

Quintiq Solution Presentation: Rich Products January 06, 2016

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Agenda



Quintia	overview
Quintiq	

Focus area: detailed scheduling

Summary of current challenges

Demonstration

Optimization in scheduling/references

Q&A

Lunch Break

IT Discussion

Next steps discussion/wrap up



Quintiq founding vision





Develop a single application capable of solving any type of planning puzzle



Company profile

Focus

Quintiq is a leading software company focused on providing supply chain planning and optimization software

Facts

- Founded in 1997
- Over 1,000 employees
- In use in over 80 countries worldwide
- Fastest-growing supply chain planning and optimization company in the world

Partners

Powerful international implementation partner network



Recognition



Supply chain technology maturation



Quintiq software vision







- Each company is unique
- Having a model that is a 100%-fit is essential
- Covering all planning levels in appropriate detail



Visualization and interaction

- Individual visualization is essential to support the users in making informed decisions
- Interaction must be direct, fast and intuitive





- Combination of algorithms from the Quintiq Optimization Suite
- Taking into account all circumstances
- Developing planning
 proposals
- The planner defines criteria and makes the decisions
- Generate all necessary information and visualize the planning



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Quintiq capability overview







Solution map for Manufacturing

	Source	Make	Distribute	Sell	Employ
Strategic	 Supply chain design Subcontracting 	Strategic	planning		
	 Assumption based scenari Workflow management 	o management	OP • (Financial) reporting and a	analysis	Workforce planning Staffing levels
S&OP	 Sourcing contracts 	Supply planning Supply planning Capacity planning Campaign management Product mix optimization 	• Inventory planning	Demand planning Statistical forecasting Collaborative forecasting Forecast enrichment Demand sensing and shaping 	
MPS	MRP • Material replenishment – (full) • Purchase order management	Master production and o Material reservation Material replenishment Capacity planning Campaign planning Inventory replenishment	distribution scheduling Shipment planning 	Demand management Order promising (ATP/CTP/PTP) Forecast consumption 	 Shift requirement planning
Detailed scheduling		Production scheduling Sequencing Campaign scheduling Batch scheduling Material reservation 	Transport scheduling Finished goods reservation Route building		 Generate employee schedules Assign activities

UINTIQ

Overview main planning decisions – integrated planning





Why detailed scheduling is critical to Rich Products

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You are capacity constrained, with bottlenecks on your mixing resources and filling lines

You have an additional 8 – 10 % revenue potential each year.

Your options are to either invest in capacity or squeeze more out of existing capacity.

Knowing you have 1000 hours of extra capacity, use Quintiq detailed scheduling to increase throughput on existing lines





Sequencing What-if scenarios Alternate routings **Constrained Resources** Feedback Loop Reliability Unpredictability **Bottlenecks** Labor planning Material Planning Storage tanks Campaigns Quality Planned and unplanned downtime Adherence **Delivery performance** Liquid and pre-whip **Cleaning matrix On-time operations**



Detailed scheduling



Scheduling work orders in the right sequence taking into account all relevant constraints. Integrated solution ensures visibility across various operations upstream and downstream, assuring that schedules are in sync with each other.

Main impact

- Yield & efficiency
- Manage disruptions
- Delivery performance
- Fulfillment

Key features

- Manual and automatic schedule creation
- Visibility across the supply chain
- Decision support on complex rules
- Immediate display of consequences from Planning decisions





Scheduler objectives









Increase productivity

- Increase resource efficiency, for example by minimizing setups or idle time
- Increase batch utilization

Increase fulfillment and delivery performance

- Make sure orders are produced on time by scheduling operations according to their due dates
- Ensure adherence to MPS plan

Produce to stock target levels and lower inventory

- Produce to stock target levels
- Decrease inventories by producing the right amount
- Decrease waste by assigning matching material to orders



Overview of main Scheduler concepts



Sequencing	 Determining sequence of production steps on a resource, including mixing systems, tank farms, filling lines, pelletizers, etc.
Material flow	 Sequencing multiple successive production steps of an order, accounting for specified resource connections
Batches	 Combining operations to be processed simultaneously, and allow to feed into continuous flowing resources.
Campaigns	 Grouping similar operations in the sequence to reduce change over times and cleaning times
Material allocation	 Finding the matching piece of material for an order



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Challenge 1



Challenge: How do I meet increasing demand with the same resources while effectively balancing production costs, capacity utilization, inventory targets and fulfillment?

Example: Rich Products is operating at or near max capacity. You recognize that with better sequencing of operations on the Batching (Mixing) Systems and Filling Lines, you could add an additional 1,000 hours of capacity annually. This is of critical importance because this lost capacity translates to an 8-10% decrease in sales.





Daily capacity planning

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Challenge 2



Challenge: How do I consider all of the constraints into my schedule? (ex: labor, changeovers, etc.)?

Example: You have 8 filling lines, but your labor constraints only allow you to run 7 at one time. Which 7 should you run for this shift, next shift, and beyond? You also have changeover rules and other factors that must be considered when generating your detailed schedule.







Constraint based optimization







Challenge 3



Challenge: How do I react to day of operations changes? What is the best way to re-sequence based on occurrences such as unplanned downtime?

Example: Unexpected events and disruptions occur during production. This may include unplanned downtime, operations running late (or early), etc. Today, Rich Products has difficulty re-planning to account for these disruptions.



Re-optimize to manage unplanned down time and disruptions

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© 2015 Quintiq	

Pushing and pulling orders





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	Quintiq overview
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-	Q&A
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Generate capacity plan based upon rolling forecast

- Show safety stock and inventory targets
- Show optimizer parameters
- Run scenarios
 - Scenario 1 Optimize fulfillment and inventory
 - Scenario 2 Optimize profitability
 - Scenario 3 Optimize with both fulfillment top priority
 - Scenario 4 Optimize with both –profitability top priority
- Compare scenarios



Create the detailed schedule and work order sequencing

- Planning control of work orders (manual planning)
- KPI based planning decisions
- Automatic propagation of schedule changes
- Replan late orders
- Bring in new orders
- Auto Assignment
- Unplanned maintenance and resource calendars
- Improve schedule / Optimize sequence across all resources
- Simulation scenarios
- Reporting and Analytics





Demo summary: Meet increasing demand with the same resources while effectively balancing production costs, capacity utilization, inventory targets and fulfillment

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What If analysis and scenario comparison

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Demo summary: Adjusted constraints and optimization parameters in varying scenarios and performed what of analysis. Then compared and analyzed the results of these multiple scenarios.

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Create a schedule



Demo summary: Your demand, in the form of work orders, was scheduled manually and via automatic planning.

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Optimize the plan



Demo summary: Quintiq factored in numerous factors and constraints, including allowed resources, resource connections, production rates, change over times, etc. and generated a plan using our optimization technology





Re-sequence plan



Demo summary: Re-sequence plan based on occurrences such as unplanned downtime and available capacity



Reporting and analytics



Demo summary: Used headlight KPIs to measure the impact of planning decision prior to execution. Then used taillight reports to summarize and detail what occurred within a specified time period.

