

VISUALIZATION OF PROCESS DATA

Supply chain on a digital
journey towards optimal
use of data

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dsk.2020

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CV METTE MARIE LØKKE



1996-2001 MSc in Food science KVL

2001-2007 Research Scientist Arla Foods Innovation, Ingredients

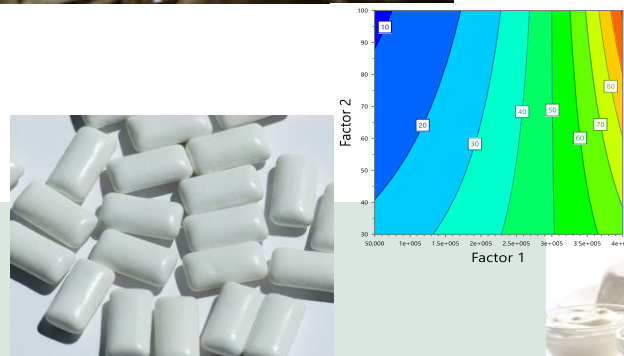
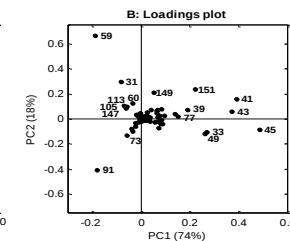
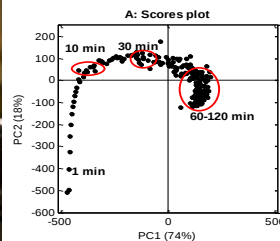
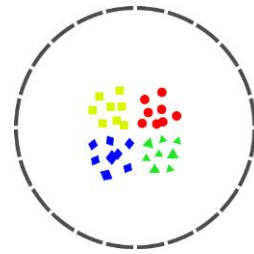
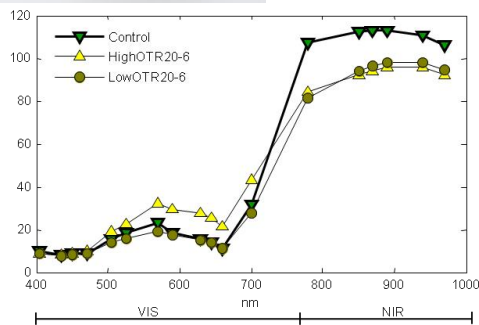
2007-2009 Research Scientist Arla Foods Innovation, Cheese and Butter

