MES Control Centre –
The essential control unit for modern bakeries

© 2019 ProLeiT AG

Table of Contents

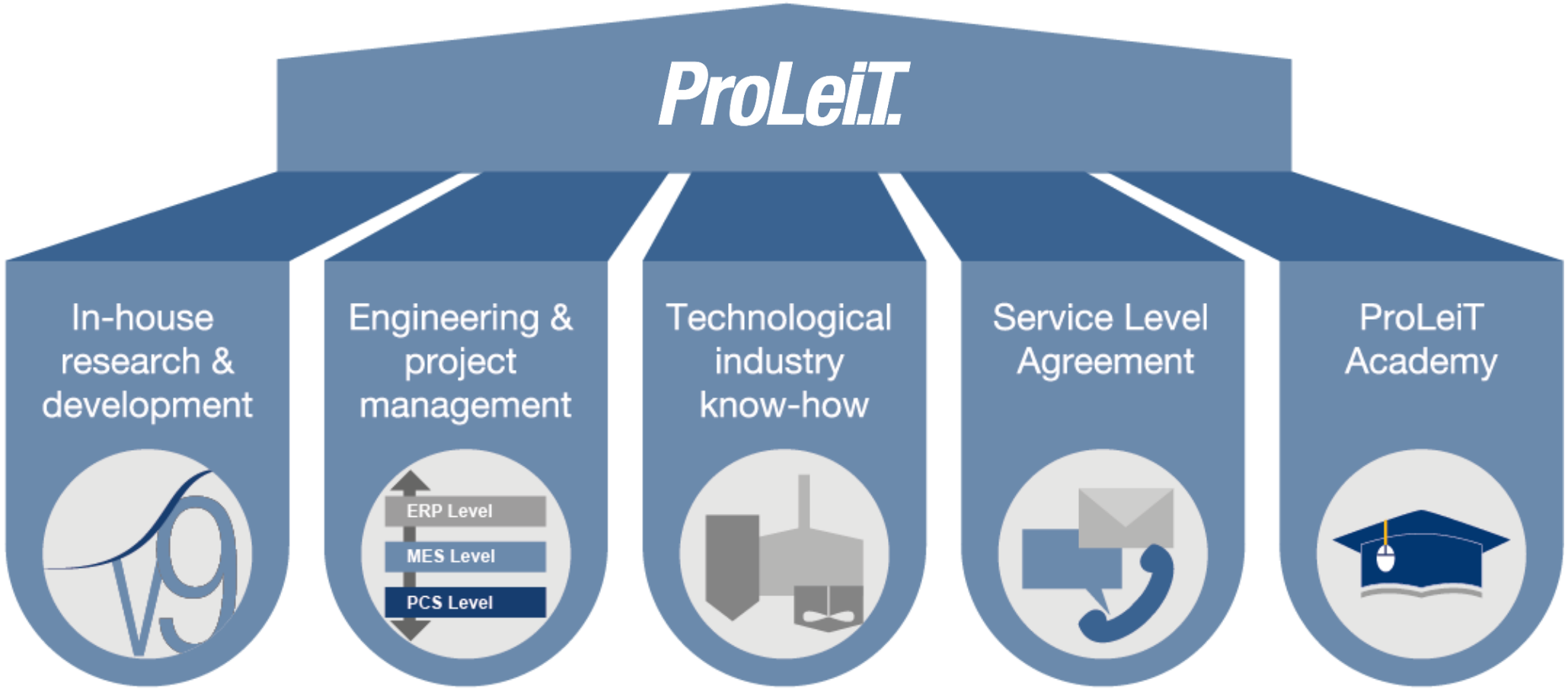
- Short introduction to ProLeiT
- Overview MES
- MES in production areas
- Data analysis
- Outlook

Facts and Figures

- **Foundation (1986):**
  - Wolfgang Ebster & Manfred Czepl
- **Employees (State: 2018-11-22):**
  - 500 (ProLeiT Group)
  - 376 (ProLeiT AG)
  - therefrom 70 apprentices

- **Locations:**
  - 5 locations in Germany
    - Herzogenaurach (HQ), Halle, Hannover, Leverkusen, Kitzingen
  - 11 international locations
    - Austria, Brazil, Bulgaria, China, Mexico, Russia (2x), Spain, The Netherlands, Ukraine, USA
- **Business areas**
  - Project business
    - Specifying, engineering and commissioning application-specific solutions for the process industry
  - Product business
    - Developing and marketing system software (PCS & MES)
- **Core industries**
  - Brewing, dairy, food industry
  - Chemical and pharmaceutical industry
  - Agricultural industry

Service portfolio

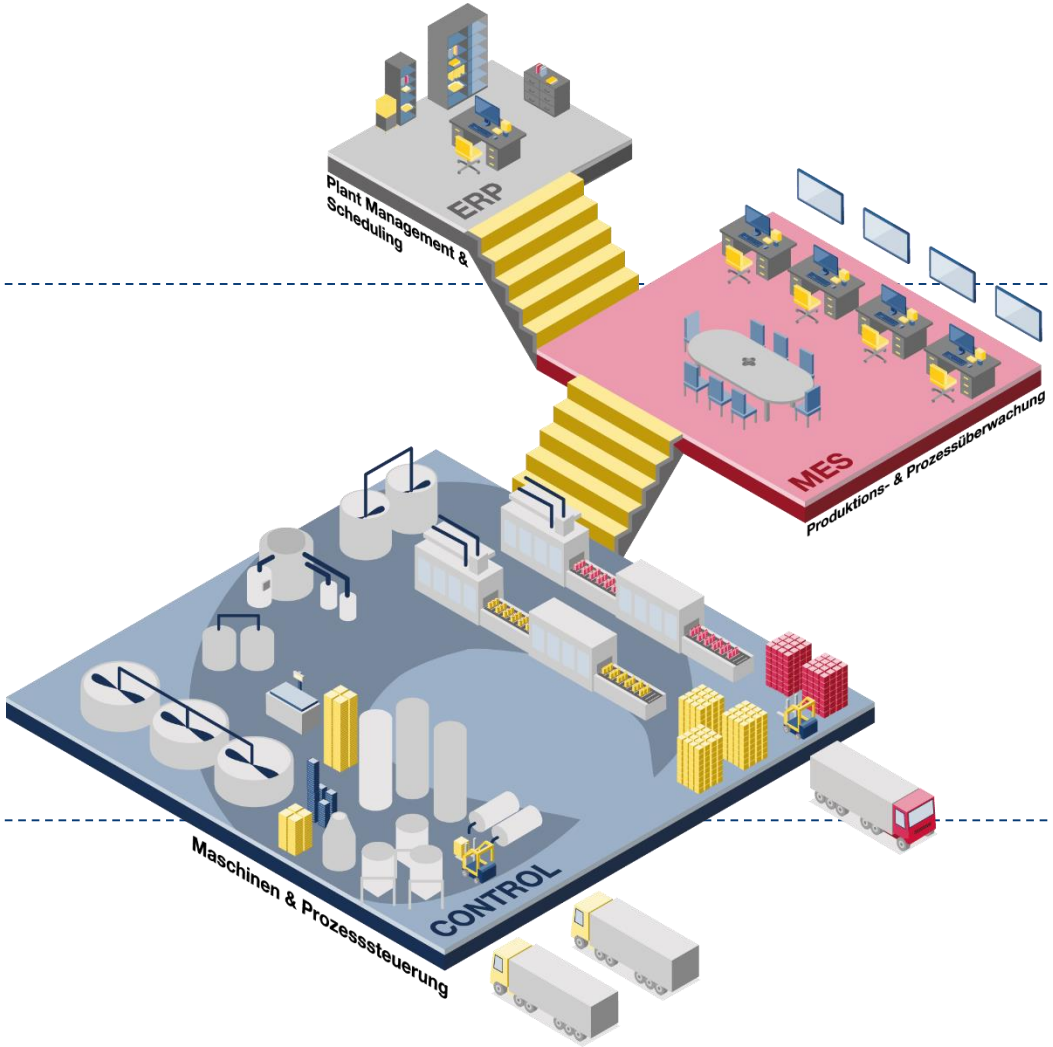


Actual situation – Pain Points

- Isolated Applications – chosen by technological functionality rather than connectivity
- Complete overview of all lines in one plant is missing
- ERP-orders are distributed manually, manual detail planning
- Packaging doesn‘t know what is happening in the production area and otherwise
- Manual processes – handover of routing slips is slowly and fault-prone
- Adaption of recipes not traceable
- Data recording and –analisys is handled differently in different systems

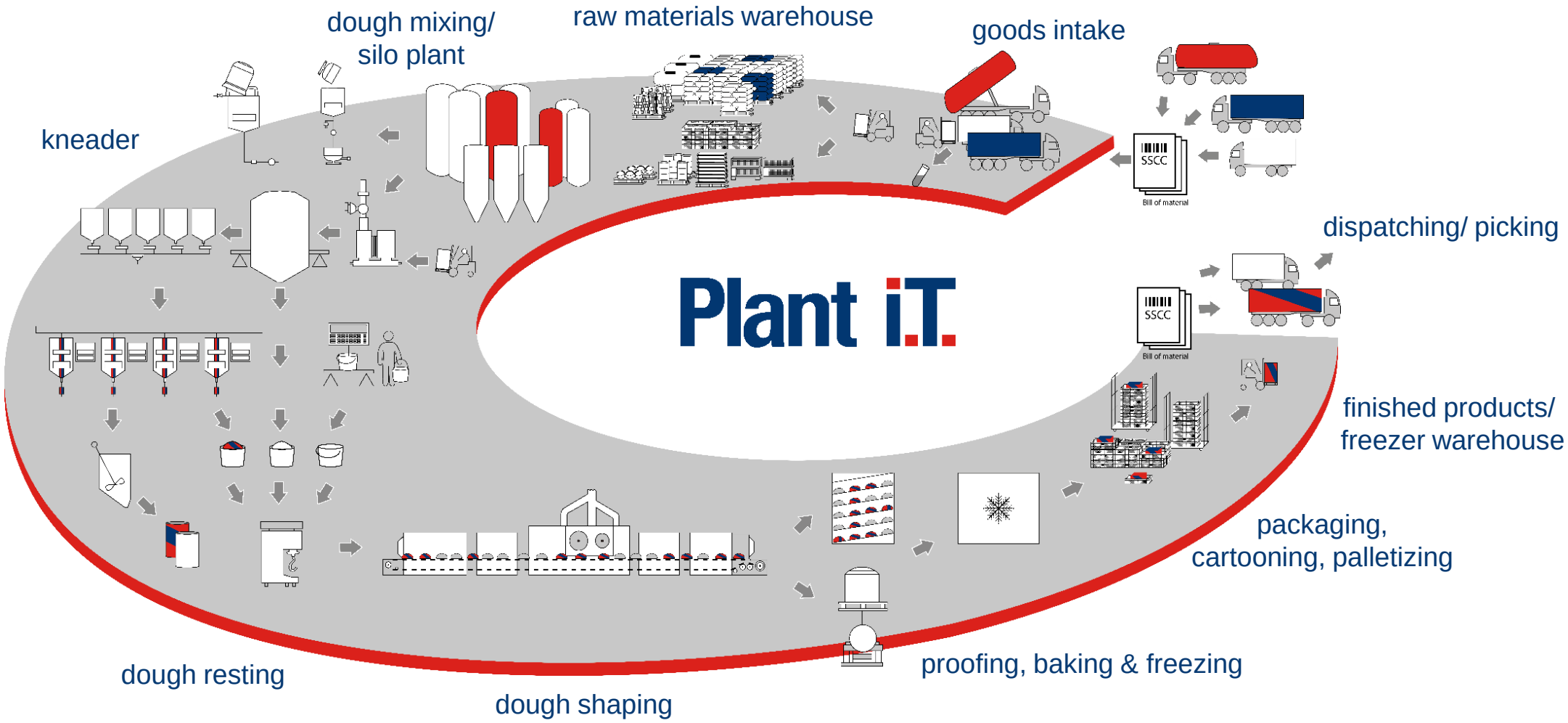
System landscape

Typically: Control, MES, ERP



Value chain

Integrated solutions concept with Plant iT for industrial bakeries



Actual situation – Pain Points

Isolated Applications – chosen by technological functionality rather than connectivity