Q Quintiq Process Scheduler - Unplanned - GUIHelper	
He bat forms views window Help Automation	
	Planning KPIs are displayed throughout the application.
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Typical benefits after implementing Quintiq



Opportunity	Potential savings and benefits
Increased sales and profitability	 Various challanges in many areas, which cause delays and uncertain situations. That means an unknown amount of lost sales. With a tool that offers transparency and optimized planning, significant impact will be seen over the entire chain.
KPI-driven planning	 Current planning process is not KPI driven. Using the Quintiq platform, KPIs will be used to guide the planning process towards attaining company goals.
OTIF and On-time improvements	• OTIF and On-time delivery figures are typically up for 5-15%.
Transparent and visual system	• The planners and also the persons working in customer service and purchasing will have visibility over details like stocks, orders, raw materials. They will also be able to see the effect of their decisions/actions. Detailed information can be shared with customers as well in order to keep customer service at a high level.
Scenario management	• There are multiple ways to run the business and achieve the desired results. The optimal way is to run different scenarios and pick the best choice in each situation.



Typical benefits after implementing Quintiq (continued)



Opportunity	Potential savings and benefits
Improvement of machine utilization 🗸	• The utilization of the production machines improves typically 10-20%. This will also enable more capacity to sell.
Short learning curve	• The learning curve can be made easier with advanced planning system.
A system people can trust	• A 100% fit planning system with easy-to-learn GUI will be a tool they can trust.
Less dependency on key personnel 🗸	• Quintiq offers an advanced, common tool with easy-to-learn functionality.
Proactive planning	• A truly interactive system could improve day-to-day operations significantly and enable proactive management.



Customer benefits





"For a long time, our delivery reliability was between 50% and 60%. This has improved to 80% and sometimes 90%."

Ron van Hout, Planning and Warehouse Manager Vlisco



"Quintiq is an enabler for excellent results. It allows you to measure many KPIs and drive improvements in the critical ones. Quintiq has exceeded our expectations every step of the way."

Buddy Stemple, VP & GM Novelis

"Full transparency has been achieved through the combination of centralized planning and de-centralized scheduling in seven plants. We have seen results in capacity balancing as well as improvements in scheduling. This has further resulted in improved customer service and optimized productivity."



Pierre Versailles, Operations Excellence Manager AkzoNobel Powder Coatings



"Our production processes are highly dynamic, so it is not easy to calculate the precise return on investment that the Quintiq system can perform. However, based on our experience, we can say that our investment in Quintiq has made a substantial contribution to our bottom line."

- Douwe van Dijk, Manager Meneba



"Quintiq won us over with its platform's integration capabilities and transparent processes. The software's flexibility enables it to be customized to process the many specific requirements of the chemical industry such as the handling of byproducts, alternative raw material input, lot optimization and sequencing."

- Management, Tribotecc



"At SIG, Quintiq is used globally. Everybody can see exactly what is going on everywhere."

- Carmen Zech, Head of Global Resource Management SIG





"We required a SCP&O platform that would accommodate our intricate scheduling requirements, which stems from our unique approach of assembling and cooking products simultaneously. Quintiq has an outstanding track record in the industry and its software platform enables us to maintain the high quality and fulfillment standards our customers have come to expect."

Andy Berliner, CEO Amy's Kitchen

Agenda



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()untia	<u>overview</u>
Quinting	

Focus area: detailed scheduling

Summary of current challenges

Demonstration

Optimization in scheduling/references

Q&A

Lunch Break

IT Discussion

Next steps discussion/wrap up



-

Past performance does not predict future outcomes




A good production plan: The illusion of optimization





OUINTIO

Production plan optimized for profit





QUINTIQ

Quintiq is world champion in Job Shop Scheduling







The Flexible Job Shop Scheduling Problem (FJSSP) is an extension of the classic Job Shop Scheduling Problem, which has been studied since the 1960s.

The challenge: Schedule a set of operations to be processed on a set of machines and order the operations so that total completion time is minimized.

The FJSSP represents a **production environment** where there is a restricted set of machines capable of processing a particular operation.

There have been 313 documented instances with up to 300 operations.

Quintiq holds 110 world records. For these 110 instances, we were the first to find the best-known solution to date, ahead of any research group. Of these 110 best-known solutions, 90 have been proven to be optimal.

Quintiq's **commercial optimization technology**, which was used to solve this historic puzzle, powers the software used by our customers in over 80 countries on a daily basis to solve their own unique planning puzzles.



Quintiq's optimization approach



Level	Organization requirements	Benefits	Description			
Interactive automated planning	Good data/rule qualityClear optimization goalsGood human planners	 Includes soft goals Increased impact per planner Solve larger puzzles and find better solutions 	 Compares different scenarios Adjusts the optimization results Freezes part of the optimization results Allows re-optimization (e.g. to handle exceptions) 			
Fully automatic planning	 Flawless data/business rules Exact optimization goals 	Cost reductionHigher utilizationHigher service level	 Creates plan for day of operations for day x+1 (or x+2, etc.) After accepting the optimization results, the planner will not re-optimize (will only make local changes) 			
Semi- automatic planning	Good human plannersGreat data quality	 Find solutions faster Unlock "low-hanging fruit" optimization potential 	• Typically up to 50% of decisions are made by using semi-automated planning, and the rest by manual decision making			
Decision support	Good data qualityGreat human planners	 Increased impact per planner Solve larger puzzles and find better solutions 	 Global overview of status Focus on better planning Tendency towards formalization of data Pro-active instead of reactive 			
Manual planning	Excellent planners neededExcel/ERP/TMS	Plans are archived	 Long learning curve Constantly searching for the right information Plans are written on a planboard No insight into global results of local decisions Stress 			

Carlsberg – China



Group

Fast facts

- Industry: B\Food/Beverage
- Number of Employees: 500
- Annual Unit Production: NA
- Customer Since: September 2014

"The Quintiq solution roll-out will commence in phases, beginning with S&OP, followed by MPS and then Detailed Scheduling across each brewery in China. This approach will enable Carlsberg to have a single, transparent view of all its operations within China"

-Arjen Heeres, Chief Operating Officer, Quintiq

- Carlsberg has become the leading brewery group in West China, operating 41 breweries across the country.
- Needed an integrated planning solution.

Solution

Challenge

Why Quintiq?

Benefits

- Implement Quintiq's Sales & Operations Planning (S&OP), Master Production Scheduling (MPS) and Detailed Scheduling solutions to support Carlsberg China's business across 41 breweries.
- Carlsberg China has chosen its software to provide an integrated business planning solution.
- Carlsberg China will rely on the Quintiq system to enable a single, transparent view of all its operations within China.
 - The new solution will increase visibility and transparency on all planning and scheduling decisions from raw materials, brewing, tanks and filling lines to packaging.
 - Aided by KPI dashboards, planners will receive support for faster decision making process, to control, reduce risks, analyze and manage change.



AkzoNobel Decorative Paints





Fast facts

- Industry: Decorative paint production
- Annual revenue: €1.37 million (2013)
- Number of employees: Over 5,000
- Annual production: 1 million tonnes
- Location: Gateshead, United Kingdom
- Solution: Scheduler
- Customer since: 2012

"The functional and the optimization proof of concepts showed us exactly what we needed – that Quintiq could help us optimize our throughput and delivery performance."

