



Operations Planning & Optimization

Dr. Victor Allis, Co-founder and CEO



QUINTIQ

Solving puzzles
since **1997**



QUINTIQ FOUNDING VISION

Solving the world's
planning puzzles

Supply Chain Planning market opportunity?



Software market
valued at **\$4-6+**
billion
annually



Supply Chain
Planning software
market **growing**
at 8% per year



Is a **top buying**
priority for large
companies with
complex supply chains



Attractive to partners:
SCP projects
implementation revenue-
to-software is **2 to 10X**
the license value

Quintiq's market position

Gartner
Market Snapshot

Quintiq is the **fastest growing**
SCP vendor among the top 5

#1	SAP	16.8
#2	Oracle	1.8
#3	JDA Software	2.0
#4	Quintiq	25.7
#5	Epicor	14.7
	Other vendors	9.6

Source: Gartner, *Market Snapshot: Supply Chain Management Software, Worldwide, 2013*, Chad Eschinger, Yanna Dharmasthira, May 9, 2014.

Note: Values includes license software revenue ONLY.

2013
Revenue
growth %

*"... driven by its unique supply chain
planning platform proposition."*

Source: Gartner, *Market Share Analysis: Supply Chain Management Software, Worldwide, 2012..May 2, 2013*
Note: Values includes license software revenue ONLY.

Gartner
Magic Quadrant



Quintiq recognized
as a **"Leader"** in
Gartner's Magic
Quadrant for
Supply Chain
Planning

*"... has one of the highest levels of overall
customer reference satisfaction."*

Source: Gartner, *Magic Quadrant for Supply Chain Planning System of Record*, T. Payne,
March 6, 2014

2015 Quintiq primary target markets

Metals



- Aluminum
- Steel
- Copper

547 Targets

Manufacturing



- Beverage
- Food/Meat
- Agriculture
- Textiles

505 targets

Natural resources



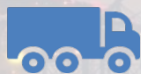
- Oil & Gas
- Pipelines
- Mining

611 targets

OPPORTUNISTIC

- Chemicals
- Discrete manufacturing
- E.g. Auto
- High Tech
- Consumer products
- Retail
- Healthcare
- Education
- Communications
- Utilities
- Defense/Public sector

Logistics



- Trucking
- Postal
- Maritime

535 Targets

Workforce



- Passenger
- Freight
- Transport

266 Targets

Workforce



- Air Traffic
- Air Services
- Bus Services

420 Targets

Access to new industries

Marine shipping & terminals

Marine & offshore



Aerospace & defense

Air services & air traffic

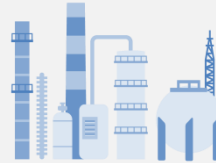


Industrial equipment



Metals

Natural resources



Architecture, engineering & construction



Rail, postal & express

Transportation & mobility



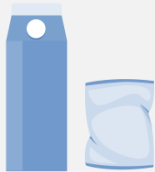
Oil field services & distribution

Energy, process & utilities



Textiles

Consumer packaged goods



Life sciences



Broadcasting

Financial & business services



Consumer goods & retail



High-tech



Differentiators and barriers to entry

- › **One platform for all planning needs**
Strategic through day-of-operations
- › **100%-fit, configurable architecture**
All constraints considered; no coding required
- › **KPI-based planning**
Instant feedback and scenario comparisons
- › **Record-breaking optimization**
Not automated heuristics





QUINTIQ SETS NEW WORLD RECORD FOR VRPTW

Quintiq shatters 21 world records for vehicle routing with time windows

Vehicle Routing Problem with Time Windows (VRPTW), a variation of an optimization benchmark created in 1959 by Dantzig and Ramser.

The challenge: Service 1,000 customers using a minimal number of vehicles traveling minimal distance.

The best known result (C1_10_7) prior to Quintiq was 97 vehicles with a total distance of 44,806.73 miles.

Quintiq was able to find a solution utilizing the optimal 97 vehicles, but with a total distance of only 43,453.92 miles.

The VRPTW has been studied since the 1970s and Quintiq achieved a result that researchers around the world have not been able to reach to date.

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



QUINTIQ SETS
NEW WORLD
RECORDS
FOR FJSSP

Quintiq holds
110 world records
for flexible 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.