Complete overview of all lines in one plant is missing

ERP-orders are distributed manually, manual detail planning

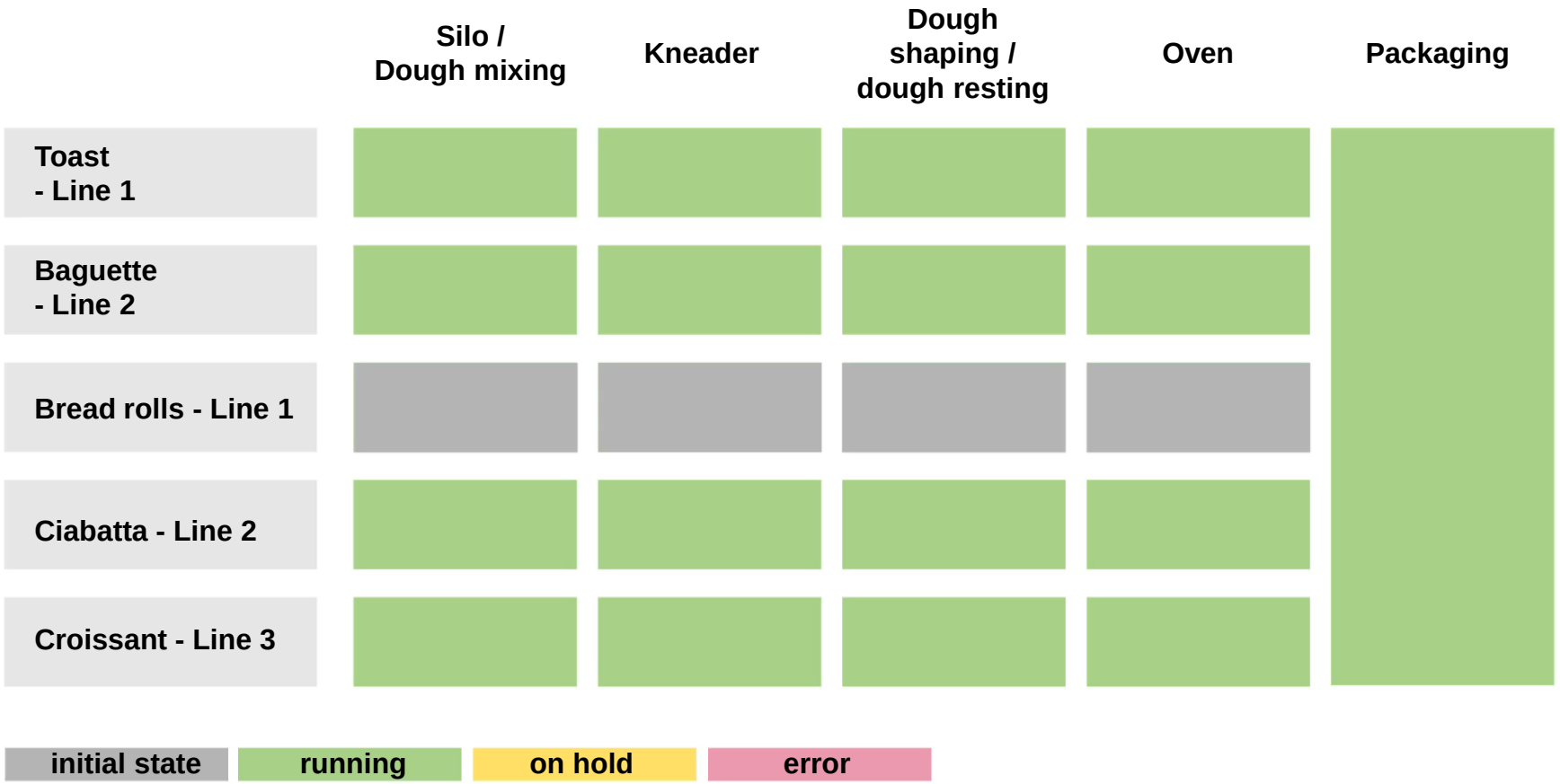
Packaging doesn‘t know what is happening in the production area and otherwise

Manual processes – handover of routing slips is slowly and fault-prone

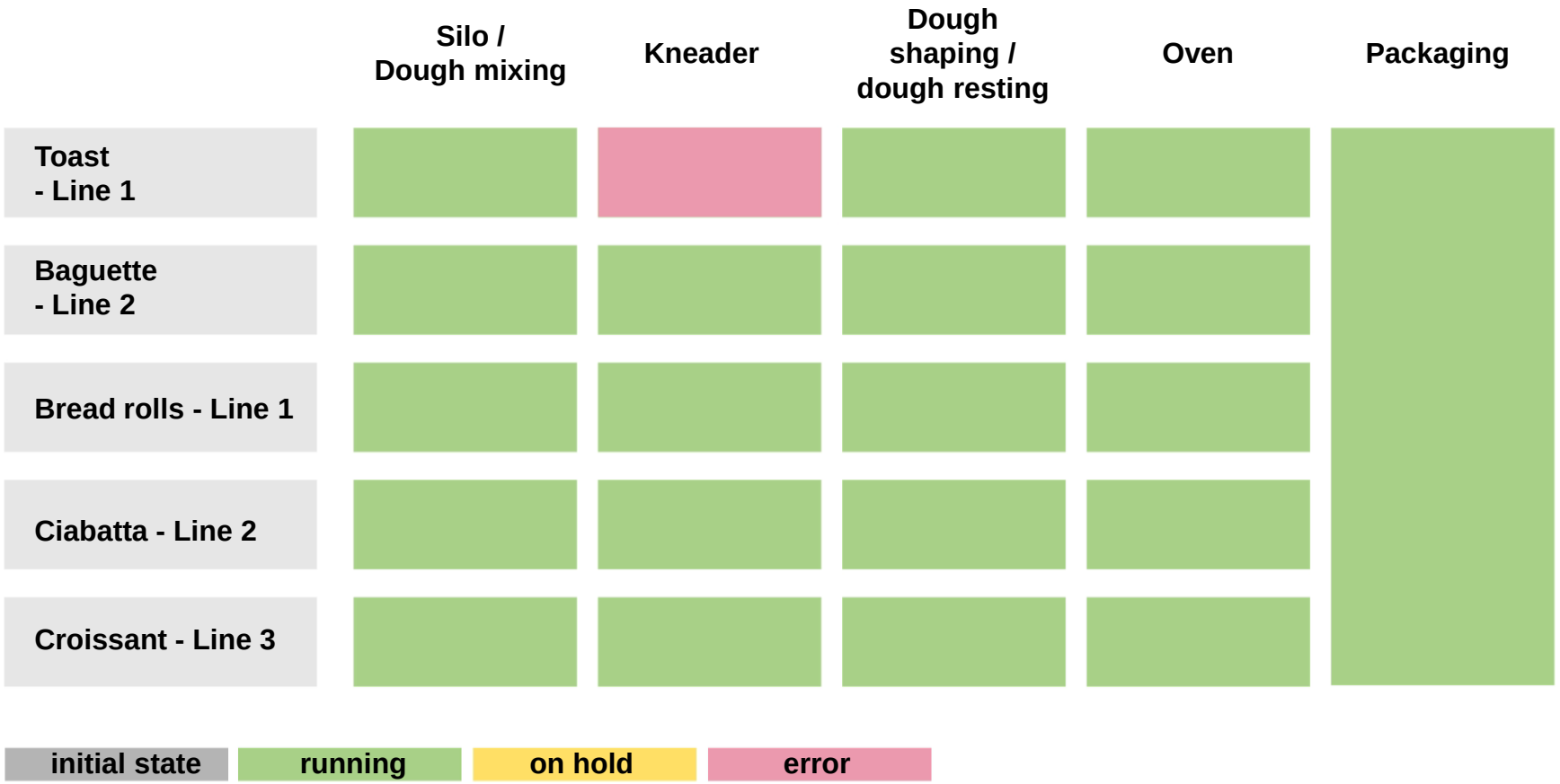
Adaption of recipes not traceable

Data recording and –analisys is handled differently in different systems

Status overview



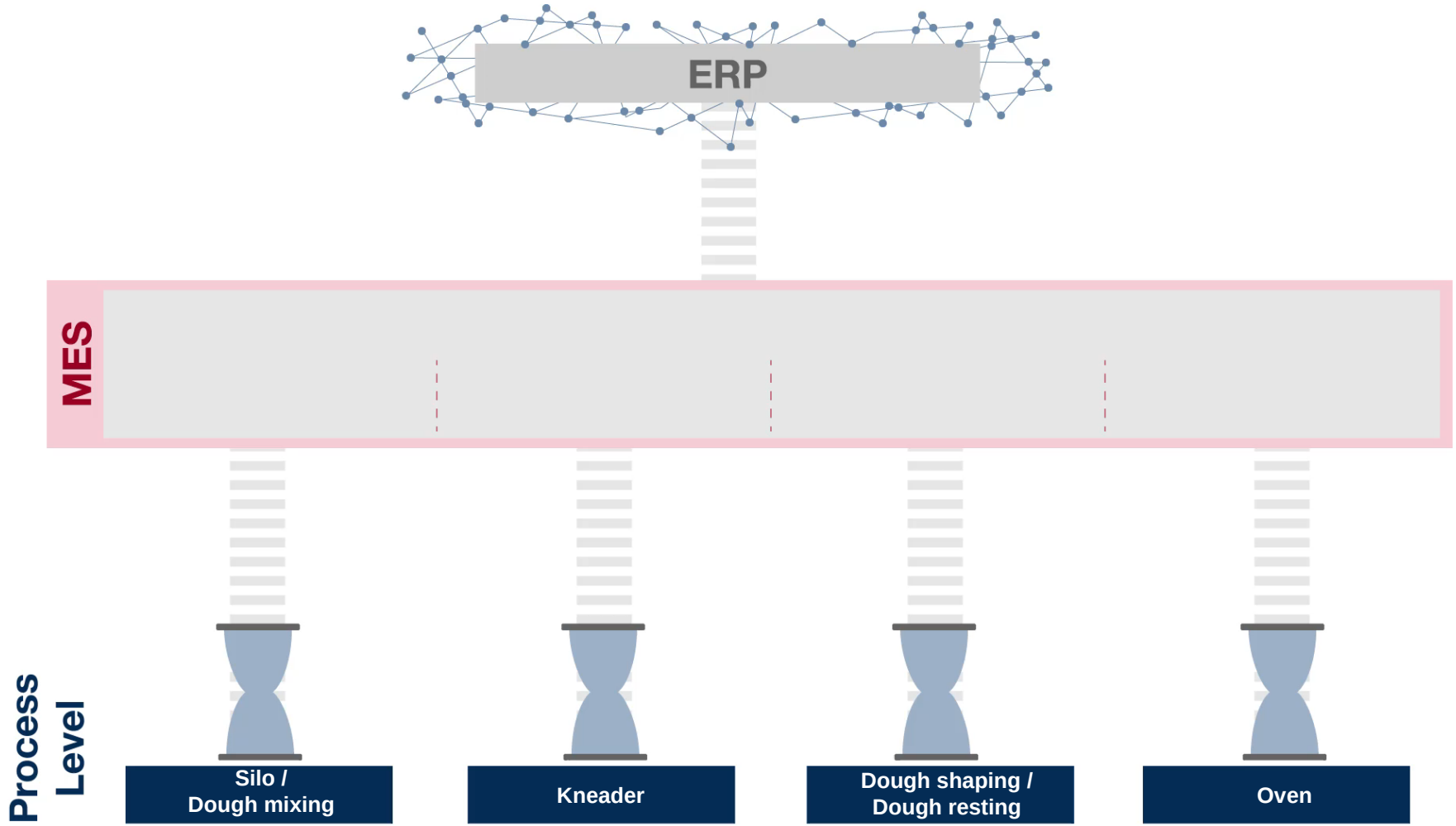
Status overview



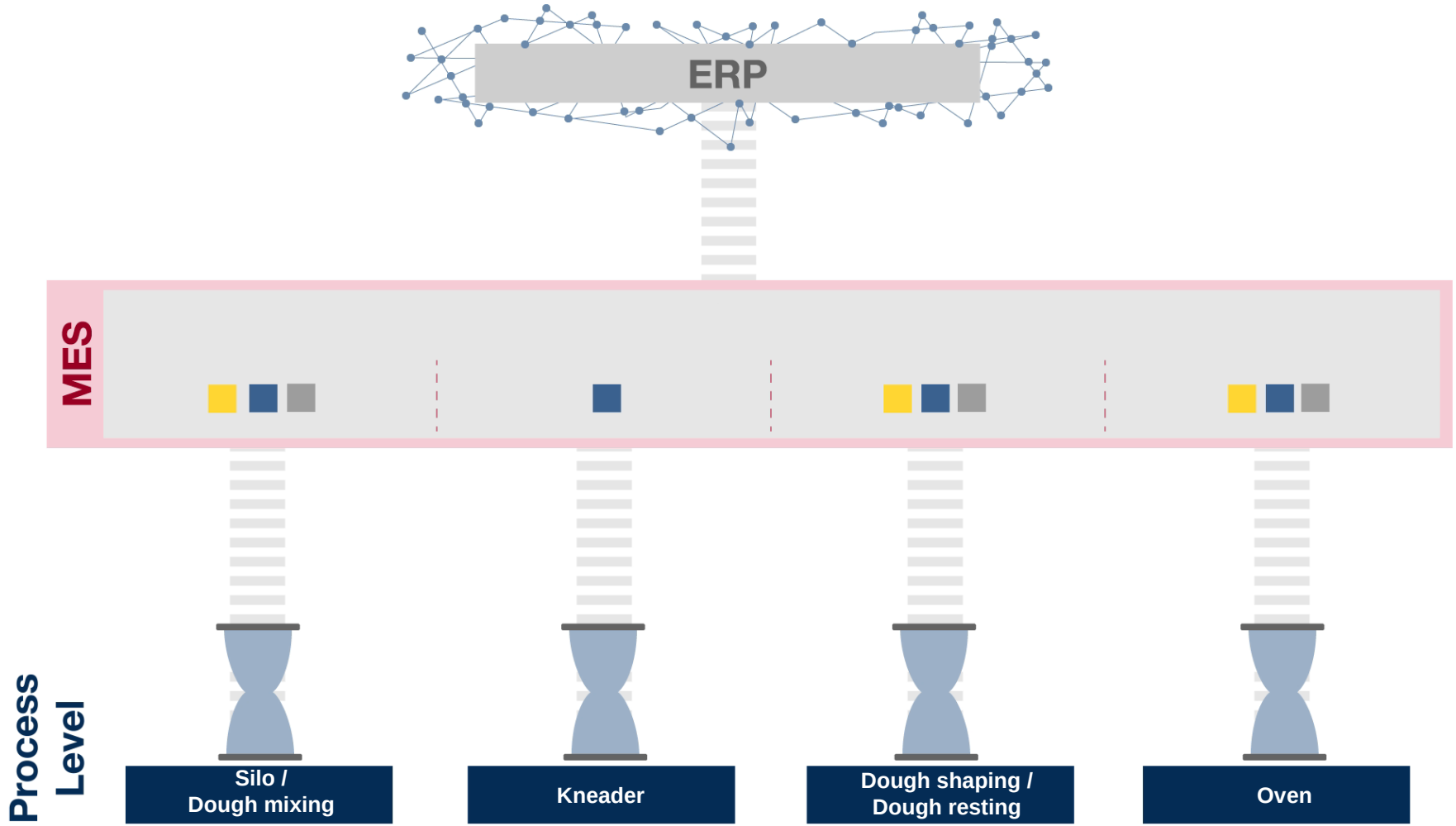
Actual situation – Pain Points

- Isolated Applications – chosen by technological functionality rather connectivity
- Complete overview of all lines in one plant is missing
- ERP-orders are distributed manually, manual detail planning
- Packaging doesn‘t know what is happening in the production area and otherwise
- Manual processes – handover of routing slips is slowly and fault-prone
- Adaption of recipes not traceable
- Data recording and –analisys is handled differently in different systems