2009-2012 PhD student Food Science, Aarhus University

2012-2016 Post Doc Food Science, Aarhus University

2016-2020 Data Scientist, Fertin Pharma

2020- Excellence Manager, Arla, Manufacturing Intelligence



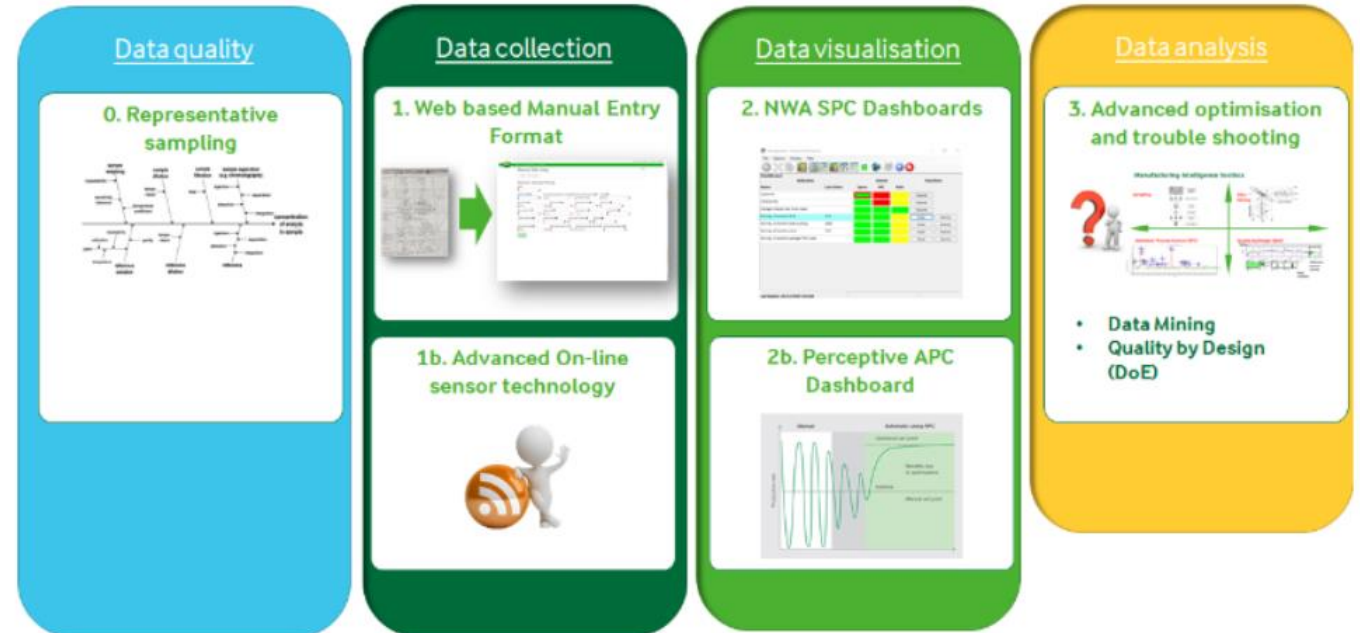
MANUFACTURING INTELLIGENCE TEAM

Supports sites within Production Optimisation to reduce material loss and improve product quality.

Enables and support sites in turning manufacturing data into real knowledge to drive business results based on fact-based decision for product optimization.

Setting the direction for and support sites in the use of Manufacturing Intelligence tools:

- Advanced sensors
- Statistical process control (SPC/APC)
- Design of experiments (DoE)
- Trouble shooting/Advanced Analytics



Anette Holst
Excellence Mgr,
Manufact.
Intelligence



Jonas Johannesen
Intern



Karina Mikkelsen Edwards
Excellence Mgr,
Process & Prod.
Tech.



Marianne Nielsen
Excellence manager,
Process & Product
Technology



Martin Kamber
Excellence Mgr,
Manufact.
Intelligence



Mette Marie Loekke
Excellence Mgr,
Manufact.
Intelligence



Pia Joergensen
Excellence Manager,
Manufacturing
Intelligence



Julie Lundtoft Andersen
Senior Manager
Product & Process
Tech Optimisation



AGENDA

What has happened in 11 years?

PAT ➡ Manufacturing Intelligence

More people – generally same themes

Moved from tiny part of a corner of Innovation to an important part of the strategic plans for supply chain

How visualization of process data is a part of this strategy

CALCIUM: TRANSFORMATION PROGRAM

Calcium transforms Arla for good and was a real kick-start for the digital journey

Goal of Calcium:

- ✓ Competitiveness in our milk price
- ✓ Transform to remain relevant
- ✓ Ability to invest

Enabler for
digital
journey!

- ✓ Hands-on leadership and decision making
- ✓ Data transparency for better decision making
- ✓ Organisation set up to empower the frontline
- ✓ Stronger mandates to execute & push change

WE ARE ON A JOURNEY TO DEMOCRATIZE OUR DATA

Key focus for the future is to empower our people



Data driven decisions happen in the organisation – on the spot, based on timely insights not reactive reports

Trust and empower our employees being the subject matter expert

Obligation on management to **utilise the data and make people being heard**

ARLA SUPPLY CHAIN

Key facts

Milk volume: 12.800 billion kg (2018)



Production value: EUR 7,5 billion (2018)



Staff¹: 13.990 (2.419 White Collar – 11.571 Blue Collar)



Dairies: 60 (20 Milk&Yogurt, 40 Cheese, BSM&Powder)



Warehouses & depots: 120

Notes: 1) Headcount. Total FTW 12.484

Source: Finance Performance Management, Supply Chain Strategy & Design (January 2019)

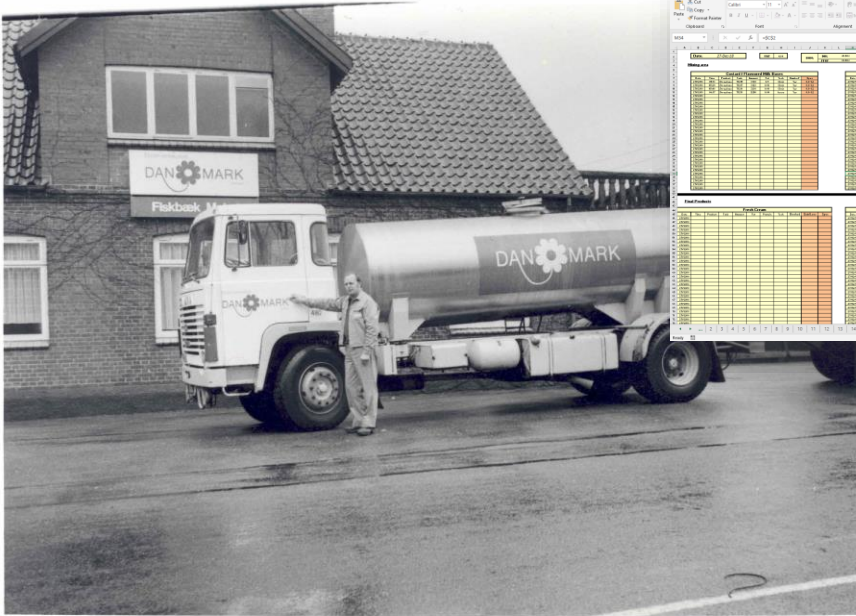


LIKE THE ARLA TRUCKS HAS CHANGED THROUGH TIME SO HAS THE AMOUNT AND AVAILABILITY OF DATA

Cloud

A screenshot of a data management software interface. It displays a grid of multiple spreadsheets, each containing columns of data. The interface has a green header bar and a sidebar on the left.