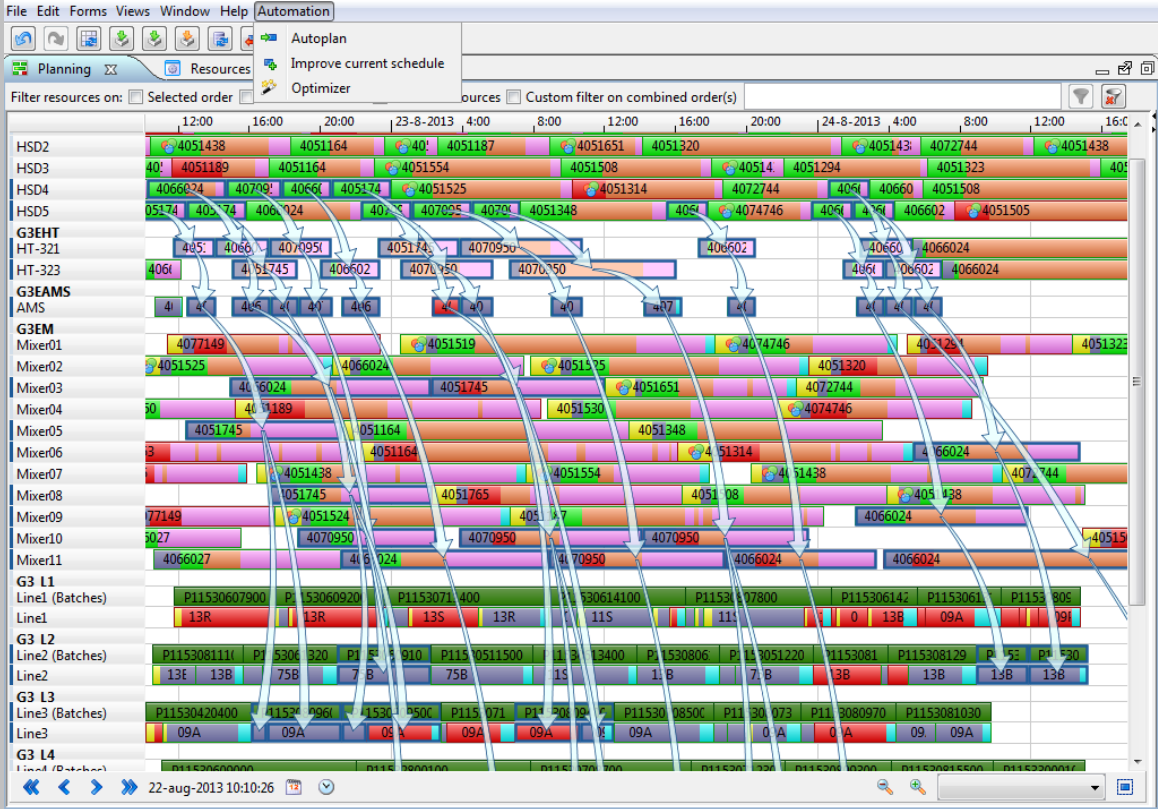
Customer use cases



A large industrial manufacturing facility, likely a steel mill or metal processing plant. A long, wide, light-colored metal sheet or coil is being processed on a conveyor system that runs through the center of the frame. The machinery is complex, featuring numerous rollers, gears, and structural supports. The scene is filled with industrial equipment, including large pipes, ladders, and safety railings. The lighting is bright, highlighting the metallic surfaces and the scale of the operation. The overall atmosphere is one of intense industrial activity.

Manufacturing

Process sequence visibility





Logistics

Logistics planner

Quintiq Logistics Planner Application - ScenarioManager - LP

File Edit Interface Forms Settings Tools Views Windows Help

Time: Oct-8-2013 00:00:00

4 Scenario: LP

KPI

Shipments

Filter pickup Filter delivery Deselect (F8)