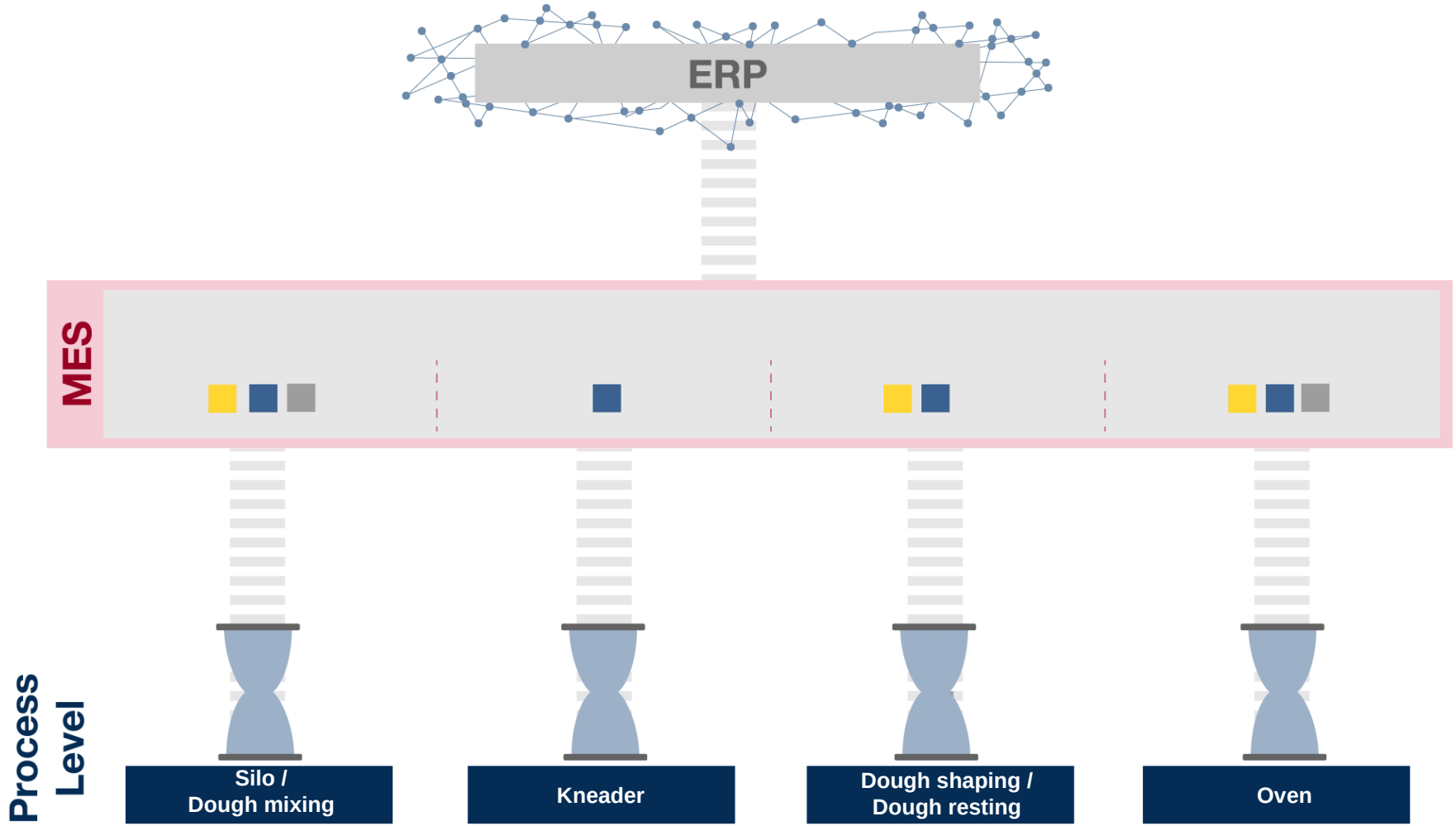
Order overview



Order overview



Order overview

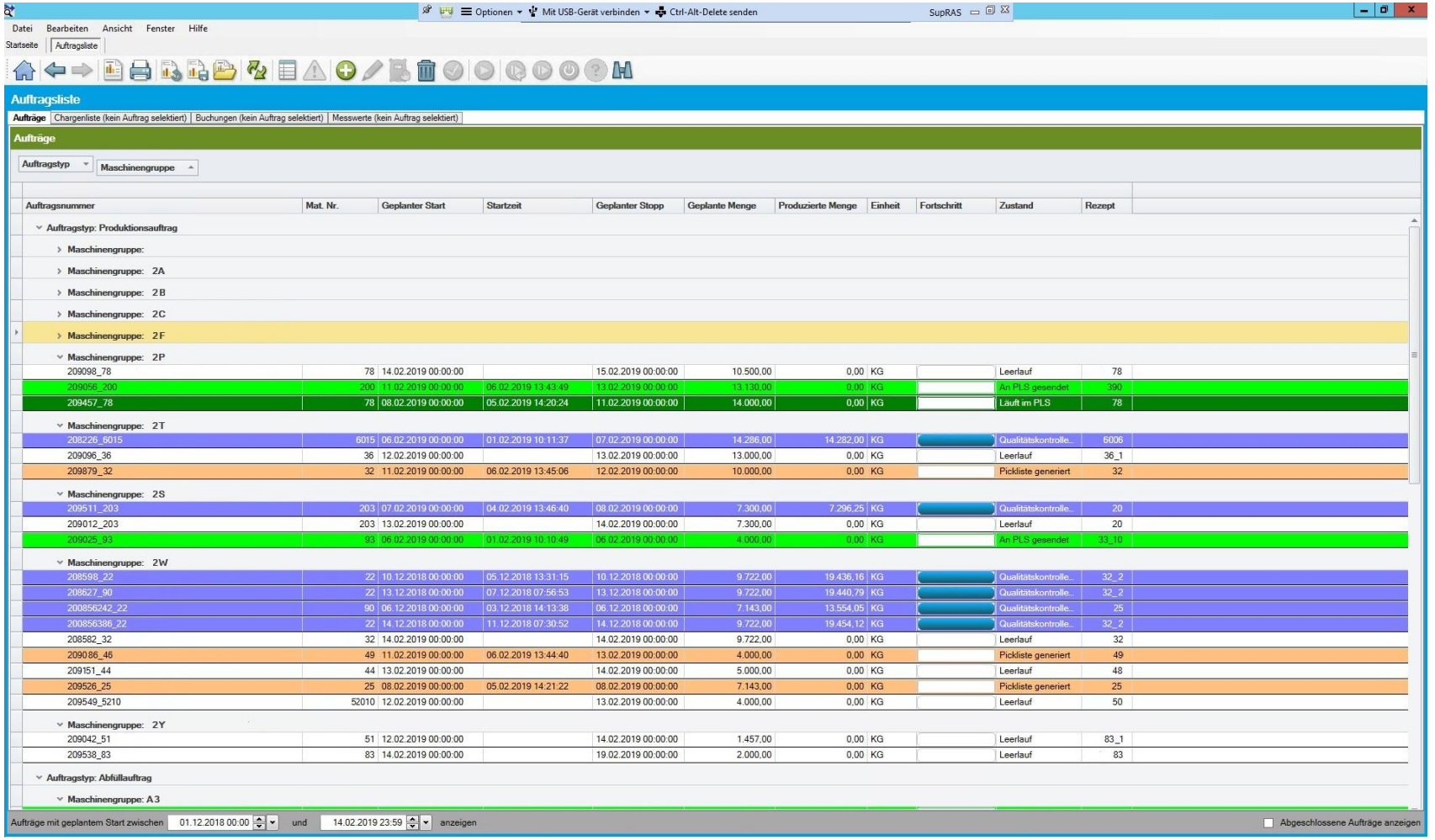


Actual situation – Pain Points

- Isolated Applications – chosen by technological functionality rather than connectivity
- Complete overview of all lines in one plant is missing
- ERP-orders are distributed manually, manual detail planning
- Packaging doesn‘t know what is happening in the production area and otherwise
- Manual processes – handover of routing slips is slowly and fault-prone
- Adaption of recipes not traceable
- Data recording and –analisys is handled differently in different systems

Orderlist

- **Order list**
  - One order list for the complete plant – including packaging
  - All states clearly arranged on one page

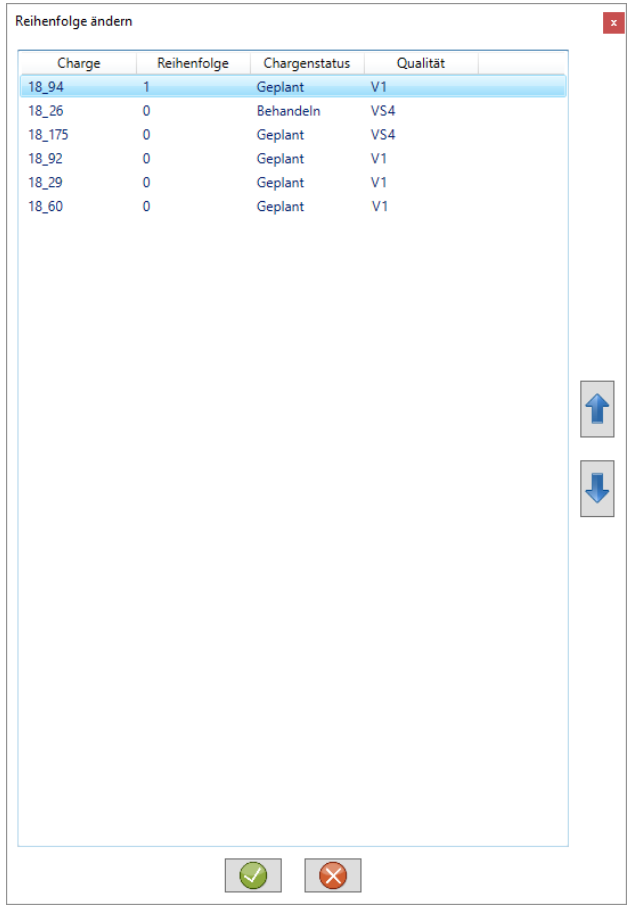


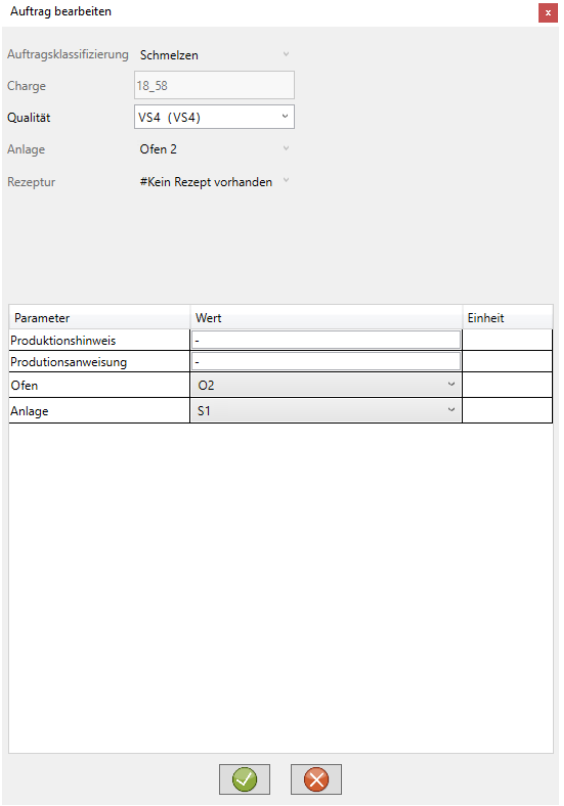
Actual situation – Pain Points

- Isolated Applications – chosen by technological functionality rather than connectivity
- Complete overview of all lines in one plant is missing
- ERP-orders are distributed manually, manual detail planning
- Packaging doesn‘t know what is happening in the production area and otherwise
- Manual processes – handover of routing slips is slowly and fault-prone
- Adaption of recipes not traceable
- Data recording and –analisys is handled differently in different systems

Orders – individually adapted

- **Individual adaption of order parts**
  - Changes in line and sequence within given rules
- **Batch handling**
  - Production instructions and references
  - Change source and target
  - Change material and amount
  - Dependant on user rights

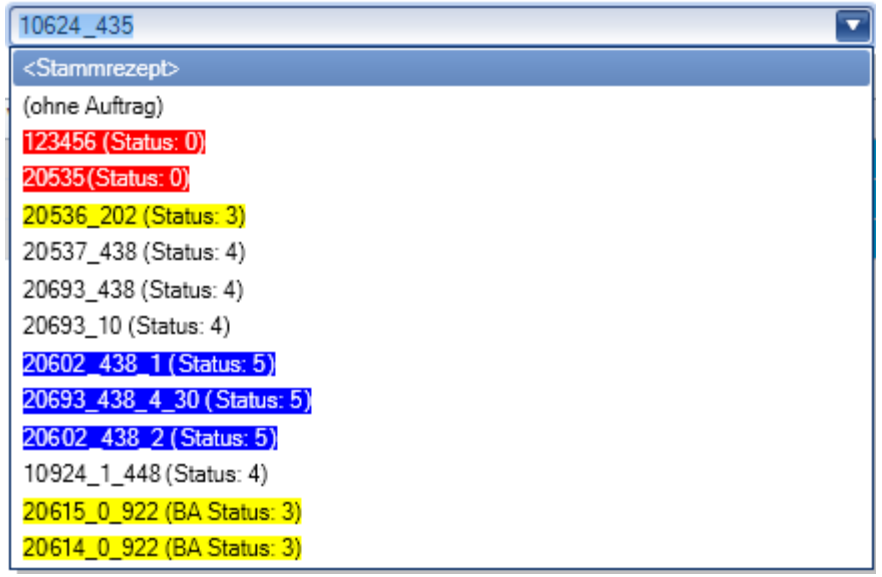




Recipes

- **Master recipe**
  - Provided by ERP system
  - Stored constantly in the system

- **Actual recipe**
  - Only for the actual order
  - Can be adapted
  - Verification if all relevant data is given right (Status, material available etc.)