Production Servers



FOCUS ON GROWTH THROUGH MERGERS AND AQUISITIONS HAVE GIVEN A HUGE VARIATION IN IT, DATA AND AUTOMATION AT SITES

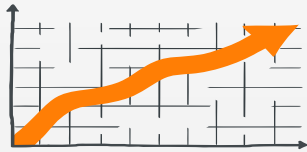
Focus has now changed to effency within our dairies an logistics



THE DATA HUB IS A CENTRAL PART OF OUR SUPPLY CHAIN DIGITAL STRATEGY

Performance

Measurement, management & analytics



Automation & Robotics



Employee empowerment



DATA HUB

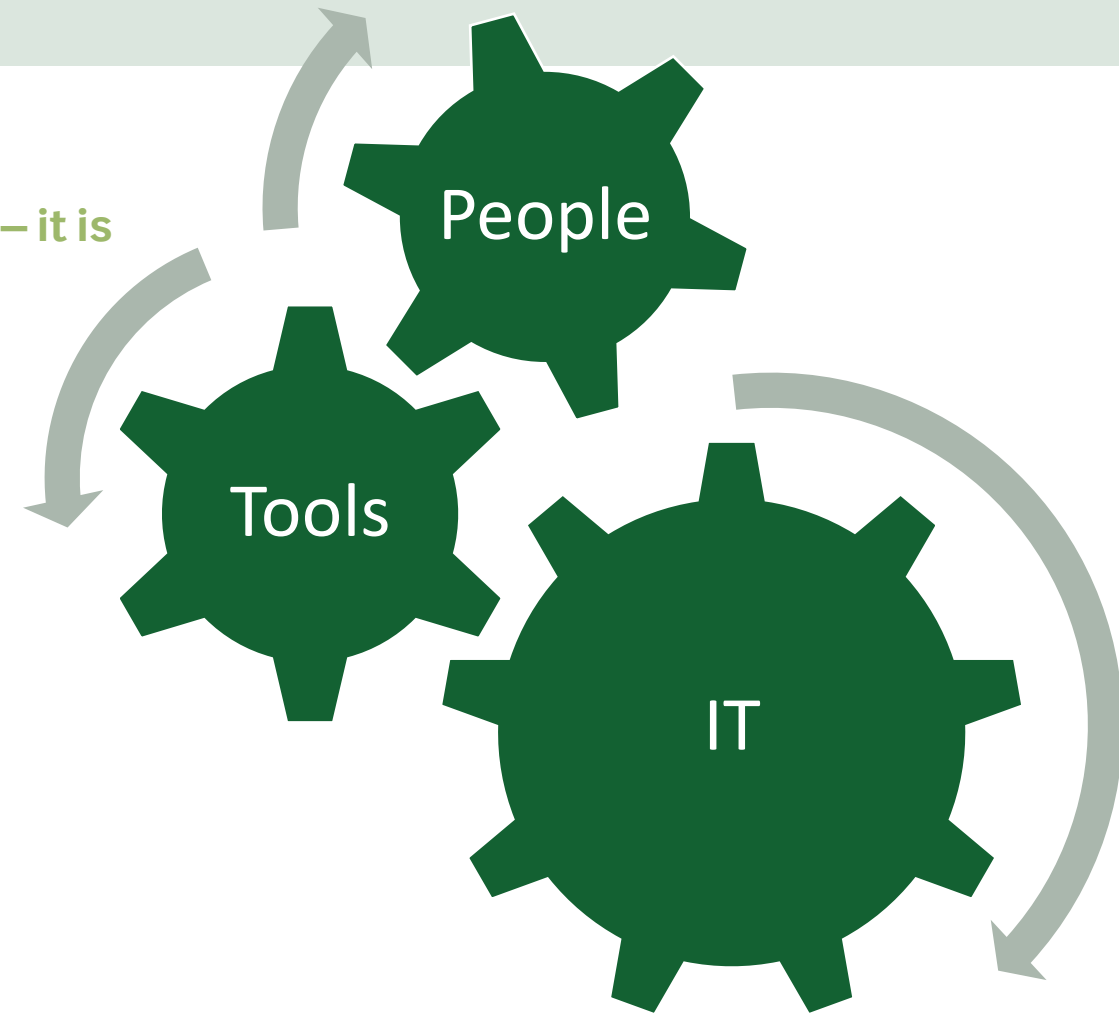
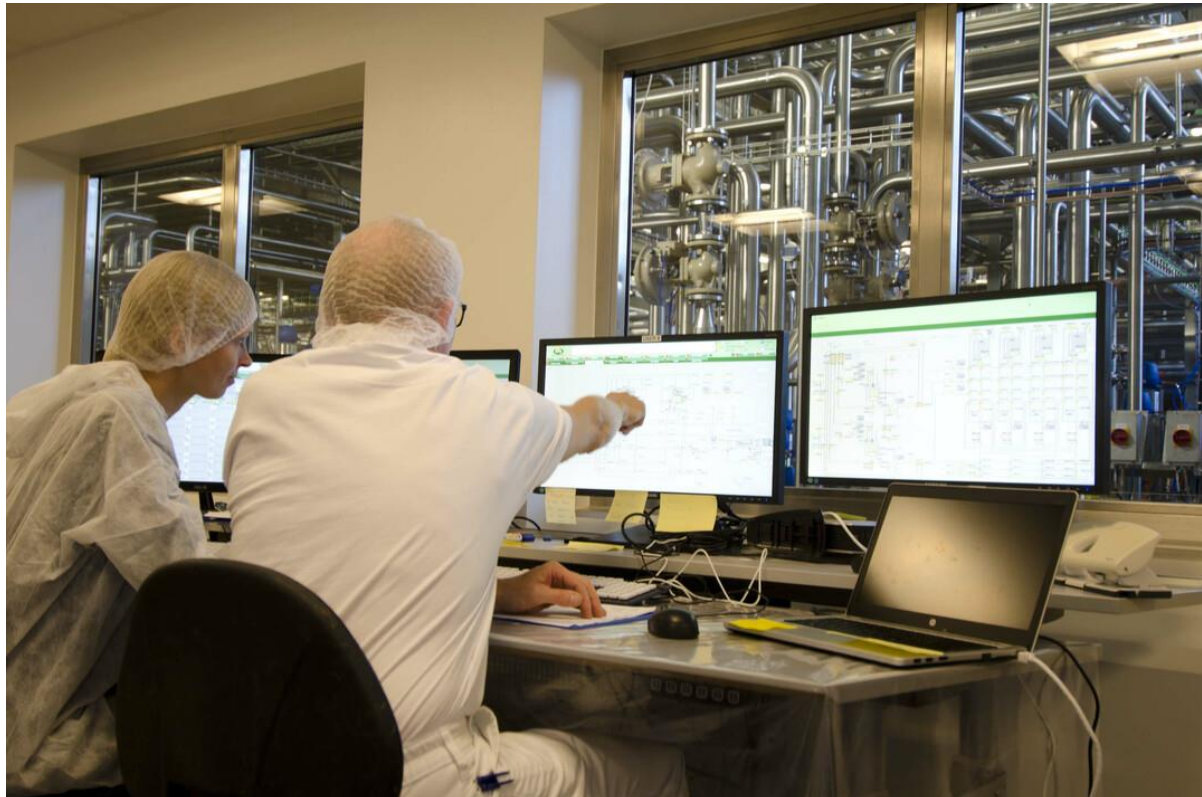
Improve performance through transparency:
empowering employees to take the right actions in an easy, scalable and cost efficient way

