



CREATE FLOW

A QRM4.0 EVENT

PROGRAM

- 12:30 | Walk in with lunch / exhibition**
- 13:30 | Start & introduction QRM by lead partner *Pascal Pollet (Sirris)***
- 13:45 | Presentation toolkit**
- 14:00 | Success stories**
- 15:00 | Break & exhibition**
- 15:30 | Success stories**
- 16:30 | Panel discussion**
- 17:00 | Closing moment**
- 17:15 | Networking**

PASCAL POLLET

Sirris

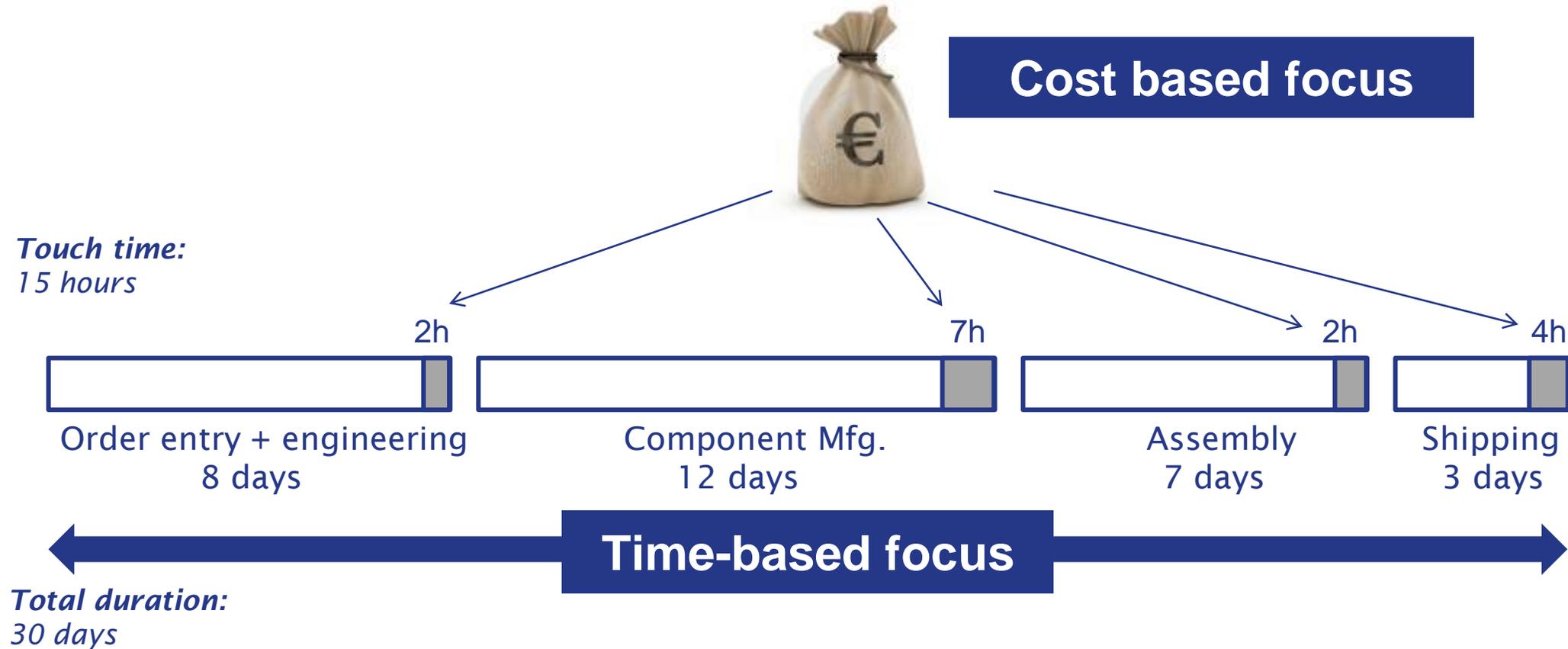


QRM4.0

15/06/2023



Time thinking



Cost focus



Work faster

Time focus



Collaborate better

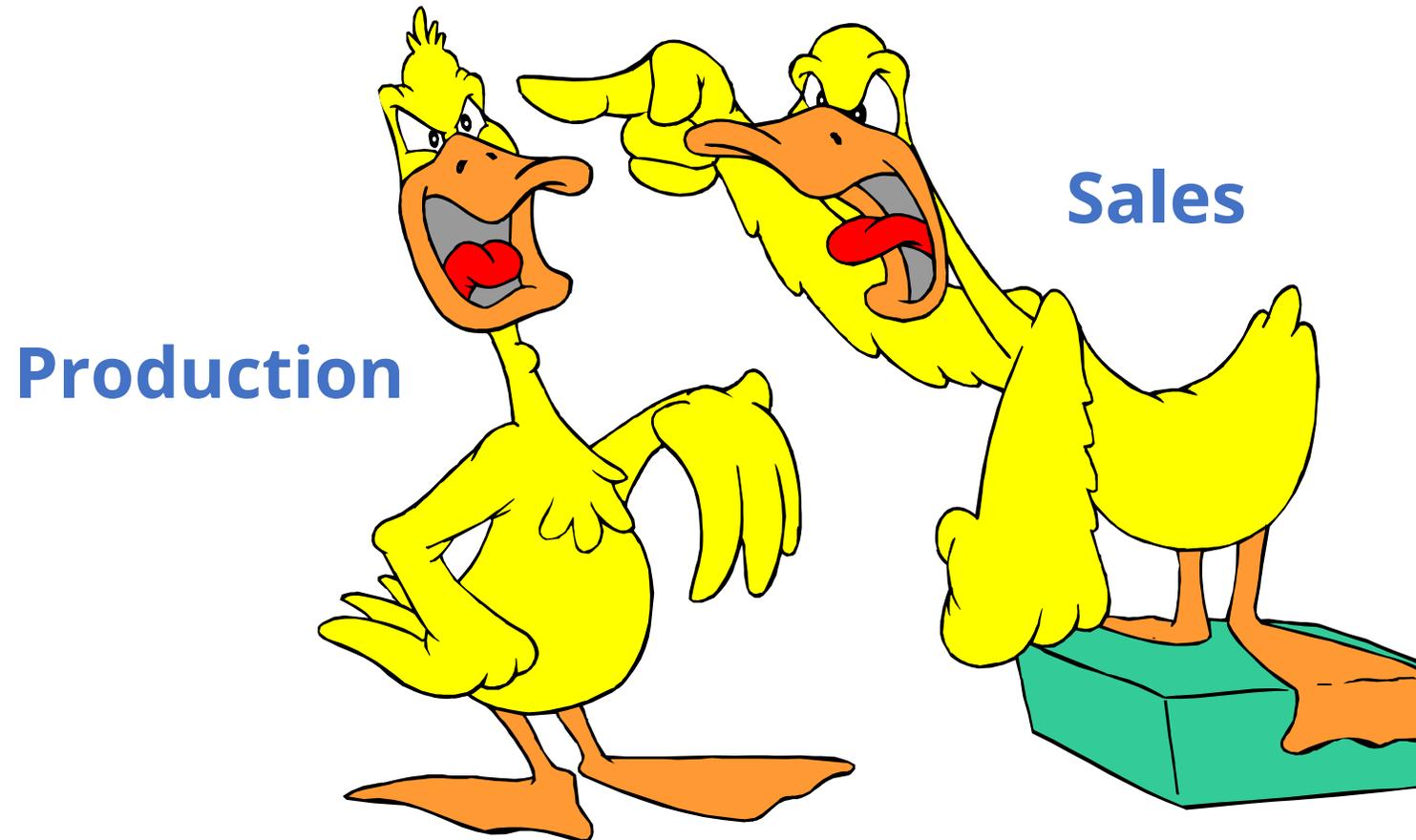
Exercise

If your lead times were 90% shorter...

- **What could you reduce / eliminate?**
- **What would this mean for your customers?**
- **What would this mean for you and your team?**

Think also about less obvious examples!