All data can be taken over to the basic recipe or used temporary

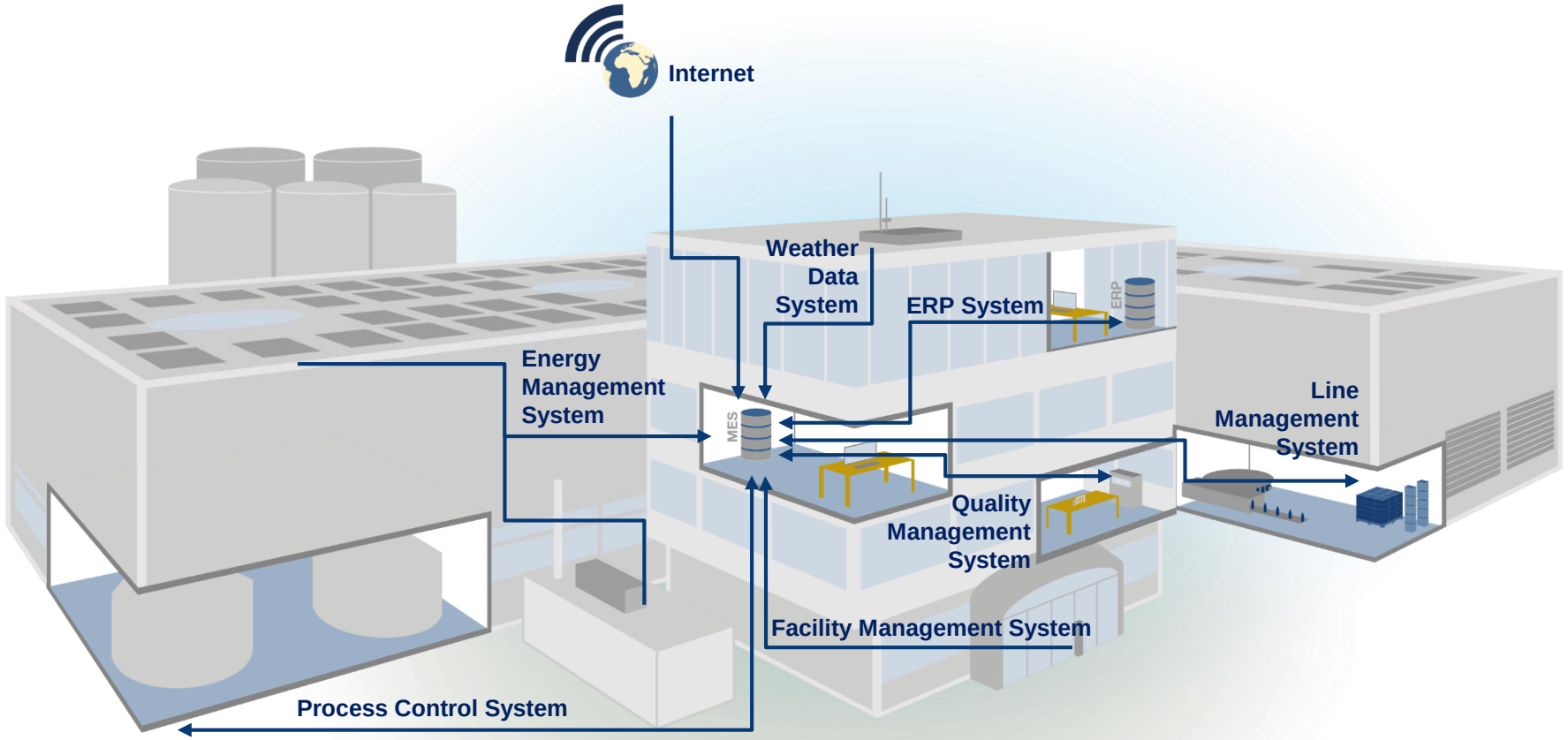
StüLi-Pos.	Rohwa...	Bezeichnung Rohware	Grundoperation	Dosierweg	Tankweg	Menge [%]	Menge [kg]	Volumen [l]	kum. Volumen [l]	Dichte [kg/l]	Nachspülen	Molchl. n. ausschieben	Zwangdosierung	Zeit	Mischer	Pumpe	Conti-TDS
10	205	484	Dosierung	Kommissioniertes Ge...	Gatherkupplung	5000	9500	685	9020	1,03	☐	☐	Keine Zwangdosierung				
15	818	35	Dosierung	Kommissioniertes Ge...	Gatherkupplung	2	0,05	0,02	9610	1,00	☐	☐	Keine Zwangdosierung				
	11	Dispergieren [min] [m...	Info				2,0000	0,0000		0,0000							
20	202	Titandioxid	Dosierung	Kommissioniertes Ge...	Gatherkupplung	9100	90	1040	9130	2,10	☐	☐	Keine Zwangdosierung				
30	911	Mattierung 1	Dosierung	Kommissioniertes Ge...	Gatherkupplung	600	0,006	6000	89310	1,00	☐	☐	Keine Zwangdosierung				
40	42	FLOW 6	Dosierung	Kommissioniertes Ge...	Gatherkupplung	700	0,70	179	1430	1,97	☐	☐	Keine Zwangdosierung				
42	30	WASSER	Dosierung	Prozessleitung Wass...	<Kein Wert!>	400	35	0,34	10432	1,00	☐	☐	Keine Zwangdosierung				
43	202	Verdicker	Dosierung	Kommissioniertes Ge...	Gatherkupplung	0,50	750	77	11132	1,00	☐	☐	Keine Zwangdosierung				
44	897	Mix	Dosierung	Kommissioniertes Ge...	Gatherkupplung	0,02	0,1	0,033	5132	1,63	☐	☐	Keine Zwangdosierung				
45	891	Mix Schw.	Dosierung	Kommissioniertes Ge...	Gatherkupplung	1	0	0	2135	1,16	☐	☐	Keine Zwangdosierung				
46	999	Mix Grün	Dosierung	Kommissioniertes Ge...	Gatherkupplung	0	90	0,1	2485	1,26	☐	☐	Keine Zwangdosierung				
50	928	Lösung	Dosierung	Kommissioniertes Ge...	Gatherkupplung	0,03	50	0,3	1565	1,00	☐	☐	Keine Zwangdosierung				

Actual situation – Pain Points

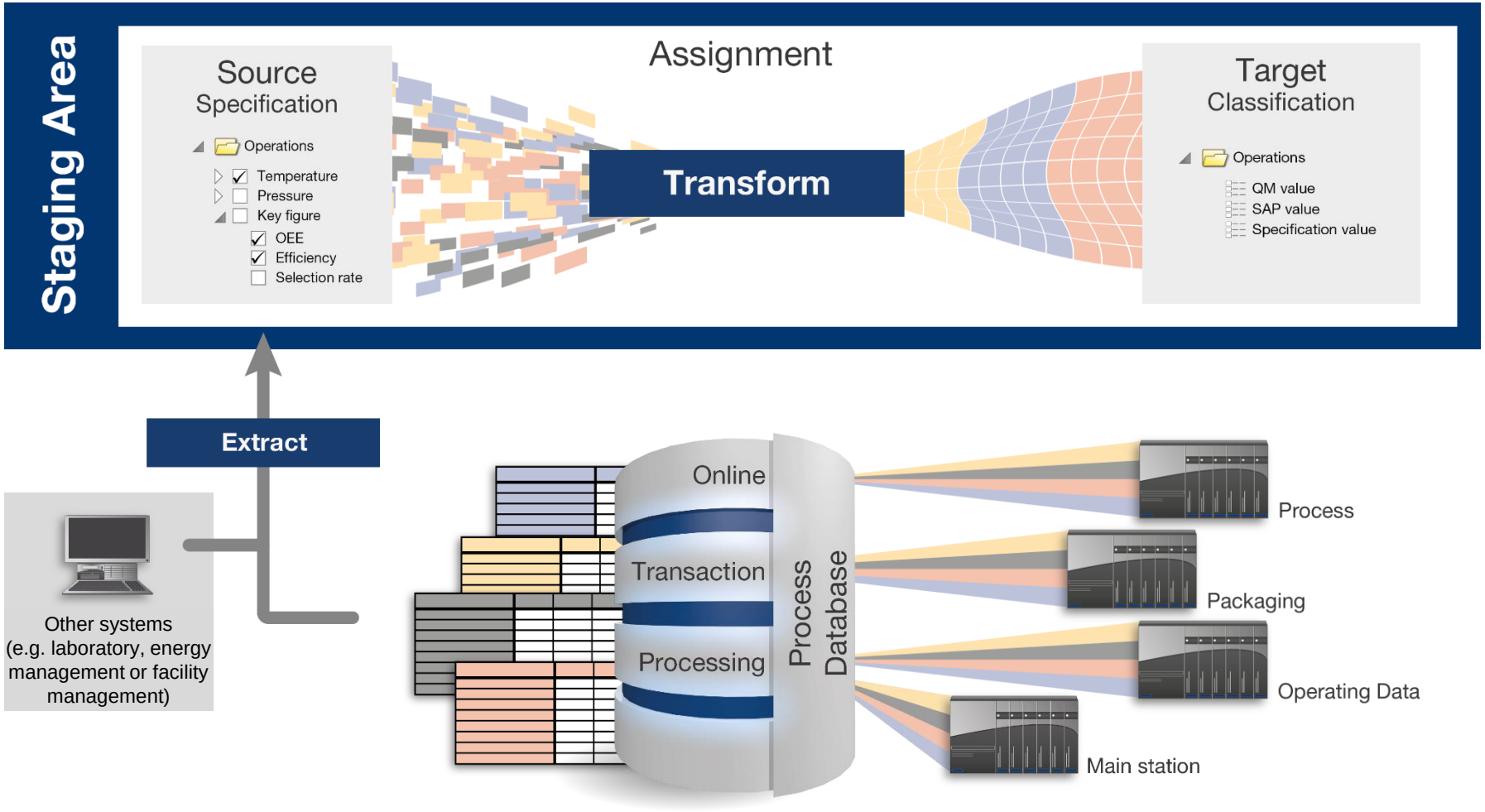
- Isolated Applications – chosen by technological functionality rather than connectivity
- Complete overview of all lines in one plant is missing
- ERP-orders are distributed manually, manual detail planning
- Packaging doesn‘t know what is happening in the production area and otherwise
- Manual processes – handover of routing slips is slowly and fault-prone
- Adaption of recipes not traceable
- Data recording and –analisys is handled differently in different systems