Pl...	ID	PickupWi...	PickupWindow...	Pickup Addr.	DeliveryWindowStart	DeliveryWindowEnc
025	9-Oct 11:00	9-Oct 15:00	Turnhout	9-Oct 11:30	9-Oct 17:30	
034	9-Oct 11:00	9-Oct 15:00	Turnhout	9-Oct 11:00	9-Oct 18:00	
002	9-Oct 11:00	9-Oct 15:00	Uithoorn	9-Oct 12:30	9-Oct 17:30	
114	9-Oct 11:00	9-Oct 15:00	Uithoorn	9-Oct 11:15	9-Oct 16:15	
141	9-Oct 11:00	9-Oct 16:00	Uithoorn	9-Oct 11:15	9-Oct 17:15	
004	9-Oct 11:00	9-Oct 15:00	Utrecht	9-Oct 12:15	9-Oct 17:15	
079	9-Oct 11:00	9-Oct 15:00	Utrecht	9-Oct 12:30	9-Oct 17:30	
102	9-Oct 11:00	9-Oct 15:00	Utrecht	9-Oct 12:45	9-Oct 17:45	
132	9-Oct 11:00	9-Oct 15:00	Utrecht	9-Oct 12:15	9-Oct 17:15	
142	9-Oct 11:00	9-Oct 15:00	Utrecht	9-Oct 11:00	9-Oct 18:00	
027	9-Oct 11:00	9-Oct 15:00	Waremmme	9-Oct 12:30	9-Oct 17:30	
038	9-Oct 11:00	9-Oct 15:00	Waremmme	9-Oct 12:00	9-Oct 17:00	
041	9-Oct 11:00	9-Oct 15:00	Waremmme	9-Oct 12:30	9-Oct 17:30	
063	9-Oct 11:00	9-Oct 15:00	Waremmme	9-Oct 12:45	9-Oct 16:45	

Map

Route

Filter route routes

Truck	Name
Truck01	
Truck02	
Truck03	
Truck04	
Truck05	
Truck06	
Truck08	
Truck10	
Truck12	
Truck13	

Transitions

Color	R...	S...	S...	Start	Type	Details	Qty	City
Green				9-Oct 10:10	Start	+Truck06		Hoogstraten
Blue				9-Oct 10:10	Configure	+Driver06		Hoogstraten
Blue				9-Oct 10:17	Configure	+Trailer06		Hoogstraten
Orange				9-Oct 12:00	Pickup	+079_1		Utrecht
Orange				9-Oct 13:00	Pickup	+137_1		Weesp
Orange				9-Oct 14:35	Pickup	+035_1		Deventer
Orange				9-Oct 14:47	Pickup	+075_1		Deventer
Orange				9-Oct 14:59	Pickup	+149_1		Deventer
Orange				9-Oct 17:09	Delivery	-079_1		Nijmegen
Red				9-Oct 17:40	Delivery	-075_1		Ravenstein
Red				10-Oct 9:00	Delivery	-149_1		Ravenstein
Red				10-Oct 9:11	Delivery	-035_1		Ravenstein

Stops

Utrecht

Feedback

Hoogstraten

Reason Code: No reason

Timestamp: 26 Mar 1:17 AM

Start End

Five retail trends to watch in 2014
4. Same-day delivery services

RetailingToday™

SERVING THE TOP 100 U.S. RETAILERS & THEIR TRADING PARTNERS

Differentiating with delivery: Top trends for 2014

THE WALL STREET JOURNAL



TECHNOLOGY

Order It Online And... Voilà

Same-Day Delivery Becomes
Web Battleground

TRENDING NOW:

retailers differentiating
through delivery

Internet RETAILER®

Will same-day delivery be the bottled water of 2014?

Forbes

LOGISTICS & TRANSPORTATION

Battle Intensifies for Local and Same-Day Delivery Service by Amazon and Its Rivals

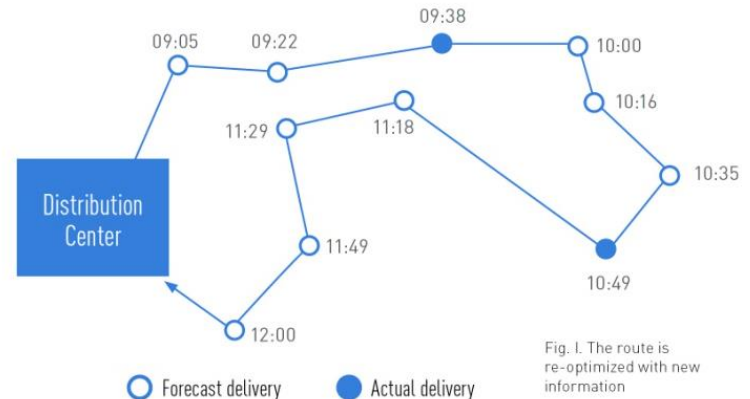
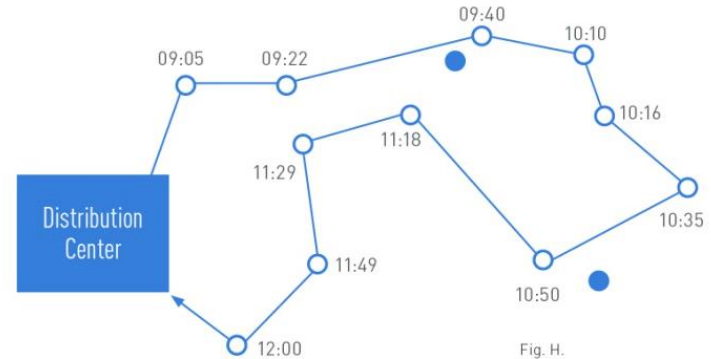
Quintiq's same-day delivery vision