We build the data hub with **specific use cases** in mind + with **different pilots sites** to enable fast scaling and an efficient way of working (project & platform approach)

SEVERAL GLOBAL TEAMS ARE SUPPORTING THE DIGITAL TRANSFORMATION

The digital transformation is a central part of the strategy

And we are aware that it is not only about technical solutions – it is also very much about upqualification of the employees



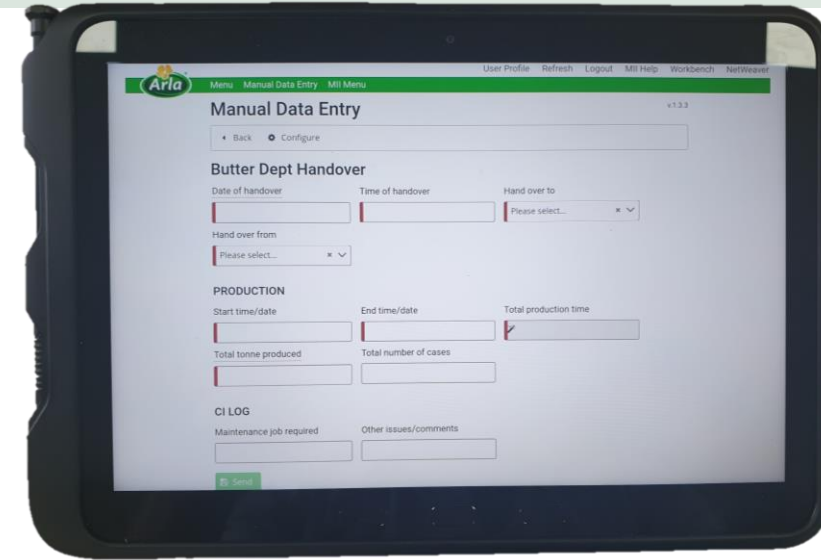
BUILDING CAPABILITIES TO ENABLE THE JOURNEY