Industry 4.0

MES: The relevant information for Smart Manufacturing

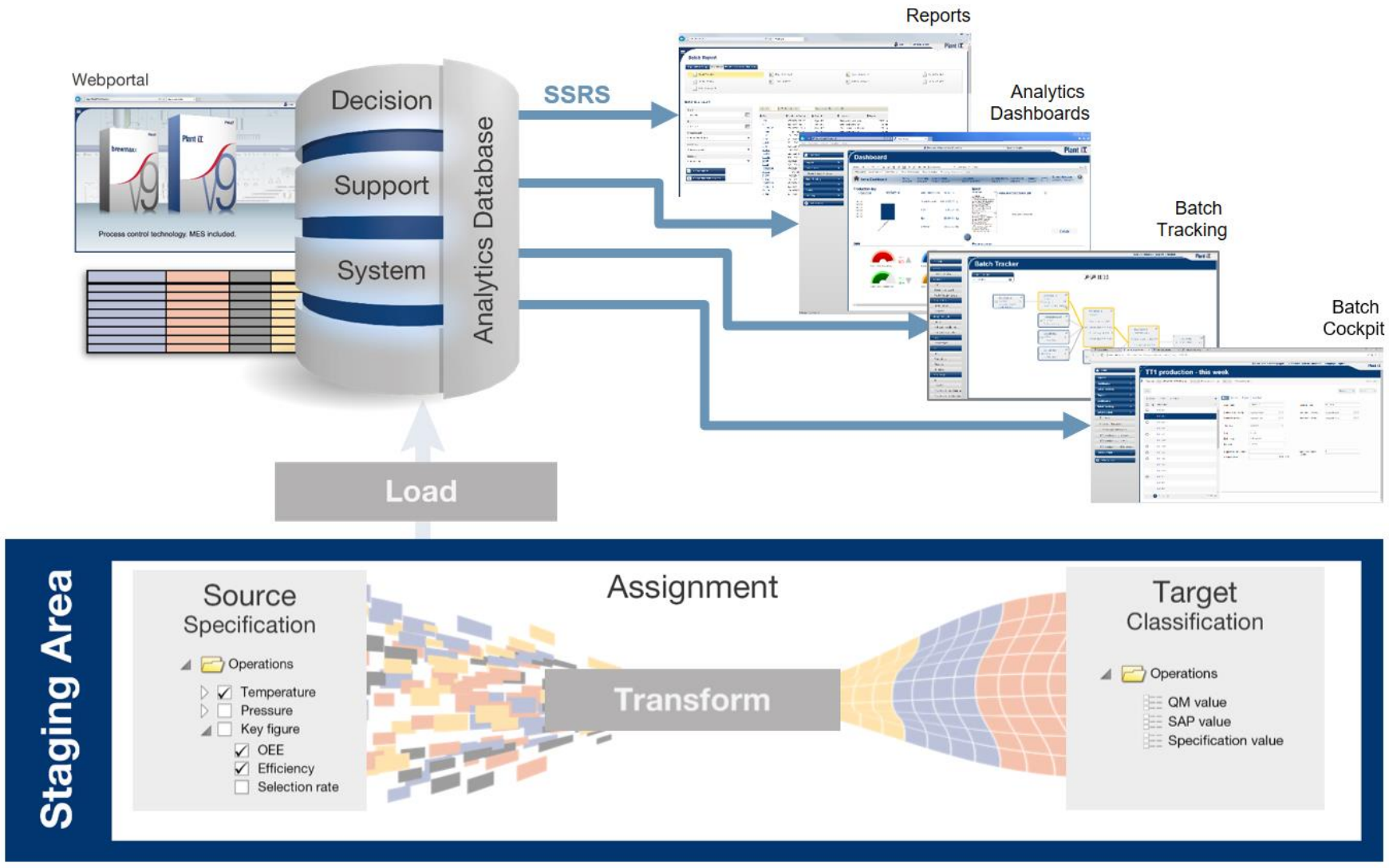


Information flow model I



Plant Integrate iT

Information flow model II

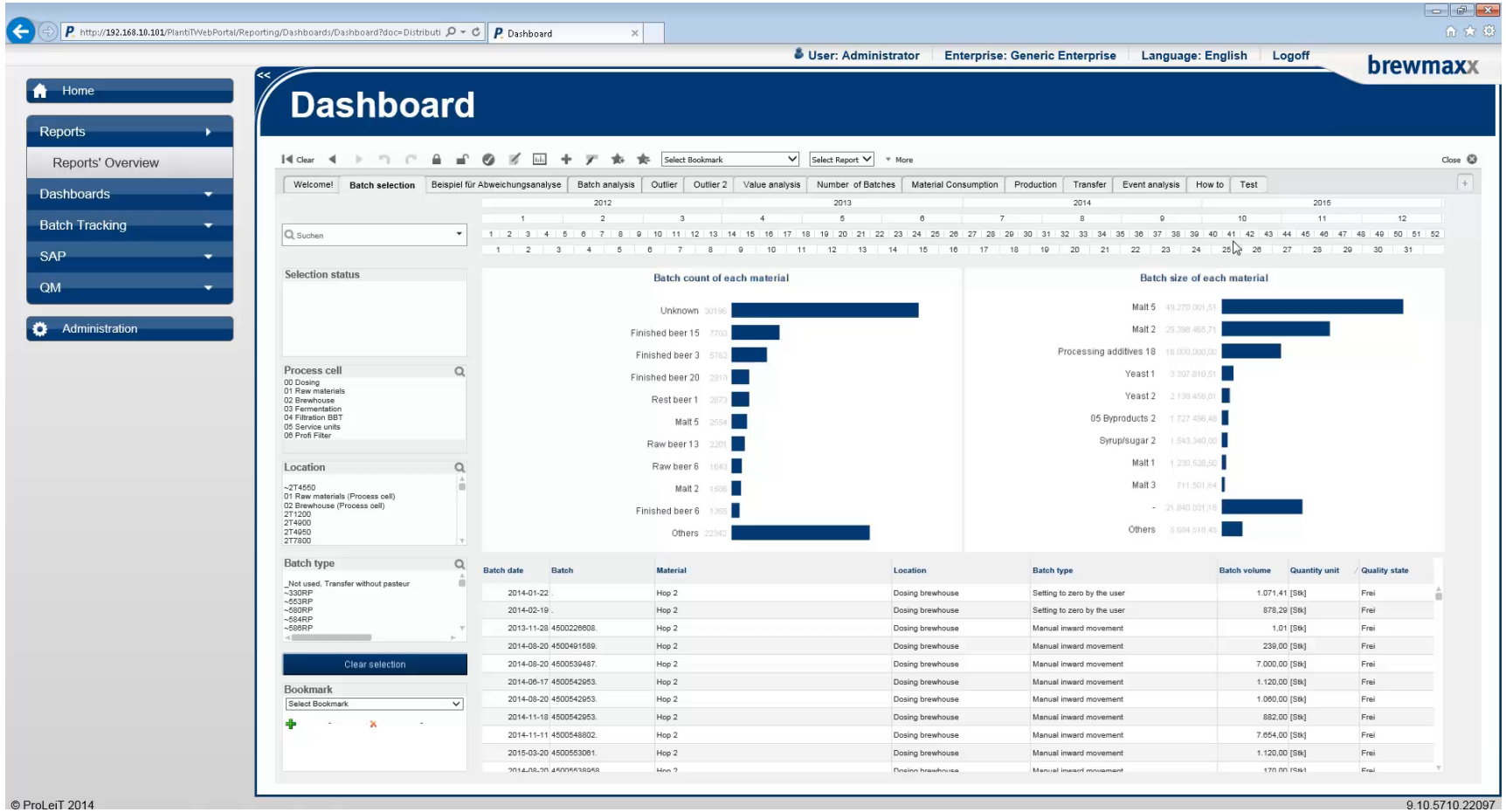


Implementation Industry 4.0 and Big Data

Information flow model III

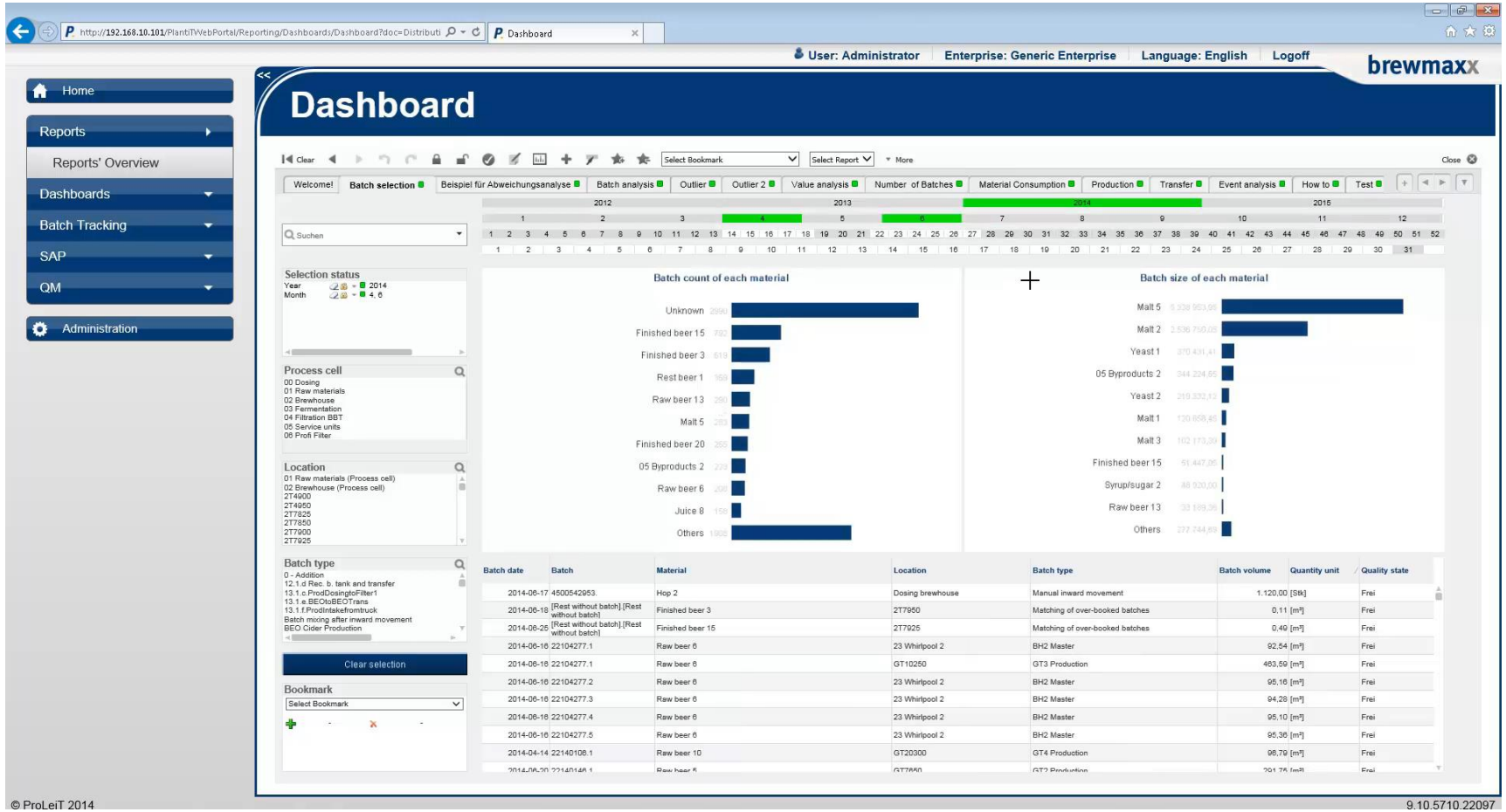
Batch selection

Example: Analytics dashboard



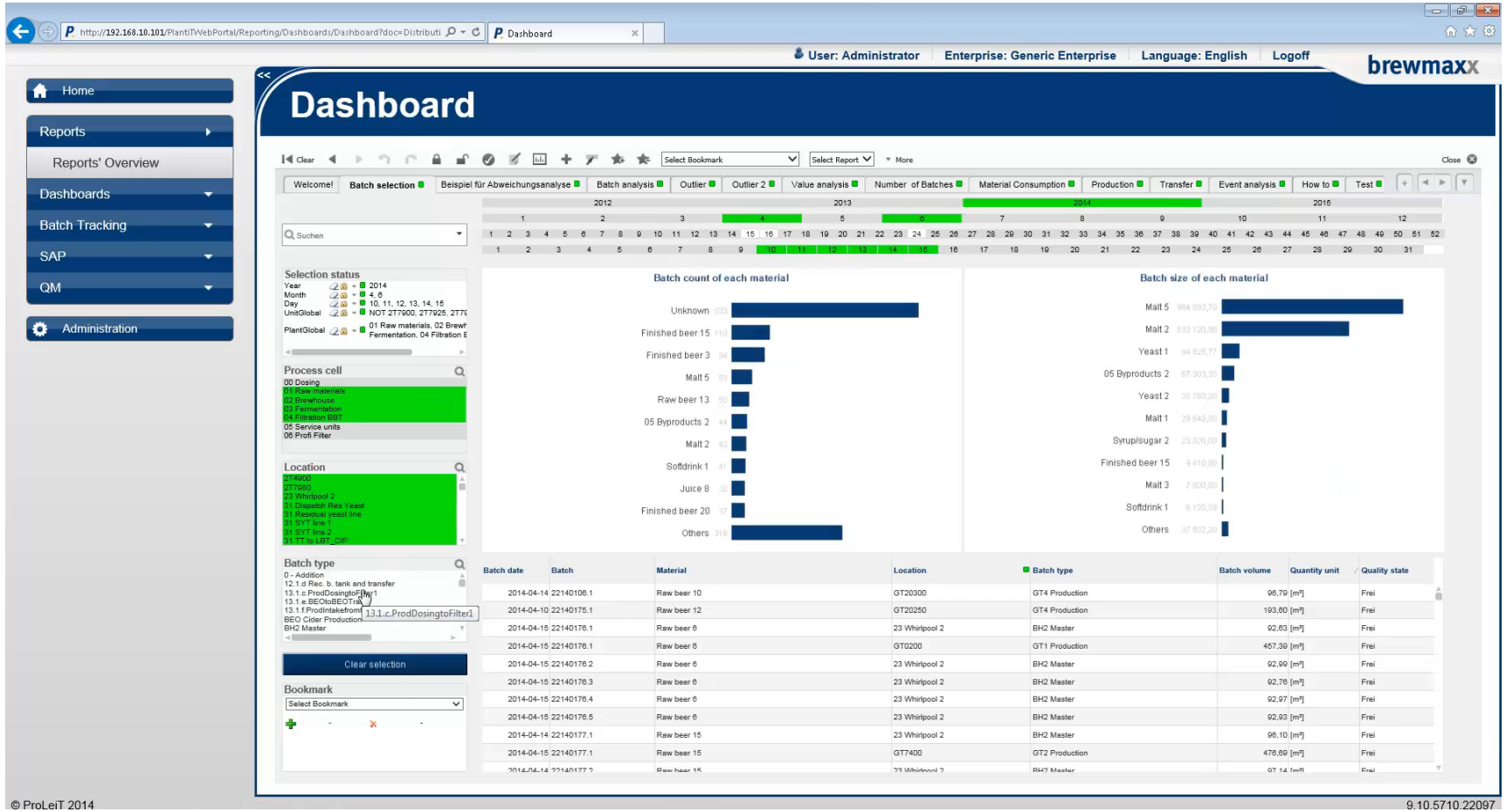
Batch selection

Example: Analytics dashboard



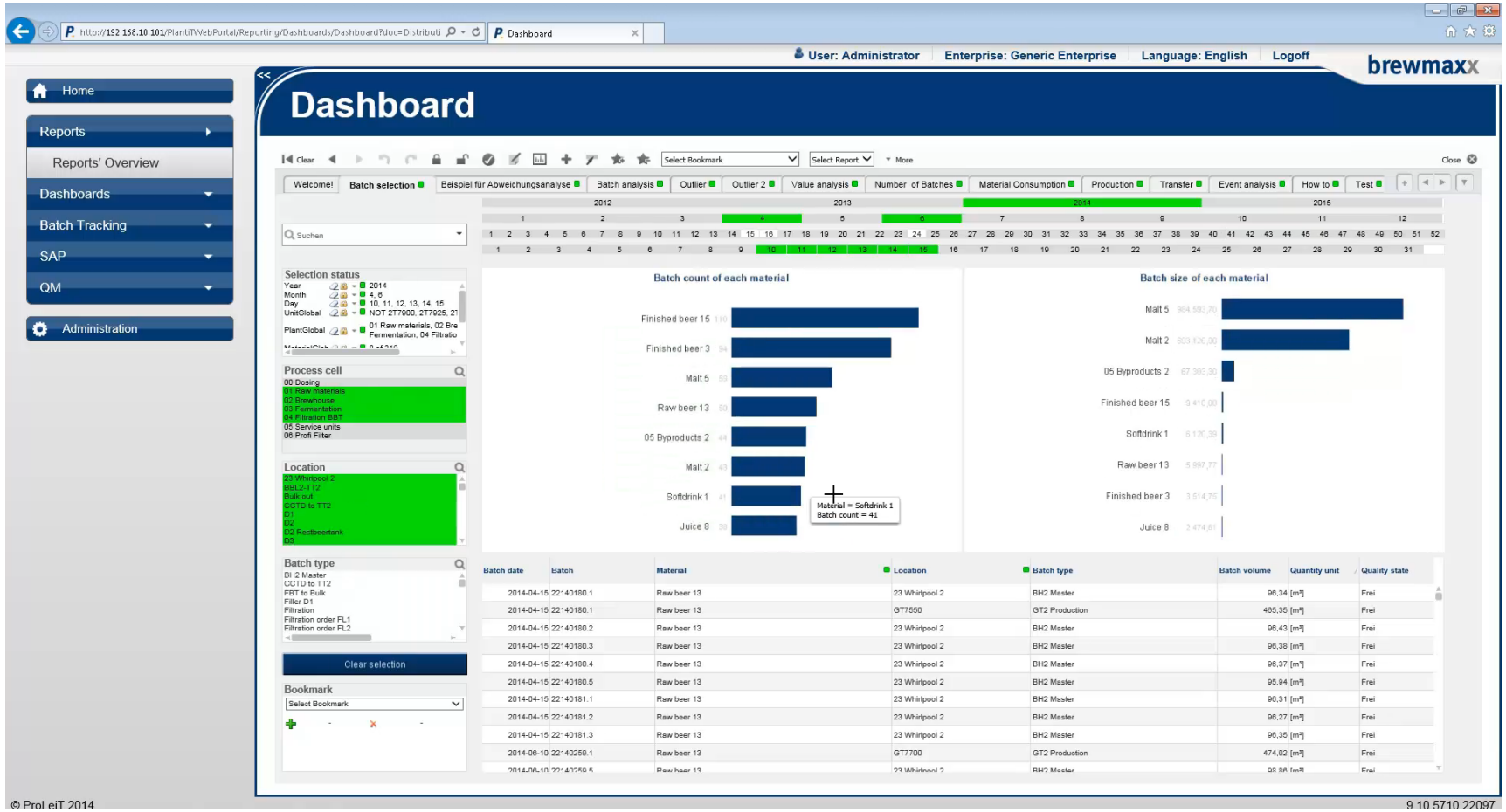
Batch selection

Example: Analytics dashboard



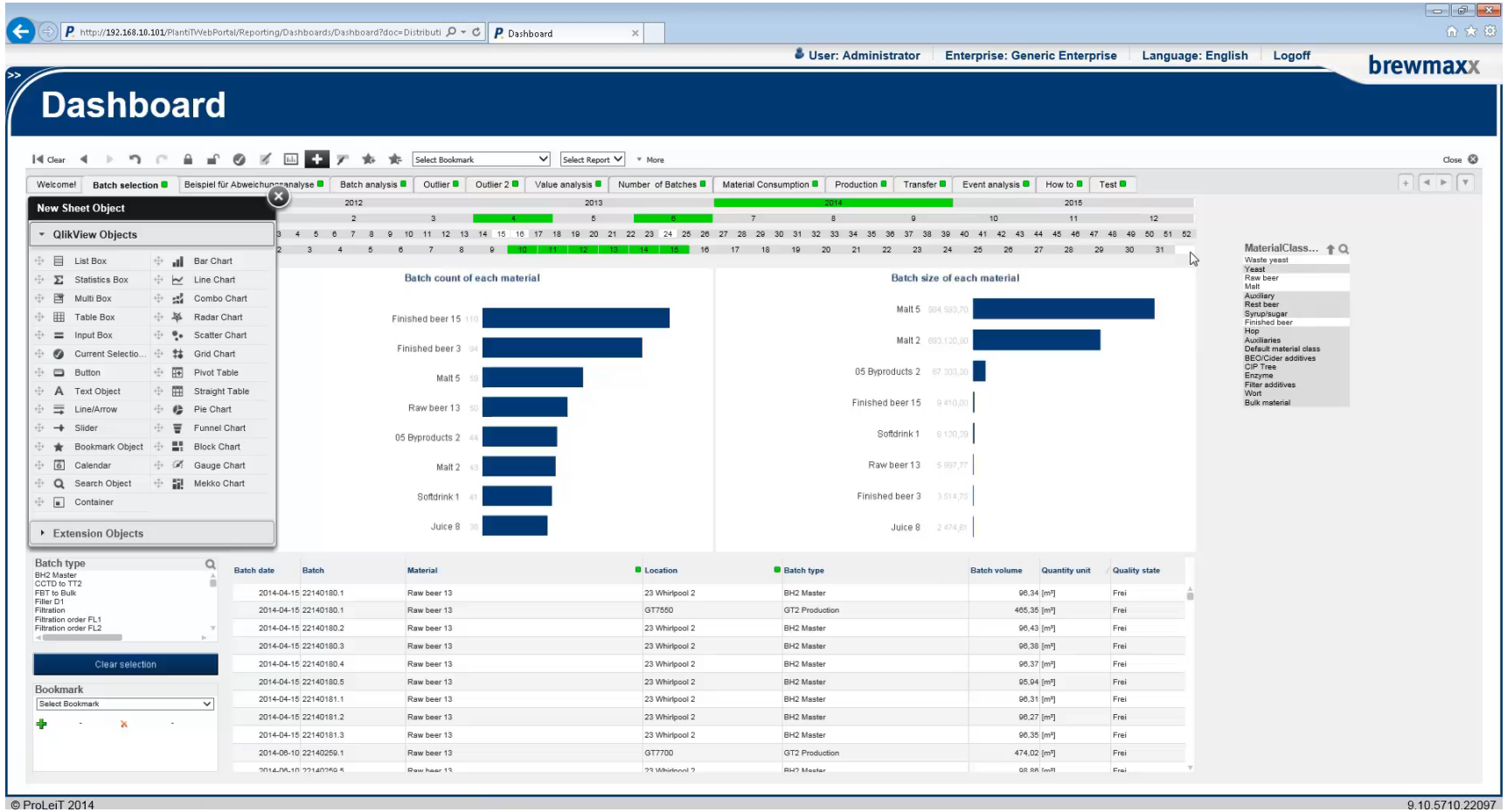
Batch selection

Example: Analytics dashboard



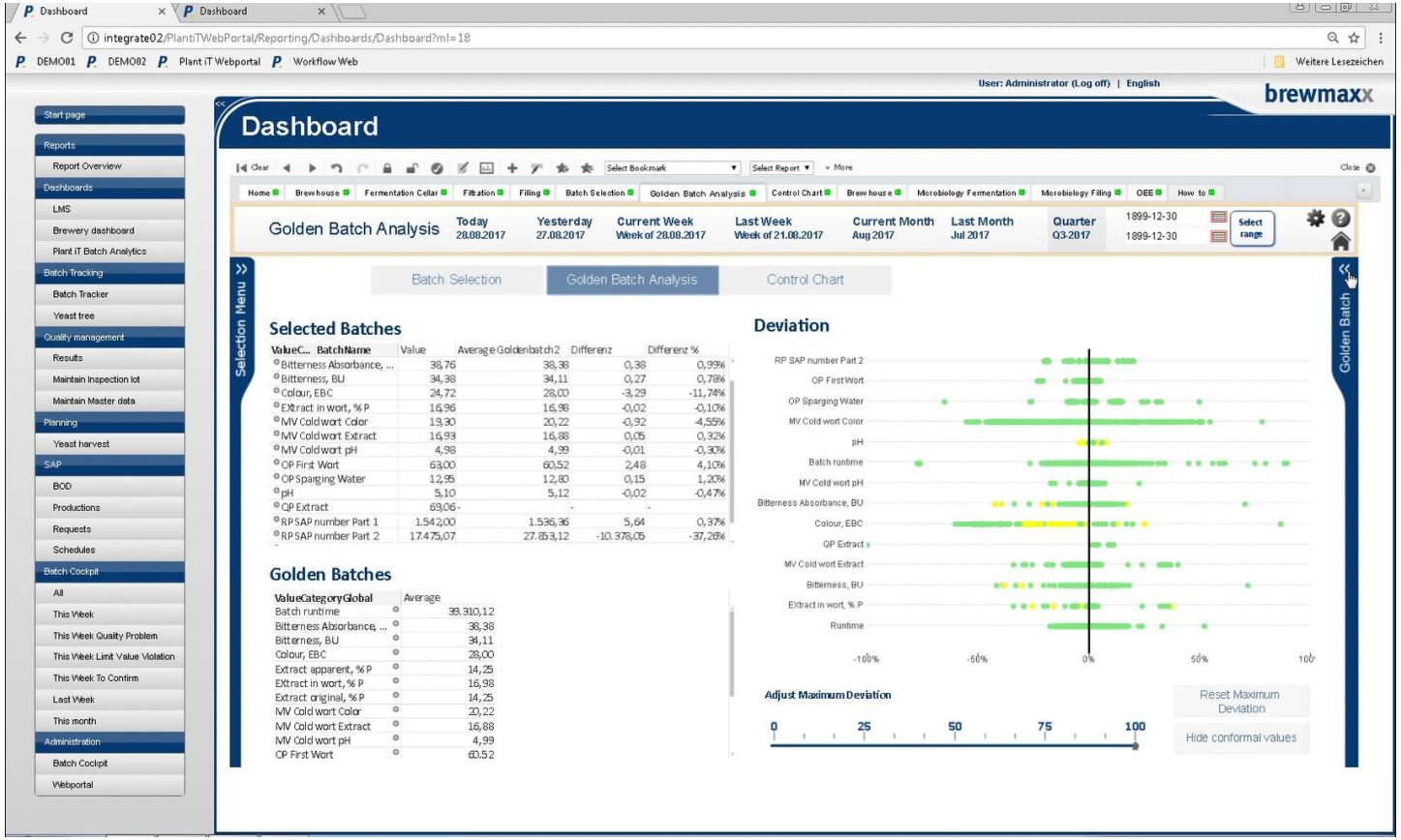
