9157.51	26	
	2017-01-17 17:45	Long Haul - Arlanda	24h	TR	18	13	28.16	1	5	2.12	30.28	5838.88	17	
	2017-01-17 18:00	Long Haul - Skövde 1	24h	TR	1	41	19.38	3	33	13.57	32.95	8838.34	19	
	2017-01-17 18:30	Long Haul - Skövde 2	24h	TR	36	79	79.82	4	73	31.29	111.11	27070.01	60	
	2017-01-17 20:30	Long Haul - Göteborg	24h	TR	3	35	24.06	0	24	6.38	30.46	7210.19	17	

# DIVING INTO THE ORCHESTRATION COMPONENTS

## GATE & DOCK MANAGEMENT

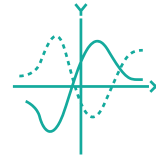
Easy and intuitive tools to manage highly intensive yards, with real time tracking and on the fly resource allocation adjustment.



Optimize  
**GATE ALLOCATION**



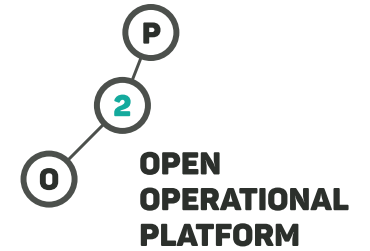
Automate  
**ACTIVITY SCHEDULING**



Adapt To  
**OPERATIONAL DEVIATIONS**



Assure  
**TRACEABILITY & MONITORING**



# DIVING INTO THE ORCHESTRATION COMPONENTS

## GATE & DOCK MANAGEMENT

- / A rule-based resource allocation, activity scheduling engine that links automatically to transport booking and automates gate assignment and allocation.
- / Use graphical, intuitive dashboards to monitor gate allocation over time and track planned versus actual execution. Drill down to relevant operation information and get visual information for overall operation status.
- / Split loads and unloads across multiple gates automatically or manually, to meet actual operational requirements.
- / Activity scheduling and resource allocation adapts in real time to actual activity execution, adjusting the overall operation to operational irregularities automatically.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## GATE & DOCK MANAGEMENT