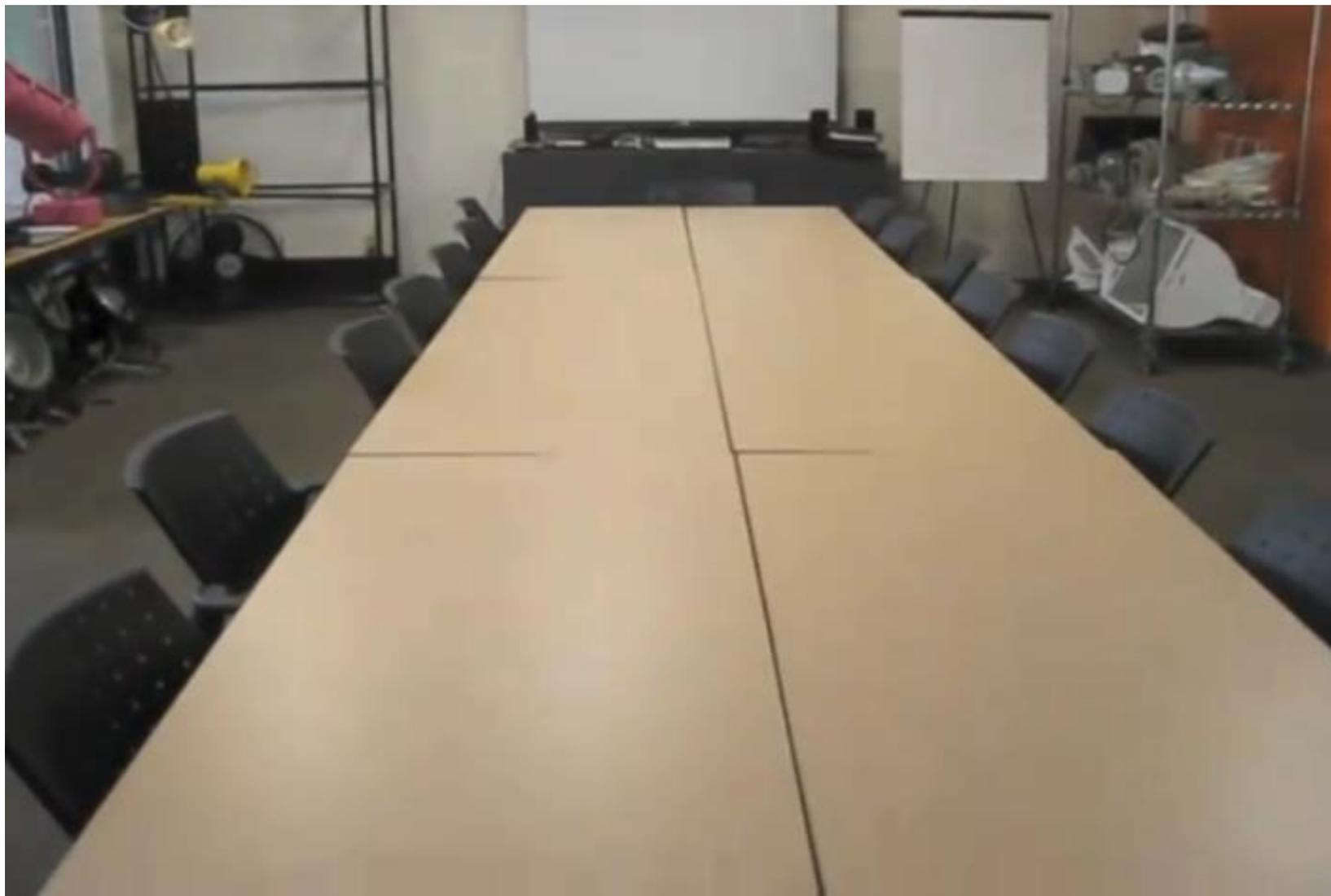
Effect of long lead times



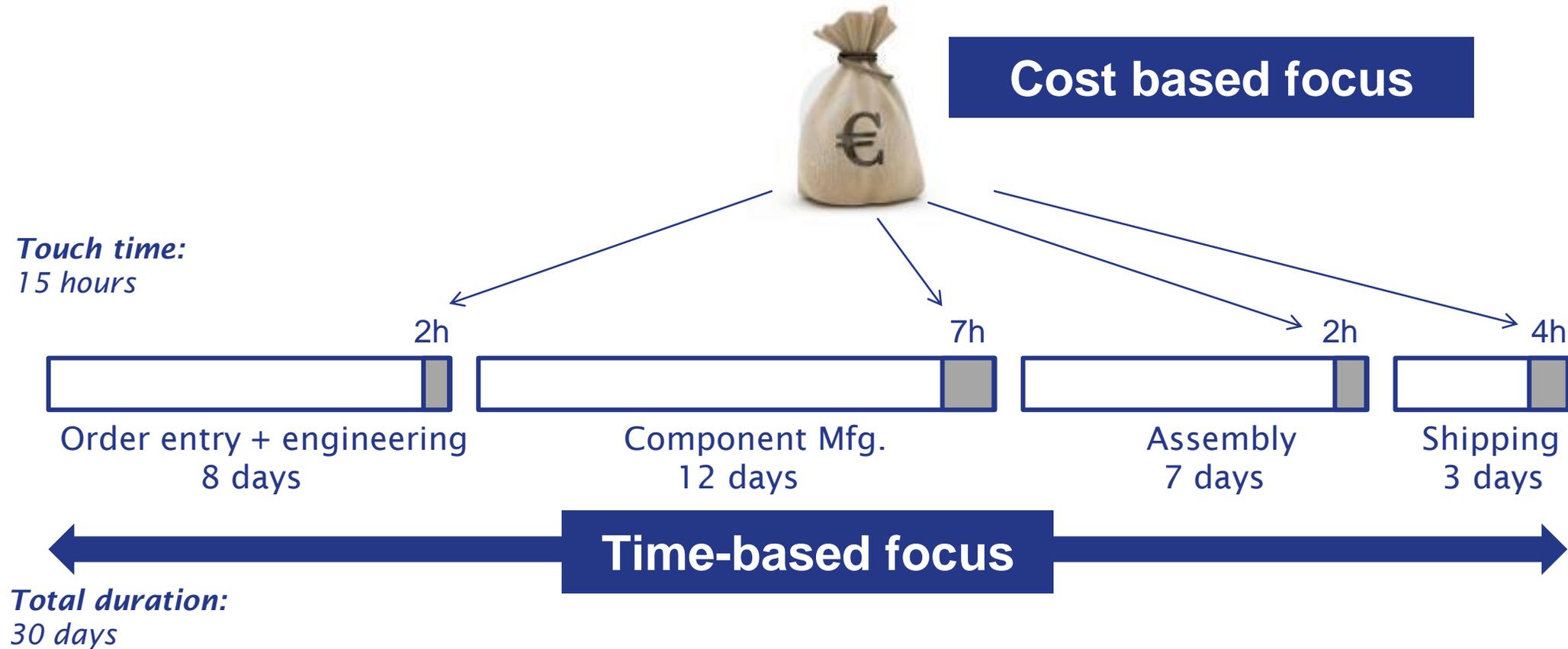
Phoenix: Planning before QRM



Phoenix: Planning after QRM



Hidden costs of white space

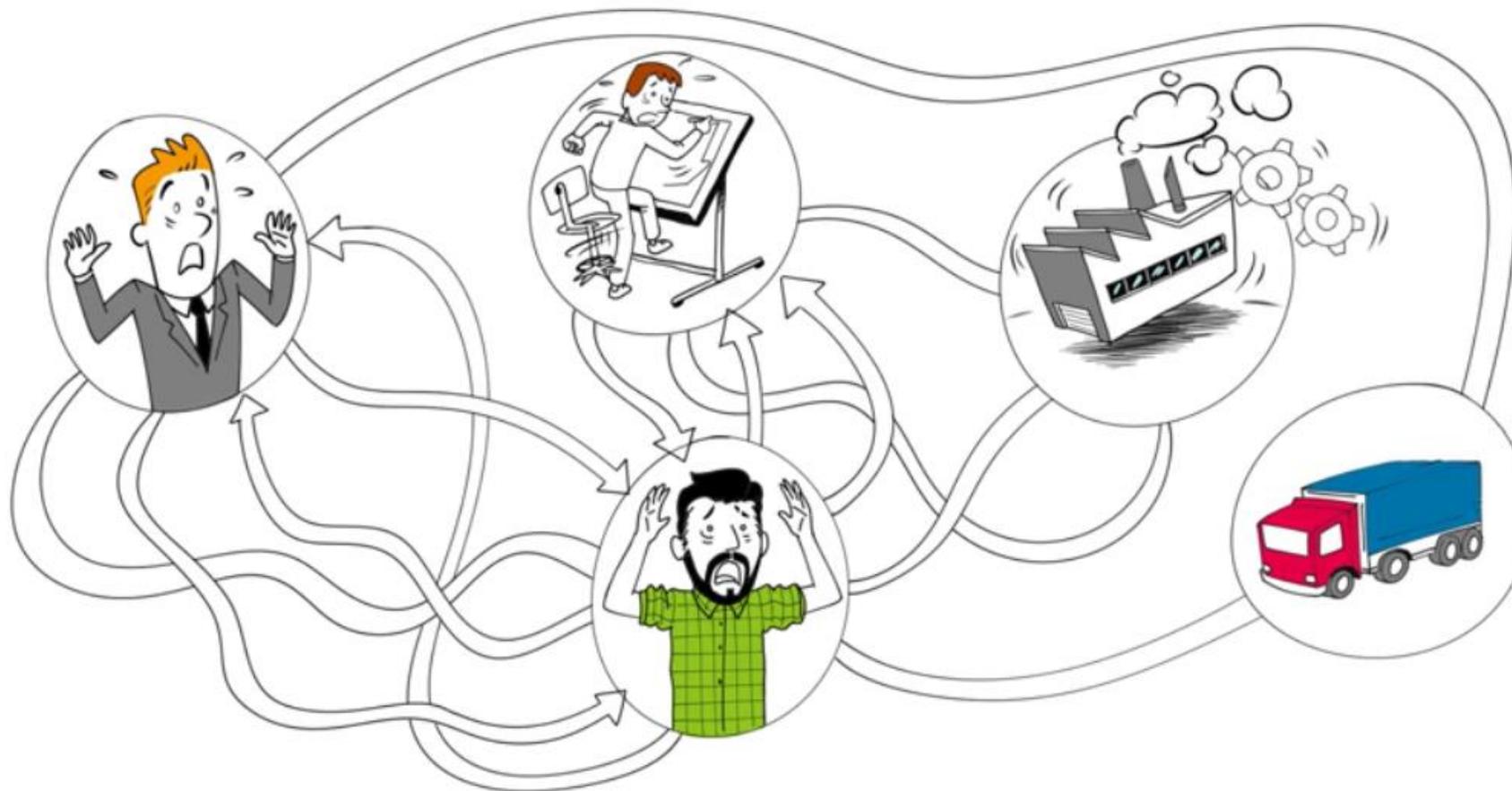


What is QRM 4.0?

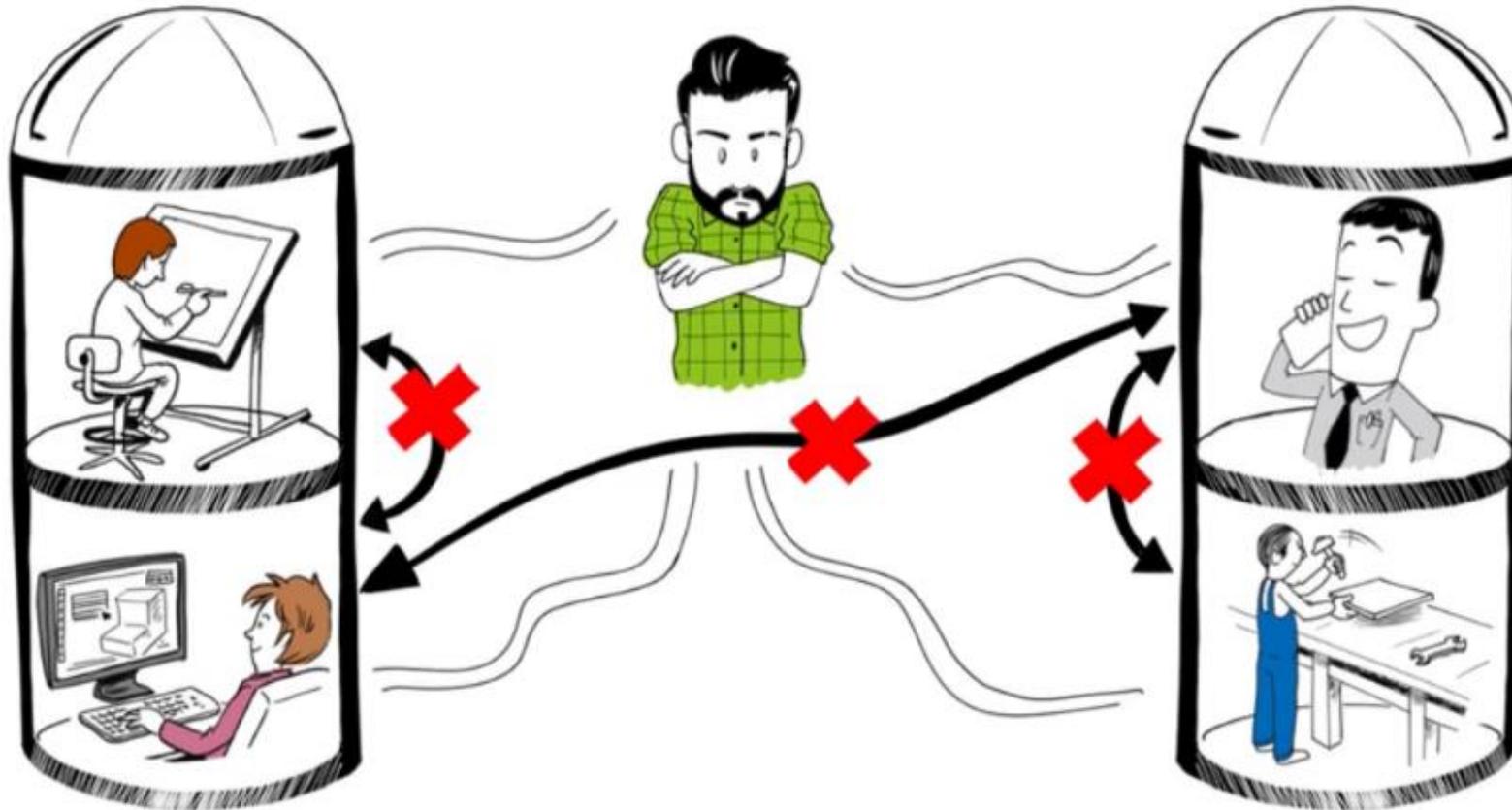
QRM is a company wide growth strategy focused on lead time reduction to enable companies to prosper in a fast changing world.

QRM4.0 uses digital tools to slash lead times and to support teams to collaborate better together.

Why does it take so long?



Organizational silos



Organizational silos limit the cooperation

“Industry 4.0” to slash lead times



Provide the digital tools that enable people to **eliminate waiting times.**

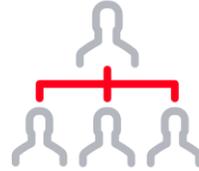
- Automated order processing: product configurators
- Direct access to information: Shop floor control systems
- Tools to support cross-functionality in teams (instruction systems,...)
- Connecting information islands (API, EDI,...)

TRADITIONAL

QRM

Organisation

Functional



Teams

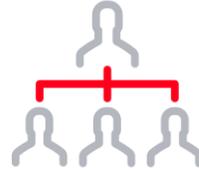


TRADITIONAL

QRM

Organisation

Functional



Teams



Management

„Top-Down“



Ownership



Biglietti gratuiti
Ricevute scuole

Biglietti gratuiti
inferiori ai 16 anni o superiori
ai 65 anni, appartenenti alla
Comunità Europea

Biglietti adulti
8,00

Biglietti ridotti
> da 16 a 64 anni <
4,00

RAVIZOLI REGIONE

TERZO
PAGAMENTO



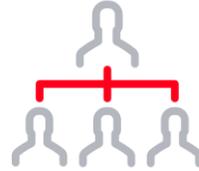
TRADITIONAL

QRM

QRM4.0

Organisation

Functional



Teams



Management

„Top-Down“



Ownership



Personel

Specialists



Crosstrained



Mindset

Efficiency



Lead time
Reduction



Mindset



Nothing will delay an order!

QRM4.0 - Project Goal

“Make EMR-region manufacturing SMEs more competitive by aiding them to implement human-centered process innovation and innovative digital technologies (QRM4.0) on their shop floor to drastically reduce their lead times.”

Inspire

Testimonials
Company
visits

Inform

Technology
sheets
Demonstrators
Workshops

Training

Bootcamp

Coaching & Support

Coaching by team
of experts
Support by IT
partners

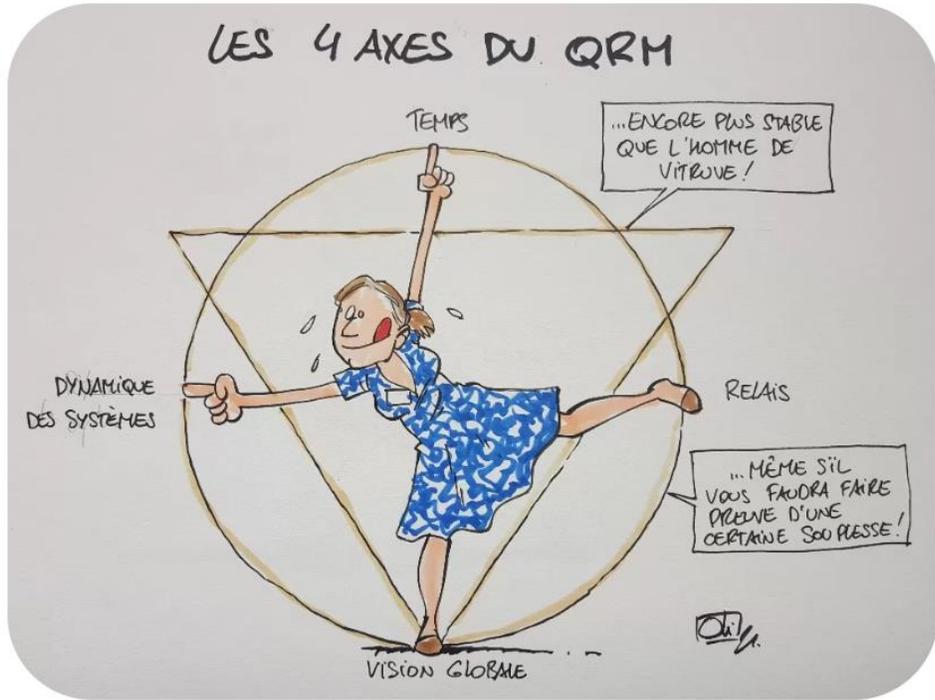
Community

Exchanging
best-
practices

The QRM4.0 toolkit project

← → ↻ 🔒 tools4qrm.eu/en/train/

What you need to know about QRM



LES 4 AXES DU QRM

TEMPS

...ENCORE PLUS STABLE QUE L'HOMME DE VITROVE!

DYNAMIQUE DES SYSTEMES

RELAIS

...MÊME S'IL VOUS FAUDRA FAIRE PRENE D'UNE CERTAINE SOU PRESSE!

VISION GLOBALE

The 4 keys to QRM

- Time as an ally
- The organisational structure
- Adapting system dynamics
- Company-wide approach

<https://tools4qrm.eu/en/>

The QRM4.0 toolkit project

tools4qrm.eu/en/get-informed/

AIM | Brunssum (NL)
2023 QRM4.0 AIM
Later bekij... Delen
Bekijken op YouTube

CHROMIN | Sleperweg (NL)
QRM4.0 CHROMIN
Later bekij... Delen
Bekijken op YouTube
rent departments in the company:
ning, production and control,

DRONEMATRIX | Hasselt (B)
QRM4.0 DRONEMATRIX
Later bekij... Delen
Bekijken op YouTube

GROUP NIVELLES | Gingelom (NL)
QRM4.0 GROUP NIVELLES
Later bekij... Delen
Bekijken op YouTube
that is sold afterwards.
It feels good.

<https://tools4qrm.eu/en/>

Project partners



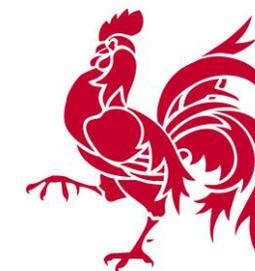
Associated partners:



Project sponsors



provincie limburg



Wallonie

Provincie Noord-Brabant



Ministerie van Economische Zaken
en Klimaat

GERT THORA

Belgian Cycling Factory

Pedaling towards success: The Quick Response
Manufacturing Revolution at the Belgian Cycling Factory

BELGIAN

CYCLING FACTORY

**Pedaling towards succes:
The QRM Revolution @ BCF**

**Gert Thora
CIO**

BELGIAN CYCLING FACTORY - THE BRANDS



Performance
Competition Bicycles
Gravel-Road-MTB-Cross
TT-Track



(Urban) e-Mobility Bikes



Lifestyle Bicycles
Road-Gravel



Handmade Custom Bicycles
Made in Belgium



Components and Wheels



Performance
Cycling Wear



Technology incubator and
experience center.

Unique Low Speed
Wind Tunnel



STEP1: DREAM IT, BUILD IT, RIDE IT

HIGH MIX – LOW VOLUME



COLOR:

models x designs x color areas x number of
colors/area x finish

$$37 \times 8 \times (42 \times 42 \times 5) \times 2 = 5.221.440$$

OPTIONS:

models x groupsets x crank x wheels x tires
x kit x saddle

$$37 \times 8 \times 9 \times 5 \times 4 \times 2 \times 6 = 639360$$

Totaal unique combinations:

$$3.338.379.878.400$$



FENIX SLIC

From €3,749.00



FINISH



CHAT WITH US

CONFIGURATOR AS A SALES TOOL

STRONG INCREASE IN CONFIGURATOR
USE SINCE APRIL 1st 2021 LAUNCH

01/04/21 - 01/04/22

Started configurations
753654

Saved Configurations
69731

Ordered configurations
21379



CONFIGURATOR PROVIDES BUSINESS INTELLIGENCE

Search...