Batch selection

Example: Analytics dashboard



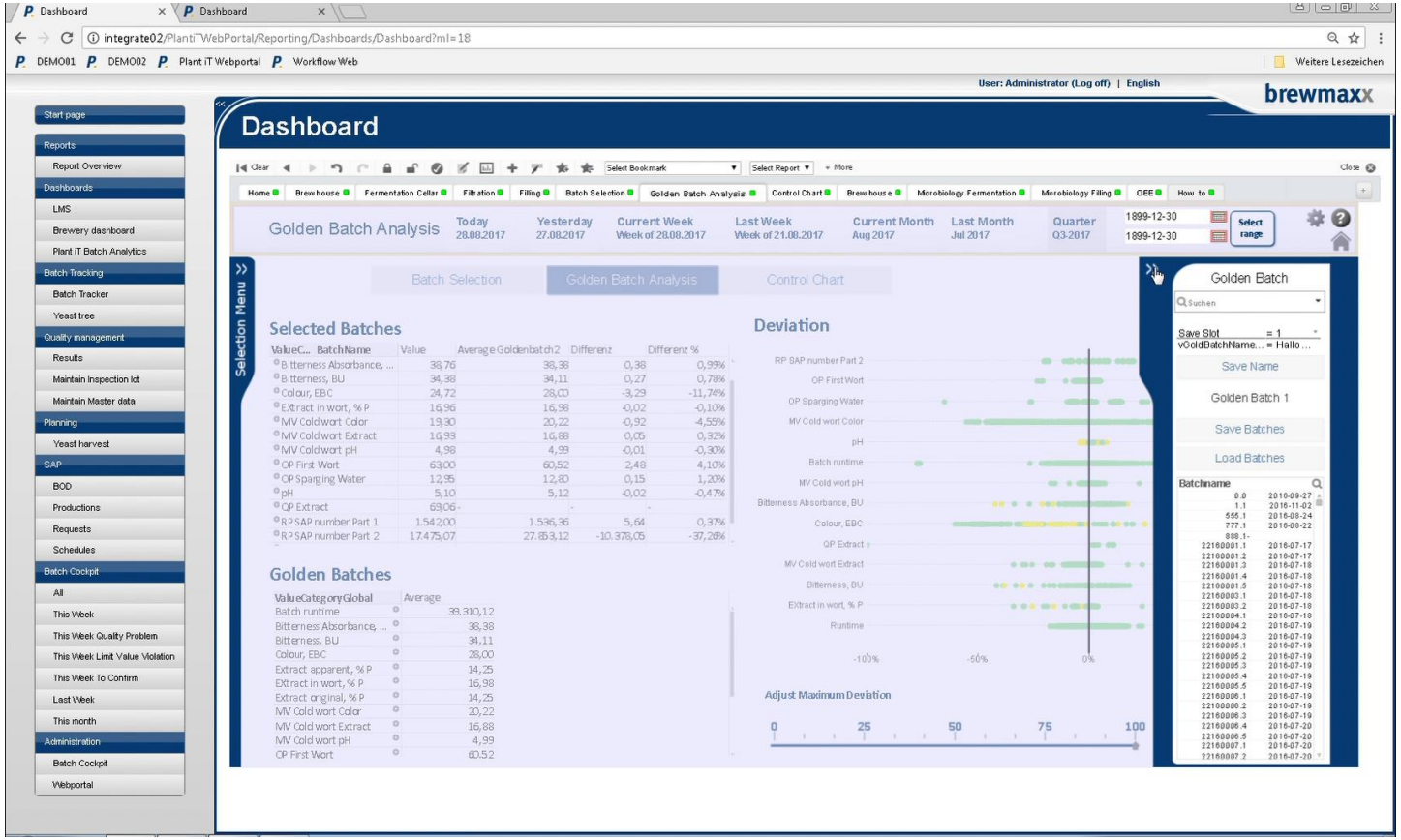
Example Big Data Analysis

Golden Batch Analysis



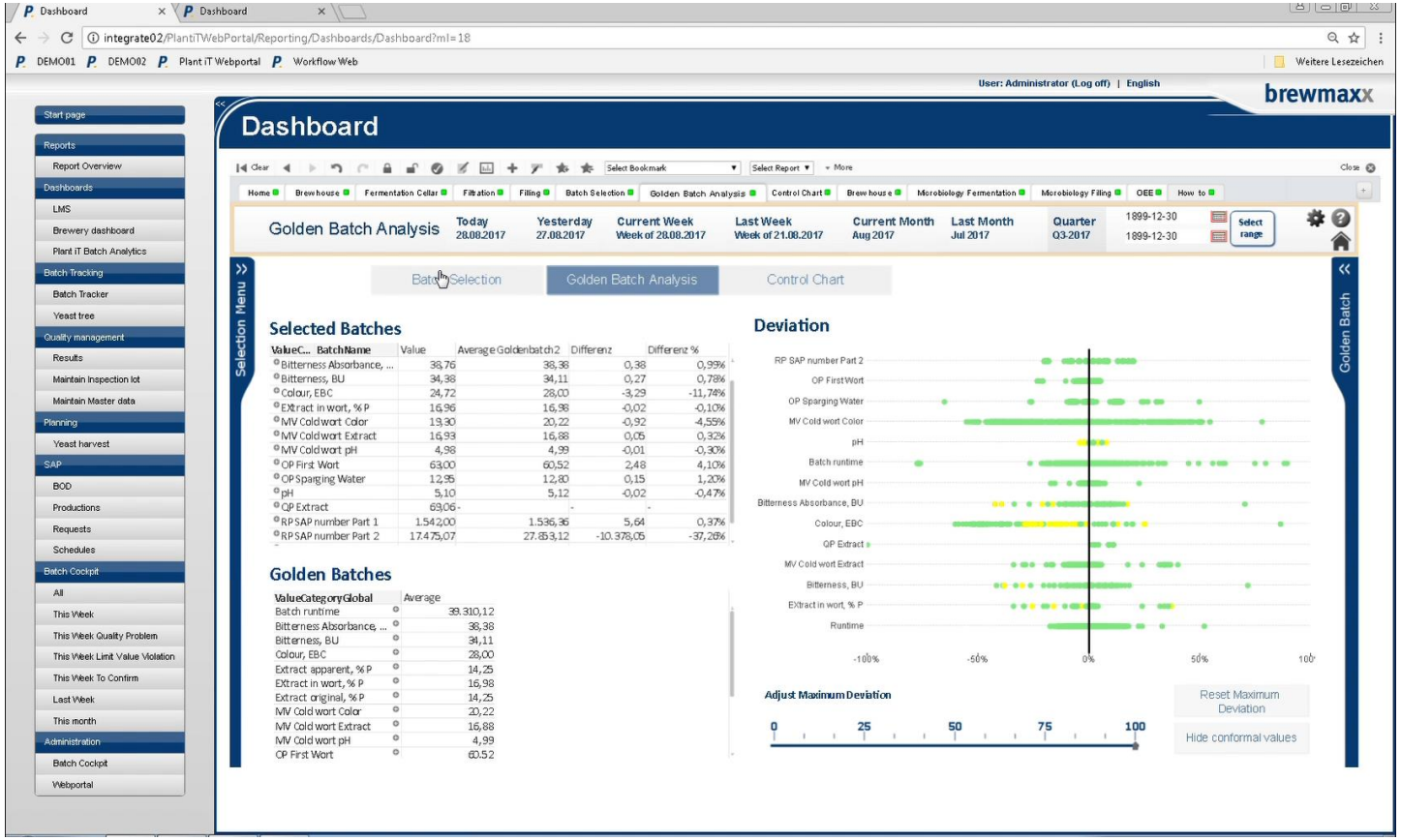
Example Big Data Analysis

Golden Batch Analysis



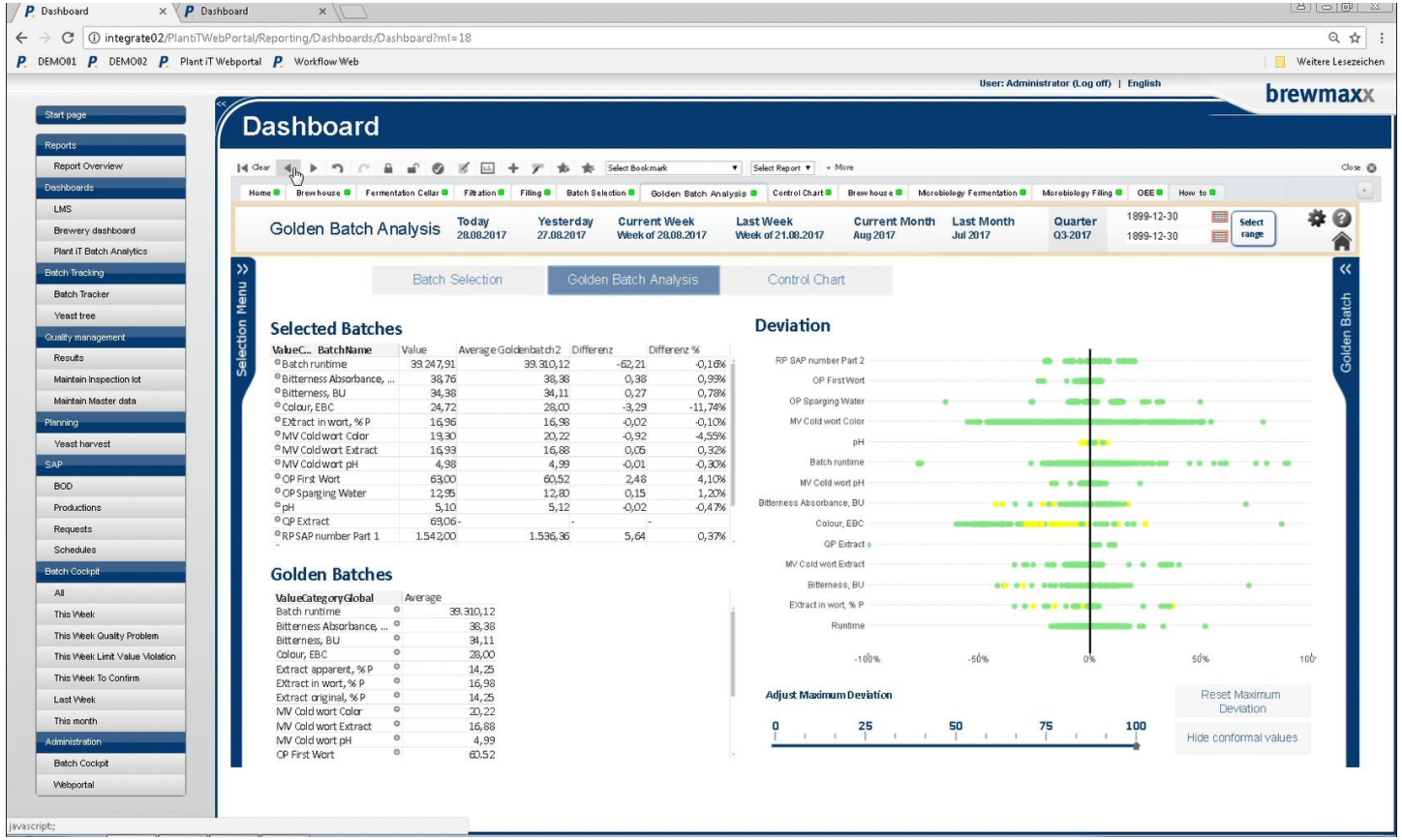
Example Big Data Analysis

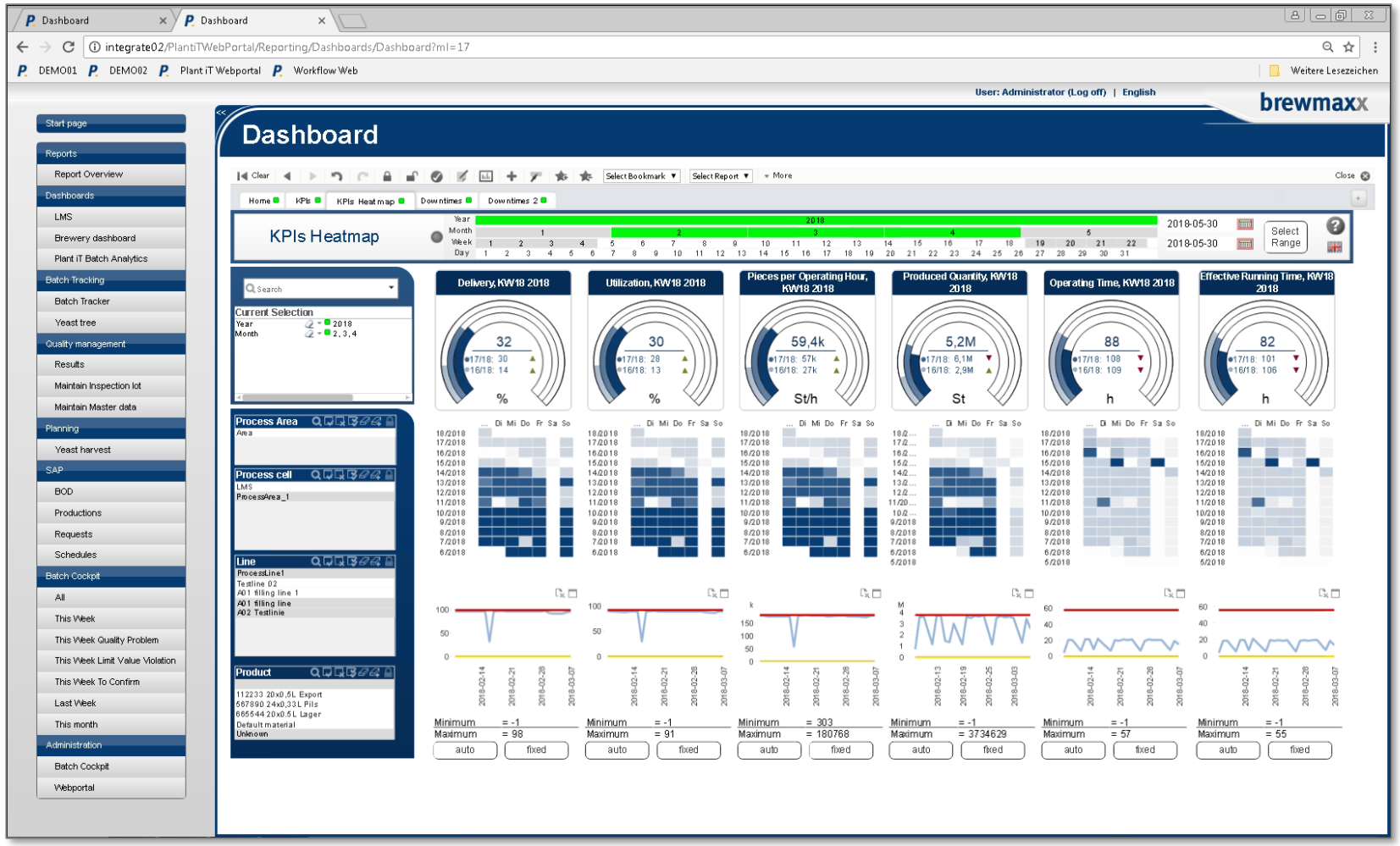
Golden Batch Analysis



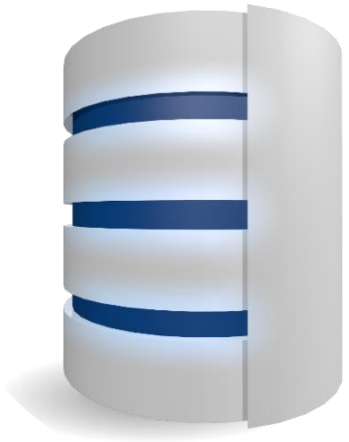
Example Big Data Analysis

Golden Batch Analysis




Dashboard
integrate02/PlantiTWebPortal/Reporting/Dashboards/Dashboard?ml=17
DEMO01
DEMO02
Plant iT Webportal
Workflow Web
User: Administrator (Log off) | English
brewmaxx
Start page
Reports
Report Overview
Dashboards
LMS
Brewery dashboard
Plant iT Batch Analytics
Batch Tracking
Batch Tracker
Yeast tree
Quality management
Results
Maintain Inspection lot
Maintain Master data
Planning
Yeast harvest
SAP
BOD
Productions
Requests
Schedules
Batch Cockpit
All
This Week
This Week Quality Problem
This Week Limit Value Violation
This Week To Confirm
Last Week
This month
Administration
Batch Cockpit
Webportal
Dashboard
Home
KPIs
KPIs Heatmap
Downtimes
Downtimes 2
KPIs Heatmap
Select Range
Current Selection
Process Area
Process cell
Line
Product
Delivery, KW18 2018
Utilization, KW18 2018
Pieces per Operating Hour, KW18 2018
Produced Quantity, KW18 2018
Operating Time, KW18 2018
Effective Running Time, KW18 2018