The data hub is the future, however, we cannot just sit back and wait for it

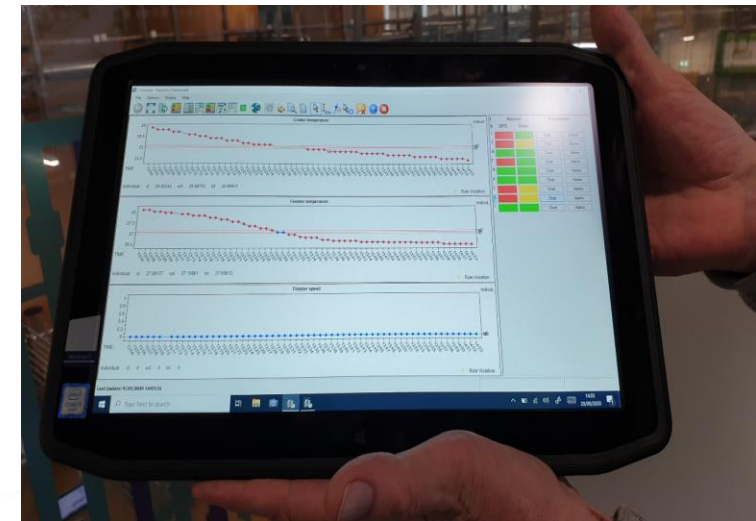
Innumerable excel sheets are gradually turned into easy accessible data prepared for the "Data Hub"

SPC on more and more sites for use at shop floor to management level

We setup SPC together with IT and each site. Site run the solutions and use data for decisions and investigations

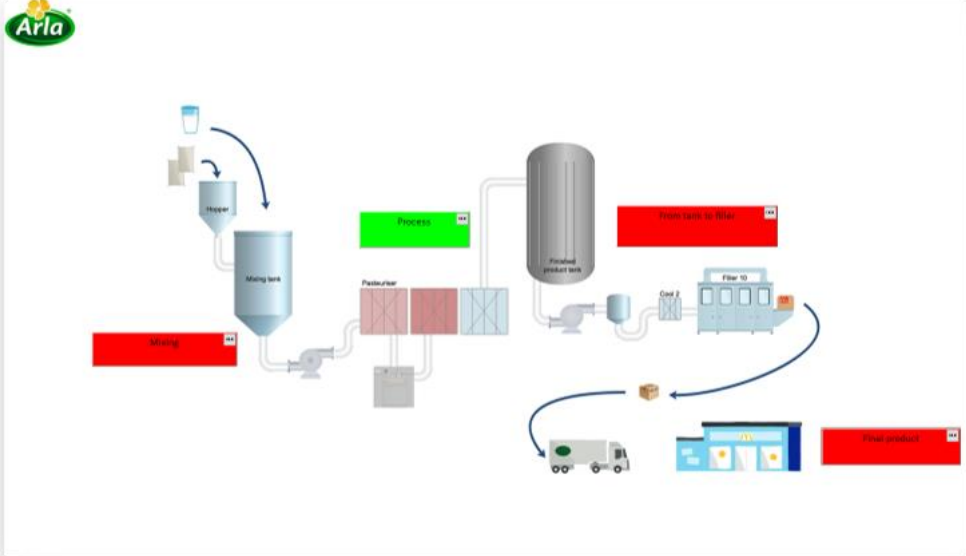
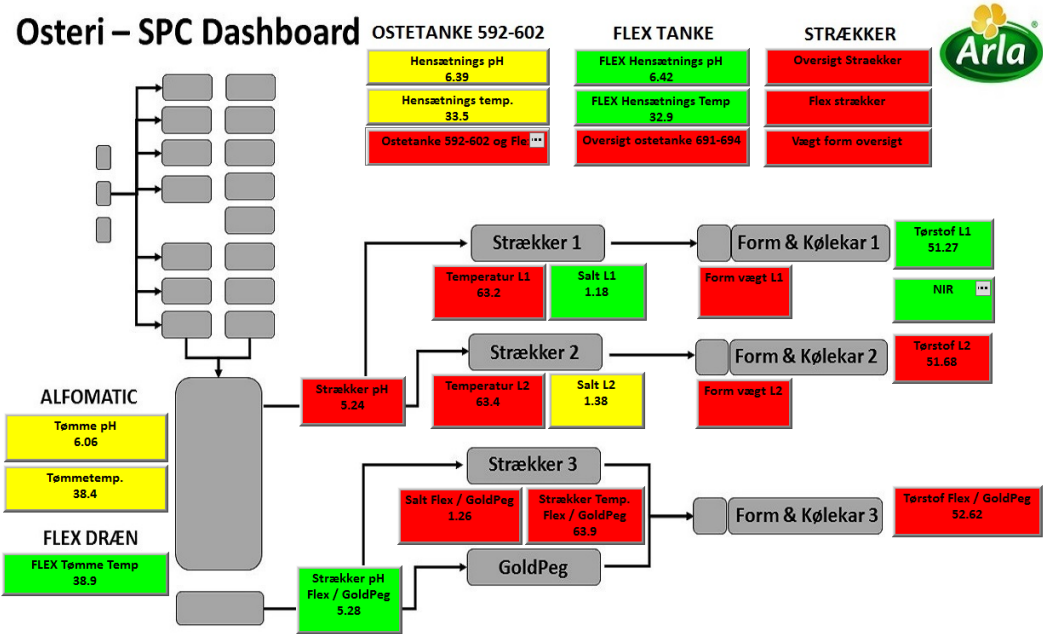