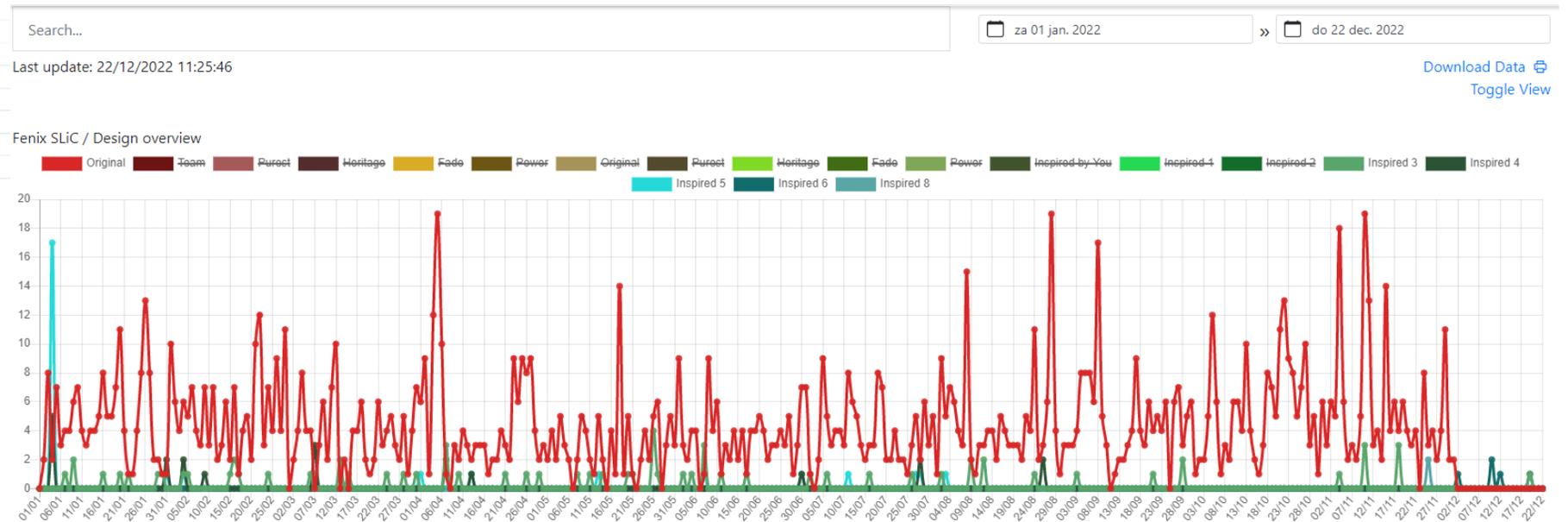
za 01 jan. 2022 do 22 dec. 2022

Last update: 22/12/2022 11:25:46 [Download Data](#) [Toggle View](#)

Model	Code	#Favorited
Model: S25 Disc 7E3	S25SLDISC	59
Model: Falcon RS 7E7	FALCONRS7E7	26
Model: Fenix Disc	FENXDISC	307
Model: Fenix SL Disc	FENXSLDISC	982
Model: Fenix SLA Disc	FENXSLADISC	777
Model: Fenix SLiC	FENXSLDISC/FES	6162
Size	R030_Size	Overview (Model) / Overview (All)
Design	R030_Design	Overview (Model) / Overview (All)
Original	FEN90	1508
Team	FEN01	63
Purest	FEN92	445
Heritage	FEN94	668
Fade	FEN96	1175
Power	FEN97	
Original	FES90	
Purest	FES92	
Heritage	FES94	
Fade	FES96	
Power	FES97	
Inspired by You	FSD90	
Inspired 1	FSD300%	

Per Model/Frame Platform:
Size
Colour
Design/Paint Scheme
Colours

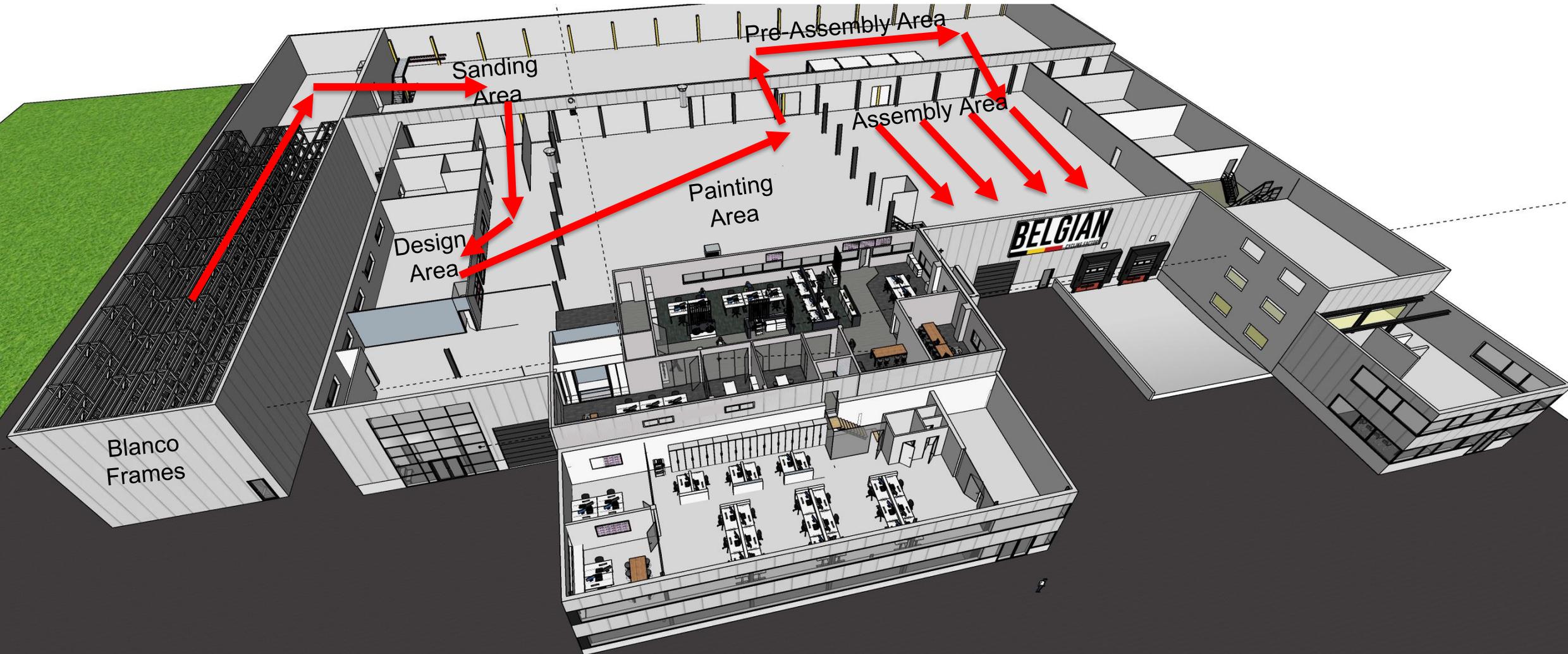
...





STEP2: BUILD IT (QRM)

CREATE FLOW



Horizon 2030: 15 000 → 100 000

QRM is a strategy, not a program

Lean manufacturing is often seen as an operational program that has to be implemented by the Operations Manager to reduce manufacturing costs. In contrast, QRM is a company-wide strategy aimed at creating a competitive advantage by focusing on Time Based Competition. The adoption of QRM will not only be felt by the shop floor, but it will also have a strong impact on the office operations (purchasing, engineering, planning, etc.) and the supply chain. A QRM company will also align its business strategy with QRM and select its market segments and clients based on their sensitivity for short lead times to maximize the impact of the QRM-strategy.

Supply Chain

Planning according to best possible scenario / coming week

Painting

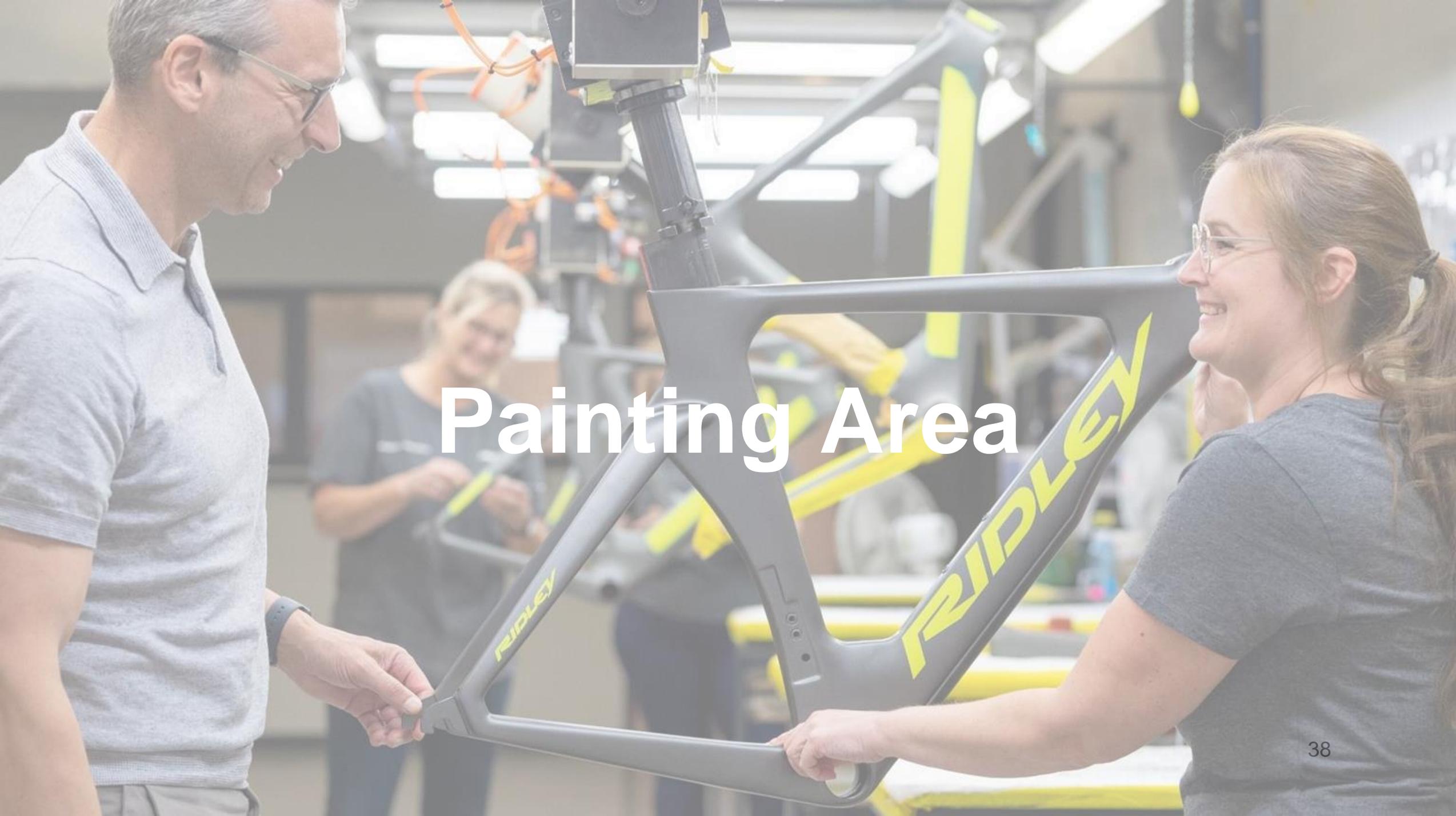
Bicycles combined by
design - basic color

Assembly

Bicycles combined by
model - groupset

Logistiek

Bicycles combined on
customer

A man and a woman are smiling and inspecting a grey bicycle frame with yellow 'RIDLEY' branding. The man is on the left, wearing a grey polo shirt and glasses. The woman is on the right, wearing a grey t-shirt and glasses. They are in a factory setting with other workers and equipment visible in the background. The text 'Painting Area' is overlaid in the center of the image.

Painting Area

 Schuren 	 Sticker 	 Poederen 	 Voorbereiden 
 Grondlaag 	 QC na grondlaag 	 Basiskleur 	 QC na basiskleur 
 Inplakking 	 Spuiten 	 Uitpellen 	 QC voor vernis 
 Vernissen 	 QC 	 Test 	