### INTELLIGENT Operation

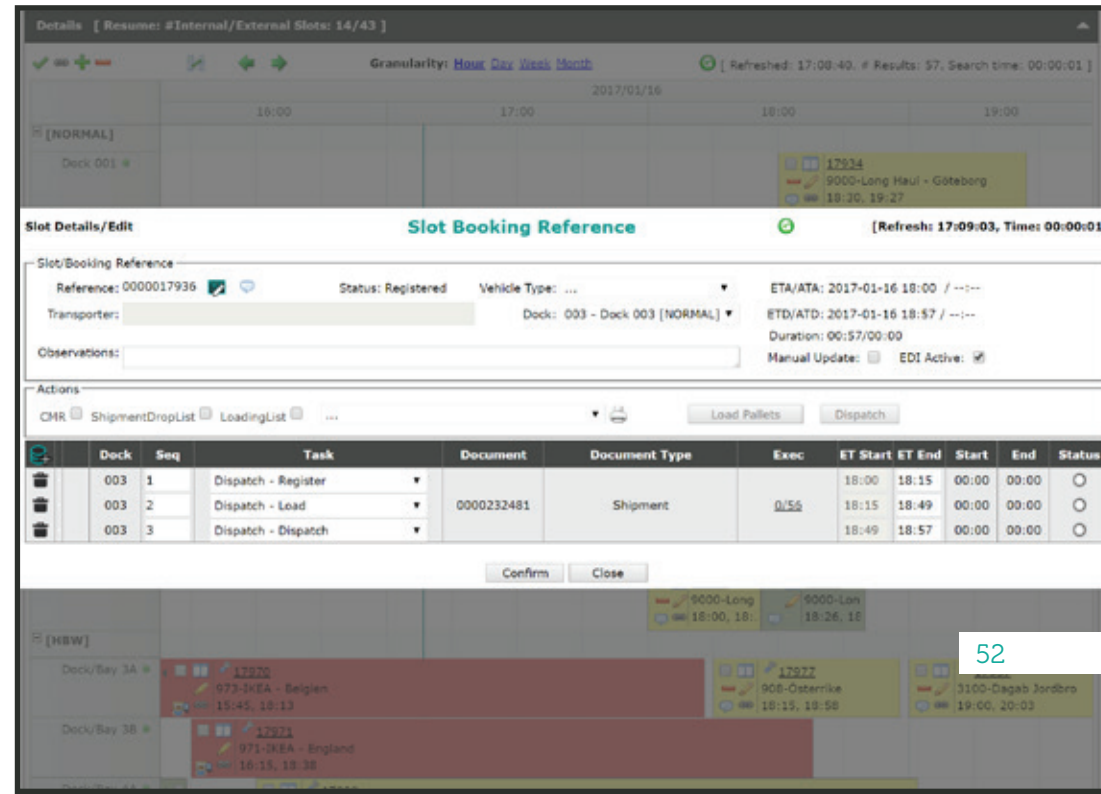
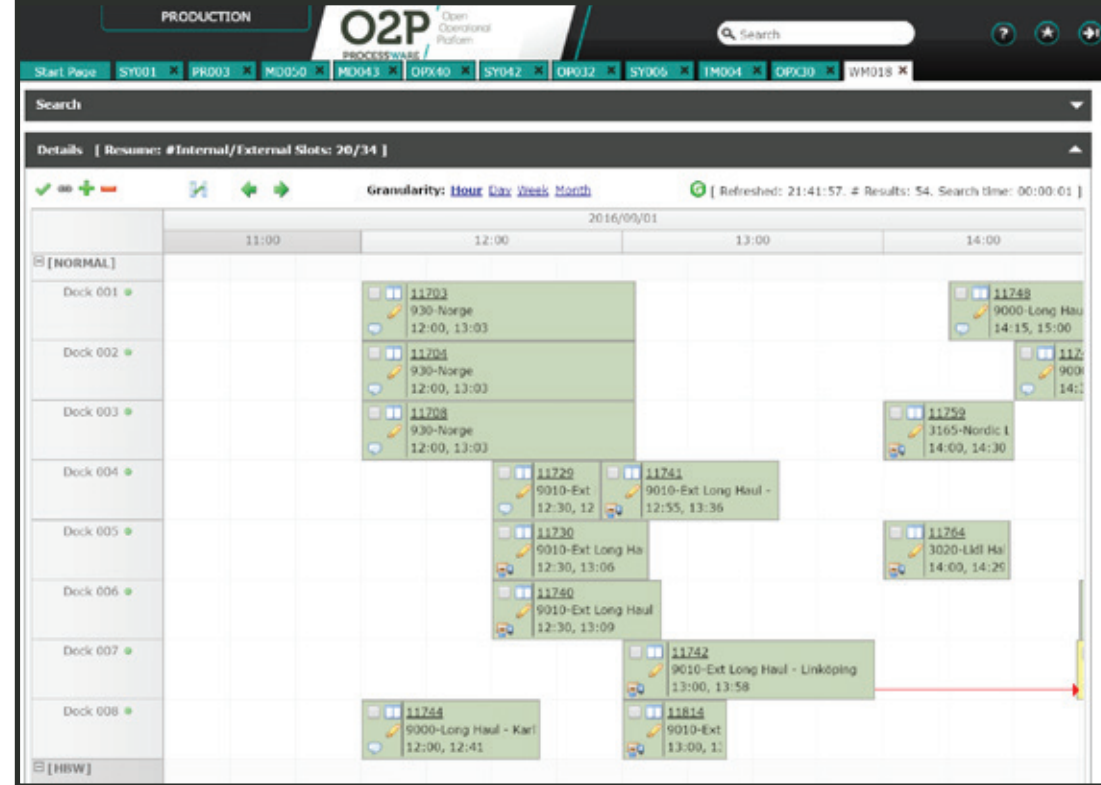
- / Plan activities and allocate resources based on rules
- / Adjust planning to actual load requirements and capacity
- / Adapt planning automatically as the operation deviates

### Integrated PLANNING

- / Links to transport booking for loading forecasts
- / Links to inbound control for unloading forecasts
- / Integrates with route planning for actual operation monitoring

### Intuitive MONITORING

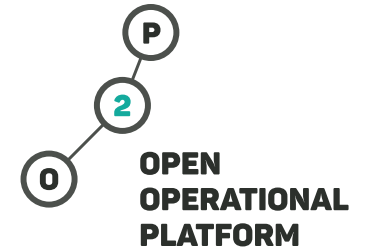
- / Graphical user interfaces give immediate, clear information
- / Get easy visual information about warnings and deviations
- / Drill down intuitively for detailed information and operation forensics



# DIVING INTO THE ORCHESTRATION COMPONENTS

## YARD ACTIVITY CONTROL

Monitor, track and control all yard activities in real time, assuring timely and accurate activity execution.



