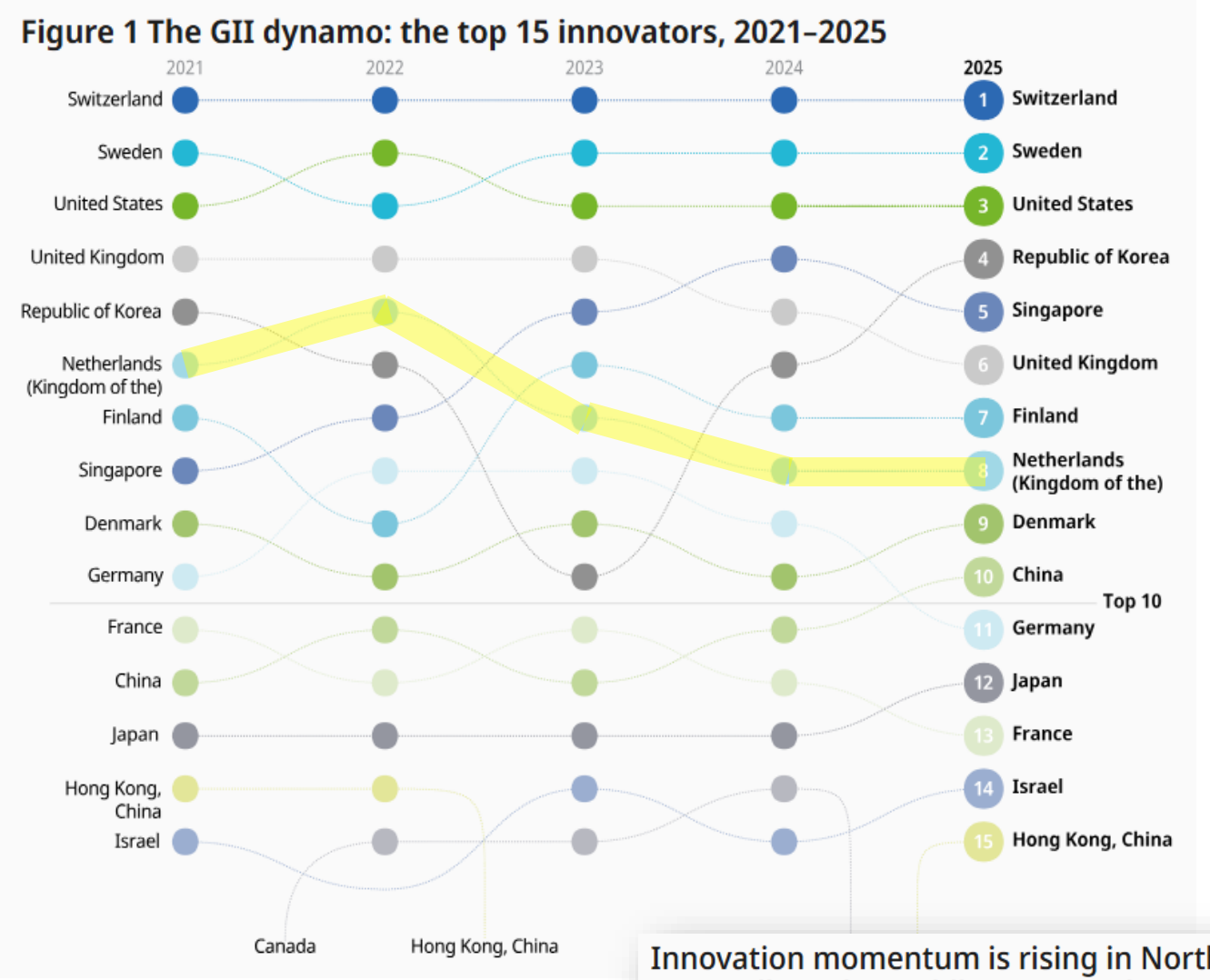
How to capture knowledge

The Dutch knowledge industry



Innovation momentum is rising in Northern Africa and Western Asia – especially in the Middle East – and in Sub-Saharan Africa