> Peter Lidstone European Supply Chain Director, AkzoNobel Decorative Paints

Challenge	 Improve reaction time on shop floor disturbances Reduce errors in reactions to shop floor disturbances Link the SAP MRP output to detailed line schedules to improve customer service levels and maximize productivity
Solution	 Optimizes the throughput of paint at its factories Validates material availability of planned batches Creates detailed sequences for dispersing, mixing and filling during paint production process
Benefits	 Optimized throughput and reduced cycle times Improved delivery performance and productivity Reduced loss times and cleaning times



AkzoNobel Powder Coatings



AkzoNobel	Challenge	 Address the problem of high inventory levels, sub-optimal utilization of plants, inconsistent service levels, a lack of supply chain visibility, and a duplication of planning tasks across the various plants Link the SAP MRP output to detailed line schedules to improve customer service levels and maximize productivity
Fast facts	Solution	 Foresees the effects of planning decisions on the entire supply chain, enabling more effective decision making Helps to reduce inventories by creating detailed sequences for dispersing, mixing and filling during the paint production process
 Annual revenue: €934 million (2013) Number of employees: Over 4,000 Location: Western Europe Solution: Scheduler Customer since: 2010 	Benefits	 Improved capacity utilization and less temps required Reduced planning effort, inventory by about 5%, and SLOB by 20% Improved service performance by reducing out-of-stocks and MTO lead time

Increased sales value expected by at least 1%

"Full transparency has been achieved through the combination of centralized planning and de-centralized scheduling in seven plants. We have seen results in capacity balancing as well as improvements in scheduling. This has further resulted in improved customer service and optimized productivity."

> Pierre Versailles Operations Excellence Manager, AkzoNobel Powder Coatings



Amy's Kitchen – United States







Fast facts

- Industry: Fruit and vegetable processing
- Annual revenue: US\$120 million
- Number of employees: 1,600
- Annual production: 20 million prepackaged meals
- Solution: Scheduler
- Location: Petaluma, CA, USA
- Customer since: 2013

"Quintiq has an outstanding track record in the industry and its software platform will enable us to maintain the high quality and fulfillment standards our customers have come to expect."

> Andy Berliner CEO, Amy's Kitchen

٠	Address Amy's Kitchen	s intricate scheduling requirements
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- Accommodate Amy's Kitchen's unique approach of assembling and cooking products simultaneously
- Accounts for the large number of staff required to cook and assemble each product
- Plans the delivery of raw materials, inventory disposition and equipment availability
- Optimizes communication and collaboration between sales and inventory forecast planning

Why Quintig?

Benefits

Solution

Challenge

uintiq?

- Quintiq had the flexibility to handle the unique constraints found in Amy's Kitchen's intricate scheduling processes
- Quintiq is an industry leader in scalable solutions
- Maximized resource utilization
- Improved decision making and enhanced productivity
- Company-wide visibility enabling improved teamwork and communication



SIG Combibloc





Fast facts

- Industry: Converted paper products manufacturing
- Annual revenue: €1,260 million
- Number of employees: 4,250
- Location: Germany (Headquarters)
- Solutions: Company Planner, Scheduler
- Customer since: 2007

"By deploying the Quintiq solution across all of our planning horizons and sites worldwide, we are setting ourselves up well for the future as we now have a system that can grow with us."

> Andreas Haas Head of Supply Chain Management, SIG

Challenge	 Improve efficiency for overall supply chain performance Provide delivery reliability Provide efficient planning
Solution	 Quintiq Company Planner for medium-term planning and Quintiq Scheduler for detailed planning Improves overall supply chain performance Integrates with SAP Administers strategic, tactical and operational planning across all production facilities
Why Quintiq?	 More efficient planning and proved efficiency by improving overall supply chain performance Complementary to SAP Quintiq maps entire production process in real time
Benefits	 Transparent order processing across all sites resulting in more objective planning decisions Increased internal lot sizes by 10% Improved delivery performance: reduced lead times, reduced working capital requirements, Maximized capacity utilization Increased productivity and throughput Optimized inventory levels

• Improved customer service



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Agenda



Quintiq overview
Focus area: detailed scheduling
Summary of current challenges
Demonstration
Optimization in scheduling/references
Q&A
Lunch Break
IT Discussion
Next steps discussion/wrap up







Agenda



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Applications components & technology requirements



Quintiq architecture





Rich Products Solution

Industry Solutions

Quintiq Standard Software **Rich Products Core Business Rules**

Demand Planner: Collaborative demand forecast Macro Planner: Finite Capacity planning Scheduler: Detailed production scheduling Logistics planner: Transport planning and execution ... and more

Quintiq Standard Software

Used by all Quintiq Customers

Capacities shared by all planning applications:

- Business Model and Logic
- Visualization and interaction
- Optimization
- Integration





	Presentation layer
	Network layer
	Visualization layer
	Scalability layer
	Business layer
+-	Integration layer
	Data layer



Overview: Sample basic architecture / no external systems







Overview: Quintiq software components





Scalability solutions





Scaling due to data volume

Datasets and/or multiple Quintiq Application Engines



Scaling due to global businesses Support for centralized and decentralized installations



Scaling due to complexity of business rules Quintiq Propagator



Scaling due to user counts Quintiq Thin Client technology



Scaling due to complex optimization Advanced Optimization Engine



Case overview



	Orders (per day)	Resources	Users	Messages (per hour)	Quintiq Application Engines	Internal interfaces	External interfaces	Parallel optimization
Express operator	>1,000,000	60,000	5,000	120,000	>20	>20	>10	Yes
World-leading retailer	10,000	15,000	200	100,000	1	>10	>5	Yes
Gas company	40,000	28,000	400	15,000	6	>5	>3	Yes
Workforce Planner	10,000	10,000	1,000	20,000	1	>10	>5	No
Air traffic control	30,000	10,000	1,000	2,000	6	>5	>10	No
Passenger rail company	100,000	20,000	2,000	20,000	4	>15	>10	Yes



Release strategy for Quintiq Application Suite and Products





Customer projects go live with:



patch line for mission-critical systems and upgrades

feature line for non-mission-critical systems

product line require corresponding software version

Product release hotfix

- Bug fix for critical bug
- Same request process as used by R&D
- For latest release as well as latest release that can be used for mission-critical systems

Different levels of configuration



Level 1 – End user





Level 2 – Key user





Level 3 - The Occasional Quintig Expert



Level 4 – The Full Time Quintiq Expert







Data Integration



Integration



INTIO

Integrates seamlessly into your environment





"Quintiq won us over by demonstrating its integration capabilities, transparency as well as the flexibility enabling the software to be tailored to process the many specific requirements of both the chemical industry and Tribotecc."



Export any list or Gantt Chart to HTML, Excel, Word, JPEG etc.

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Microsoft Excel - shipments.xls								
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Minimizing SAP Integration time, cost and risk





Technical

- 1. Multiple integration techniques
- 2. Pre-configured SAP technical integration
- 3. Simple data mapping tool.
- 4. Data conversion and control is handled by Quintiq, since data conversion can often be done faster than in SAP.

Functional

- Maximize visibility of source/destination data structures.
- Maximize visibility of source/destination mappings.
- 3. Maximize speed of transforms and control
- 4. Prior knowledge of typical data flows.



Selected Quintiq customers using SAP



UINTIQ

	ArcelorMittal	HYDRO	ALUNORF		
AkzoNobel		🌲 Constellium	S ELVAL	airservices	RasGas
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Data/System Security







Recognizing that safeguards preventing disclosure of confidential information is of paramount importance, Quintig utilizes robust security controls within our applications. Collectively, these security mechanisms ensure that we provide for full data confidentiality and protection, along with granular controlled access to this vital information. Quintig security controls extend across our entire planning suite, providing user security, application system security, database security, network security, audit logging, and system administration.