Eliminate  
**ADMINISTRATIVE TASKS**



Control  
**ACCESSES AND ACTIVITIES**



Eliminate  
**LOADING ERRORS & MISSES**



Assure  
**UNLOADING ACCURACY**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## YARD ACTIVITY CONTROL

- / Use security-based or self-registering strategies for transporter registration and access control, with visual support for route guidance.
- / Trigger automated loading and resource adjustment based on actual transporter access acceptance.
- / Track each single load activity, assuring that no pallets are missed or wrongly loaded. Control each unload operation, assuring that only authorized goods are accepted.
- / Eliminate all administrative follow up tasks and track each single driver on premises, with real time performance evaluation.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## YARD ACTIVITY CONTROL

### Complete **CONTROL**

- / Simple and easy interfaces to execute each yard activity
- / Intuitive self registration and access guidance
- / Guarantee access only for authorized transporters

### Full **ACCURACY**

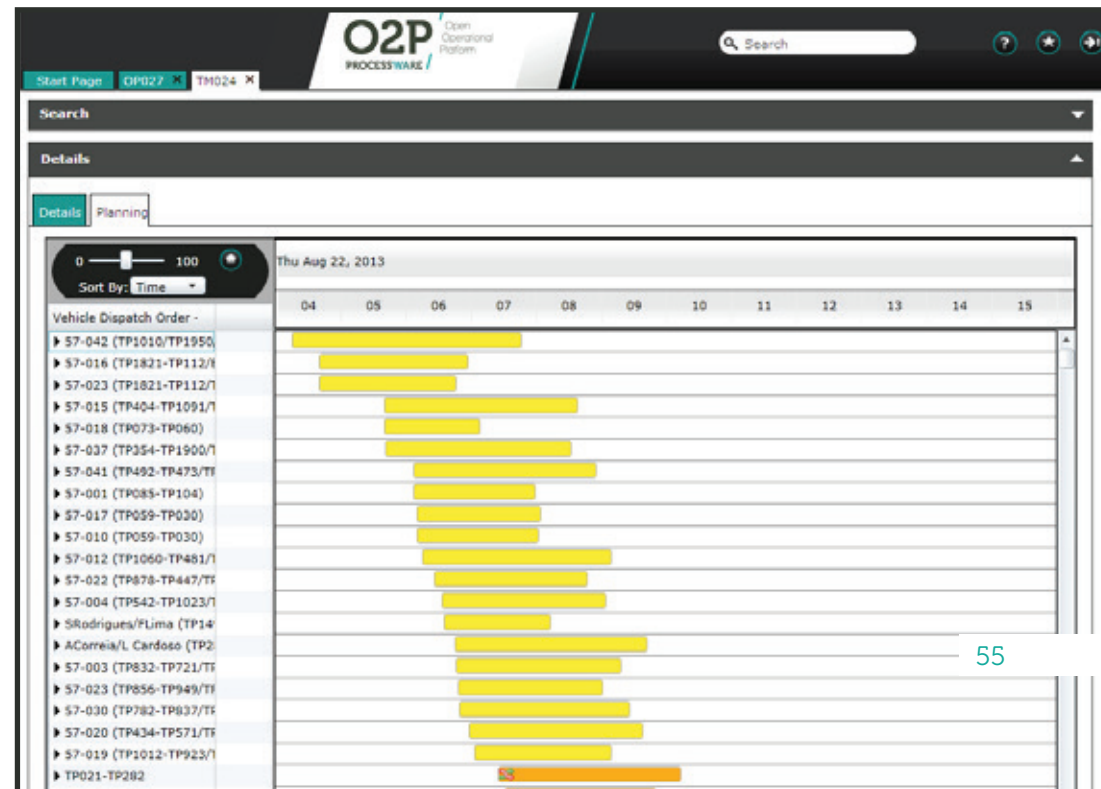
- / Complete load accuracy, without missing or mixed pallets
- / Unload only and all authorized materials
- / Assure exit only when all activities have been properly executed