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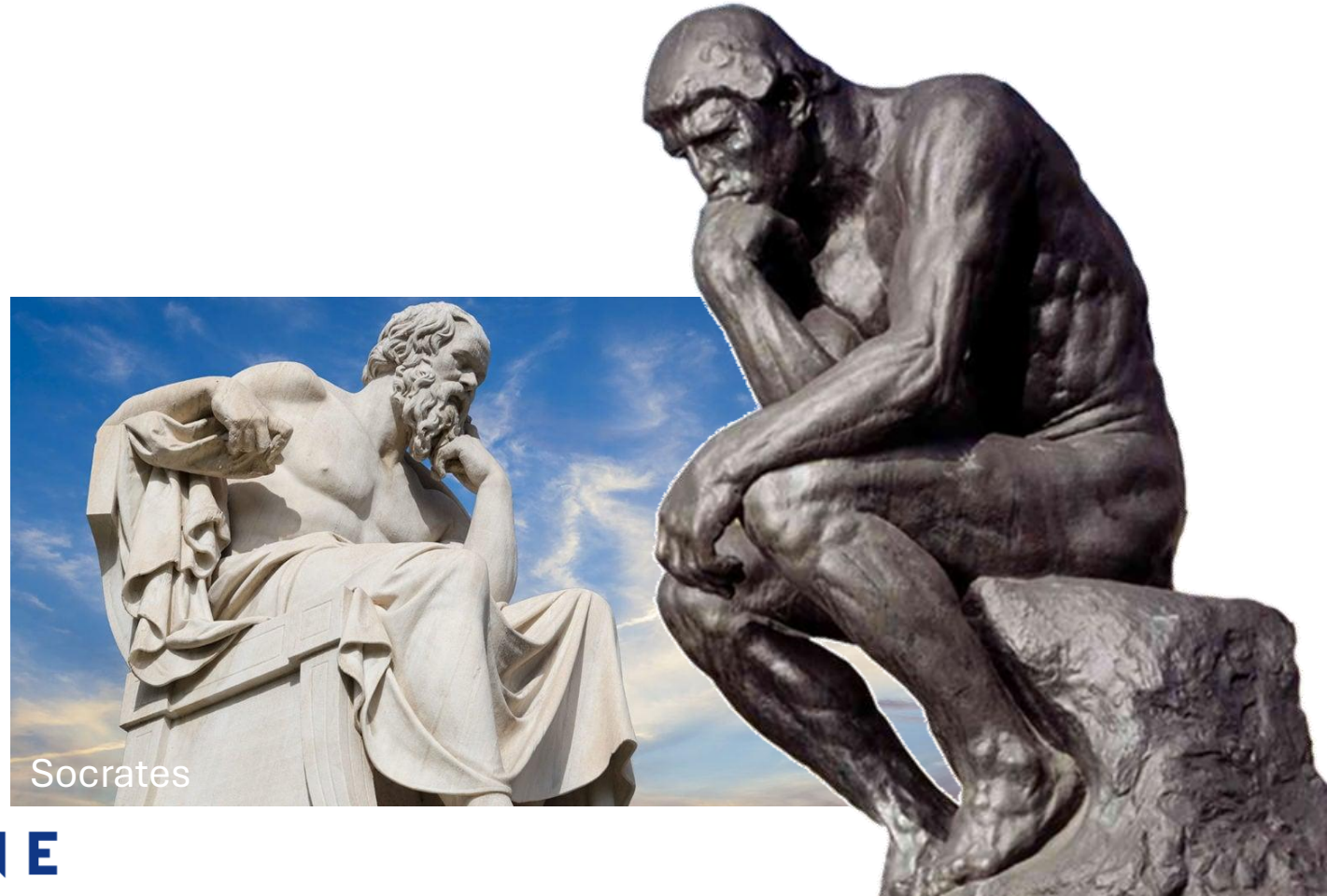
How to capture knowledge

1. What
2. Why
3. Where

Focus?



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Wouter Schotborgh

Director

Mechanical Engineering

Milou Kolkman

Account manager Food

Food Technology

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Focus (1): process and manufacturing industry

FrieslandCampina

TENCATE

ASML

mondi

REGINOX

TOTALPACKAGING
CUSTOMER DRIVEN SOLUTIONS

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Focus (1): today: food innovators!