Strategy:

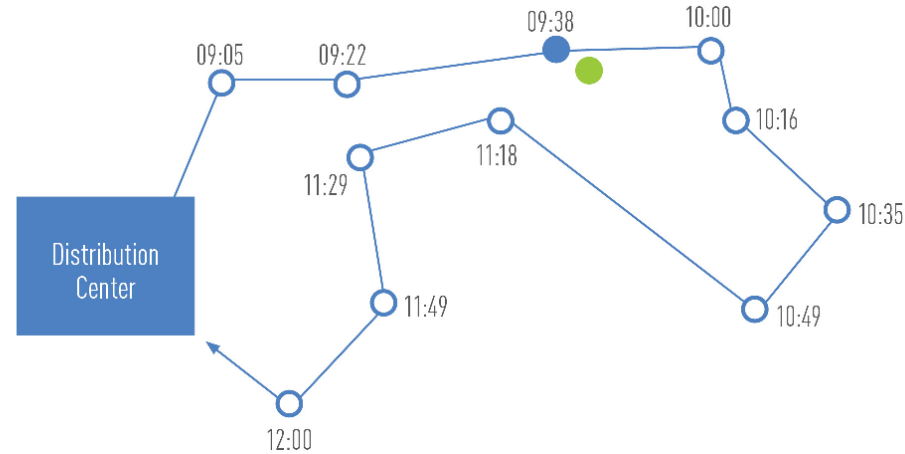
1. Forecast orders based on historical patterns
2. Optimize delivery for forecasted orders
3. Real orders replace forecasted orders and provide customer suggestions for delivery times/delivery cost

Continuous optimization enables demand shaping and higher service:

Discounted/free delivery to customers who order early or accept suggested delivery windows



Dynamic pricing offered based on cost of delivery



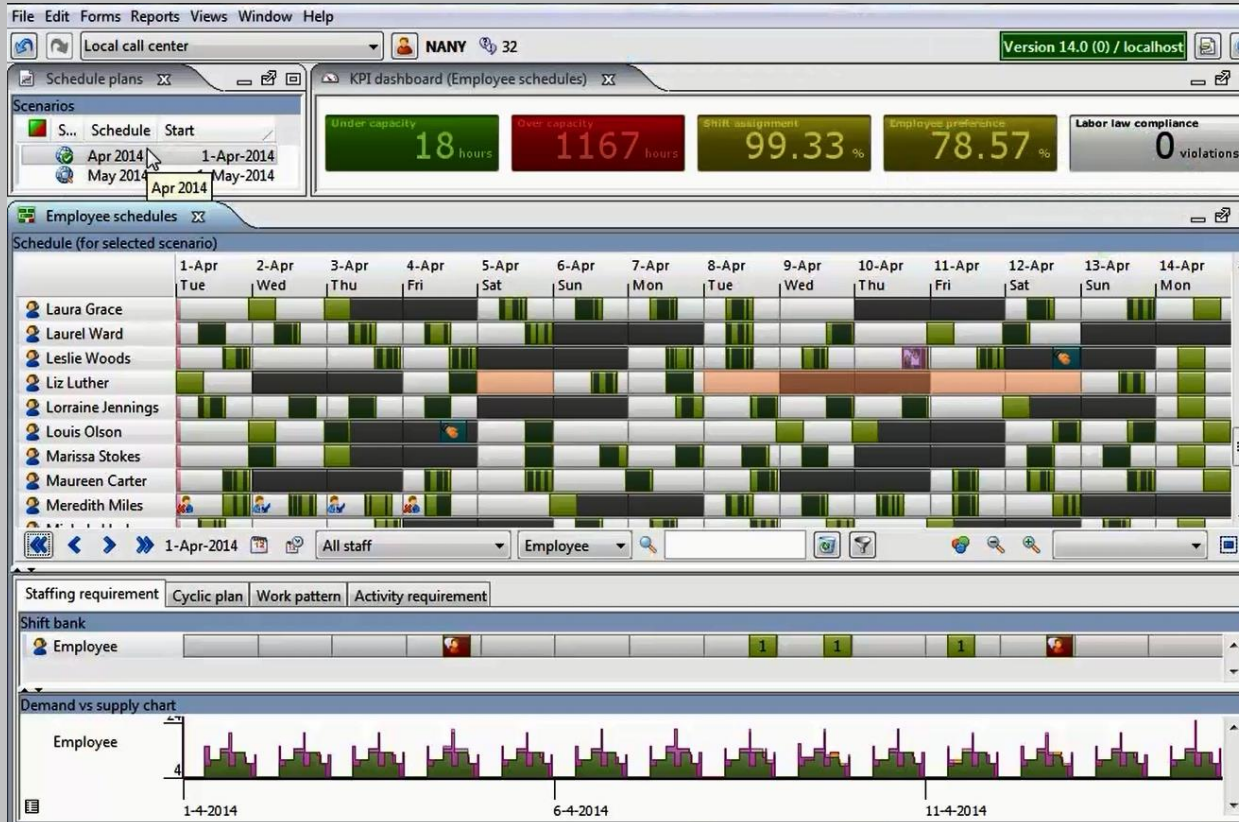
- Forecast delivery
- Actual delivery
- New order