### Assured **TRACEABILITY**

- / Track each activity of each truck in real time
- / Monitor pending activity items and ongoing times per truck
- / Track each pallet in each operation

The screenshot displays the O2P PROCESSWARE interface with a search bar at the top. Below the search bar, there are tabs for 'Details' and 'Planning'. A table lists various flight activities with columns for Flight, Aircraft, ST, ET, Stand, Type, Station/Dock, Truck, Team, Galley, EI, and EF. The table includes data for flights such as TP 1602, TP 1843, TP 112, TP 1821, BA 499, TP 1091, TP 404, TP 1096, TP 473, TP 492, TP 447, and TP 878.

Flight	Aircraft	ST	ET	Stand	Type	Station/Dock	Truck	Team	Galley	EI	EF
TP 1602	TTA	07:00	06:50		319	FNC					
TP 1843	TTA	08:00	08:00	117	319	HOR	005 57-042	[Team 05] ACorreia/L Cardoso	Frente	04:15	07:46
TP 112	TOJ	06:00	05:19		332	MIA					
TP 1821	TOJ	08:00	08:00	503	332	TER	004 57-016	[Team 08] SRodrigues/FLima	Frente	04:40	06:57
BA 499	UUY	08:10	08:10	141	320	LHR	004 57-016	[Team 08] SRodrigues/FLima	Frente	04:40	06:57
TP 1091	TPJ	07:15	07:15		ER4	VLC					
TP 404	TPJ	08:15	08:15	224	ER4	MRS	005 57-015	[Team 09] JNeves/V Santos	Frente	05:40	08:38
TP 1096	TPI	08:25	08:25	703	ER4	VLC	004 57-037	[Team 11] A Sousa/J Araújo	Frente	05:41	08:32
TP 473	TPD	07:35	07:35		100	LYS					
TP 492	TPD	08:35	08:35	416	100	TLS	006 57-041	[Team 13] J Rocha/Carlos Teles	Frente	06:07	08:55
TP 447	TNS	07:55	07:32	115	320	ORY					
TP 878	TNS	08:35	08:35	115	320	VCE	004 57-022	[Team 16] J Morgado/B Batista	Frente	06:26	08:47



# DIVING INTO THE ORCHESTRATION COMPONENTS

## DOCUMENT ISSUING CONTROL

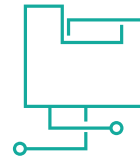
A fully configurable, rule-based, template oriented document generation capability to handle the most demanding requirements