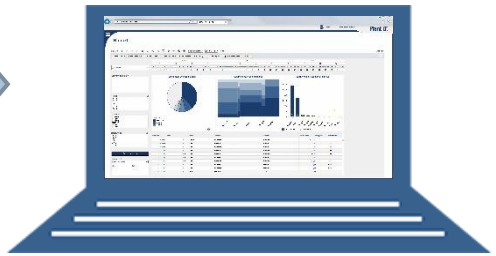
Data value-added chain



Data management

Data preparation

Data analysis



Reporting

Actual situation – Pain Points

- Isolated Applications – chosen by technological functionality rather than connectivity
- Complete overview of all lines in one plant is missing
- ERP-orders are distributed manually, manual detail planning
- Packaging doesn‘t know what is happening in the production area and otherwise
- Manual processes – handover of routing slips is slowly and fault-prone
- Adaption of recipes not traceable
- Data recording and –analisys is handled differently in different systems

Benefits from MES Control Centre

Performance Increase

Increased Quality

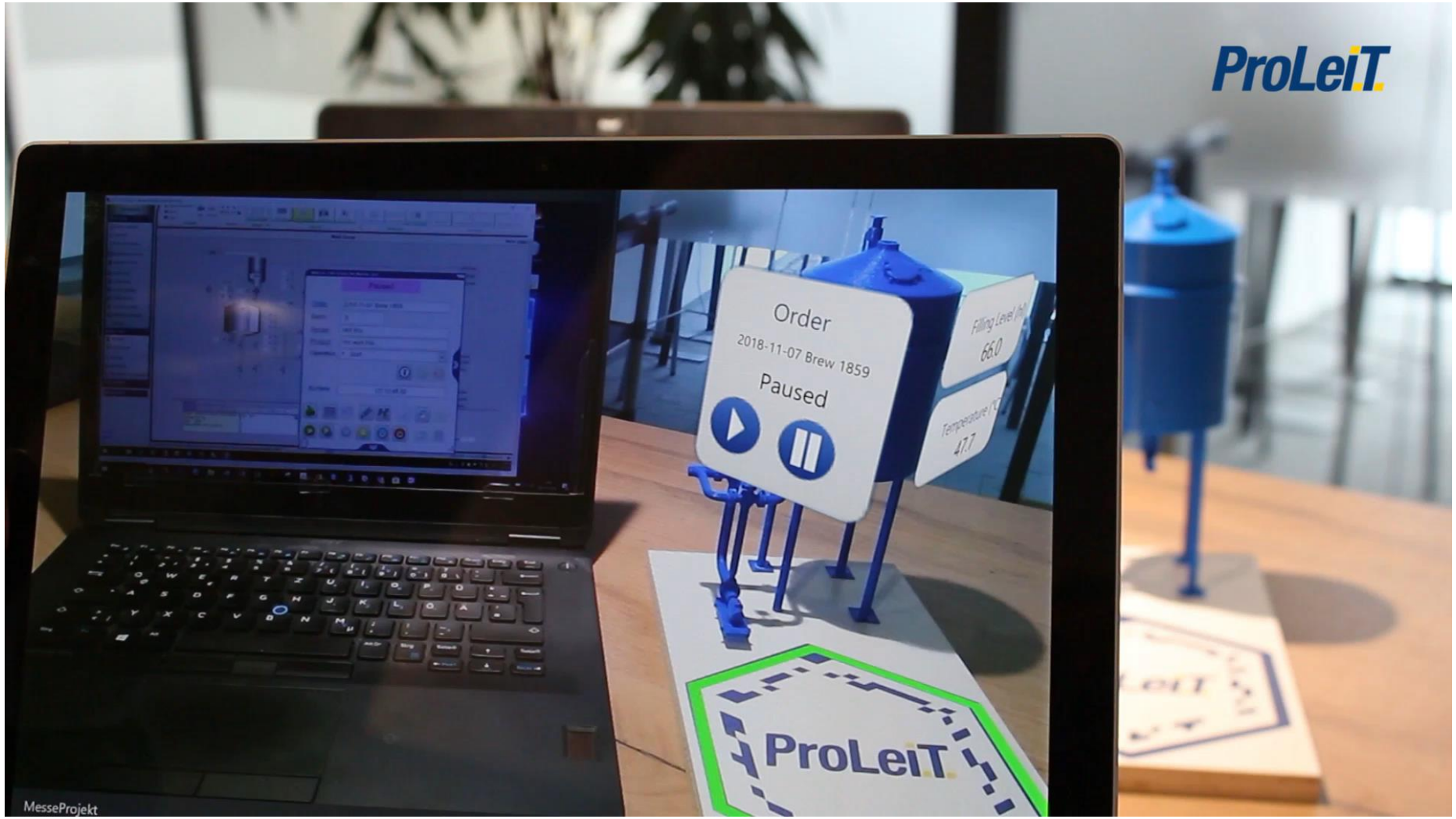
Extended Availability

Optimised Services

Benefits

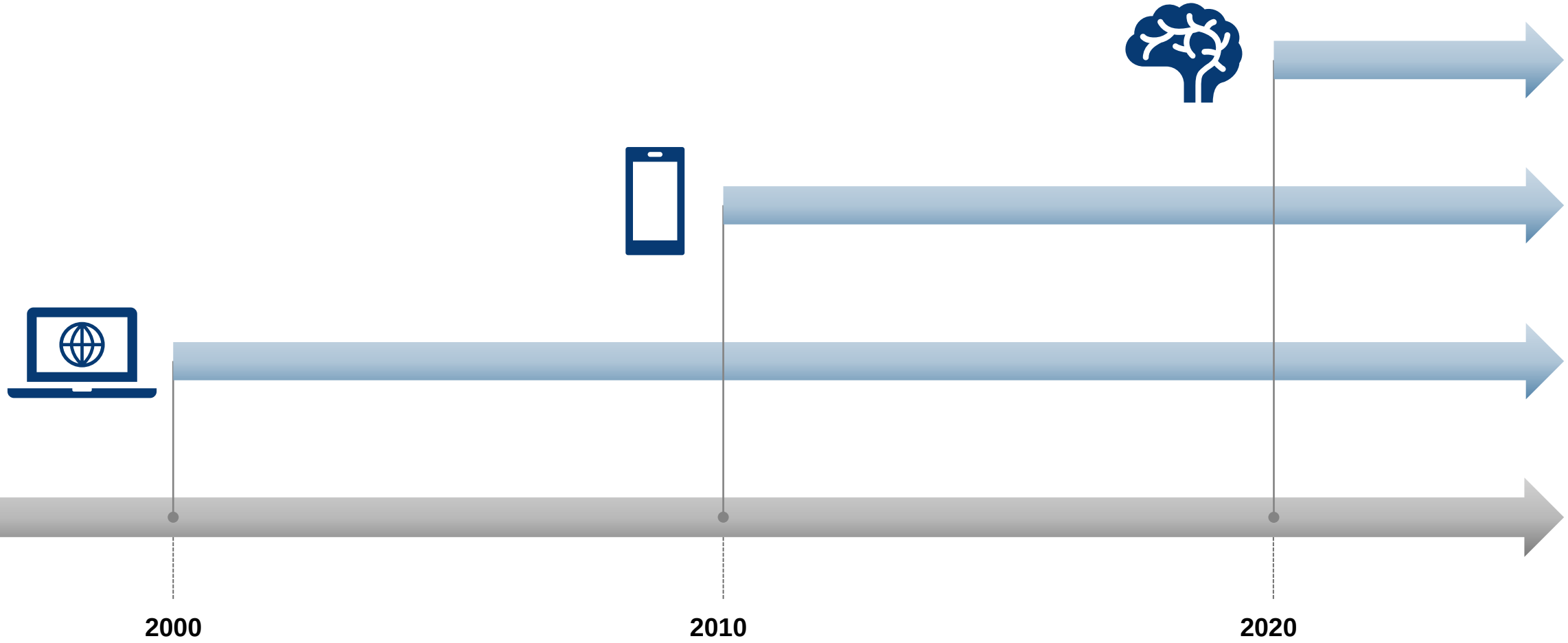
Outlook

Augmented Reality



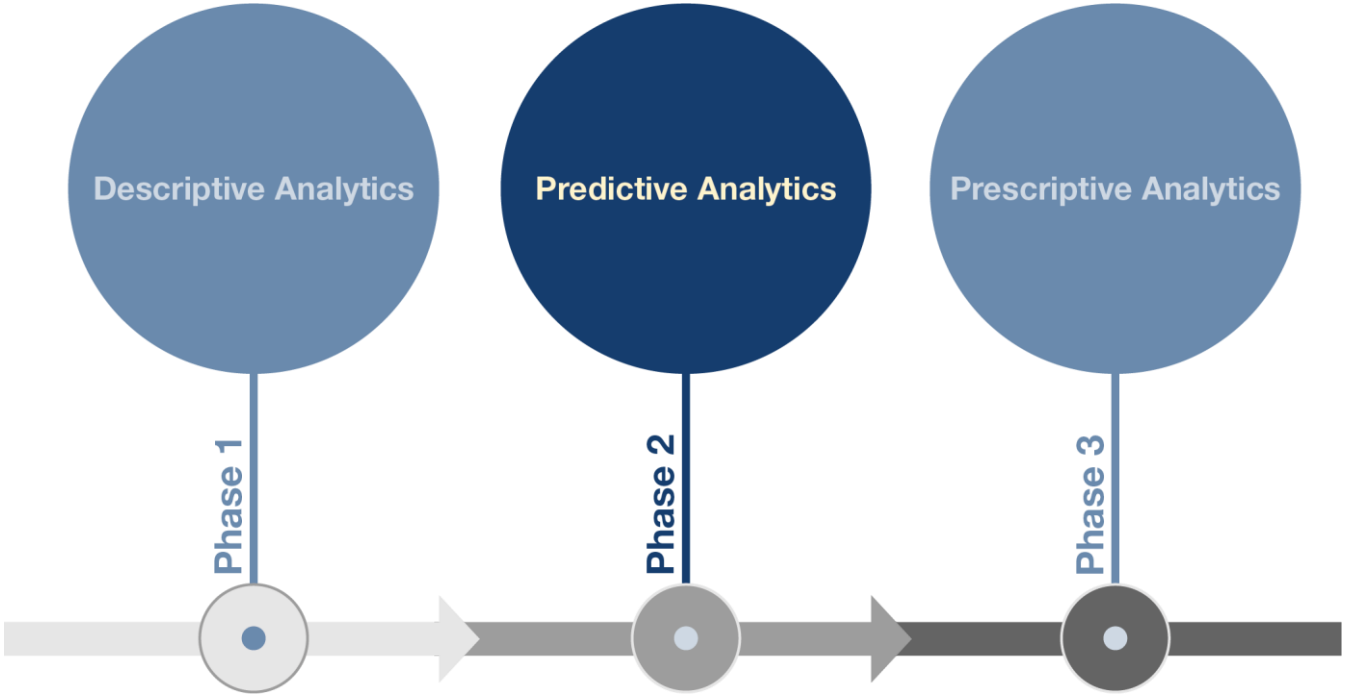
Outlook

Game Changer



Outlook

Future Analysis



Kontakt

Andreas Brülls

- Head of Product Management, ProLeiT AG
- Email: andreas.bruells@proleit.com
- Telephone: +49 9132 777 361

ProLeiT AG

Einsteinstr. 8
91074 Herzogenaurach
Deutschland

Telefon	+49 91 32 777 0
Telefax	+49 91 32 777 150
E-Mail	info@proleit.de
Internet	www.proleit.de

ProLeiT Group

Chicago/US – Enschede/NL –
Kiew/UA – Monterrey/MX –
Moskau/RU – Piracicaba/BR –
Sevilla/ES – Shanghai/CN –
Sofia/BG – Wien/AT

Copyright

© Copyright 2019 – Urheberrechtshinweis

Alle Inhalte dieses Werkes / dieser Präsentation, insbesondere Texte, Fotografien und Grafiken, sind urheberrechtlich geschützt. Das Urheberrecht liegt, soweit nicht ausdrücklich anders gekennzeichnet, bei der ProLeiT AG. Bitte fragen Sie uns, falls Sie die Inhalte dieses Werkes / dieser Präsentation verwenden möchten.

Wer gegen das Urheberrecht verstößt (z.B. Bilder oder Texte unerlaubt kopiert), macht sich gem. §§ 106 ff UrhG strafbar, wird zudem kostenpflichtig abgemahnt und muss Schadensersatz leisten (§ 97 UrhG).

© Copyright 2019 – Copyright reference

All presentation / creation contents, especially texts, photographs and graphics are subject to copyright. Copyright lies with ProLeiT AG if not explicitly marked otherwise. If you want to make use of contents of this presentation / creation, please contact us.

Any person who infringes copryight laws of Germany (e.g. copying texts or graphics without permission) is liable to prosecution (§§ 106 ff UrhG). Additionally, a notification liable to costs as well as monetary compensations will incur (§ 97 UrhG).