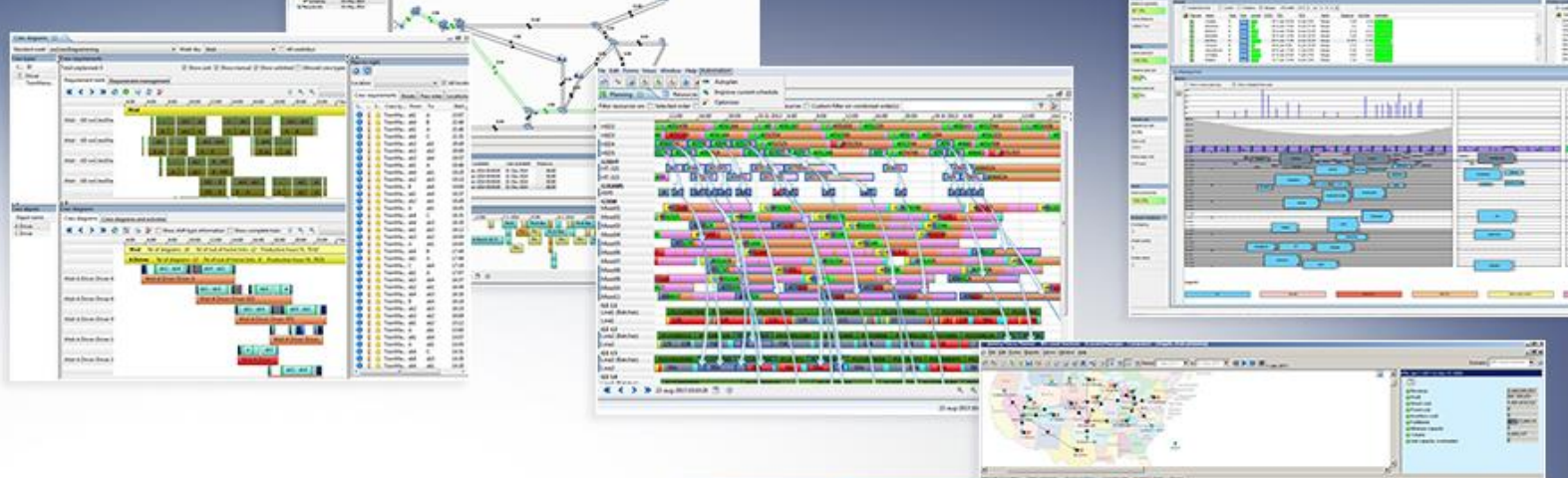
Fig. J. Account information - including delivery address - becomes available the moment a customer logs in or puts something in his or her shopping cart. Within seconds, the system generates a number of choices for different time windows with related costs/discounts.