← **PRB23005476**
Fenix 7E7/size XS/CUSTOM

01-06-2023

22:14:41

254



MOLD01

Size: XS 🔍

Design: FEN01

Frame

Color 1: 9 - Black metallic

Color 2: 1 - White

Color 3: 467 - Battleship grey

Finish: GLOSSY

UCI: RID-FEN1-RD

Fork **UCI:** RID-FEN1-RD

Color 1: 9 - Black metallic

Workfile



CONFIG014833

ASB: ASB23004542

Customer: ALTE BVBA

Due date: 12-06-2023

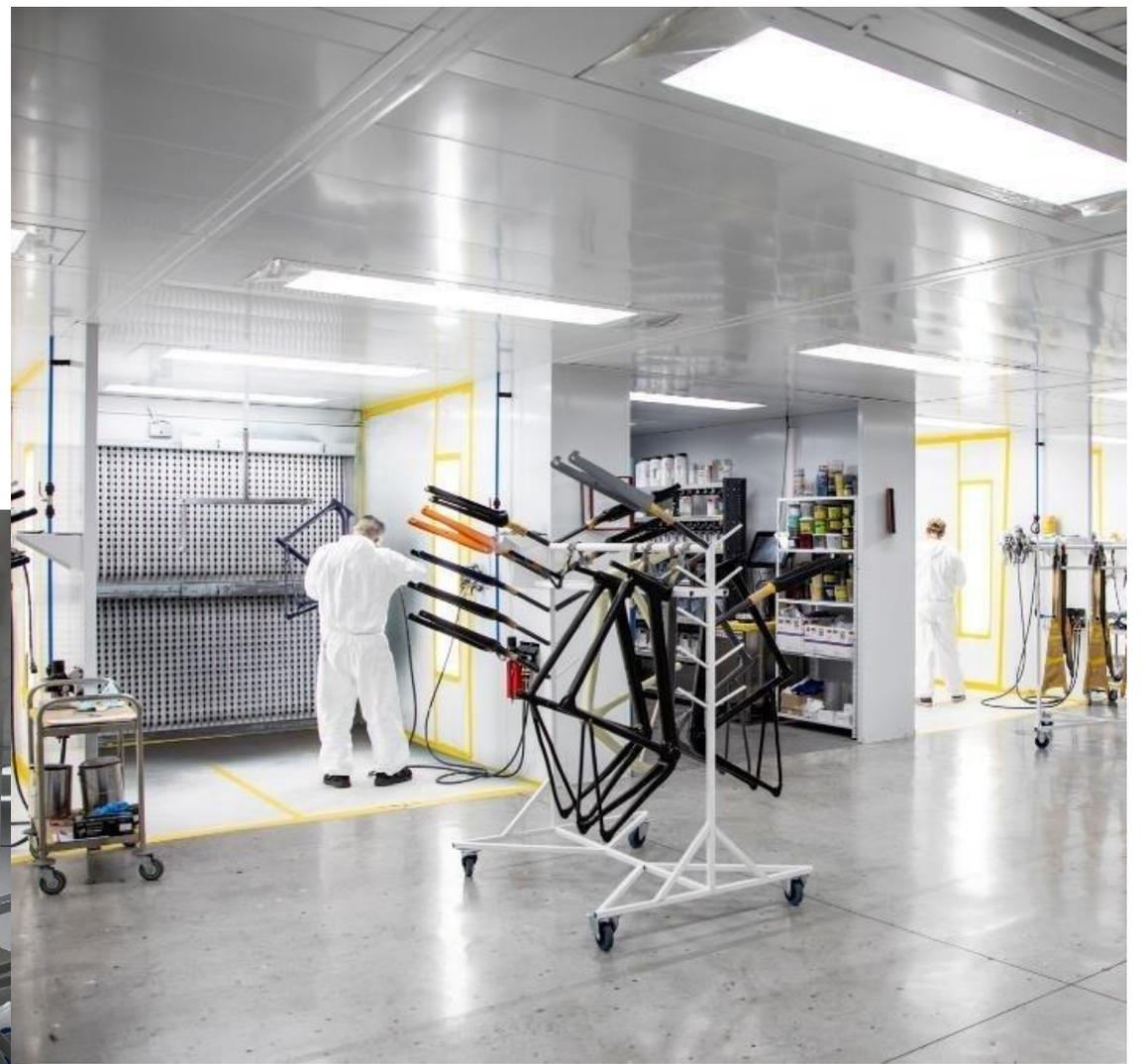
254

open

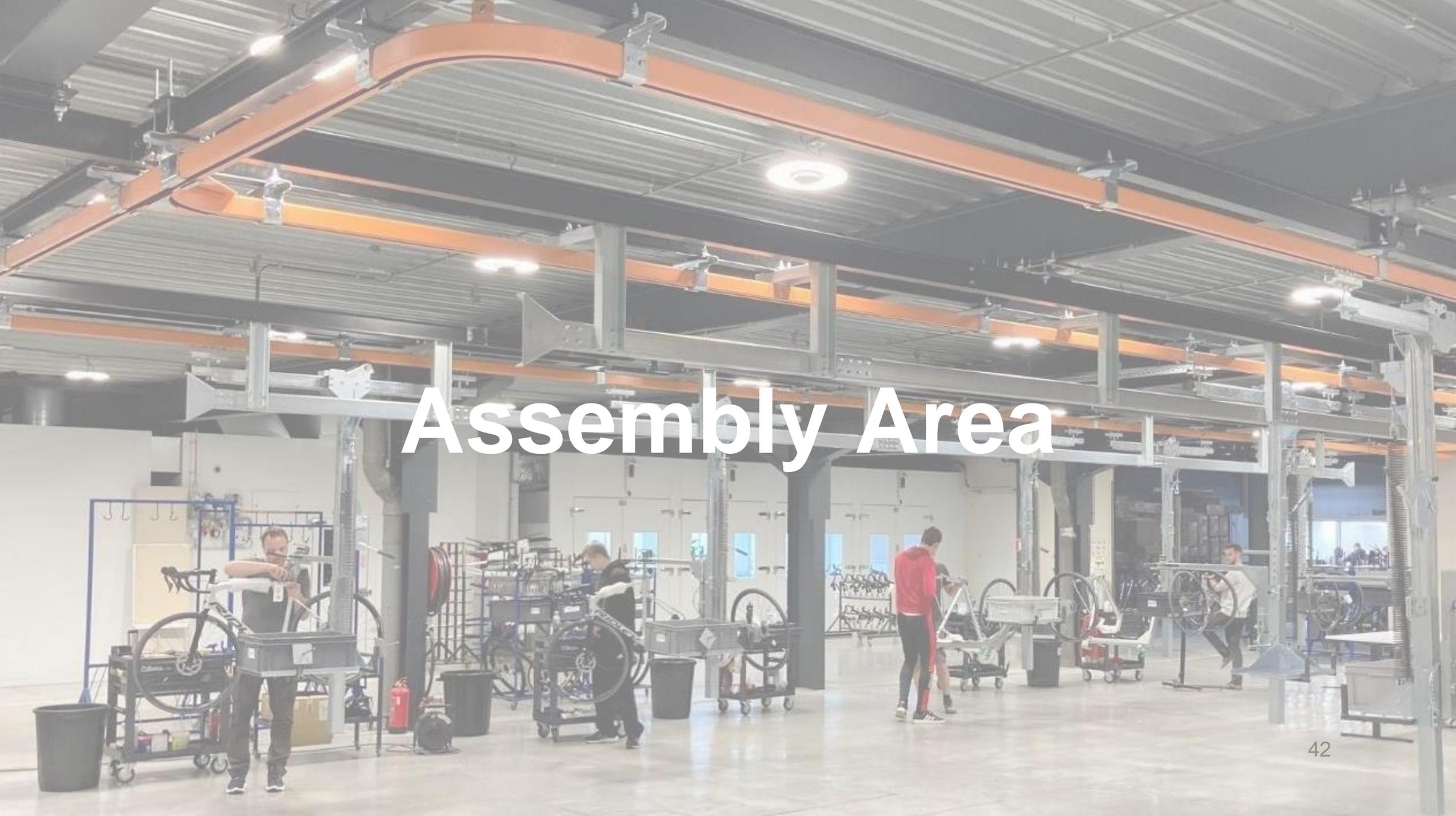
🔧 FRAFENRID016

Koppel serienummer

🔧 FORCFR4ZA617



Assembly Area

A wide-angle photograph of a large, modern industrial assembly area. The ceiling is high with a complex network of grey metal beams and orange overhead tracks. Several circular recessed lights illuminate the space. In the foreground and middle ground, several workers are engaged in assembling bicycles. They are positioned around workstations that include tool carts, bicycle frames, and wheels. The floor is a light-colored, polished concrete. In the background, there are large glass doors and more industrial equipment. The overall atmosphere is one of a busy, organized manufacturing environment.



Picking Frame

✓ 19

⊘ 24



Kwaliteitscontrole

✓ 14



Voormontage

✓ 28

⊘ 9



Lift

✓ 52

⊘ 3



Kabels

✓ 62



Vork

✓ 64

⊘ 12



Wielen

✓ 82

⊘ 48



Stuurmontage

✓ 72

⊘ 69



Montage

✓ 72

⊘ 45



Inpak

✓ 75

⊘ 21



FFS

✓ 7

⊘ 23



Samenrapen



Customer Service

⊘ 4



AMP Wielen

⊘ 2



Afgewezen

⊘ 15

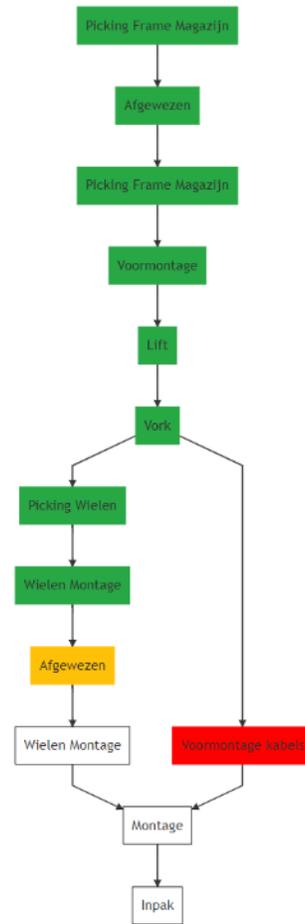
K65 - ASS2000441/1
Fenix MV21 Sram Force eTap AX5 FSD94s(L) - ECB20004025

2189:20:42

RIJLAAR AFMONTEN DOOR NICK
nodig voor testvloot
PRB20008091 EX MOL

Opgelet: Dit document is afgewezen.

Sync met NAV



- 304-40-02 ✓ Picking Frame (Magazijn)
- 17952412 ✓ Afgewezen
- 0015 ✓ Picking Frame (Magazijn)
- 0011 ✓ Voormontage
- 2827 ✓ Lift
- 0005 ✓ Vork
- 0032 ✓ Picking Wielen
- 0057 ✓ Wielen Montage
- 033502 ✗ Afgewezen
- Wielen Montage
- Voormontage kabels
- Montage
- Inpak

Atribuut

Waarde

4 Serienummer

480316 ✎

1

00:02

CRA600SHI001

-	-	-	1	1	1	1	1	1	1	1
B70	J26	L86	Q67	V44	B32	X11	V24	J34	F45	

2

00:34

CABULTSHI019

1	1	-	-	-	-	-	1	-	-	-
L02	U39	Q57	U25	P37	S65	V88	U48	O88	I77	

3

00:45

CRAULTSHI037

-	-	-	-	1	1	-	-	-	-	-
L02	U39	Q57	U25	P37	S65	V88	U48	O88	I77	

4

00:59

CABSTIJAG035

1	1	1	1	1	1	1	1	1	1	1
W70	Z42	U26	O78	F61	I26	F63	C74	T31	T82	



01d 01:14:20
 V02
 Kanzo
 Adventur
 Rival1 HDB
 Inspired 2 M

26 /70

29 /75



0 /0

0 /0



BELGIAN



CYCLING FACTORY

THANK YOU!

STAY IN TOUCH!

Gert.thora@cyclingfactory.be

<https://www.linkedin.com/in/gertthora/>



BRUNO RADERMACHER

Jumo

QRM: responding to a crisis situation



PHILIPPE BALDEWIJNS

Hayen Laser Technology

Benefits of digital Manufacturing Execution System for
QRM implementation



Benefits of a digital Manufacturing Execution System for QRM implementation

Philippe Baldewijns

Operations & ICT director



Hayen Laser Technology



Introduction

Why do we need yet another IT system?

The Need for Efficient Workflow Management

- *Challenges*
 - Data inaccuracies
 - Delays in information flow
 - Difficulty in tracking and analyzing data
- *Impact on*
 - Decision-making
 - Responsiveness to customer demands
 - Degrade overall efficiency

Paper/Manual vs. Digital System

Paper/Manual System

- Manual creation and tracking of work orders
- Reliance on physical documents, cards and tracking systems
- Limited visibility into real-time production status
- Difficulty in capturing and analyzing data accurately
- Communication challenges and potential for miscommunication
- Time-consuming administrative tasks

Digital System

- Automated creation and tracking of work orders
- Digital repository for storing and accessing information
- Real-time visibility into production status and bottlenecks
- Accurate and consistent data capture and analysis
- Streamlined communication and collaboration between cells and teams
- Reduced administrative overhead and improved efficiency

Digital Manufacturing Execution System (MES)

- What is a Manufacturing Execution System?

Digital Manufacturing Execution System (MES)

- Key features
 - Real-time
 - Data accuracy and consistency
 - Streamlining communication and collaboration between cells

Benefits of a Digital MES in a QRM Implementation

- Centralized connected online platform
- Enhanced visibility and transparency
- Dynamically configure and optimize cell
- Visualizing workflow and bottlenecks
- Real-time cell monitoring
- Flexibility in process adjustments
- Agile production scheduling

Benefits of a Digital MES in a QRM Implementation

- On the shopfloor
 - Streamlined workflows
 - Improved communication and collaboration
 - Enhanced work visibility
 - Safety and compliance

Virtual FTMS

- Can sheet metal suppliers employ FTMS?
- Large clients as FTMS
- Virtual FTMS within the MES
- Flexibility and scalability
- Time slicing within the regular cells

Summary and key takeaways

- Game changer
- Real-time visibility
- Improved data accuracy
- Streamlined communication
- Enhanced decision-making
- Optimized work order management

Thank you

philippe@hlt.eu



LASCEL 11

BREAK

30 MIN

DANIEL KAPPES

Thomas Regout

TRI's roadmap to FoF



TRI's roadmap to FoF 2012-2026

D. Kappes, 15-06-2023



Our Business Model

titel van de presentatie

- Customer specific solutions
- Fast deliveries
- Small MOQ possible
- High Q and service level



Focus points 2021-2023

titel van de presentatie

- Optimizing flexibility (people, proces, tools and equipment).
- Expansion of use of information technology.
- Transition of human craftsmanship towards equipment, systems and processes.
- Reduction of human motion
- Automatisatation of internal transportation of tools, WIP and end products
- Increase of FTR&R (First Time Right & Ready)
- 6 **Sustainable Development Goals with respect to** people, materials and energy
- Further transition of the organisation towards the model **Factory of The Future**



67





Sustainable Development Goals that are part of TRI's strategy

van de presentatie





Innovation roadmap 2014-2026

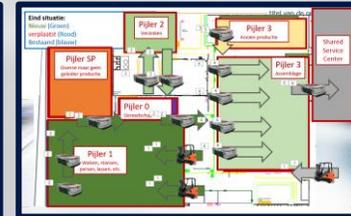
titel van de presentatie

1. Phase 1: Start redesign production facility

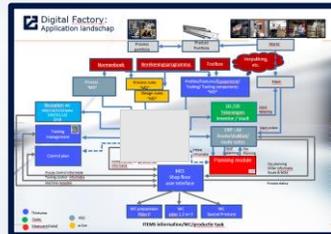


2014-2019

2021-2026



2. Phase 2: Build Digital factory



3. Phase 3: Implement Factory of the Future (Industry 4.0)





Phase 1 Redesign production facility (2014-2019)

titel van de presentatie

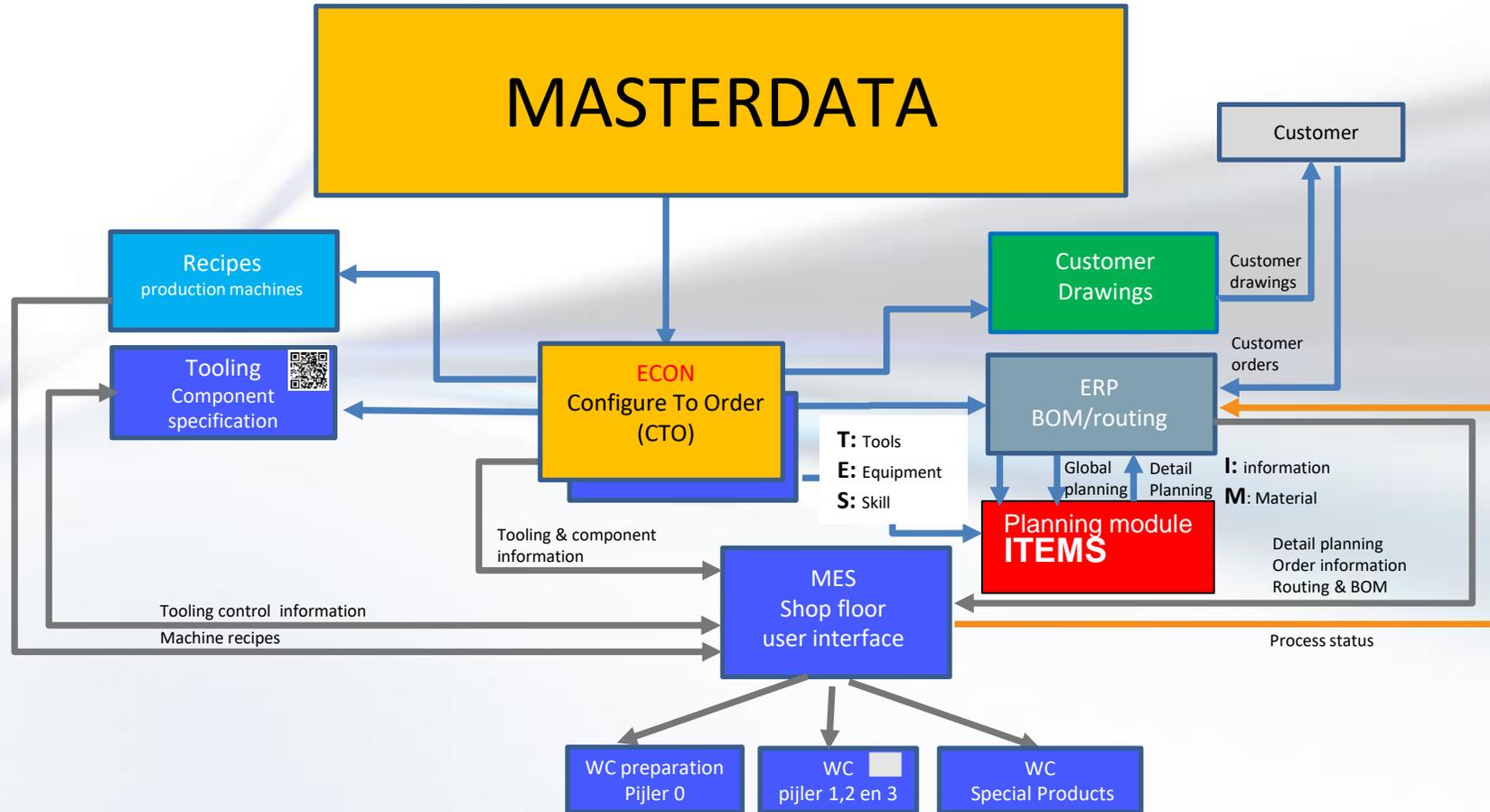




Phase 2: Digital Factory



in de presentatie





MES: Manufacturing Execution System User Interface technology-operator



de presentatie

The screenshot displays the MES user interface. At the top, there's a navigation bar with 'Planbord' and 'Werkplek gebruiken'. Below it, a 'Gereedschappen' (Tools) table lists various tools with their specifications. A large yellow box with the text 'MASTERDATA' is overlaid on the table. Below the table, there's a 'Taak Informatie' (Task Information) section with details like 'Order nr.', 'Taak nr.', and 'Geleider'. To the right, a 'Gereedschappen' table shows a list of tools with columns for 'WP Nr.', 'Toolgroep', 'Omschrijving', 'Toolnaam', 'Bew.', 'Oriëntatie', 'DZ', and 'Locatie'. Below this, a 'Componenten' (Components) table lists parts like 'LN (DS) standaard kast' and 'LITWERPER H/S-IP 21x12-A'. To the right of the components is a 'Tekening' (Drawing) section showing a technical drawing of a component labeled 'GER 210050 Orient 90 GRD'.