System security – user security and RBAC



🕼 User administration						X
Service users / groups		Roles	Model usergroups			
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	A	uthentication can occur direct	ly within Quintiq, or proxied			
	to	an LDAP server (i.e., Active D	irectory).			
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Show users						
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Agenda



Quintiq overview		
Focus area: detailed scheduling		
Summary of current challenges		
Demonstration		
Optimization in scheduling/references		
Q&A		
Lunch Break		
IT Discussion		
Next steps discussion/wrap up		



Goals of POC





Define scope

Quintiq understands the complexity associated with liquid/semi-process scheduling. We also understand that every company has their own unique challenges. Our proposal is for Rich Products to **challenge** Quintiq with the most complex piece of your detailed scheduling puzzle. The right scope will bridge the gap between the functionality seen in the solution presentation and the "Rich Products" world.



Prove capability

Work with Rich Products team to define the puzzle constraints, rules and KPIs. Then, in a matter of days, give Rich Products **certainty** that they can be incorporated into the Quintiq solution. Additionally, work with Quintiq SMEs to understand the ease of configuration – Rich Products world is modeled without customization and is done through a process which incorporates your team.





Question and answer session

Quintiq Inc.

Melissa Pappas Account Executive Melissa.Pappas@quintiq.com 610.517.6150




Appendix 1: Functional Requirements





Show how and why the plan produced is optimized to minimize cost and/or improve manufacturing capacity utilization while still maintaining inventory and service targets.







Show examples where the solution pulled requirements back from a future week and/or pushed requirements forward to a future week

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Sequence like formulas to minimize changeovers







Show how inventory and service levels are considered and reflected in the proposed plan

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		SKU 861739	NP57	Feb-2014	1,450.00	5,020	4919	100			
Sales		SKU 861739	NP57	Mar-2014	1,450.00	5,090	5090	0			
	I — ☆▼	SKU 861739	NP57	Apr-2014	1,450.00	5,802	5666	135			
541.11	II	SKU 861739	NP57	May-2014	1,450.00	6,274	6126	148			
	I <u>☆</u> ▼	SKU 861739	NP57	Jun-2014	1,450.00	5,709	5574	135			
	I	SKU 861739	NP57	Jul-2014	1,450.00	5,669	5669	0			-
Direct cost	I	SKU 861739	NP57	Aug-2014	1,450.00	5,623	5493	130			
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448.7U M\$	I = ≈ 7	SKU 861739	NP57	Oct-2014	1,450.00	5,527	5527	0			
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Fixed cost	I	SKU 861739	NP57	Jan-2015	1,450.00	5,421	5421	0			
07 06	I ≈ <u>≈</u> T	SKU 861739	NP57	Feb-2015	1,450.00	5,161	5161	0			
0/. 90 M\$	 	SKU 861739	NP57	Mar-2015	1,450.00	5,480	5480	0			
		<u>SKU 861739</u>				4 82,89	1 📫 81876	4 10	14		
		SKU 106/8/61	NP79	Jan-2014	1,500.00	3,169	2988	181			
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0 1 5		SKU 106/8/61	NP79	Mar-2014	1,500.00	3,239	0	3239			
		SKU 106/8/61	NP79	Apr-2014	1,500.00	3,214	2002	1212			
		SKU 100/8/01	NP79	Mdy-2014	1,500.00	3,234	3198	30			
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		SKU 10678761	NP94	Feb-2014	1,500.00	2,831	1652	1179			
U.J/ M Ton		SKU 10678761	NP94	Mar-2014	1,500.00	2,777	1620	1157			
		SKU 10678761	NP94	Apr-2014	1,500.00	2,757	2757	0			
		SKU 10678761	NP94	May-2014	1,500.00	2,772	0	2772			E





Consider formula changeovers related to such things as allergens, colors, and religious/Kosher constraints, and the associated time and cost impact. Show how the production sequence is altered and optimized when considering these factors.

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ComponentCharacteristics	80 4066027	PTOC	LineA	C1120025 0002290 SILK PB	V Delivery Perfo	
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Ouintig provides a kr	nowledge k	nase whi	ch allow	S VOU	Mixer06	S1315 €4051438 €4051438 €4051438
	iowicuge i			5 you	Mixer07	5 • • • • • • • • • • • • • • • • • • •
to store your specific	c business i	rules, incl	uding fo	ormula	Mixer08	H CH4051438 CH4051438 CH4051438
	1				Mixer09	7 4066024
changeover rules and	d times.				Mixer10	4051253 4051530 4051508 9 977149 4051517
					Mixer11	4070950 4070950 4051508 4051525 4070950
					Mixing Unit B	
					« < > »	/ 22-Aug-2013 19:03:12 🔟 📎 🔍 🔍 🔒





Show how product "freeze time" is considered during the scheduling process to ensure material availability requirements are maintained when production is moved between time periods.

@ Quintiq Process Scheduler - Unplanned - GUIHelper					- 6 🔀
File Eait Forms Views Window Help Automation					
Delivery Performance Efficiency 1522	Average Paint loss co	st Average Cleanin	16^{110}		
Orders and Operations X				Routing	N
📑 Planning 🛛 🧕 Resources and Tasks 🛛					_ 67 0
Filter resources on: 🔲 Selected order 🦳 Planned resources 🦳 Allowed	resources 📃 Custom filter on comb	ined order(s)		2	
,18:00 ,21:00	Aug-23-2013 .3:00	.6:00 .9:	00 .12:00	,15:00	18:00
HSD1 4070950 @4051438	4070950		4066024	4066024	4051508
HSD2 051438	4066024	4070950		<pre></pre>	<pre> 4051438 </pre>
HSD3					
HSD4 4066024 🥊	94051554	4066024	€94051525	4066	024
HSD5 4070950 4070950	0	4051438 405	1530	4051745	40660
Intermediates					E
Production Tank @4050863	6 24050863	4050	863 🚱 4	050863	
Tanks					
Storage Tank A	10	1	508	40508	
Storage Tank A					
Mixing Unit A					
	••••••••••••••••	material from D			
	Quintiq is moving	material from P	roduction into	Storage Tank	A. This
Mixeros illie could be used to	allow for time-ba	ised material tei	mpering. Howe	ver, they same	e concept
karde can also be appli	ed to freezing, wh	nere the items a	re moved into a	freezing roor	n instead of
Alterna	The freezing room	and/or the stor	age tanks have	volume capac	ities, and
Mixed the second get carrier will	l ha considered w	hon gonorating	the plane	rename capac	
	i be considered w	nen generating	the plans.		
Mixer00					
4066024				51530	
1/53			40	51530	
Mixing Unit B			40/0950		
					·
22-Aug-2013 19:03:12 💌 🕤				~~~ <u>~</u> 11	Jay 🔻 🛄



Show how your system can re-plan around manually entered (locked-in) production.





Show how available capacity is updated for planned downtime on any of the manufacturing operations (batching systems, tanks, and filling).

Quintig Process Scheduler - Unplanned - GUIHelper	c # 🛛	
Delivery Performance Efficiency 1522 Average Paint loss cost 4 Average Cleaning I	1quid cost	
Orders and Operations X		
📱 Planning 🛛 💿 Resources and Tasks 🖾	② Edit Calendar MixerE	23
Filter resources on: Selected order Planned resources Allowed resources Custom filter on combined order(s)	Overview General	
Mxer05 20:00 Aug-23-2013 4:00 8:00 12:00 16:00 20:00 P Mxer06 P4051438 P4051438 P4051438 P	August 2013 Aug-22-2013 Mon Tue Wed Thu Fri Sat Sun 5 6 7 8 9 10 11 32 12 13 14 15 16 17 18 33 19 20 21 122 23 24 25 34 26 27 28 29 30 31 35 6 00 September 2013 1 35 6 00 8 00 2 3 4 5 6 7 8 36 9 10 11 12 13 14 15 37 16 17 18 19 20 21 22 8 10 00 Start 2013 Aug 22 00:30 17 00 10 10 10 12 13 14 15 00 10 10 10 10 10 10 10 10 10 10 10 10 10 </th <th>Cancel</th>	Cancel
	city.	
© 2015 Quintig	81	- QUINT



<u>E QUINTIQ</u>

Show how intermediate materials flow through direct processing tanks (tanks that can be filled while they are supplying a filler/packing line).