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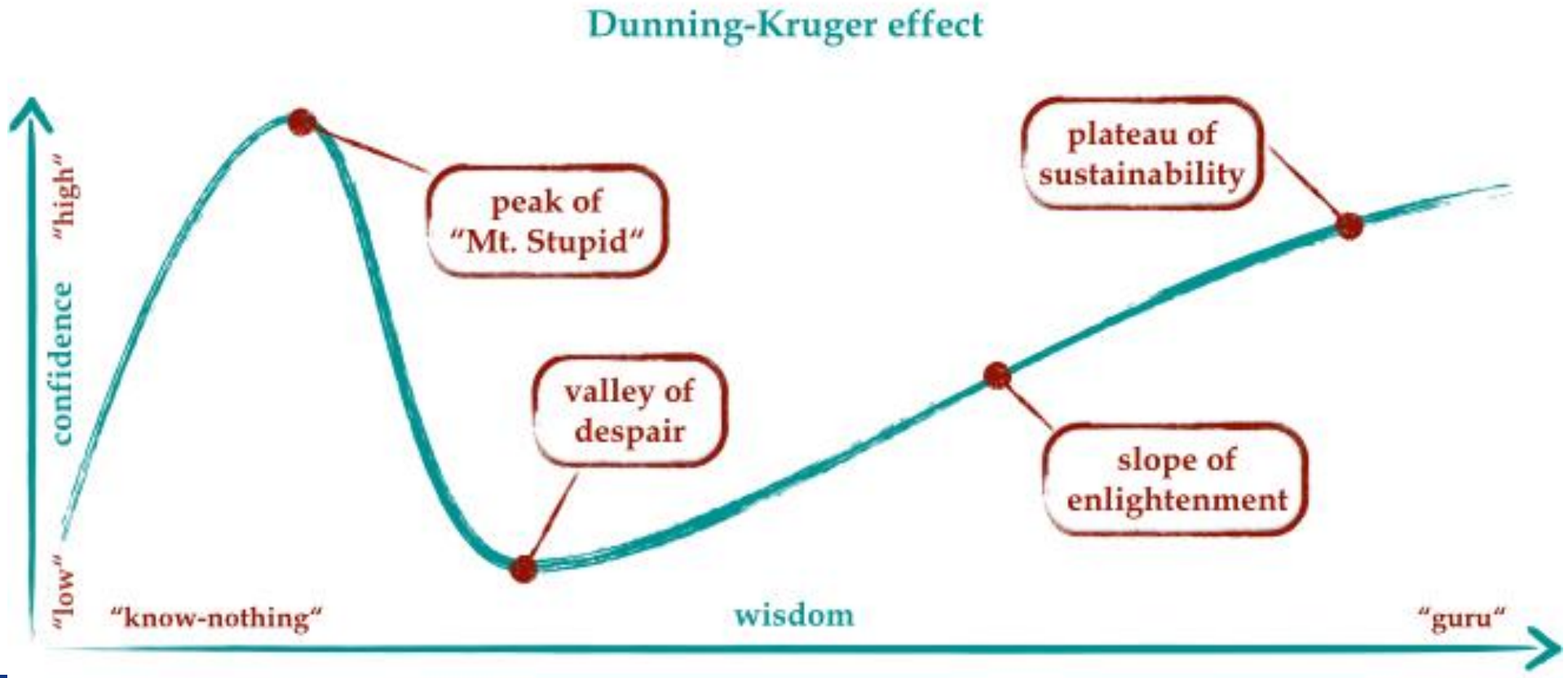
Focus (2) - what: decision-making