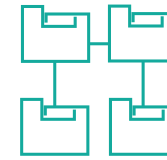
Eliminate  
**HUMAN INTERVENTION**



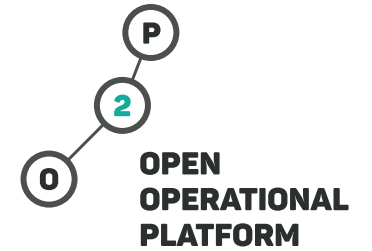
Assure  
**DOCUMENT CORRECTNESS**



Automate  
**DOCUMENT DETERMINATION**



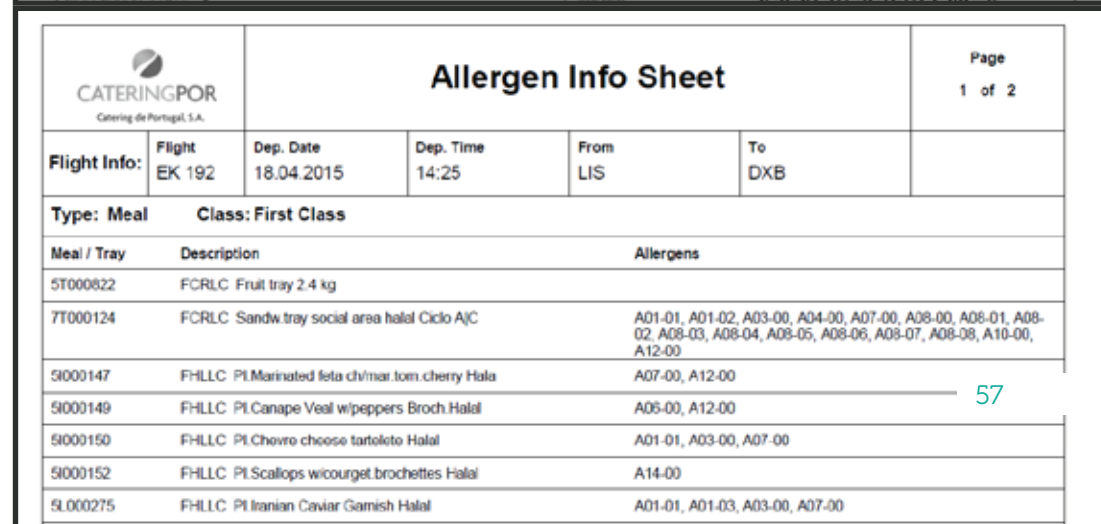
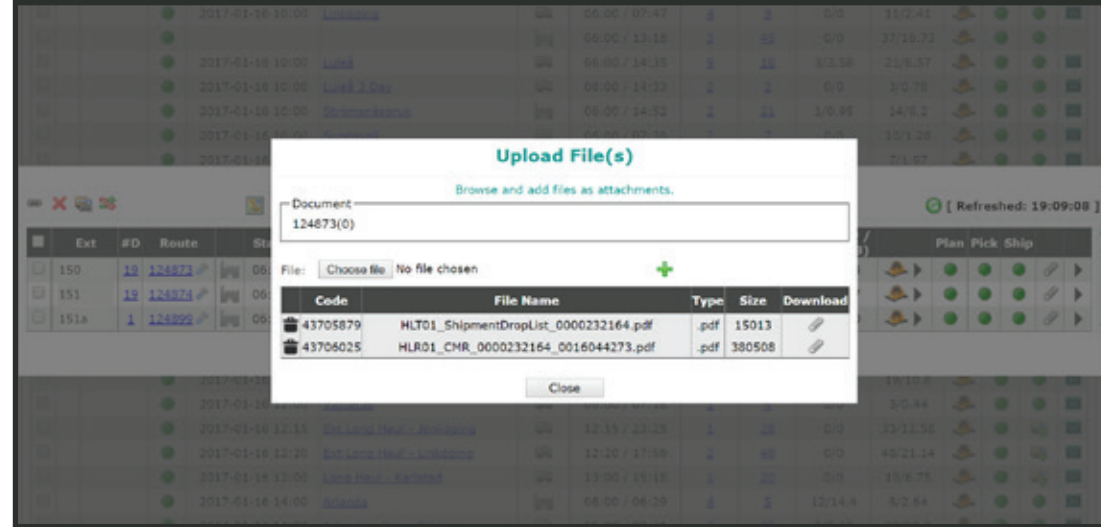
Provide  
**COMPLETE DOCUMENTATION**



# DIVING INTO THE ORCHESTRATION COMPONENTS

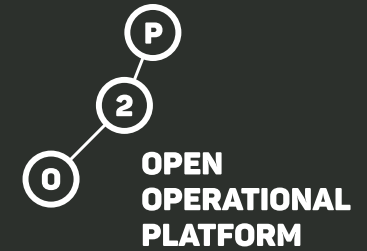
## DOCUMENT ISSUING CONTROL

- / A completely configurable document generation process that uses rules to determine which documents to generate and what information to include in them, based on actual loading and delivery conditions.
- / Use and configure templates to automatically generate from CMRs to route detailed drop planning, including legal and digitally signed electronic documents to customers.
- / Remove all human intervention in document generation and issuing, making it a fully automated, error free process.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## DOCUMENT ISSUING CONTROL



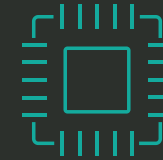
### Completely **AUTOMATED**

- / No human action involved, all reports are generated automatically
- / Rules define what documents to generate
- / Information is inferred from the process and adjusted using rules