Quintiq Process File Edit Forms Vie	Scheduler - Unplanned - G	UIHelper								J
🔊 🔊 👶 Demo	o Import 👔 🛞 🛞 🤱		s 🗊 🔳 🖂 🛛							
KPI Dashboard										1
Delivery Perfor	96%	^{ency} 1522	Average Pair	nt loss cost 4	Average Clear	iing liquid cost 16				
Orders and Op	oerations 💥 🔪 🚬								ם אם <u>–</u>	-
📑 Planning 🛛	Resources and T	asks 🖂						•		
Filter resources on:	Selected order Plann	ed resources 🔲 Allowed res	ources 🔲 Custom filt	er on combined order	(s)					
	20:00	Aug-23-2013 4:00	8:00	12:00 16:00	20:00	14110-24-alm 3 4	•00 8•00	12:00	16:00 20:1	
Dispersers	20.00	Aug-23-2013 4.00	0.00	12.00	20.00	Aug-24-0-15 14.	.00 8.00	12.00	10.00 20.0	
HSD1	↓ 4070950 ∲%405	i14 <mark>38</mark> 4070950	406602	24 4066024	4051508	4066024	4051525	746 1074746	4051517	
HSD2	940514 <mark>38</mark>	4066024	4070950	€ <mark>9405143</mark> 8	€940514 <mark>3</mark> 8 4	4051745 405174	15		340771 34	
HSD3					•					
HSD4	02 <mark>4</mark> 4066024	<pre>4051554 40660</pre>	24	<pre> 40 4</pre>	66024	51438 🚱 4051438	e940514 <mark>3</mark>	8 9405157	5	
HSD5	3 407095 40709	50 694051	438 4051530	405174	5 4066024	4051508	07474 694051525	4051508	0515: 4051517	
Mixing Unit A										
Mixer01		4070950	24	694051						
Mixer02	4070950		400							
Mixer03	051164		4066024		n this exa	mple, mate	erials flow di	rectly thro	ough this res	ource (Mixer 01)
Mixer04	4066024		407 950		From an u	octroom die		urco to o f	illor/packing	
Mixer05		40 51438				pstreamus	sperserieso	urce to a r	шег/раскін	, iiiie.
Mixer06			@4051438							
Mixer07		6 4051554				4051745		4051508		
Mixer08		240 <mark>51438</mark>		@40	51438		€940 <u>51438</u>			
Mixer09	406	6024		4066024		4066024		₽4074746		
Mixer10	051753			4051530		4051508			Q407714	
Mixer11	4070950		<u> </u>	4070950		4051508	6	4051525		
Line1	10,050					1001000			_	
Line1 (Batches)	1									
Line1	(<u>115</u>	115	13B 13B 13B	13B 13B	13B	75B 7 <mark>5E</mark> 08A		28Q	13B 13B	
Line2										
Line2 (Batches)										
	3B 75B	758	75B	13B 13	B 13B	13B 13B	758 7	5B 🕒 🕞 Darra	75B 75B -	
· · / //	22-Aug-2013 19:03:12							in the second se	•]	



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Show how time-based material tempering is modeled (intermediate formulas that are held in a holding tank until the formula cools before it can move to the next process).

② Quintiq Process File Edit Forms View	Scheduler - Unplanned ws Window Help Auto	l - GUIHelper omation											
🔊 🔊 👶 Demo	o Import 🔢 💈 💈) 🛃 🚱 屢 🛃) 😣 🔌 回 🔳) 🖾 🔎									
KPI Dashboard		<u></u>										- 80	
Delivery Perfor	96%	ficiency 15 2	22	ge Paint loss c	Ave	rage Cleaning lid	^{quid co®}						
Orders and Op	oerations 🗴 🔪 🚬											_ F¥ D	
📑 Planning 🕱	Resources an	nd Tasks 🕱 🗋										- 80	
Filter resources on:	Selected order Pl	lanned resources 🔲 Allo	wed resources 📃 Cu	stom filter on com	nbined order(s)								
	18:00	21:00	400-23-2013	3:00	6:00	9.00		12:00	15:00		18:00	^	
HSD1	4070950	e 4051438	Aug 25 2015	4070950	10.00	19:00	4066024	12.00	4066024		405150	8	
HSD2	051438		4066024			4070950			€24051438		@4051438		
HSD3			1000021			10/0550			0.001.000		0.001.00		
HSD4		4066024	@4051554		4066024			€¥051525		406607	24		
HSD5	407095	4070950			24051438	4051530			4051	745		4066(
Intermediates					0.000.000	1001000			1001	/ 10		E	
Production Tank	@ 4050863		624	1050863		6 4050863		6 94(050863				
Tanks													
Storage Tank A	10			940508		10	1	6	40508				
Storage Tank A													
Mixing Unit A					· · ·								
Mixer01									4051525				
Mixer02	In this e	xample. Ou	lintia is ma	oving ma	terial fror	n Product	ion int	o "Stor	age Tank	: А." Т	his coul	ld be u	ised to
Mixer03		rtime bac	d motorial			e for tomo		ima aa			inguno	n +h a i	matar
Mixer04		or time-base	eu material	rtemper	ing. Ruie	s for temp	ering i	.ime ca	n vary ue	epena	ing upo	n the i	nateri
Mixer05	and qua	antity.											
Mixer06													
Mixer07	HOWEVE	ar they cam	e concent	can also	he annlie	d to freez	ing w	horo th	o itoms :	aro mo	wed int	o a fre	ozina
Mixer08			·										CZIIIB
Mixer09	room in	istead of a s	torage tan	k. The fi	reezing ro	bom and/c	or the s	torage	tanks ha	ive vo	iume ca	pacitie	es, and
Mixer10	17: these fa	actors will b	e consider	ed when	generati	ng the pla	ns.						
Mixer11		4070950					_	4070950					
Mixing Unit B												Ţ	
« < > »	22-Aug-2013 19:03:12	2 🛅 🕑							R	🔍 1 Da	y .	-	
									~				



Show how crewing/labor or number of filling lines that can be run at one time is modeled as a constraint.