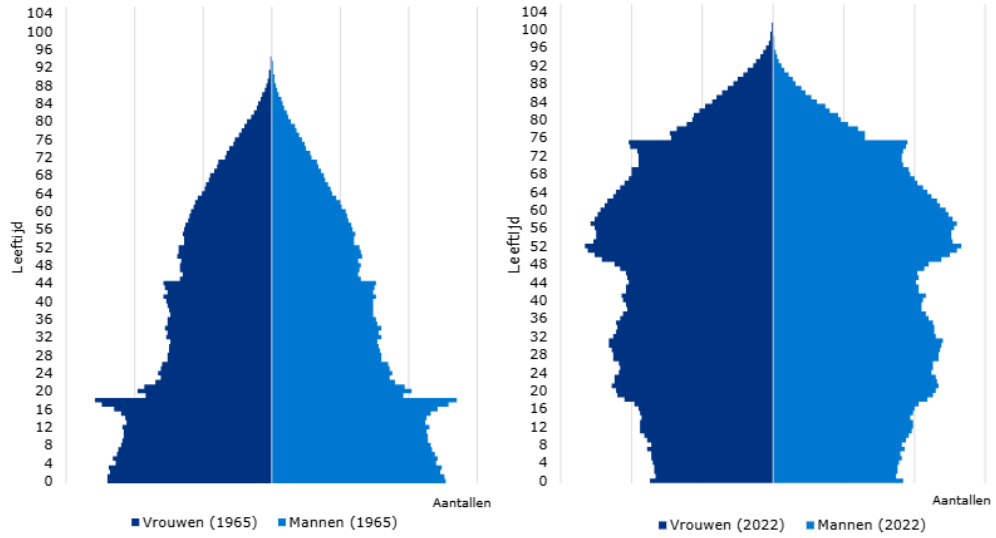
What knowledge do you need to make good decisions?



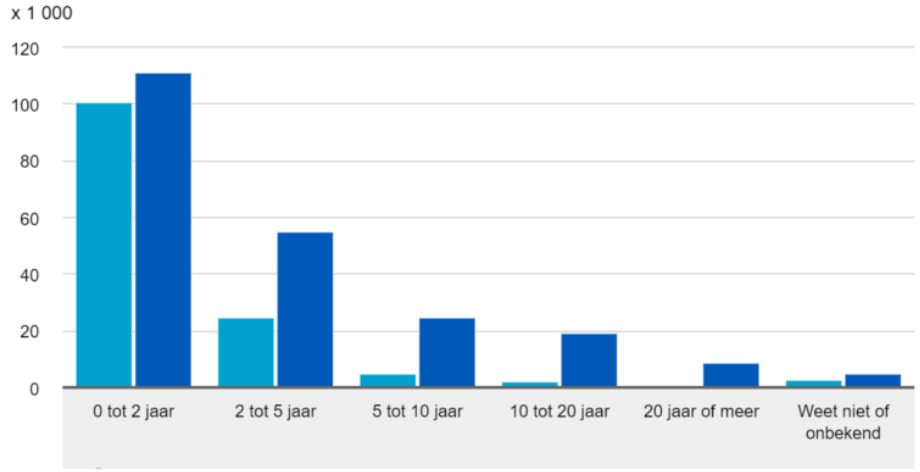
Focus (3) - why: peak production performance

1. High product quality
2. High process quality

While dealing with…



Aging workforce



Higher job turn over

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How to capture knowledge, with focus

1. What: decision-making
2. Why: peak production performance
3. Where: in the head of the experts in decision-making

→ How to capture knowledge: interviews!

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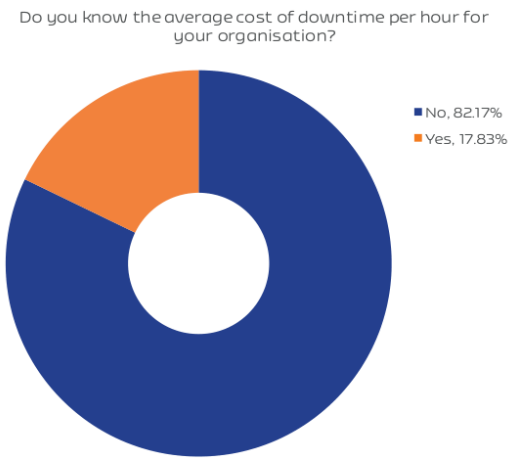
Reality... do you recognize

1. Experts are leaving the workforce. Next year?
2. **Maintenance? Operations (processing/packaging)? Process technologists? R&D? Product Development?**
3. Fewer people to replace them.
4. Increasing staff turnover.
5. Training and gaining experience takes a lot of time.