### Absolutely **SYNCHRONIZED**

- / Generate documents as an activity in the process
- / Use real time events to trigger the document generation process
- / Define the actual documents to generate based on each process



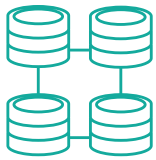
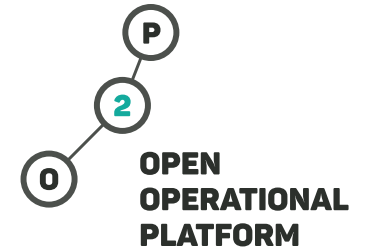
### Fully **ELECTRONIC**

- / Generate and distribute documents electronically
- / Comply with legal requirements and sign documents digitally
- / Support your customers and advise them electronically of incoming goods

# DIVING INTO THE ORCHESTRATION COMPONENTS

## ERP INTEGRATION

Completely electronic, totally automated and focused on standardization to keep you safe and flexible.



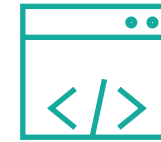
Synchronize  
**MASTER DATA**



Get  
**RELEVANT DOCUMENTS**



Use  
**BEST PRACTICES**



Assure  
**STANDARDIZATION**

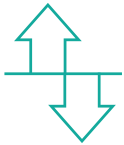
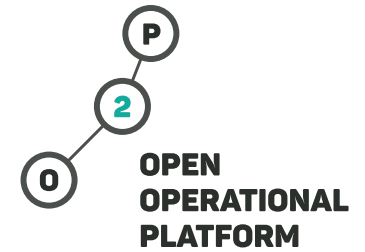
# DIVING INTO THE ORCHESTRATION COMPONENTS

## ERP INTEGRATION

- / Highly responsive and scalable, handles massive volumes of information and assures transaction level synchronization of all relevant data.
- / Uses standard technologies, approved and certified by ERP manufacturers, based on electronic data communication with full traceability.
- / Assures both upload and download of relevant information, using rules and configuration to provide the required level of flexibility while processing or generating ERP related data.

# DIVING INTO THE ORCHESTRATION COMPONENTS

## ERP INTEGRATION



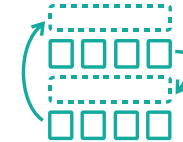
### Highly **RESPONSIVE**

- / Supports synchronous and asynchronous models
- / Handles massive volumes without performance degradation
- / Assures both inbound as outbound flows



### Completely **STANDARD**

- / Uses ERP certified technologies
- / Applies best practices for monitoring and control
- / Takes advantage of existing ERP functionality



### Incredibly **FLEXIBLE**

- / Configure outbound processing for master data and documents
- / Configure transaction execution for inbound ERP update
- / Monitor in real time integration processing

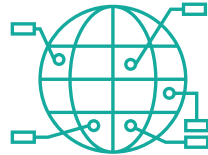
# DIVING INTO THE ORCHESTRATION COMPONENTS

## DEVICE INTEGRATION

Integrate any electronic device in your processes and capture relevant information in real time to dynamically drive optimal responses and actions.



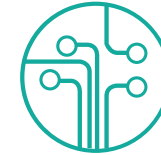
Collect  
**SENSOR &  
QUALITY DATA**



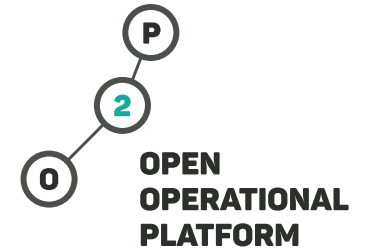
Capture  
**EVENTS &  
INFORMATION**



Track  
**MATERIAL &  
EQUIPMENT**



Use  
**OPEN & STANDARD  
TECHNOLOGIES**



# DIVING INTO THE ORCHESTRATION COMPONENTS

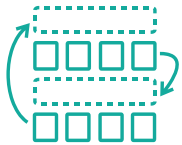
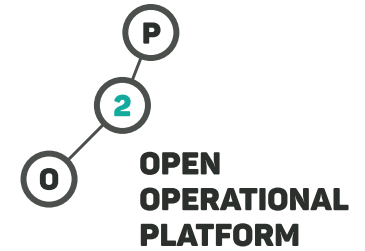
## DEVICE INTEGRATION