Tun	Wis	Tool nr.	Toolgroep	Y nom	# benodigd	# verzameld	Toolverschij	Locatie	Verzameld	Samengesteld
1		1 900689	-Aandrukker	0,00	12	12	900689 (KT26)	WC030 magazijn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1		2 900688	-CENTREERBLOK	0,00	19	19	900688 (KT42)	WC030 magazijn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1		3 900688	-CENTREERBLOK	0,00	19	19	900688 (KT34)	WC030 magazijn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1		4 900690	-Aanslag	0,00	7	7	900690 (KT26)	WC030 magazijn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2		1 900689	-Aandrukker	0,00	12	12	900689 (KT30)	WC030 magazijn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2		2 900688	-CENTREERBLOK	0,00	19	19	900688 (KT43)	WC030 magazijn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2		3 106061	-VKN STERGAT STV 6x9 (2x) X	0,00	6	6	106061 (T)	WC030 werkplek	<input type="checkbox"/>	<input type="checkbox"/>
2		4 106061	-VKN STERGAT STV 6x9 (2x) X	0,00	6	6	106061 (T)	WC030 werkplek	<input type="checkbox"/>	<input type="checkbox"/>
2		5 900688	-CENTREERBLOK	0,00	19	19	900688 (KT40)	WC030 magazijn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2		6 106061	-VKN STERGAT STV 6x9 (2x) X	0,00	6	6	106061 (T)	WC030 werkplek	<input type="checkbox"/>	<input type="checkbox"/>

Taak	PO00238043
Artikel	513248688 RECHTS ULF 3 HOOG SENDZ. 978mm Rechts

WP Nr.	Toolgroep	Omschrijving	Toolnaam	Bew.	Oriëntatie	DZ	Locatie
1	1	106047	STERGAT 6x9 1E BEW	2	-	0°	WC030 / QRO21
1	2	210050	H/S-LIP 21x12+10" SCHUIN	2	-	90°	WC010 / QR011
1	3	106047	STERGAT 6x9 1E BEW	2	-	0°	WC010 / QR066 / KAST X, RUY, PLEK Z
2	4	917025	VERZINKEN TAI - TAI	1	-	0°	WC010 / QR032 / KAST X, RUY, PLEK Z
3	5	207097	H/S-Lip 25-4x10 Inloop 25°+2x 10" Schuin	1	-	270°	WC010 / QR200

Component nr	Omschrijving	Aantal
900224	LN (DS) standaard kast	
21005004	LITWERPER H/S-IP 21x12-A DZ-2.7-3.2 10" SCHUIN	
21005005	SNIBLUGGER H/S-IP 21x12-A DZ-2.7-3.2 10" SCHUIN	
21005008	Bovenplaat (SS) voor magneethuis	

Tekening
GER 210050
Orient 90 GRD

Work Center: Up-to date information

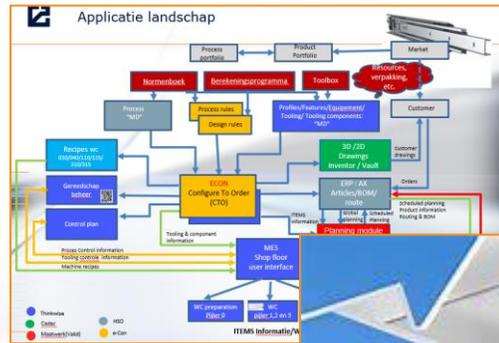
MES data specified:

- Order
- Work Center
- Employee
- No superfluous information



Phase 3: -> Data Driven Doing (DDD)

titel van de presentatie



Order No.	Order Date	Order Qty	Order Status	Order Type	Order Category	Order Subcategory	Order Description	Order Reference
1	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
2	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
3	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
4	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
5	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
6	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
7	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
8	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
9	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard
10	2018-01-01	100	Open	Standard	Standard	Standard	Standard	Standard

MES Shop Floor data

Digital Factory ->



Data analysis -> Information:



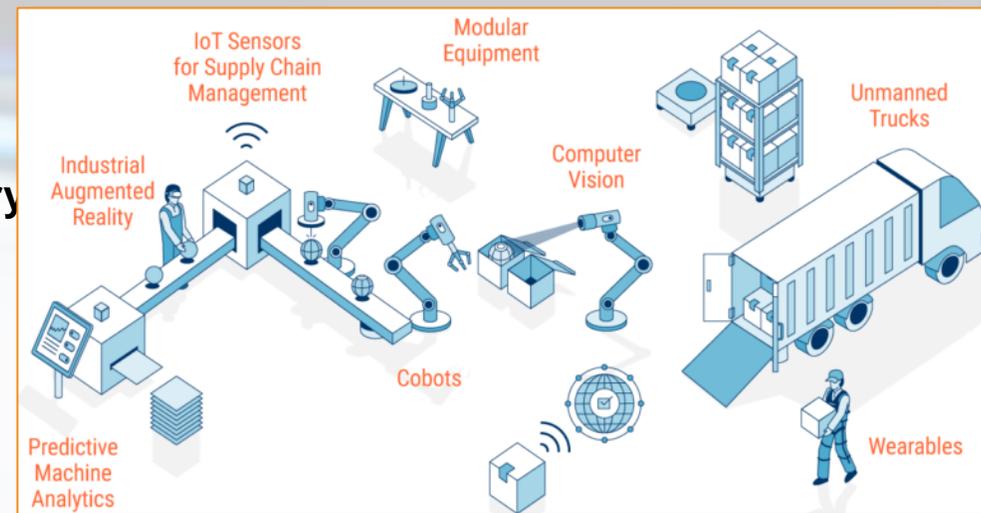


Phase 3: Factory of the Future



...n de presentatie

- **Advanced manufacturing technology**
- **Digital factory**
- ECO factory
- End-to-end Customer Engineering
- **Human Centred Organisation**
- Smart Manufacturing
- **Value Chain Oriented Open Factory**
- Servitization





Phase 3: -> Factory of the Future



presentatie

ProfiStans 2

Expand production facility:

Advanced manufacturing technology

ProfiStans 2

Secure craftsmanship in systems, processes and machines

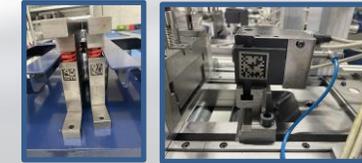
Less dependent on specific production skills

Expand digital plant logistics
AGV transport



Reduce heavy load work:
Introducing Smart robots & Cobots

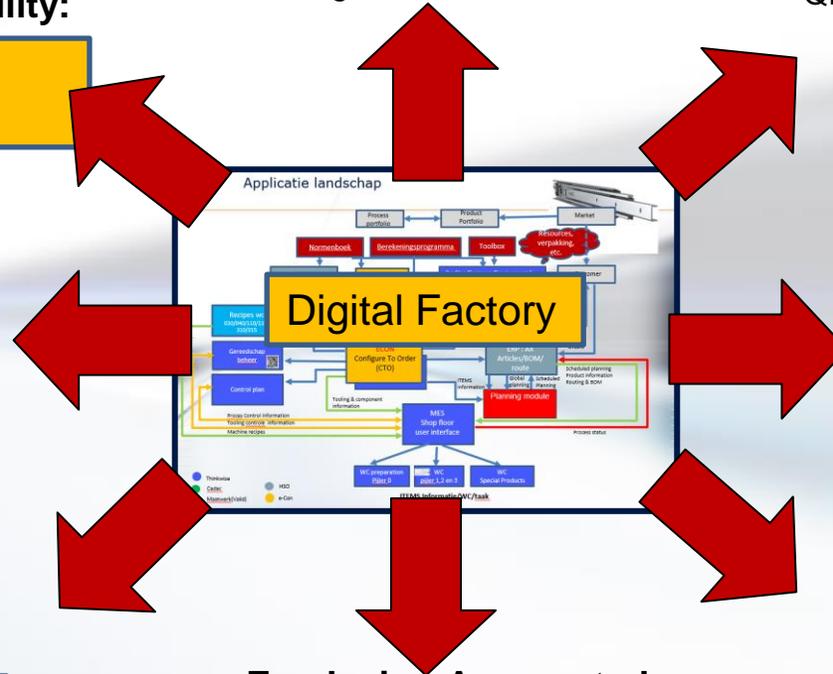
Improve production traceability:
QR codes on tools



Improve quality control:
Auto generated control plans

Increase Production reliability
Redesign tooling assembly department:
Production Simulation technology

Employing Augmented Reality technology:
Tooling assembly



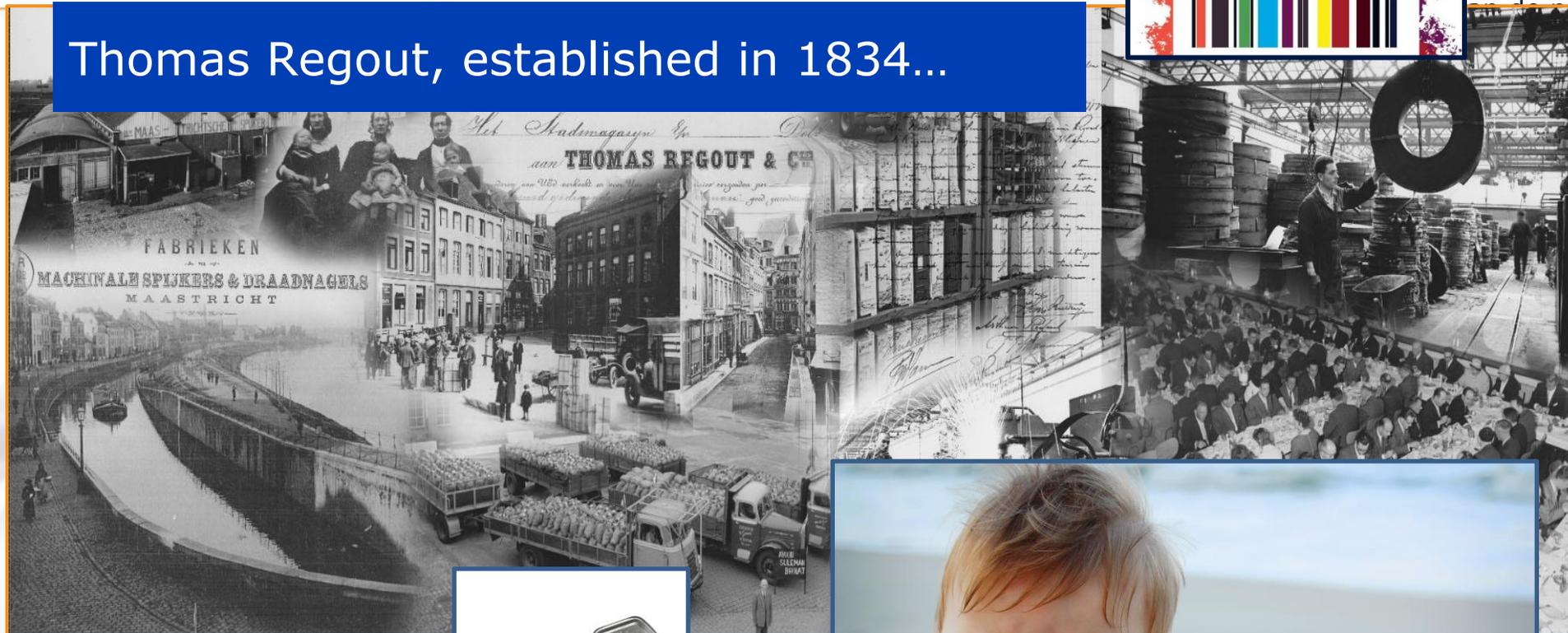


INNOVATION roadmap

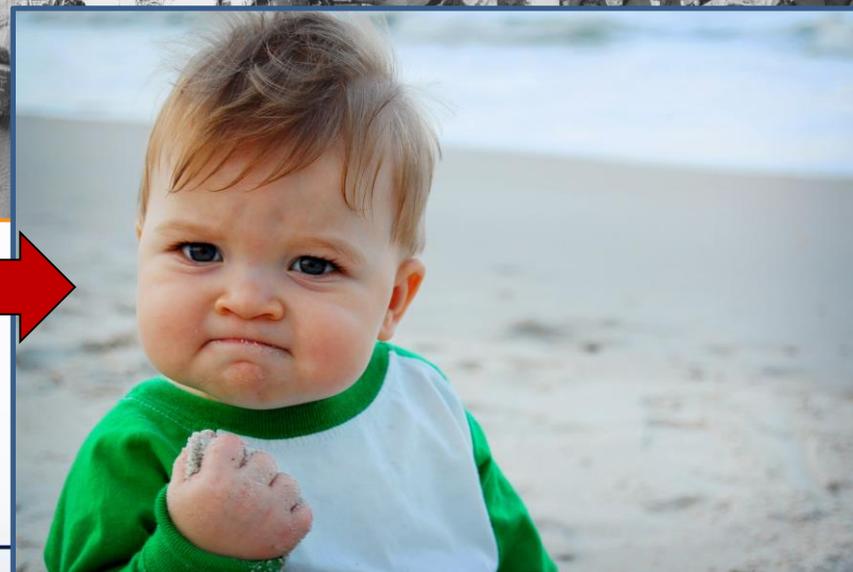


Presentatie

Thomas Regout, established in 1834...