Production Servers



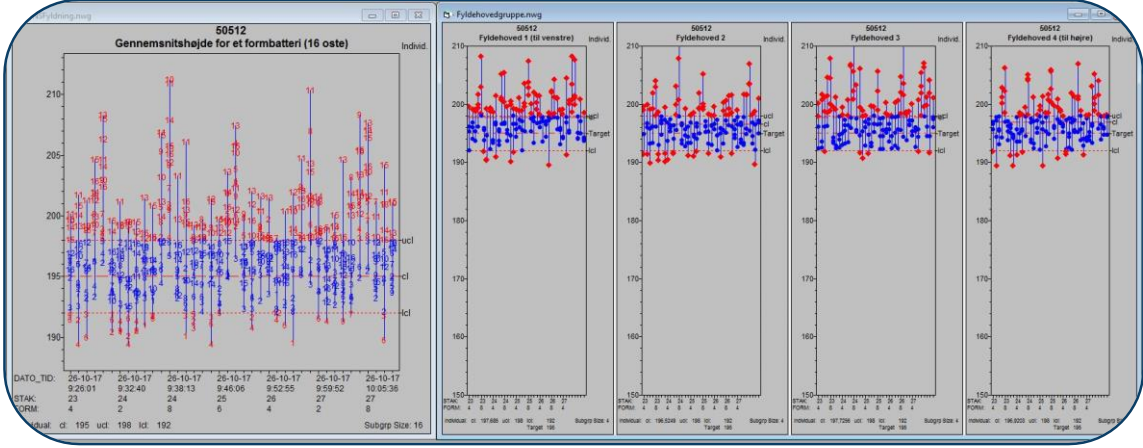
SPC DASHBOARD FOR PROCESS OVERVIEW

Osteri – SPC Dashboard



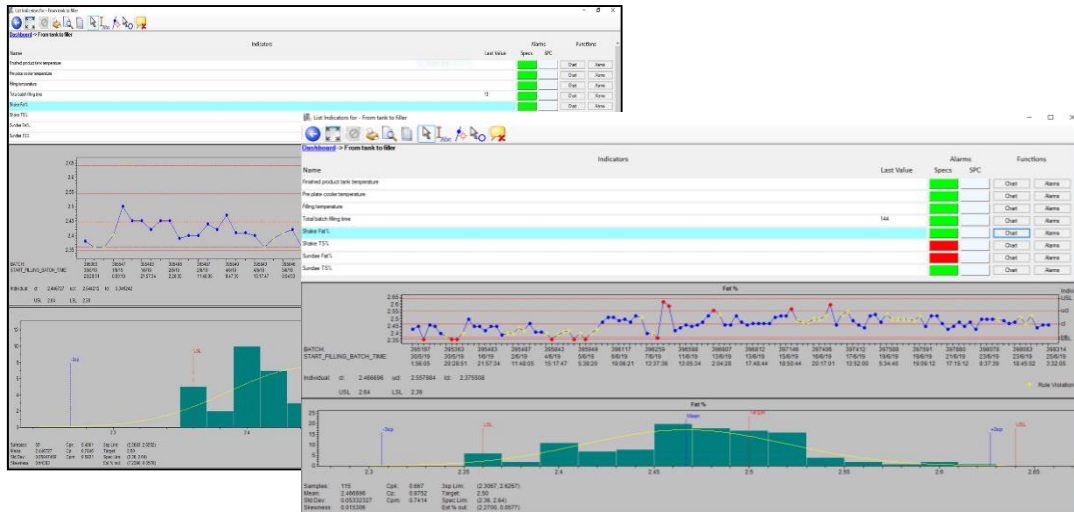
The dashboard with full process overview support sites in getting a quick insight to how production is running.