- / Connect your processes in real time to your shop floor monitoring and controlling devices, automating data collection and event handling.
- / Capture essential information effortlessly and accurately, using it to optimize your processes on the fly.
- / Use any kind of device, from automation controllers to RFID tags, from sensors to actuators, from line controllers to image recognition equipment, to collect and use accurate, useful, real time data.
- / Make your processes highly responsive, as they react in real time to real data and events, while getting on the spot notifications about deviations and incidents.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## DEVICE INTEGRATION



### Really **RESPONSIVE**

- / Automate process control and task execution
- / Optimize responses and decisions in real time with accurate information
- / Get alerts and notifications as physical conditions deviate from plan



### **OPEN** Integration

- / Uses standard and open technologies
- / Fully vendor and hardware independent
- / Integrates seamlessly in your process monitoring and control



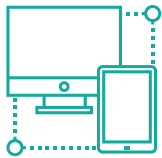
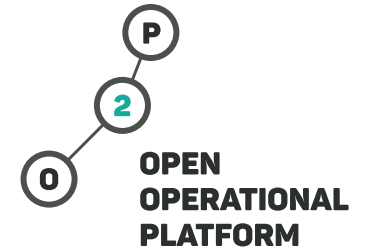
### Totally **CONNECTED**

- / Integrate any kind of electronic device
- / Interact with intelligent controllers and sensors
- / Collect error free data and events in real time

# DIVING INTO THE ORCHESTRATION COMPONENTS

## MOBILE OPERATION

Eliminate tasks and provide users with easy, intuitive tools to perform efficiently and accurately



Provide  
**INFORMATION  
WHERE IT MATTERS**



Collect  
**ACCURATE  
DATA**



Handle  
**EXCEPTIONS  
ON THE SPOT**



Reduce  
**TASK TIME &  
EFFORT**

# DIVING INTO THE ORCHESTRATION COMPONENTS

## MOBILE OPERATION

- / Provide users with **intuitive and easy interfaces** on any kind of mobile device to increase their productivity and accuracy.
- / **Collect data accurately** and in real time from users, as they perform the required process tasks, providing valuable information for process monitoring.
- / **Handle exceptions on the spot**, providing relevant information for the user as the incident occurs, effectively preventing errors from propagating to other tasks and processes.
- / Make your users **more efficient by reducing task effort** and helping them with the appropriate information on the right time.



# DIVING INTO THE ORCHESTRATION COMPONENTS

## MOBILE OPERATION

### Interfaces made to be **USED**

- / Simple and intuitive user interfaces
- / Available in any kind of mobile device
- / Provide useful information at the right time on the spot

### Operations made **EASY**

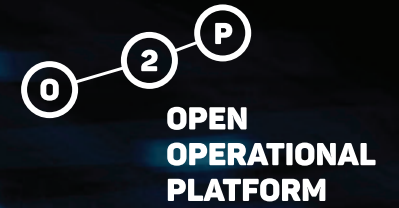
- / Real time feedback for the user on the job
- / Perform only the required tasks and operations
- / Reduce the time required to complete the task

### Processes made to be **ACCURATE**

- / Accurate and validated data collection, on the spot
- / Report exceptions on the job, preventing error propagation
- / Use real time accurate data and events from users to optimize the process



# A CLOSER LOOK AT THE RESULTS



# A CLOSER LOOK AT THE RESULTS

*Scaling up a world class food manufacturing operation*

## THE CUSTOMER

Gunnar Dafgård AB is the frozen food product manufacturing and distribution Nordic market leader and it is the largest privately owned company in Sweden. It employs over 1200 people and has a turnover in excess of 250 million Euro.

## THE CHALLENGE

Gunnar Dafgård AB is committed to providing the most innovating food products with unsurpassable quality, by continuously investing in both research and production efficiency. It's quality and reliability has granted Dafgård the trust from world class organizations like IKEA and their constant investment, along its continued growth, as prompted production capacity to grow in excess of 40% per year. As production capacity grows, so the internal requirements for material control get more complex and require ever greater levels of efficiency. As a result, integrating a 36000 pallet fully automated high bay warehouse in the global material flow of the factory without disrupting neither production nor distribution and providing the full optimization of the underlying flows is a massive challenge.