Reality... do you recognize

Consequence:

1. Staffing problems: quantitative and qualitative.
2. Product deviation → rejection.
3. Disruption of processes → standstill. Do you know what standstill costs per hour?



60% of respondents experienced unplanned downtime in the last year.

What are the average costs of downtime per hour?

The most common average cost of an hour of downtime was 1,000 euros. But the overall range of costs per hour of downtime varies significantly with some companies even stating that downtime cost isn't an issue. The overall average is 4,860 euros per hour of downtime.

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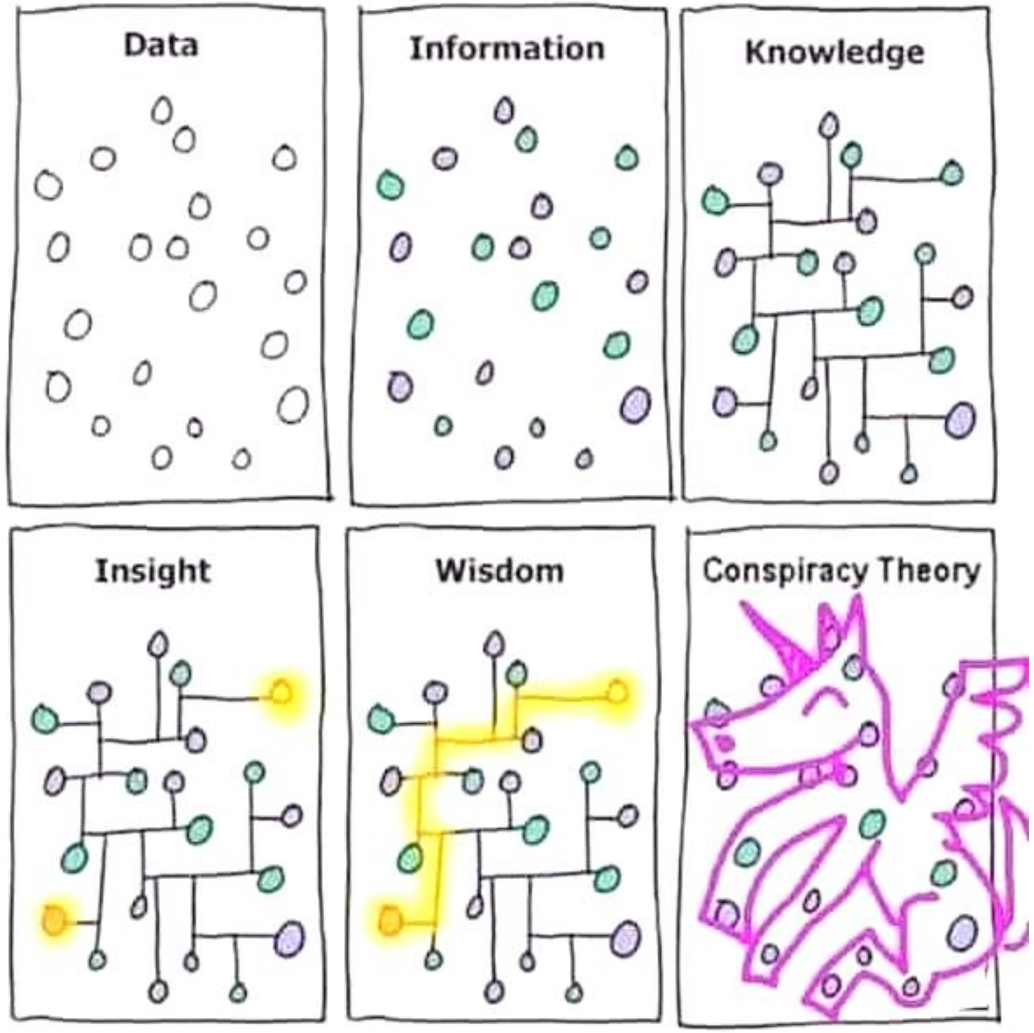
“Knowledge”