Innovation =



HANS DE KOK

Qmaze

Qmaze at Merger





Qmaze bij Merger

Hans de Kok / Robin Leën
15 juni 2023

Content

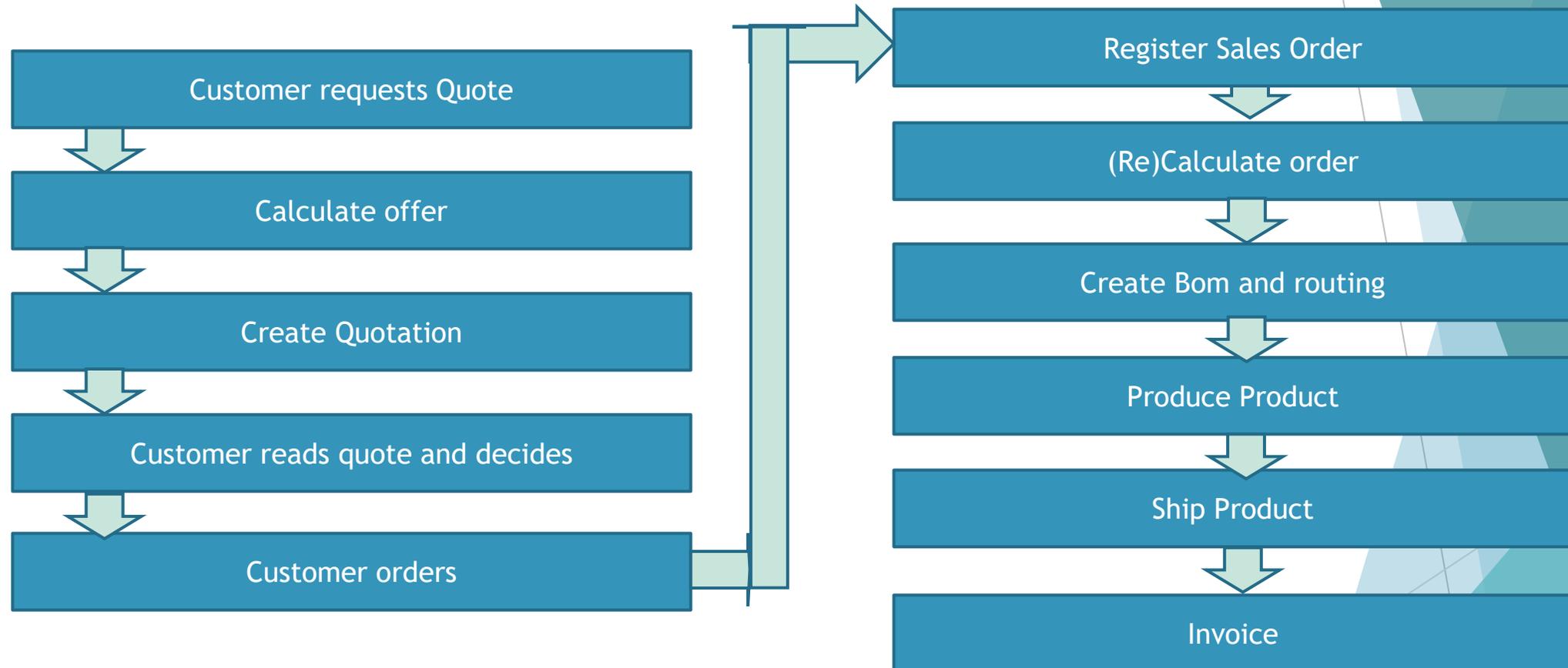
- ▶ Introduction Qmaze
- ▶ Major improvements
- ▶ Business Proces
- ▶ Merger

Qmaze Configurator

- ▶ Web Sales & Product configurator
- ▶ 100% Web
- ▶ Dealer portal
- ▶ 2D 3D en 4D visualisation
- ▶ Multilingual Multicurrency
- ▶ Integration with ERP and CRM
- ▶ Generate Sales Quotes, Sales Orders, Bill-of-Materials, Routings, Drawings, Machinefiles
- ▶ Define and maintain productmodel with and by customer
- ▶ Easy entry threshold

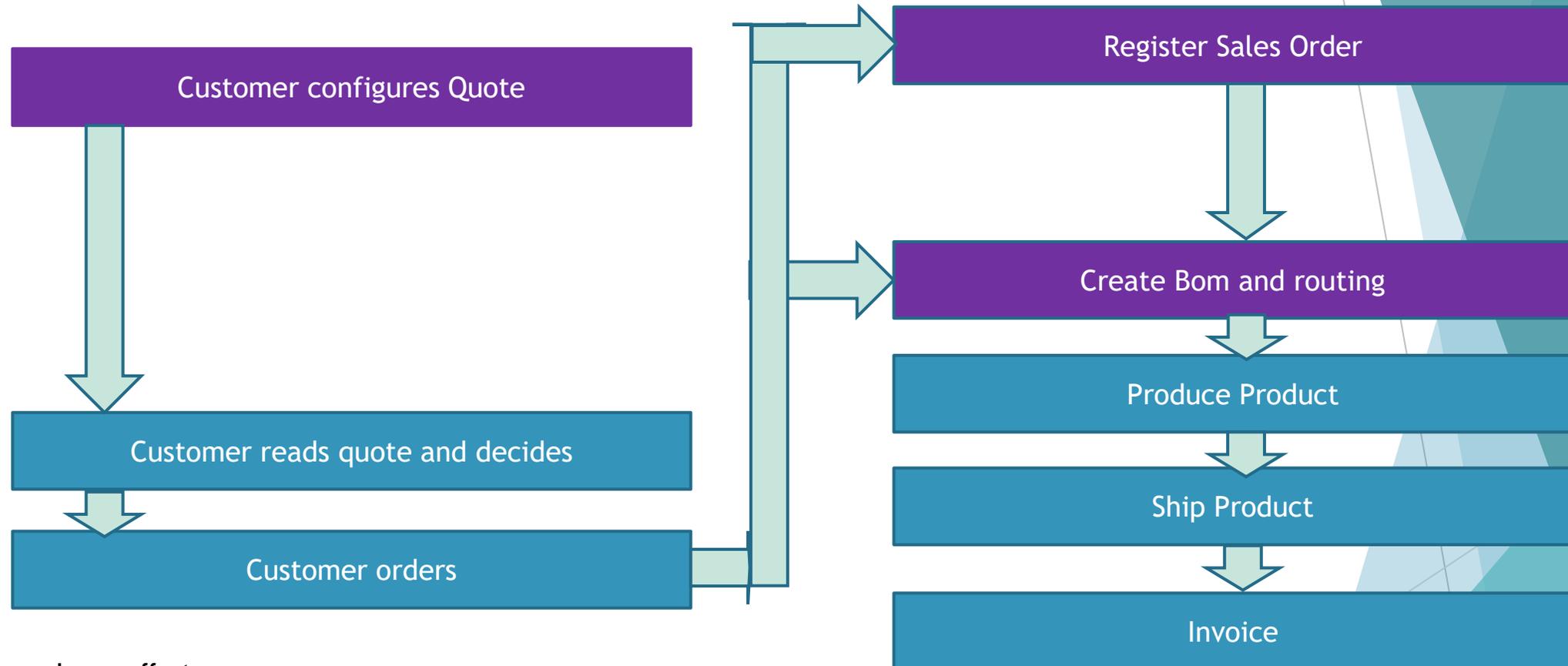
Qmaze quote to cash proces

Traditional proces



Qmaze quote to cash proces

Qmaze proces



Less effort
Reduce leadtime
Reduce Errors

Benefits

- ▶ **Leadtime reduction**

*Customer will see prices and options immediately.
Order calculation removed from order proces*

- ▶ **Effort reduction**

create a quote in a few minutes, or by your customer

- ▶ **Reduce Errors,**

impossible combinations are blocked. Options are not forgotten.

- ▶ **Less education needed.**

Even the customers can configure

- ▶ **Knowledgebase**

Product know-how is documented instead of depending on experienced key-user

- ▶ **Consistency**

Quote and pricing is always the same, not depending on salespersons

References



HAUZER



Video Merger

<https://www.youtube.com/watch?v=eojT5pQPtWY>

Merger

▶ Demo

Content

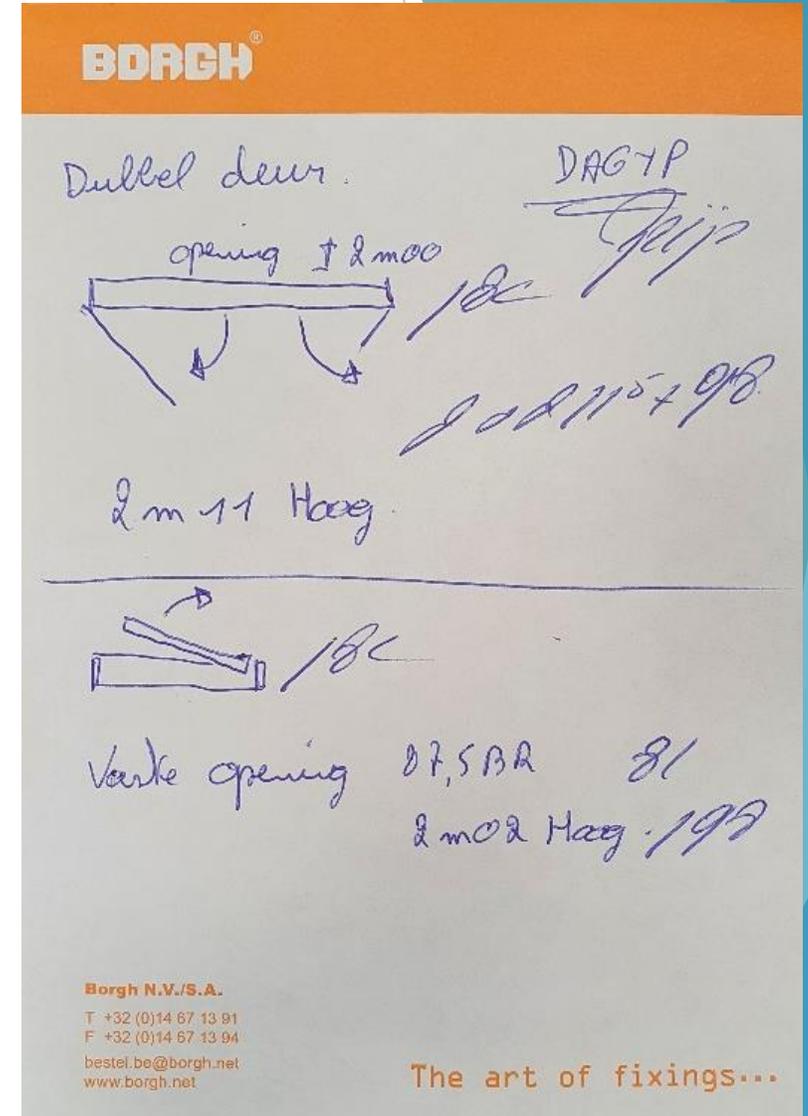
- ▶ **Background**
- ▶ *Our initial idea*
- ▶ *What Q-maze taught us*
- ▶ *Starting off small*

Merger - Background

- ▶ **Interior Builders: walls, ceilings, doors, furniture, custom woodwork**
- ▶ **High volumes projects of different products**
- ▶ **Doors: Opportunity for lead-time reduction**

Our initial idea

- ▶ Customer: Dealer & contractor
- ▶ Example:
 - ▶ Dealer: Hi! I've got a client who needs doors
 - ▶ Merger: Fireproof? Locks? Handles? Ventilation?
Type of frame? Double door pins?
Measurements: opening, frame or door-sheets?
 - ▶ (2 hours later)
 - ▶ Dealer: No fireproof doors
Locks on the first door only
Handles for both.
High-end frames protruding from wall
Yes to pins, good idea!
Frame measurements
...
Oh, and black hinges & locks please



Our initial idea

- ▶ **Pre-Production: time spent waiting**
- ▶ **Dealer and client lack product knowledge**
- ▶ **Order is lacking information**
- ▶ **Time = non-added value > not paid**

What Q-maze taught us

- ▶ **Example: Operator 1 (Pavel), Operator 2 (Jurgen) & Office Staff (Robin)**
- ▶ **Operator:**
 - ▶ Processes order in excel
 - ▶ Excel generates machine file
 - ▶ Product is milled, mounted & packed

What Q-maze taught us

- ▶ Operator 1 (Pavel), Operator 2 (Jurgen) & Office Staff (Robin)
- ▶ Pavel: the doors need a glass window.
How much larger do you mill the opening?
I make it 4 mm more
- ▶ Jurgen: I take 8 mm for easier mounting
- ▶ (data-book fireproof doors)
- ▶ Robin: For non-fire proof doors, anything is allowed.
But for fireproof doors, the maximum opening is 5 mm larger!
- ▶ Pavel: So Jurgen, how many hinges would you use on this size of door
...
etc.

What Q-maze taught us

- ▶ Each operator their way of processing data
- ▶ Standards are needed
- ▶ The correct standard? Algorithm of processing?
- ▶ Storage of information
 - ▶ Employee: sick, leave, termination of contract, ...
- ▶ Programming configurator requires storing information!

Starting off small

- ▶ **1st Phase**
 - ▶ small calculations: opening > frame > sheet size
 - ▶ complete order data
- ▶ **2nd Phase**
 - ▶ Setting a standard
 - ▶ Error reduction office
 - ▶ Fire safety regulations
 - ▶ Complex, not logically structured
 - ▶ Unreadable
 - ▶ ± 100 variables with dependencies

Starting off small

▶ 2nd Phase

▶ Fire safety regulations

- ▶ Complex, not logically structured
- ▶ Unreadable
- ▶ ± 100 variables with dependencies

▶ E.g.

- ▶ Opening size > Door size > Door thickness
- ▶ Door “pump”/closer > Door thickness & overdimensioning of hinges
- ▶ Door thickness > frame type
- ▶ Door thickness > type of wood allowed
- ▶ Door thickness > dimensions of wood allowed
- ▶ Door thickness > weight > hinge type

Starting off small

- ▶ **Fire safety regulations**
 - ▶ Very complex
 - ▶ Time lost recalculating
 - ▶ Forgetting regulations
- ▶ **Requires rebuilding configurator from scratch - twice**
- ▶ **Never enough options**
- ▶ **No end goal - continuous improvement**

Questions?



NICOLAS HENRARD

PMT

Small steps towards simplification and digitalisation for
big impacts

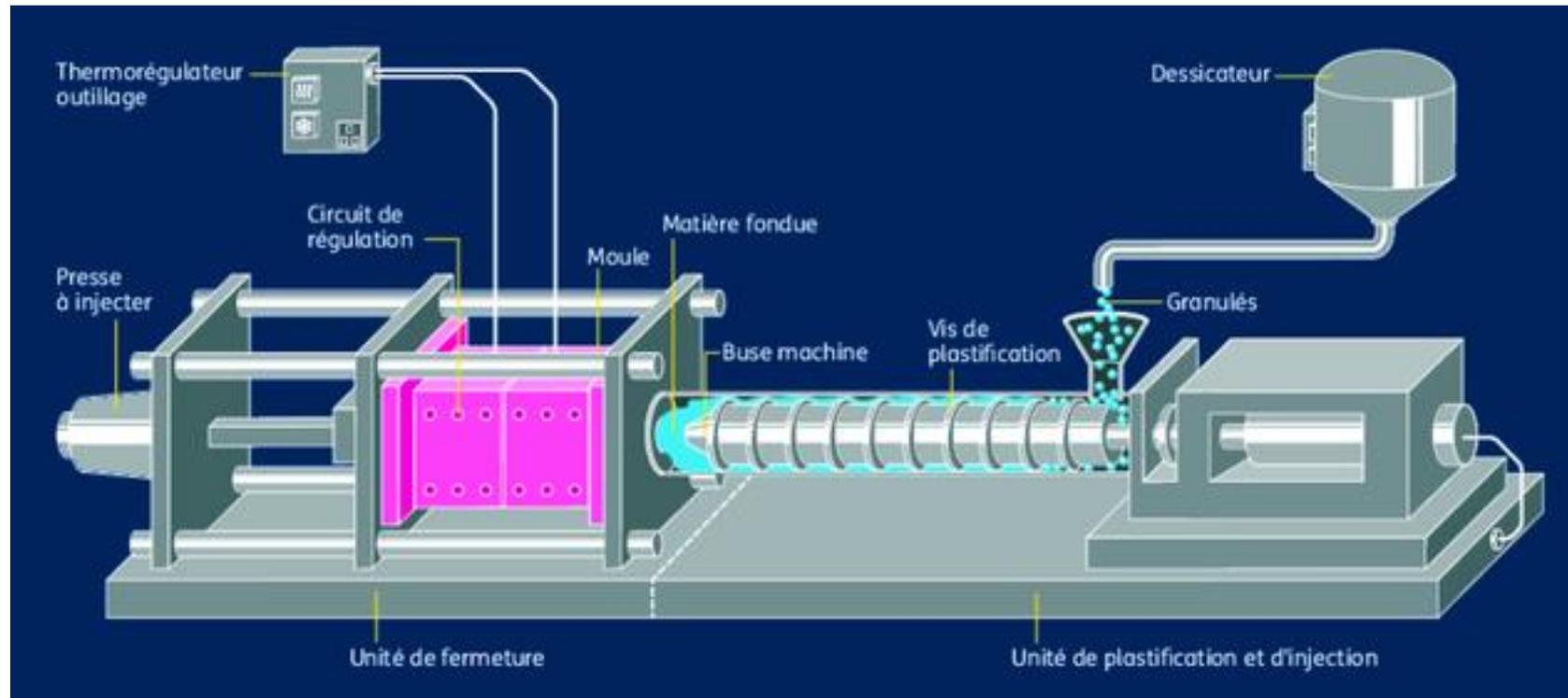


Small steps towards simplification and digitalisation for big impacts

15 June 2023

Business area

- Injection & extrusion plastification units specialist



Our products



Some numbers

- 20 people
- 3 countries (France – Poland – Belgium)
- Close to bankruptcy in August 2018
- 500 customers
- 1000 orders / year
- 2 items / order
- 400 different items sold in 2023 + Reconditioning work

Main problem ---- Production

- Very old machines
 - Now all new one
- 50% of pieces rejected at the quality control
- 18% of warranty work
- Not the right knowledge among workers
 - Not enough worker versatility
 - Not the right man at the right place
- No planning
- No fixed workflow

Transformation steps

- Fixing versatility grid (starts 2019)
 - Define loss of skills
 - Define lack of knowledge
 - Move people and engage other (40% of the team has changed)
- Review production workflow (Mid-2019 - 2020)
 - Operating range (+/-7 steps per item)
 - Spaghetti diagram
 - Refitting the workshop
 - 5S project on every machine

We feel it's better but we don't
measure it



Transformation steps

- People (2021)
 - Increase skills of the supervision team
 - Increase versatility (1 man – 2 machines)
 - Youth training (with schools and training centers)
- Use Excel to plan (2021)
 - Try to visualise what's hapenning
 - Put some time and workshop load
 - Try to maintain everything up to date
- Standardisation of our products by family
 - 1 piece – 1 drawing – 1 material – 1 execution
 - The end of generic item codes

Why is it still not working?