Quintiq Process Scheduler	- Unplanned - GUIH	elper								x
File Edit Forms views window	W Help Automation									
KPI Dashboard										
Delivery Performance	Efficienc	SV/	Average Pain	t loss cost	Averade Clea	uning liquid cost				
96	S %	[°] 1522	Average Fail	4	Average crea	16				
Orders and Operations 3	XX								 d	
Combined Order							R	outing		
Filter on selected resource								WorkCenter	Resource	
<u>./ Item Cor</u>	mbinedOrderID Due	eDate BatchOrd	erQty UOM Start	Filling	ScheduledEnd			Distance	BE LICES	
4050863 P11	15308203 Max	Date 5,00	00 L 24-AU 00 KG +++	lg-2013 17.34.37	25-Aug-2013 1	The num	per of resou	arces or line	es that can b	e rui
Process Order						one time	can be dep	endent up	on labor a <u>vai</u>	labil
🖬 OrderNr 🛛 I	Material OutputMa	terialDescription	Qu	antity TargetD	Pac	In this ev	ample the	e are 5 Hig	h Sneed Disr	orse
P11530809600 4	051745 C1520110	B004551 NOTER MATT	MB	21000 L 27-8	3EA		inpie, tilei			CISC
	082978 DTV/MAT	T MEDIUM BS 5L		726 PC 1-9 3649 PC 27-8	09A 09A	but only 4	l can be ru	n at once (r	note HSD3 is	not
📮 Planning 🗴 词 R	esources and Tasks	5 27				utilized).	You can ma	anually set	this or allow	
Filter resources on: Selecter	d order 🥅 Planned re	esources 🥅 Allowed res	ources 🥅 Custom filte	er on combined order	r(s)	Ouintia ta	n determin	, which res	ources shoul	d he
										u be
Disporsors	20:00 Au	ug-23-2013 4:00	8:00	12:00	120:00	operation	ial by shift.			
HSD1	0050 00405142	9 4070050	406602	1	4051500	4055074	04051525	4074746	746 4051517	
40/	0950	8 4070950	406602	4 4066024	4051508	4066024	1674051525 G	4074746	4051517	
405143	8	4066024	4070950	674051438	4051438	4051745 405	1745		() 40771 () 41	=
HSD3										
HSD4 024	4066024	4051554 40660	24	94051 <mark>525</mark> 40	0660 <mark>24 6</mark> 94	051438 🚱 40514	38 📀 40	514 <mark>38</mark>	51575	
HSD5 3 4	107095 40709 <mark>50</mark>	€ <mark>94051</mark> -	4 <mark>38 4051530</mark>	405174	406602	4 4051508 🦿	407 <mark>474 </mark> 3405152	2 5 4051508	<pre> 405151 4051517 </pre>	
Mixing Unit A										
Mixer01		407 <mark>0950</mark>		<mark>@40</mark> 51 <mark>525</mark>	5		@4051 <mark>525</mark>			
Mixer02	4070 <mark>950</mark>		40 <mark>66</mark>	i024	40 <mark>6602</mark>	4	4074746			
Mixer03 051164			40 <mark>6602</mark> 4		40 <mark>6602</mark> 4	40	66024		€ <mark>4074746</mark>	
Mixer04 4	066024		4070950		4051745				4051745	
Mixer05		€94051438			6 405	1438			6 4051519	
Mixer06			€94051438			€240 <mark>51438</mark>		@4051438		
Mixer07		Ø40515F4	0.001.00			4051745		40515	0.0	
Mixer08		0-1420			51420	4051745		40515		
Mixer00	1	051438		6 741	051438		······································			
Mixeru9	4066024	4		40 <mark>6602</mark> 4		406 <mark>6024</mark>		6 4074746		T
< < > >> 22-Aug-20	013 19:03:12 🔳 🤇							2 ت 🍬	Jays 👻 📃	



Demonstrate how your solution utilizes "what if" scenario functionality. How are the results of multiple scenarios compared and analyzed?





Show how palletizing constraints (capacity limited by the number of lines that can be run simultaneously to a given palletizer) are modeled. For example, we can simultaneously run 2 filling lines to a single palletizer but not 3.

Quintiq Process Scheduler - Unplanned - GUIHelper Fig. 54th Energy Minute Window Help Automation	
Delivery Performance 1522 Average Paint loss cost Average Cleanin	1 16
Orders and Operations X	(i) ka
Planning VZ Recourses and Tasks VZ	
	Aug-24-2013 4:00 8:00 12:00 20:1 4051508 407474 4051505 4051505 4051517
Mixer02 Note that for every now of material between resources	4074746
Mixer07	
Mxer10	407714
LineA	
LineA (Batches)	
LineA 09Y 19Y 09Y 09Y 09Y 09Y	75' 75Y 75' 75Y 09Y 09Y 09' 0
LineB	
LineB (Batches)	
	60Y 138 1 138 60Y 60Y
LineC (Batches)	there are corresponding resource connections.
« « » » 22-Aug-2013 19:03:12 🔟 🕑	Resource connections allow Quintig to specify exactly
	which unstream recourses can feed which downstream
	which upstream resources can leed which downstream
	resources. Thus we can specify which filling lines feed
HM1 P: P: P: P: P: P: P: F P: F	^P which corresponding pelletizer.
HM2 P: P: P: P: P: F P: F P: F P: F P: F P	P. P. P.
PC P1 P1153081	P11530812000 P P11530812
PEA	
PLB P1 P1153081	P11530812000 P P11530812
CLA P11530605500 P1153060 P11530703200 P11530? P11530?	P1: P11 P11 P11 P11530802600 P11530703601 P
CCD P11530/1400 P11530/13100 ✓ >> >> ✓ >> >>	□ Filter on selected order

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Show how warehousing/storage constraints are modeled.

@ Knowledge base editor / ProcessSchedulerDemo::Kn	owledge_SC::Schedule::1.0.0.0 C(2)
Category	
Knowledge Elements	Table Editor
Knowledge Elements CurrentID.Name KPI_SC KPIGoals_SC KPIParameters KPIPlanningDecision_SC LargeFiniCost MasterRecipeGlobalParameters MasterRecipeGlobalParameters MaxWaitingTime MixerAllowedColorGroups MixingCharacteristics MixingDuration OperationLeadTimes_SC OrderComment PaintLossCost PaintLossType PlannedDeliveryStatus Practices_SC PlannedDeliveryStatus ProductionWheel ProductionWheel ProductionWheel RCSPeed ResourceGroups_SC ResourceGro	Table Editor Name StorageTankCharacteristics Description
SmallHSDCharacteristics StorageTankCharacteristics ToolGroupPosition ToolGroupS_SC Tools_SC	
TransferFamily	
	Apply OK Cancel





Skills and effort to change system configuration to adjust planning models

@ Knowled	ge base editor / ProcessSchedulerDen	no::Kno	wledg	e_SC::Sched	ule::1.0.0.0 (0(2)				E	3
Category			-								
Knowledge E	lements		Table	Editor							
CurrentID.	Name			Name Cleanir	aType						ר
Caler Caler Caler Table	ndarRules ndarRuleGroups es AbortedUnavailability AlternativePractices_SC AlternativeResources		<u>D</u> esc	ription							
	AMSCharacteristic	=		Cleaning	Cleaning	Cleaning	Workcenter	NextBatc	IsSameSefi	UsesCle 4	
	BatchException BatchType_SC		1	COLOUR	*	1	Mixina Uni	*	false	false	
	CalendarStrategy_SC		2	PTOC	стос	4	LineB	*	false	false	
	CleaningDuration		3	COLOUR	*	5	Line1	*	false	false	
•	CleaningFamily		4	COLOUR	*	5	Line2	*	false	false	
7	ComponentCharacteristics		5	COLOUR	*	5	Line3	*	falso	falso	
	CorrectionBaseLink		5	COLOUR	*	5	Line4	*	falco	falco	8
	DurationFamily		-	DTOC	CTOC	5	Line4	*	false	false	
	FeedbackWindow_SC		<u>/</u>	PIOC	CIOC	4	LineA	-	raise	Taise	
	FillingAllowedViscosity		8	стос	PTOC	4	LineB	*	false	true	
	FillingAllowedCanSize		9	стос	PTOC	4	LineA	*	false	true	
	FillingAllowedCanType		10	стос	стос	7	LineA	*	*	true	
	FillingAllowedDecoration		11	стос	стос	7	LineB	*	*	true	
	FillingAllowedPackCode		12	стос	стос	7	LineC	*	*	true	
	FillingAllowedPalletTypes		13	PTOC	PTOC	8	LineA	*	false	false	
	FillingBulkChange		14	РТОС	РТОС	8	LineB	*	false	false	
	FillingCanPropertiesChange		15	*	*	0	Line1	*	false	false	
	FillingDecorationChange		16	*	*	0	Line2	*	falco	false	
	FillingGroup		10		-	9	Linez	-	laise	Taise	
	FillingGroupCharacteristic		17	-	~	9	Line3	*	talse	talse	
	Filing ItemChange		18	*	*	9	Line4	*	false	false	
			19	TEXTURED	*	10	Line1	*	false	false	
		با م ما			h allauna			*	£_1	c_1 b	

configuration data. This includes formula changeover rules and other parameters that influence the planning models.