Workforce

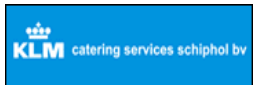
Shift assignments to meet demand





Industry-leading technology

It is all about VALUE!



- Delivery performance improved from 98% to 99.5%.
- A 3% gain in capacity through more efficient use of its vehicles and drivers.



- Improved planer effectiveness by 250%
- Enabled centralized planning that improved resource utilization
- ROI in 6 months



- Trucks reduced by 15%.
- Vans reduced by 35%.
- Labor reduced by 20% and still decreasing.
- ROI in 6 months.



- Increased output by 10%.
- Improved delivery performance by 20%.
- Yields have improved significantly as no additional raw material inputs have been required to increase output.



- 15% reduction in mileage
- 8% reduction in tour duration
- Significant reduction of fuel consumption
- Reduced CO2 emissions



- Delivery performance improved from 40% to 90%.
- Stock reduced by 33%.
- Output increased by 44%.



- 4%-7% Increased mechanic utilization improved by 4 to 7%.
- Planning effort reduced by 75% (3 hrs / day).
- Return on Investment (ROI) within 1 year.



- Improved vessel space utilization by 5%.



- ROI in less than a year.
- Train punctuality increased from 80% - 95%



- 12.5% savings on operational costs.

... and even more VALUE!



- Increased inventory turns by 10%.
- Time required to produce an unconstrained plan was reduced by 75%.
- 45% increase in on-time production.
- Running more than 90% of products on time.
- 20% improvement in inventory turns.



- Increased production.
- Reduced inventory (20% lower WIP)
- Improved customer service (raising rate of weekly promised deliveries by more than 30%)



- Improved capacity utilization and less temps required.
- Reduced SLOB by 20%
- Reduced planning effort
- Reduced inventory by about 5%
- Increased sales value expected by at least 1%



- Lead time reduced by 50%.
- Work-in-progress reduced by 18%.
- Delivery performance improved from 50-60% to 80-90%.



- Efficiency in soaking pit improved by 4%
- Hot mill efficiency increased by 2%.



- WIP levels reduced by 15%.
- Delivery reliability improved by 20%.
- Production lead times shortened by several days.



- ROI within 2 months
- Improved interval usage by 10%.



“When Henry Ford
made cheap, reliable
cars people said,
*Nah, what's wrong
with a horse?*”
- Elon Musk



Breakthrough transformation



Inspiration

Design
Mock-up
Simulate
Collaborate

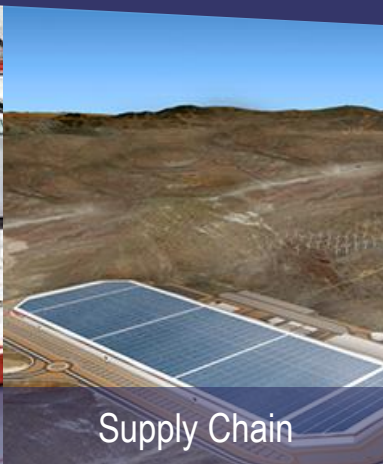


User Experience



Manufacturing

Process design
Assembly instructions
Ergonomics
Staffing
Production plan



Supply Chain

Make vs. buy
Sourcing plan
Inventory management



Channels

Marketing
Sales
Forecast
Logistics
Delivery



Ecosystem

Design
Test
Installation instruction
Cost modelling
Installation planning



Service

Staffing scheduling
Routing
Instruction

Breakthrough transformation



Inspiration

- Design  CATIA
- Mock-up  SOLIDWORKS
- Simulate  SIMULIA
- Collaborate  ENOVIA



User Experience



Manufacturing



Supply Chain



Channels



Ecosystem



Service

- Process design  DELMIA
- Assembly instructions
- Ergonomics
- Staffing  QUINTIQ
- Production plan

- Make vs. buy  QUINTIQ
- Sourcing plan
- Inventory management

- Marketing  3DXcite
- Sales  3DVIA
- Forecast  QUINTIQ
- Logistics
- Delivery

- Design  CATIA
- Test  SIMULIA
- Installation instruction  DELMIA
- Cost modelling  QUINTIQ
- Installation planning

- Staffing scheduling  QUINTIQ
- Routing  DELMIA
- Instruction



3DEXPERIENCE®

Questions?