**PROCESSWARE**  
[www.processwaregroup.com](http://www.processwaregroup.com)



# A CLOSER LOOK AT THE RESULTS

## THE SOLUTION

Gunnar Dafgård AB chose to implement Processware Material Control Solution, tightly integrated with their corporate SAP ERP, their fully automated high bay warehouse and multiple production and packaging line industrial equipment, to dynamically optimize the material control processes, reduce the overall planning and execution cycle, reduce administrative costs and increase service level quality.

## THE RESULTS

After fully implementing the Material Control Solution, Gunnar Dafgård AB was able to achieve:

60%

Increase in  
warehouse  
throughput

100%

Accuracy

80%

Reduction in  
administrative  
tasks

99,9%

Internal  
service level

**PROCESSWARE**

[www.processwaregroup.com](http://www.processwaregroup.com)



# A CLOSER LOOK AT THE RESULTS

*Deliver better service with less cost while operation increases*

## THE CUSTOMER

Cateringpor, a joint venture between LSG and TAP, is the leading airline catering supplier in Portugal. Cateringpor operates a high-volume, multi-kitchen, airline-catering operation providing catering services and logistical support connected to passenger aircraft deliveries for all major airlines - serving over 200 flights and up to 50,000 in-flight meals per day

## THE CHALLENGE

Cateringpor services and handles over 95% of all flights in Lisbon airport, where it must assure daily, on time, error free delivery of more than 250.000+ items and 50.000 meals. Cateringpor is also estimating a yearly growth rate of 30%, based on customer flight and passenger volume increase, while every month each customer requests service modifications to better welcome passengers onboard their flights. From Halal religious requirements to 1st class top level service requirements, Cateringpor must be prepared to deliver top level quality to its customers while reducing operation costs.

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# A CLOSER LOOK AT THE RESULTS

## THE SOLUTION

Cateringpor chose to implement Processware Airline Catering Industry Solution, tightly integrated with their customer systems, to dynamically optimize the entire planning, preparation and delivery processes, aiming at reducing delays and complaints, reduce administrative costs and increase service level quality.

## THE RESULTS

After fully implementing the Material Control Solution, Cateringpor was able to achieve:

40%

Reduction  
in accepted  
complaints

80%

Reduction  
in service  
planning cost

70%

Reduction  
in operations  
control cost

99.9%

Flight  
preparation  
accuracy

99.9%

Service level  
compliance

100%

Traceability

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**CATERINGPOR**

Catering de Portugal S A

# A CLOSER LOOK AT THE RESULTS

*Extreme traceability and efficiency in aircraft manufacturing*

## THE CUSTOMER

Embraer - Empresa Brasileira de Aeronáutica S.A. is one of the world's leading aerospace companies and ranks today as the world's 3rd largest civil aircraft manufacturer. With over 40 years of experience, Embraer has produced over 4000 aircraft that operate in over 60 countries.

## THE CHALLENGE

As a global aerospace company, Embraer's industrial processes are subject to extreme regulations, where security and traceability rank first in the requirements list. Along with this responsibility, Embraer's vision to continuously deliver innovative aircraft has prompted them to grow sustainably, going from less than 50 aircraft per year to more than 500 aircraft per year, expanding from small private jets to 90+ passenger regional jets. This growth has challenged the logistic and supply chain organization to reduce operational costs and shorten process cycles while maintaining the extreme traceability requirements that support the business.

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# A CLOSER LOOK AT THE RESULTS



## THE SOLUTION

Embraer chose to implement Processware Material Control Solution, covering all material flows in all production sites around the world, from goods receipt to assembly line delivery, including quality control, customer spare parts shipping and inter site transfers. Traceability down to the serial number is constantly assured, without hampering operator productivity, and a transparent seamless integration to the corporate ERP (SAP) is in place to assure business process and data consistency.

## THE RESULTS

After fully implementing the Material Control Solution, Embraer was able to achieve:

80%  
Reduction in  
goods receipt  
cycle

50%  
Reduction in  
picking time

90%  
Reduction in  
administrative  
tasks

100%  
Traceability  
and stock  
accuracy





# OPEN OPERATIONAL PLATFORM

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