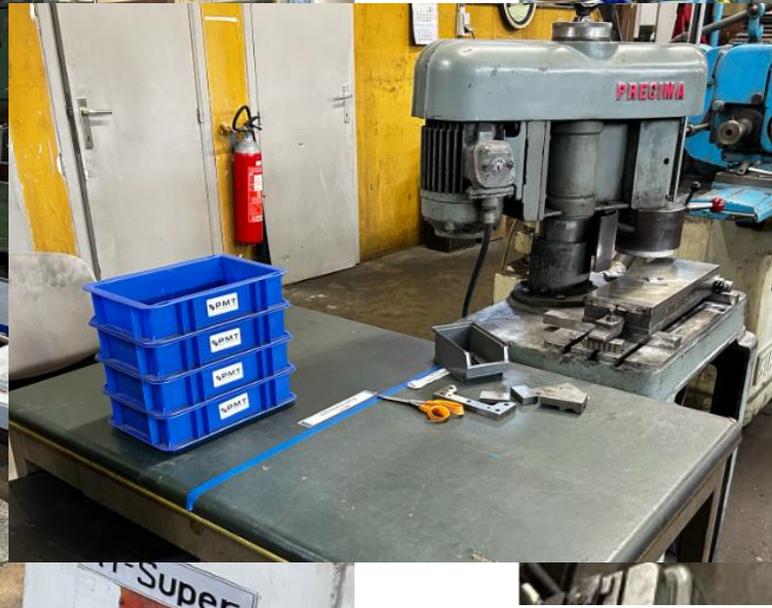
Transformation steps

- Change of mind in the workshop (2022)
 - Supervision team understands what I will do
 - Great federation between shopfloor workers
- QRM 4.0 (2022)
 - Introduction of QRM4.0 logic in the company
 - Support from « Interreg QRM 4.0 »

It seems we have found how
getting a real change of
performance

QRM4.0 changes

- Review production flow (second time)
 - From 7-8 steps to 10-15 steps
 - Redesign production flow: walking forward / fast progress
- Back flow valves production unit re-designed



ERP SYSTEM

- The biggest work of QRM4.0
- Selection and implementation (mid-2022)

QRM4.0 changes

Stock activity of each part

Article Sys: _____ Type: -

Clerech1: _____ à _____

Famille: CLAPETS

Recherche 1: _____

Recherche 2: _____

Recherche 3: _____

Recherche: Début 01/01/2019 Fin 01/03/2023

Rupture INV	Lot	Article	Description	Article PL	Stock	Stock Dispo	Stock PMT	Stock Min PMT	Stock Max PMT
<input checked="" type="checkbox"/>		CLA-000617	Siège Soupape MAPLAN Ø 27 lg 30,9	ES.MA.27.30,9.N	20	20	20	19	20
<input checked="" type="checkbox"/>		CLA-000620	Tige Soupape MAPLAN Ø 27 lg 39,5 Né	ET.MA.27.39,5.N	18	18	18	19	20
<input checked="" type="checkbox"/>		CLA-000614	Pointe Soupape MAPLAN Ø 27 lg 22,2	EP.MA.27.22,2.N	17	17	17	19	20
<input checked="" type="checkbox"/>		CLA-000016	Clapet Arburg Ø 30 Lg 81,5 G1 - Géom	C.AR.30.81,5.CM.G1.P19896	11	6	11	10	15
<input type="checkbox"/>		CLA-000207	Clapet Engel Ø 35 Lg 94,5 G1	C.EN.35.94,5.G1	9	6	6	3	4
<input type="checkbox"/>		CLA-000615	Pointe Soupape MAPLAN Ø 27 lg 23,1	EP.MA.27.23,1.N	5	5	5	4	5
<input type="checkbox"/>		CLA-000253	Clapet FANUC Ø 28 Lg 107,5 G1	C.FA.28.107,5.G1	6	5	5	0	1
<input type="checkbox"/>		CLA-000097	Clapet BILLION Ø 40 Lg 137 G1	C.BI.40.137.G1	6	5	5	0	1
<input type="checkbox"/>		CLA-000378	Clapet KLOCKNER Ø 40 Lg 135 Epaulé	C.KL.40.135.E.G1	4	4	4	0	1
<input type="checkbox"/>		CLA-000069	Clapet BATTENFELD Ø 45 Lg 126 G1	C.BA.45.126.G1	4	4	4	0	1
<input type="checkbox"/>		CLA-000023	Clapet Arburg Ø 40 Lg 101 G1	C.AR.40.101.G1	5	4	4	1	2
<input type="checkbox"/>		CLA-000201	Clapet Engel Ø 25 Lg 63 G1	C.EN.25.63.G1	8	4	4	1	2
<input type="checkbox"/>		CLA-000470	Clapet NETSTAL Ø 25 Lg 93 G1	C.NE.25.93.G1	3	3	3	1	2
<input type="checkbox"/>		CLA-000216	Clapet Engel Ø 55 Lg 115 G2	C.EN.55.115.G2	3	3	3	0	1
<input type="checkbox"/>		CLA-000366	Clapet JSW Ø 66 Lg 352 G1	C.JS.66.352.G1	3	3	3	0	1
<input type="checkbox"/>		CLA-000340	Clapet JSW Ø 25 Lg 117,5 G1	C.JS.25.117,5.G1	3	3	3	0	1
<input type="checkbox"/>		CLA-000358	Clapet JSW Ø 51 Lg 223 G1	C.JS.51.223.G1	3	3	3	0	1
<input type="checkbox"/>		CLA-000147	Clapet DEMAG Ø 30 Lg 77 G1	C.DE.30.77.G1	4	2	3	1	2
<input type="checkbox"/>		CLA-000191	Clapet Engel Ø 15 Lg 52 Epaulé G1	C.EN.15.52.E.G1	4	3	3	0	1
<input checked="" type="checkbox"/>		CLA-000213	Clapet Engel Ø 50 Lg 107 G1	C.EN.50.107.G1	5	3	3	2	3
<input type="checkbox"/>		CLA-000219	Clapet Engel Ø 70 Lg 143 G1	C.EN.70.143.G1	3	3	3	1	2
<input type="checkbox"/>		CLA-000063	Clapet BATTENFELD Ø 35 Lg 100 G1	C.BA.35.100.G1	3	3	3	2	3
<input checked="" type="checkbox"/>		CLA-000616	Pot d'extrusion MAPLAN Ø 27 lg 304 N	EPOT.MA.27.304.N	3	3	3	10	10
<input type="checkbox"/>		CLA-000426	Clapet KM Ø 45 Lg 145 G1	C.KM.45.145.G1	4	3	3	1	2
<input type="checkbox"/>		CLA-000004	Clapet Arburg Ø 20 Lg 67 G1	C.AR.20.67.G1	4	3	3	1	2
<input type="checkbox"/>		CLA-000386	Clapet KLOCKNER Ø 45 Lg 139 G1	C.KL.45.139.G1	2	2	2	0	1
<input type="checkbox"/>		CLA-000566	Clapet SUMITOMO Ø 50 Lg 179 G1	C.SU.50.179.G1	2	2	2	0	1
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Config: 06/12/2022 15:35:43:00

(7) MRP (8) Historique Fabrication (9) Historique Achat (10) Image (11) Multi Stock (12) Calcul

(1) **Activité** (2) Allocation Stock (3) Encours Fabrication (4) Encours Achat (5) Vente (6) Matière

Tx / Mois: 0,0000 Tx / An: 0,0000

Activité - 01/01/2019 - 01/03/2023

CLA-000620 ET.MA.27.39,5.N 01/01/2019 - 01/03/2023

Article	Qte	Contractuel	Projet	Ligne	Client	Client
CLA-000620	2,0000	12/01/2023	PRO42777	0040	C00640	LE JOINT FRANCAIS SNC
CLA-000620	10,0000	21/11/2022	PRO42678	0010	C00640	LE JOINT FRANCAIS SNC
CLA-000620	15,0000	23/09/2022	PRO42531	0010	C00640	LE JOINT FRANCAIS SNC
CLA-000620	10,0000	08/09/2022	PRO42489	0010	C00640	LE JOINT FRANCAIS SNC
CLA-000620	10,0000	29/07/2022	PRO42439	0030	C00640	LE JOINT FRANCAIS SNC
CLA-000620	1,0000	27/06/2022	PRO42325	0030	C00538	HUTCHINSON SRL
CLA-000620	10,0000	23/04/2022	PRO42214	0030	C00640	LE JOINT FRANCAIS SNC
CLA-000620	10,0000	08/04/2022	PRO42174	0010	C00640	LE JOINT FRANCAIS SNC
CLA-000620	15,0000	23/12/2021	PRO41902	0030	C00640	LE JOINT FRANCAIS SNC
CLA-000620	10,0000	24/10/2021	PRO41747	0020	C00640	LE JOINT FRANCAIS SNC
CLA-000620	5,0000	03/09/2021	PRO41592	0020	C00640	LE JOINT FRANCAIS SNC
CLA-000620	20,0000	28/06/2021	PRO41476	0010	C00640	LE JOINT FRANCAIS SNC
CLA-000620	9,0000	13/02/2021	PRO41087	0030	C00640	LE JOINT FRANCAIS SNC
CLA-000620	6,0000	22/01/2021	PRO41017	0030	C00640	LE JOINT FRANCAIS SNC
CLA-000620	10,0000	20/12/2020	PRO40948	0030	C00640	LE JOINT FRANCAIS SNC
CLA-000620	5,0000	06/12/2020	PRO40919	0020	C00640	LE JOINT FRANCAIS SNC

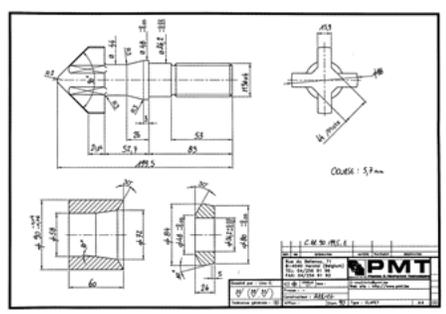
ERP: Work order and follow-up in real time

WO00016976 POI-000215 Pointe de Clapet Arburg Ø 90 Lg 199,5 Epaulé G1 Géométrie PMT, 4 ailes Pointe C6 blindée Bague et siège en acier C5, trempé dans la masse

Critères de recherche: Statut Min: - Statut Max: - POI-000 Rechercher

Code OF	Projet	Ligne	Article Sys	Article PMT	Description	REFPLAN	Durée OF	Quantité
WO00016969	PRO43101	0010	POI-000100	P.SA.65.226.C6	Pointe de Clapet SANDRETTO Ø 65	C.SA.65.226	0	1,00
WO00016976	PRO43099	0010	POI-000215	P.AR.90.199.5.C6	Géométrie PMT, 4 ailes Pointe C6 blindée Bague et siège en acier C5	C.AR.90.199.5.E	0	1,00
WO00016941	PRO43088	0010	POI-000059	P.FA.26.103.7.C6	Pointe de Clapet FANUC Ø 26 Lg 100		0	0,00
WO00016937	PRO43086	0010	POI-000072	P.KL.25.92.C6	Pointe de Clapet KLOCKNER Ø 25 Lg 90	C.KL.25.92	0	0,00
WO00016946	PRO43083	0030	POI-000214	P.AR.35.94.MA.N	Pointe de Clapet ARBURG Ø 35 Lg 90 Malaxeur Clapet Malaxeur Pointe, Bague et siège en acier N	C.AR.35.94.MA	0	1,00
					Traitement : nitruration profonde			
WO00016967	PRO43082	0010	POI-000213	P.EN.55.115.CM.C6	Pointe de Clapet Engel Ø 55 Lg 115 (Modèle Géométrie Origine, A4 Pointe C6 blindé Bague et siège en acier C5)	P19084	0	1,00
WO00016899	PRO43077	0020	POI-000037	P.EN.22.67.5.C6	Pointe de Clapet Engel Ø 22 Lg 67,5	C.EN.22.67,5	0	0,00
WO00016895	PRO43077	0010	POI-000044	P.EN.25.72.C6	Pointe de Clapet Engel Ø 25 Lg 72 C		0	0,00
WO00016917	PRO43074	0010	POI-000153	P.KM.55.145.N	Pointe de Clapet KM Ø 55 Lg 145 Géométrie Inversé G1	C.KM.55.145.G1	0	1,00

Opération	Description	Moyen Fabrication	Moyen Fabrication	Tps prép [H.cc]	Tps Réal [H.cc]	SST	Qte Réalisé	Debut P
0010	Sciage	S01	Scie	0,08	0,00	1	0,00	25/05/2
0020	Prépa tournage	T05	Tour VIS ZMM (Salvator)	0,08	0,25	1	0,00	26/05/2
0030	Tournage	T06	Tour CNC SOMAB	0,08	0,33	1	0,00	29/05/2
0040	Fraisage ailes	F05	Fraiseuse VF7 HAAS	0,25	0,50	1	0,00	01/06/2
0050	Soudure Clapet	S0UD01	Soudure CLAPETS	0,08	0,16	1	0,00	04/06/2
0060	Polissage (Meulage)	R04	Touret à meuler	0,08	0,16	1	0,00	05/06/2
0070	Rectification	R09	Rectifreuse GRISSETTI - Bague	0,08	0,16	1	0,00	06/06/2
0080	Tournage final	T03	Tour pointe C6241R x 1000	0,08	0,33	1	0,00	09/06/2
0090	Polissage final	R06	Touret à Meuler	0,08	0,16	1	0,00	12/06/2
0100	Contrôle (Ne pas réaliser si appairage	C01	Contrôle	0,00	0,16	1	0,00	15/06/2
0110	Zone Tampon	MAG	Magasin	0,00	0,00	1	0,00	18/06/2



ERP: Global view of the administrative work on each project

PMT General recherche Nbr Ligne 218 Nbr Retard 52 333.809,9000 € 333.809,9000 € Config: 10/11/2022 08:04:16:00

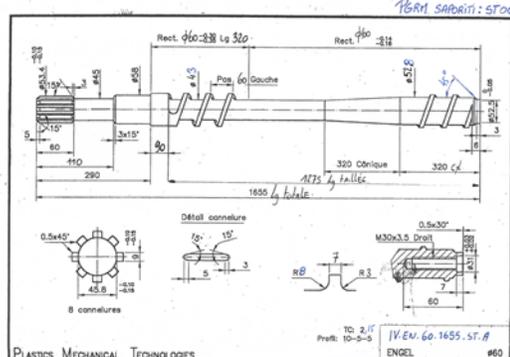
Utilitaire Aide Fermer Rechercher Impression PDF