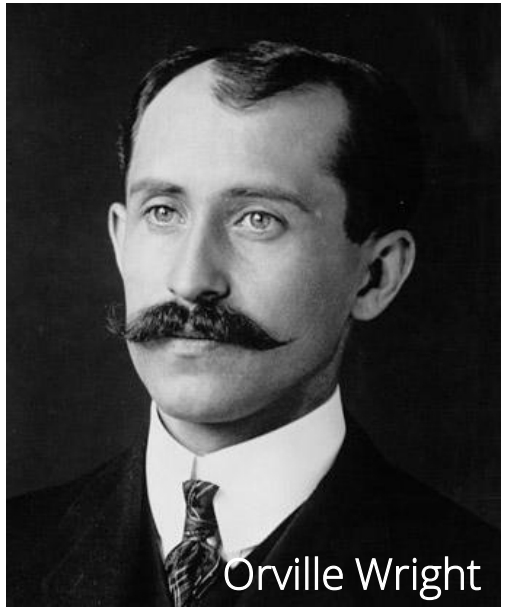
1. Data: 5
2. Information: dosage = 5 l/min
3. Knowledge/insight:
   dosage → moisture → shelf life
4. Wisdom:
   1. If moisture is too high
   2. Then reduce dosage
   3. To prevent shelf live problem
5. Conspiracy Theory:
   1. John thinks ….
   2. Peter is convinced that …



How to capture knowledge

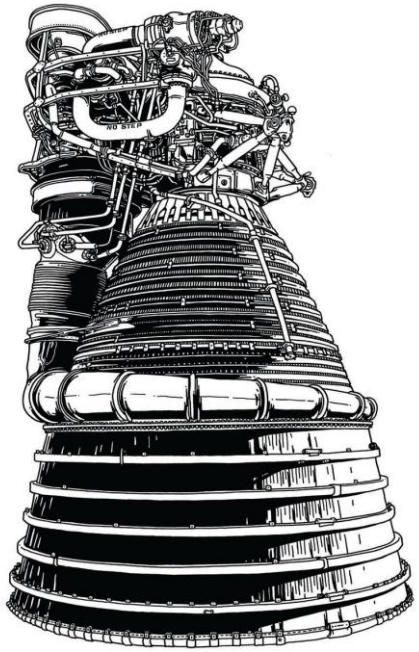
1. Too much…
2. Too complex…
3. Useful thing to understand: the mind works in the same way. It knows the essentials.