Is the production process in control or are some control and/or specification limits violated and actions to be taken?



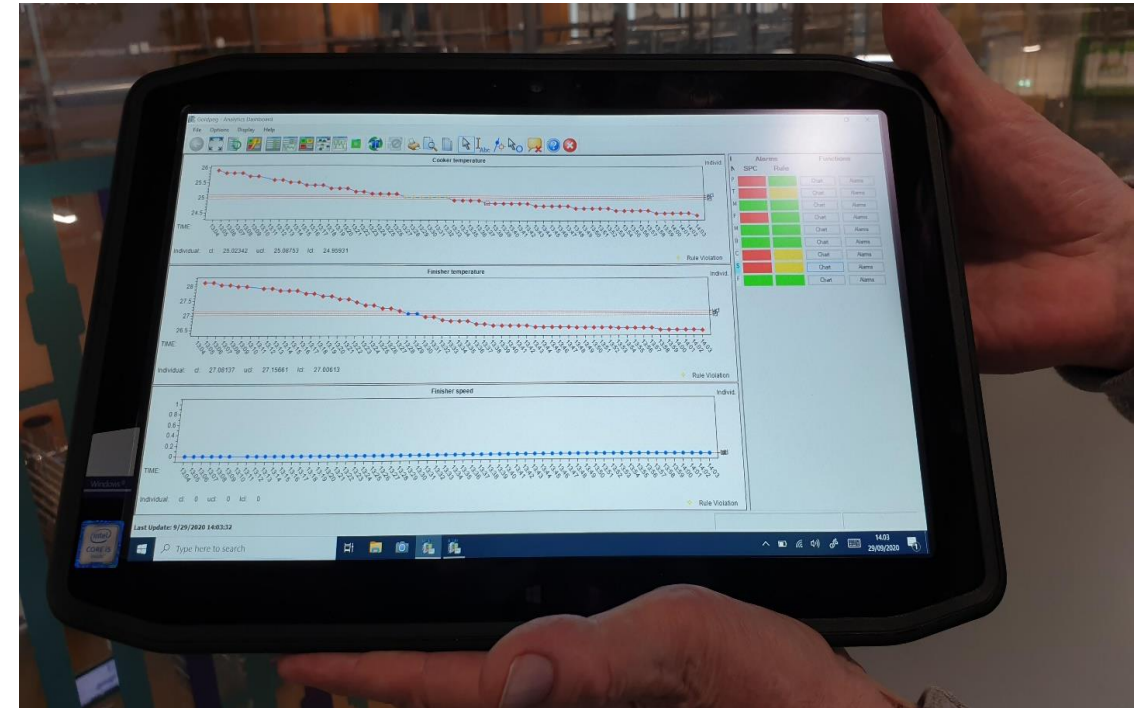
SPC DASHBOARD FOR PROCESS PARAMETERS

Dashboard with product specific details and control charts for shop floor

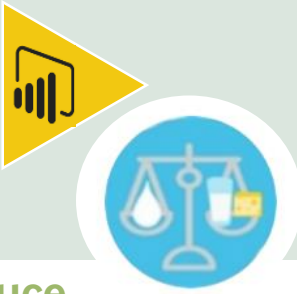


This type of dashboard visualizes shop floor data, like temperatures, fat%, etc. Alarms are given if control and/or specification limits are violated.

Control charts showing trends and indicate where violations occur. Enables operators to take actions based on facts.



POWER BI FOR DAILY/WEEKLY/MONTHLY UPDATE ON E.G. MATERIAL LOSS



The material losses report supports sites in understanding waste in production and is thereby helping to reduce material losses.

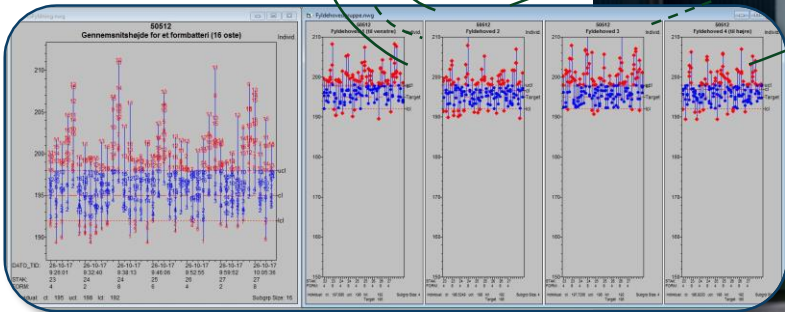
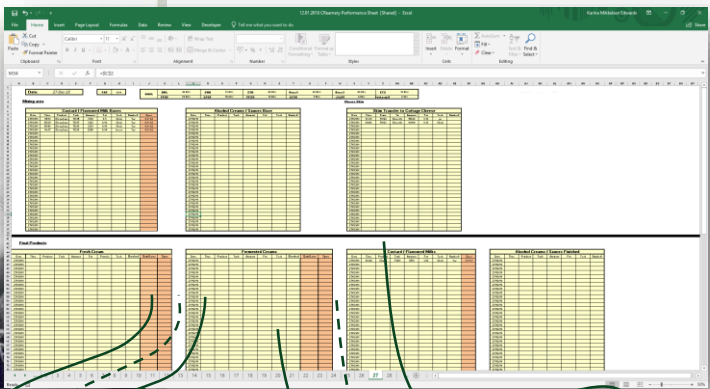
The report is updating automatically allowing daily updates.