Projet debut: Début 01/01/2021 Fin 01/01/2100 Client Gestionnaire

Statut Max: Encours Qte =< 0

Priorite	Projet	Article	Clerech1	Description	Qte Active	Livraison	Reste à Faire	Pointage	ART	MRP	MAT	SST	QCF
☆☆☆☆☆	PRO42843	DIV-000003	TRANSPORT	TRANSPORT	1,00	09/02/2023	0,00		3	3	3	1	3
☆☆☆☆☆	PRO42862	VIS-001413	IV.EN.60.1655 A.C14	Vis injection ENGEL Ø 60 Lg 1655 Standard Matière : Acier C14 Traitement : Trempé dans la masse	1,00	23/03/2023	4,48	25/05/2023	3	3	3	1	1
☆☆☆☆☆	PRO42862	CLA-000218	C.EN.60.124.5.G2	Clapet Engel Ø 60 Lg 124,5 G2 Géométrie PMT, A3 Pointe C6 blindée	1,00	27/03/2023	0,00	28/02/2023	3	3	3	3	3
☆☆☆☆☆	PRO42862	DIV-000002	CAISSE	CAISSE EN BOIS	1,00	27/03/2023	0,00		2	3	3	1	3
☆☆☆☆☆	PRO42862	DIV-000003	TRANSPORT	TRANSPORT	1,00	27/03/2023	0,00		3	3	3	1	3

Pré-visu
 \PMT-DC01\Bureau d'étude\Nouvelle base de plans\



PLASTICS MECHANICAL TECHNOLOGIES
 TO: 2,1/1
 Prent: 10-5-5
 IV.EN.60.1655.ST.#
 ENGEL #60

Projet	Ligne	Ordre Fab	Description
PRO42862	0010	WO00016196	Vis injection ENGEL Ø 60 Lg 1655 Standard Matière : Acier C14 Traitement : Trempé dans la masse (haute résistance à l'abrasion et à la corrosion) Non réparable ultérieurement

Code LOA	Projet	Ligne	Article	Description	CLERECH1	CL

Opération	Description	Moyen Fabrication	Moyen Fabrication	Tps prép [H.cc]	Tps Réal [H.cc]	SST	Qte Réalis
0040	Sciage	S01	Scie	0,16	0,25	1	0,0
0020	Tournage	T05	Tour VIS ZMM (Salv)	0,25	3,00	1	2,0
0030	Taillage	F06	Fraiseuse SAPORIT	0,50	3,50	1	1,0
0040	Redressage	R03	Rectifieuse CINCIN	0,16	1,25	1	1,0
0050	Fraisage accouplement	F02	Fraiseuse Cannelur	0,25	1,50	1	0,0
0060	Tournage Surlongueur	T05	Tour VIS ZMM (Salv)	0,25	0,50	1	0,0
0070	Polissage	M01	Polissage	0,25	1,00	1	1,0
0080	Contrôle avant traitement	C01	Contrôle	0,00	0,16	1	0,0
0090	Sous-Traitance Trempe	SST-TR	Sous-traitance Trer	0,00	0,00	2	0,0
0100	Polissage	M01	Polissage	0,25	0,50	1	0,0
0110	Redressage	R03	Rectifieuse CINCIN	0,25	1,25	1	0,0
0120	Rectification	R03	Rectifieuse CINCIN	0,00	1,50	1	0,0
0130	Polissage	M01	Polissage	0,25	0,16	1	0,0
0140	Contrôle final	C01	Contrôle	0,00	0,16	1	0,0

ERP: Machine workload in real time

FILE_ATTENTE
- □ ×

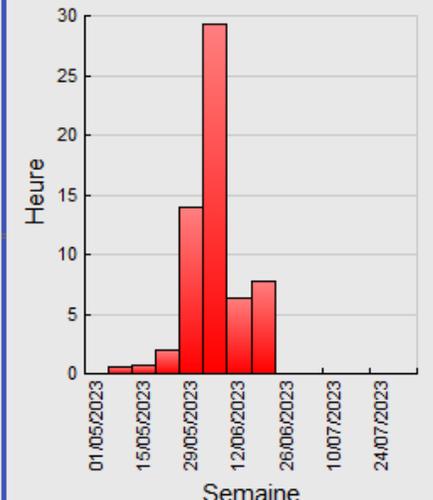
Machine Personnel Impression

Moyen Production

Moyen Fab	Description	Famille	Rendement
E01	Emballage	MAGASIN	100 %
F04	Forage profond	FRAISEUSES	100 %
F03	Fraiseuse ANAYAK	FRAISEUSES	100 %
F02	Fraiseuse Cannelures REIDEN	FRAISEUSES	100 %
F06	Fraiseuse SAPORITI	FRAISEUSES	100 %
F01	Fraiseuse TOS F2V	FRAISEUSES	100 %
F05	Fraiseuse VF7 HAAS	FRAISEUSES	100 %
H01	Honeuse	HONEUSES	100 %
R08	Lapidaire / Planeuse	Polissage	100 %
MAG	Magasin	MAGASIN	100 %
M01	Polissage	Polissage	100 %
PH01	Prendre une Photo	-	100 %
R00	Rectification	RECTIF	100 %
R05	Rectifieuse buselures SCHAUDT	RECTIF	100 %
R03	Rectifieuse CINCINATTI	RECTIF	100 %

Date Debut: 01/05/2023 15 Horizon: 12 [Sem]

M01 Polissage



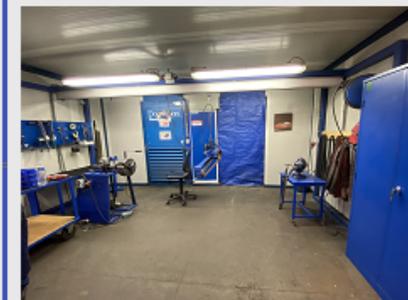
Semaine

Graphique Statut Charge Lissée

Utilitaire Aide

Fermer ×

Ouvrir/Fermer ⋮



Projet	Code OF:	Ligne	Livraison	Retard	Opération	Description	Temps préparation	Temps réalisat	
E	PRO42990	WO00016707	0020	04/07/2023	0	0130	Polissage	0,25	1,0
A	PRO43034	WO00016780	0020	26/04/2023	0	0070	Meulage	0,25	0,5
A	PRO43104	WO00016972	0010	27/05/2023	0	0040	Polissage Vis	0,08	0,0
A		WO00016741		27/05/2023	0	0100	Polissage	0,16	0,5
A	PRO42843	WO00016181	0010	09/02/2023	48	0010	Polissage	0,25	0,5
A	PRO42936	WO00016457	0020	08/05/2023	9	0110	Polissage	0,16	0,5
A	PRO42936	WO00016458	0030	15/06/2023	67	0110	Polissage	0,16	0,5
A		WO00016358		27/05/2023	0	0100	Polissage	0,16	1,0

Image Lien

ERP: Clocking system in the factory.

Pointage Config: 09/02/2023 16:14:25:00 17:15:54

Badge: DEFAT CECILE In: 25/05/2023 08:54 Entree/Sortie - F2

Operation:

Machine:

Qte Réalisée: Qte totale Réalisée:

Qte Incident: Qte totale Incident: Terminer F10

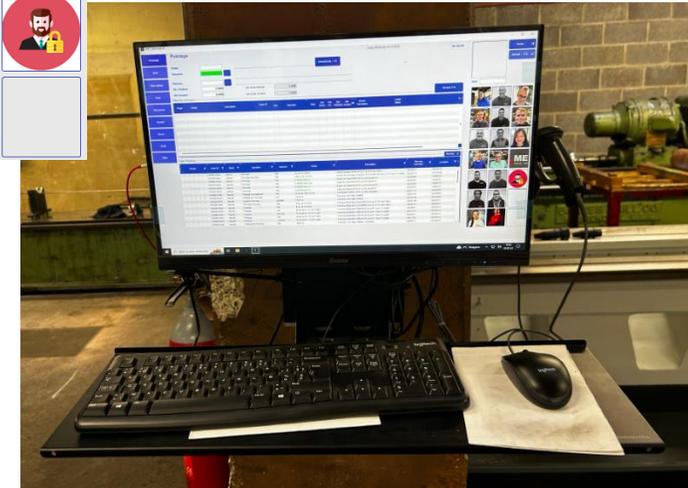
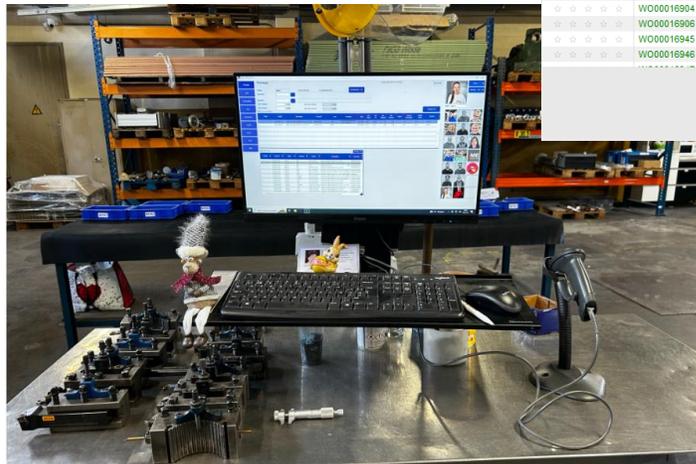
Table des pointages

Projet	Article	Description	Code OF	Ope	Operation	Date	Hrs Début	Hrs Fin	Qte Réalisée	Qte Incident	Statut	Moyen Fabrication	Libellé Statut	Terminé
	SIÉ-000068	Siege de Clapet Engel Ø 70 Lg 143 G1	WO00016591	0020	Rectification planePlaner la face tronçonnée avant	25/05/2023	15:15	15:28	1,00	0,00	3	R08	Arrêt	Terminé
	SIÉ-000017	Siege de Clapet BATTENFELD Ø 65 Lg 1	WO00016953	0020	Rectification planePlaner la face tronçonnée avant	25/05/2023	15:15	15:27	2,00	0,00	3	R08	Arrêt	Terminé
PRO43082	SIÉ-000276	Siege de Clapet Engel Ø 55 Lg 115 Copie Géométrie Origine, A4	WO00016913	0020	Rectification planePlaner la face tronçonnée avant	25/05/2023	15:14	15:27	1,00	0,00	3	R08	Arrêt	Terminé
	SIÉ-000017	Siege de Clapet BATTENFELD Ø 65 Lg 1	WO00016953	0020	Rectification planePlaner la face tronçonnée avant	25/05/2023	15:14	15:14	0,00	0,00	3	R08	Arrêt	
	SIÉ-000068	Siege de Clapet Engel Ø 70 Lg 143 G1	WO00016591	0020	Rectification planePlaner la face tronçonnée avant	25/05/2023	15:14	15:14	0,00	0,00	3	R08	Arrêt	
PRO43104	REP-000008	Démontage divers	WO00016972	0030	DémontageDémontage Clapet de la visDésu le TournageSortie de la	25/05/2023	14:49	15:11	1,00	0,00	3	D01	Arrêt	Terminé
	SIÉ-000068	Siege de Clapet Engel Ø 70 Lg 143 G1	WO00016591	0010		25/05/2023	11:14	14:48	1,00	0,00	3	T07	Arrêt	Terminé

Table Planning Refresh

Priorité	Code OF	Statut	Machine	Operation	Article	Description	Planning Opération	Livraison
	WO00016912	Encours	T07	Tournage	B EN 55.115.CM.C14	Bague de Clapet Engel Ø 55 Lg 115 Copie Modèle	20230525	20230619
	WO00016902	Encours	F06	Taillage	M KM 60.1783.CM.N.V.	Vis injection KM Ø 60 Lg 1783 Copie Modèle	20230528	20230703
	WO00016905	Encours	T07	Tournage	PKM 60.160.GI.N	Pointe de Clapet KM Ø 60 Lg 160 Geo Inversé G1	20230526	20230703
	WO00016902	Encours	F06	Taillage	EV DS 45.1330.CM.N.V.	Vis extrusion DAVIS-STANDARD Ø 45 Lg 1330 Copie	20230527	20230706
	WO00016969	Attente	T07	Tournage	PSA 65.228.G8	Pointe de Clapet SANDRETTO Ø 65 Lg 228 G1	20230525	20230602
	WO00016970	Attente	T07	Tournage	B SA 65.228.C11	Bague de Clapet SANDRETTO Ø 65 Lg 228 G1	20230525	20230602
	WO00016971	Attente	T07	Tournage	S SA 65.228.C11	Siege de Clapet SANDRETTO Ø 65 Lg 228 G1	20230525	20230602
	WO00016916	Attente	T07	Tournage	B KM 55.145.C11	Bague de Clapet KM Ø 55 Lg 145 Geo Inversé G1	20230525	20230607
	WO00016918	Attente	T07	Tournage	S KM 55.145.C11	Siege de Clapet KM Ø 55 Lg 145 Geo Inversé G1	20230525	20230607
	WO00016904	Attente	T07	Tournage	B KM 60.160.GI.C11	Bague de Clapet KM Ø 60 Lg 160 Geo Inversé G1	20230525	20230703
	WO00016906	Attente	T07	Tournage	S KM 60.160.GI.C11.P2	Siege de Clapet KM Ø 60 Lg 160 Geo Inversé G1	20230525	20230703
	WO00016945	Attente	T07	Tournage	S AR.35.94.MA.N	Siege de Clapet ARBURG Ø 35 Lg 94 Malaxeur	20230525	20230814
	WO00016946	Attente	T07	Tournage	PAR.35.94.MA.N	Pointe de Clapet ARBURG Ø 35 Lg 94 Malaxeur	20230526	20230814

Actif: 10005

ERP: Individual screen for each manufacturing cell

- Automatic work distribution
 - Cutting work
 - Expedition list / picking list
 -

Gestion Stock - Expédition - Réparation - Sous-traitance Config: 09/02/2023 16:14:25:00 17:17:20

Mise Expédition

Sous-TraitanceRéparationMise en Stock Coupe Transfer StockExpédition Inventaire Réception Achat 

Groupement	Bloquée	Priorite	Client	Client	Projet	Pays	
<input type="checkbox"/>	<input type="checkbox"/>		C01317	VOLTRIM TRADE SP Z O.O.	PRO42762	POLAND	Refresh 
<input type="checkbox"/>	<input checked="" type="checkbox"/>	☆☆☆☆☆	C00476	CORNING GOSSELIN S.A.S	PRO43104	FRANCE	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	☆☆☆☆☆	C00447	FREUDENBERG SEALING TECHNOLOGIES SAS	PRO43107	FRANCE	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	☆☆☆☆☆	C00995	PROCESS	PRO42972	FRANCE	

QRM4.0 changes

- Work in 4-5 manufacturing cells gives us the opportunity to:
 - Have 2-3 people to do some work
 - Give the weekly objectif and let people organize their own work within the manufacturing cell
- Less amount on pieces ongoing:
 - Now we start new production orders every day
 - Smoother workload: always something to do but the workers have less choice

Conclusion

QRM4.0 thinking can:

- Easy concepts to put in place
- Not expenses for the first steps
- A lot of quick-wins
- Very visual en easy understandable by the teams

Very good experience. The journey continues.



PMT

Plastics & Mechanical Technologies

PANEL DISCUSSION

- > Rob van Vugt | Interreg EMR
- > Pascal Pollet | Sirris
- > Gert Thora | Belgian Cycling Factory
- > Bruno Radermacher | Jumo
- > Daniel Kappes | Thomas Regout

Interreg

Euregio Meuse-Rhine

QRM4.0



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