Apply

ОК

Cancel

Setting up new users, changing security

💯 User administration					
Service users / groups		Roles	Model usergroups		
Name	2	DisplayName Z	Name 22	astype(MUA 1	
Administrator Administrators Administrators Administrator Administrator Administrator Administrator Bericp Administrator Bericp Ber	administrator administrators ericp	 Administrator Manager Planner Quintiq System Manager User administrator 	MacroPlanner MacroPlanner Standard Adminis Dec-30-2015 11:5 Standard Develop Dec-30-2015 11:5 Standard Dec-30-2015 11:5 Stand	Dec-30-2015 11:5 Jul-2-2014 20:43:16 May-22-2014 12:	
Quintiq	quintiq useradministrators webuser Qu Au to	uintiq uses a role based authouthentication can occur direct an LDAP server (i.e., Active D	prization security model. Iy within Quintiq, or proxied Directory).		
Show users Find users Find groups	<u></u>				
				Apply OK	<u>Cancel</u>



Master Data: Required vs. optional

	Detailed Scheduling
	Finite Scheduling / Sequencing
Solution Elements	
Unique Finished Goods	x
Product hierarchies	
Demand for each product	x
BOMs	x
Production Routings	x
Material loss per	х
operation, not to be re-used	
Material loss per	
operation, that can be	x
recycled/re-used	
Raw material suppliers	x
Supplier lead times	x
Stocking points (raw	
material, WIP, finished	
goods, inbound DC,	x
outbound DC, customer	
consignment)	
Transport lead times	x
Transport costs	х
Transport lanes	
Resources	х
Capabilities of resources,	
which operations can be	x
performed	
Speed per resource per	
product group	x
(products/hour)	
Resource calendars (shift-	
calendar, maintenance	x
calendar etc)	
Setup time rules	X
Average utilization of the	X
lines	X
Direct cost per routing step	x
Orders	x
Order priorities	x
Due dates	x
Inventory levels	x
Target inventory levels	x
Safetv stock levels	x



Master Data: Sources (external systems, manual)





Master Data: Integration points and frequencies



- Technical
- 1. Multiple integration techniques
- 2. Pre-configured SAP technical integration
- 3. Simple data mapping tool.
- Data conversion and control is handled by Quintiq, since data conversion can often be done faster than in SAP.

• Functional

- 1. Maximize visibility of source/destination data structures.
- 2. Maximize visibility of source/destination mappings.
- 3. Maximize speed of transforms and control
- 4. Prior knowledge of typical data flows.





Master Data: How to maintain

@ Knowledge base ed	itor / ProcessSchedulerDemo::Kno	owledge_SC::Sched	lule::1.0.0.0	C(2)														
Category		•																
Knowledge Elements	1	Table Editor																
CurrentID.Name		Name Cleanir	naType															
CalendarRules			2.16.															
CalendarRuleGro	oups	Description																
	Inavailability																	
Alternativ	ePractices SC																	
Alternativ	eResources				Ø Papert	bags - Schedul	eComparer - Wor	kflowHelper - Wo	rkflowEngine - GUIHelper - Schedu	ile - ScenarioMa	inager						-	- 6 🔀
AMSChara	acteristic	Cloaning	Cloaning	Cloaning	File Edit F	Forms Views V	Vindow Help								_			1
BatchExc	eption	Cleaning	Cleaning	Cleaning	<u>'</u> 🔊 🔊	👻 🛃 🛃	🔫 🕼 Optimize	schedule							1	Video Sch	edule	•
BatchTyp	e_SC	1 COLOUR	*	1	M 🔗 Work	k Centers 🛛 🕅												_ 80
CalendarS	strategy_SC	2 PTOC	стос	4	L WC ID	Name	Туре	EarliestAvailab	ble		Name	/ Туре	EarliestAvailable	Productivity	Waiting	Setup	Process	ing
CleaningD	Juration	3 COLOUR	*	5		Print	Printing	12-Jun-2015	12:04:48		1101	Printing	12-Jun 15:19	71.8 %	0:00	45:00	114:19	
CleaningF	amily	4 COLOUR	*	5	2	InsertBottom	InsertBottom	14-Jun-2015	04:37:24		1102	Printing	12-Jun 23:41	71.4 %	0:00	48:00	119:41	
Cleaning	ptCharacteristics		*	5	3						1104	Printing	12-Jun 12:04	73.7 %	0:00	41:00	115:04	
Correction	nRasel ink	5 COLOUR		5	<u> </u>													
DurationF	amily	6 COLOUR	*	5	<u>u</u>													
Feedback	Window_SC	7 PTOC	стос	4	LI .													
FiilingAllov	vedViscosity	8 CTOC	PTOC	4	L													
FillingAllov	vedCanShape	9 CTOC	PTOC	4														
FillingAllov	vedCanSize	10 CTOC	стос	7	- Products													20
FillingAllov	vedCanType		croc	/	Products					Orders								808
FilingAllov	vedDecoration	11 CLOC	CLOC	/	L Item Nu	imber 👝 Rou	tingId Length	Width	Colors	 Ordert 	lr Item	Customer 1	/ Item Type 2/ C	olors		Width	DueDate	Quantity
FillingAllov	vedPalletTypes	12 CTOC	стос	7	L 200	21	620	940	PURPLE PURPLE VELLOW	91	200	ACME	OZG FKSH PL	JRPLE		840	11-Jun	9000
FillingAllov	vedProducts	13 PTOC	PTOC	8	LI 198	22	540	1080	GREEN, PURPLE, RED, YELLOW			ACME	<u>OZO PRSH</u>					4 900
FilingBulk	Change	14 PTOC	PTOC	8	197 L 196	12	540 700	1220	BLUE, RED, YELLOW	59	200	Starbucks	OZG FKSH PL	JRPLE		840	13-Jun	9000
FillingCanF	PropertiesChange	15 *	*	9	195	27	780	1180	YELLOW	=		Starbucks	<u>OLUTRON</u>					900
FillingDeco	prationChange	10 *	*	9	194	23 47	700 740	1140 1100	GREEN, YELLOW BLUE, RED, YELLOW									- 1800
FillingGrou	ip	10 -	<u> </u>	9	L 192	26	580	940	PURPLE, RED									
FillingGrou	IpCharacteristic	17 *	*	9	L 191 190	12	540	920	YELLOW									
FillingItem	nChange	18 *	*	9	L 189	47	660	920	BLUE, GREEN									
FillingLine	Characteristic	19 TEXTURED	*	10	Li 187	12	700	1220	GREEN,RED									
FillingPalle	tChange	20 TEXTUDED	*	4.4	186	43	820	1200	BLUE, YELLOW									
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to store your	specific husiness r	ules and m	astar d	ata	176	47	660	1020	GREEN									
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QUINTIQ

Reporting / Analytics

Multiple options are available for reporting. Reports can also be exported or stored.