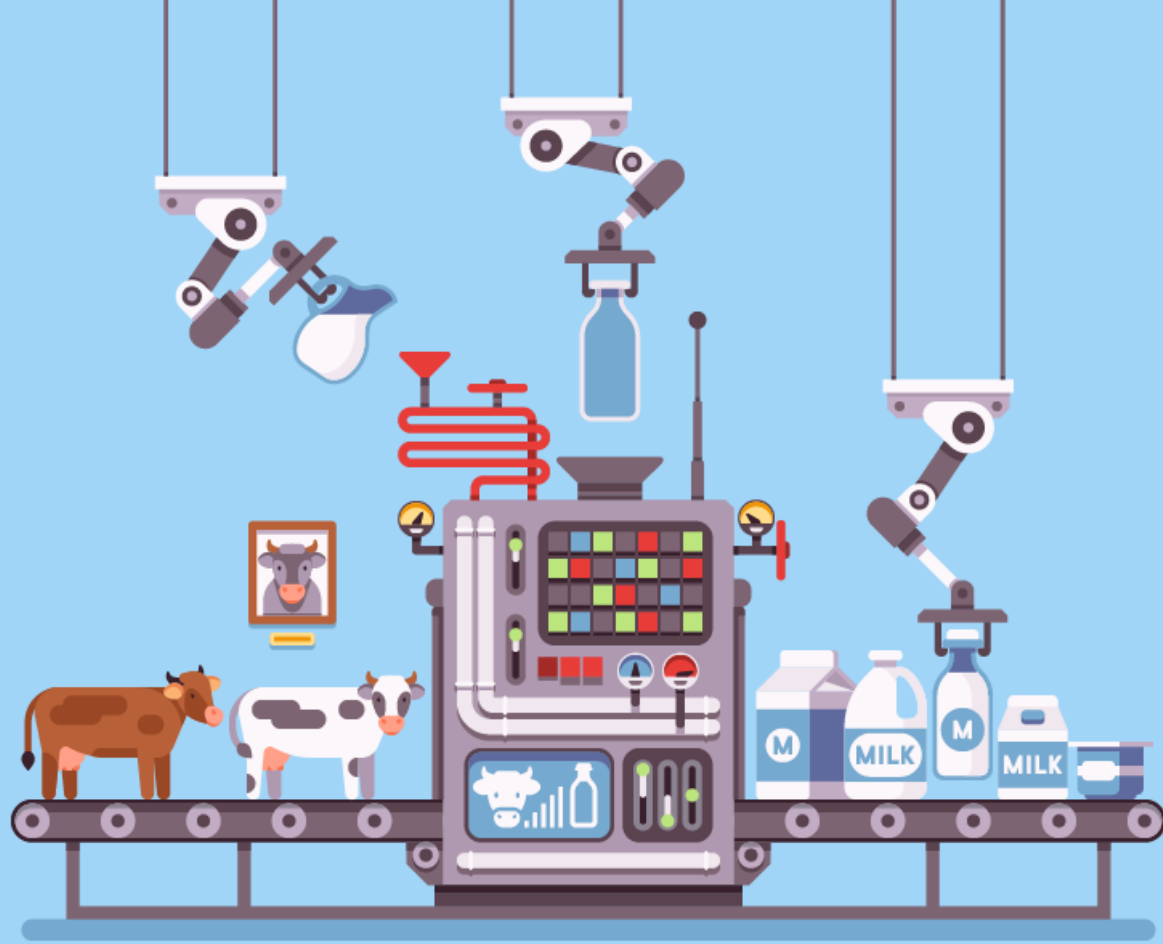
Monthly numbers
provide indications on
which areas to focus on

Weekly reports allow
drilldowns to get first
explanations

VISUALISATION OF DATA IS A STEP ON THE JOURNEY TOWARDS OPTIMAL USE OF DATA

**DATA
HUB**





THANK YOU