Reporting / Analytics: Asset Utilization

Paperbags - ScheduleComparer - WorkflowHelper - WorkflowEngine - GUIHelper - Schedule - ScenarioManager												ð X							
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Operations 🕱 Orders Routing 🕱 📃 🔤 🖻																			
Orders																			1
			Item Type	Width	Item/	Planned	OrderNr	Work Order	Priority	<u>Customer</u>	Quantity	Actual	DueDate						*
			OZPL FK	920	102	P	163	PU 163001		Pottery Barn	9000	0	11-Jun-2015						E
			OZPL FK	920	102	i P	35	PU_35001		Pottery Barn	3000	0	9-Jun-2015						
			OZPL FK	920	102	i P	96	PU_96001		Radio Shack	6000	0	14-Jun-2015						
					🔰 🇱 3				# 3										
			OZG FK	960	103	P	180	PU_180001		Strawbridges	15000		9-Jun-2015						
···· -	3		OZG FK	960	103	P	150	PU_150001		Strawbridges	12000		12-Jun-2015						*
Resour	ces							Tasks											
		Resource	Productivity	Setup/I	Process r	ratio 9	0		🛛 V	Vidth	Item Type	Orde	r OperationID	i Actual	Start	End		Setup/Proce	ss ratio
	B	1101	71.8 %								OZPL FK	50	PU 50001-0	8:53:24	6-1un 0:00	6-1un 8:	53		
	A	1102	71.6 %			-					VZPL FK	195	PU 195001-0	7:00:00	6-Jun 8:53	6-Jun 15	:53		
	2	1103	71.4 %			d					OZG FK	183	PU 183001-0	6:43:48	6-Jun 15:53	7-Jun 4:	37		
	ě.	1104	73.7 %			i i i i i i i i i i i i i i i i i i i			-		OZPL FK	35	PU_35001-0	1:52:12	7-Jun 4:37	7-Jun 6:	29		
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	Ø	1203	79.7 %						🙁 📲		OZPL FKSH	20	PU_20001-0	5:06:36	7-Jun 22:47	8-Jun 3:	54		
	Ø	1204	77.2 %						🙁 📲		OZPL FKSH	167	PU_167001-0	8:21:00	8-Jun 3:54	8-Jun 12	:15		
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	1	1304	80.2 %)		~		OZG FK	192	PU_192001-0	8:21:00	9-Jun 14:26	10-Jun 3	:47		
											OZG FK	39	PU_39001-0	6:43:48	10-Jun 3:47	10-Jun 1	0:31		
									8		OZPL FKSH	/5	PU_/5001-0	1:52:12	10-Jun 10:31	10-Jun 1	8:23		
									~		OZPL FKSH	62	PU_177001-0	4:18:00	10-Jun 18:23	11-Jun 4	:41		
									~			02	PU_02001-0	4:18:00	11-Jun 4:41	11-Jun 8	29		
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		withir	, a conarat	oron	ort L	thic	vample	tho acc	ht .			-							
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within a separate report. In this example, the asset utilization is displayed as headlight KPIs which are updated in real-time. Each planning decision made will have a corresponding impact on these KPIs.



Reporting / Analytics: Asset Utilization

🕲 Paperbags - ScheduleComparer - WorkflowHelper - WorkflowEngine - GUIHelper - Schedule - ScenarioManager 🕞 📴 🛃												
File Edit Forms Views Window Help												
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//%	1	06-Jun-2015 00:00	07-Jun-2015 00:00:00	08-Jun-2015 00:00:00	09-Jun-2015 00:00:00	10-Jun-2015 00:00:00	11-Jun-2015 00:00:00 12	2-Jun-2015 00:00:00 13-Ju				
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Delivery performance	3 1102	20	66	0	84	29	31	72				
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	17 NOTES.	ated based on ratio of tet	al cotup timo dividad by t	total production time of :	machina par day							
			a secup cime divided by		a machine per day							
	20 Value > 50											
	21 Value > 25											
	22 Value = 0											

Quintiq can display asset utilization in real-time, or within a separate report. In this example, the asset utilization is displayed with a report, corresponding to a particular point in time.





Reporting / Analytics: Time spent on changeovers and cleanouts



In this example, Quintiq is summarizing the aggregate time in setup, cleanout, waiting, and production for the given time period. We can also create a more granular report that details this information.



Planning decisions and impact to KPI's

@ Quintiq Process	Scheduler - Unplanned - GUIHelper					
File Edit Forms View	ws Window Help Automation D Import 🕞 🛞 🗞 🌏 🖓 👼 🖝 🔕	s s 🗉 🔳 🖂 📦				
KPI Dashboard	mance Efficiency 152	Average Paint loss cost	Average Cleanin	19 liquid cost 16 appl in re	planning KPIs are dis ication. Every plannii al-time, so you can m	played throughout the ng decision impacts these KPIs leasure the quality of your
Orders and Op	perations x			plan	ning decisions before	you execute them. This will
📑 Planning 🕱	Resources and Tasks ∞			drive	hetter decision mak	ing for Rich Products
Filter resources on: [Selected order Planned resources Allowed	l resources 📃 Custom filter on combine	d order(s)			
Dispersers	20:00 Aug-23-2013 4:00	8:00 12:00	16:00 20:00	Aug-24-رالس13 4:00 د	3:00 12:00 16:00	20:1
HSD1	↓ 4070950 € 940514 38 407095 0	4066024 406	4051508	4066024 694051525	4074746 4074746 40515	17
HSD2	940514 <mark>38 40660</mark> 24	407095 <mark>0 </mark> 107405	1438 🐶 4051438 403	51745 4051745	3 40771	64
HSD3						
HSD4	024 4066024 🔗4051554 40	066024	4066024	438 🚱 40514 <mark>38 🧳</mark>	94051438	
HSD5	3 407095 4070950	051438 4051530	4051745 4066024	4051508 69407474 6940	51525 4051508 🚱40515: 405:	1517
Mixing Unit A						
Mixer01	4070950	1	051 <mark>525</mark>	€ 4051	525	
Mixer02	4070 <mark>950</mark>	40 <mark>6602</mark> 4	40 <mark>6602</mark> 4	€ <mark>4074746</mark>		
Mixer03	051 <mark>164</mark>	40 <mark>6602</mark> 4	40 <mark>6602</mark> 4	406 <mark>6024</mark>		
Mixer04	406 <mark>6024</mark>	4071950	405 <mark>1745</mark>		405 <mark>1745</mark>	
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Mixer06		<pre></pre>		<pre></pre>	<pre></pre>	
Mixer07	<mark>⊛4</mark> 05155	54		405 <mark>1745</mark>	4051 <mark>508</mark>	
Mixer08			4051438	€ 940 <mark>514</mark>	138	
Mixer09	406 <mark>6024</mark>	406602	4 4	06 <mark>6024</mark>	€ <mark>4074746</mark>	
Mixer10	051753	4051530		4051 <mark>508</mark>	04	07714
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Line1						
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Line2 (Batches)						
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