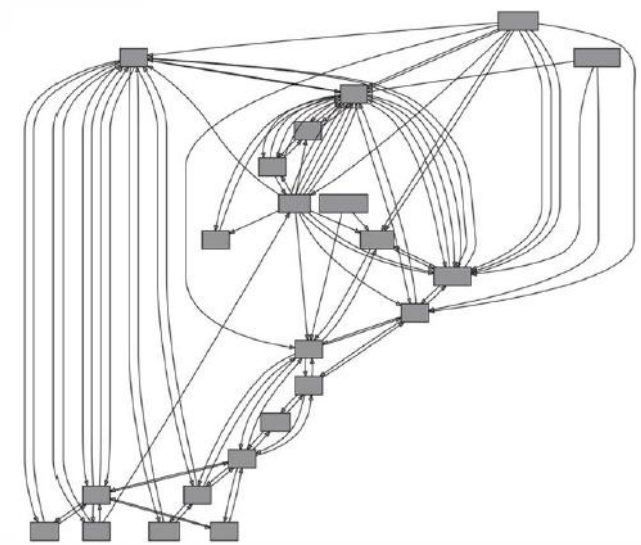

Arthur Davidson

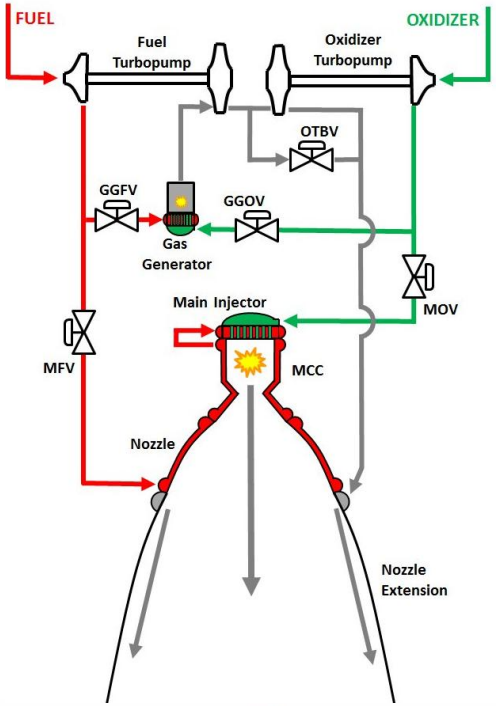

Orville Wright


Carl Benz

How to capture knowledge: the essentials!

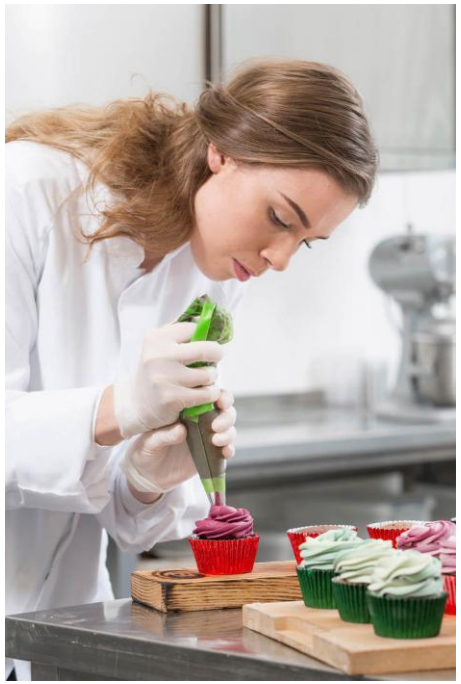






The essentials?

Umami rich foods



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The set of essentials depends on scope and role

New Product/Recipe Development

Process technology

Quality

Production - manual

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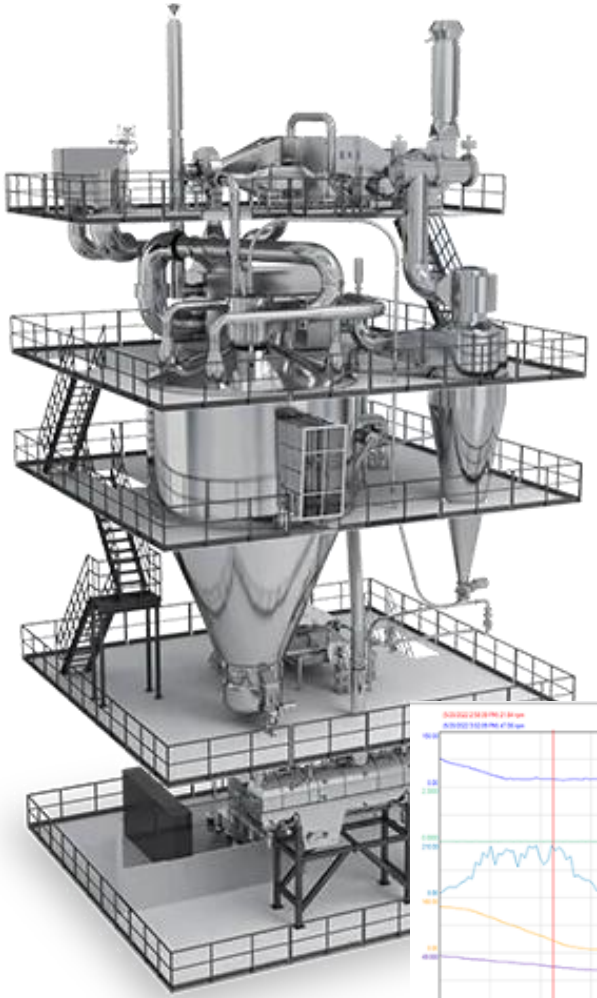
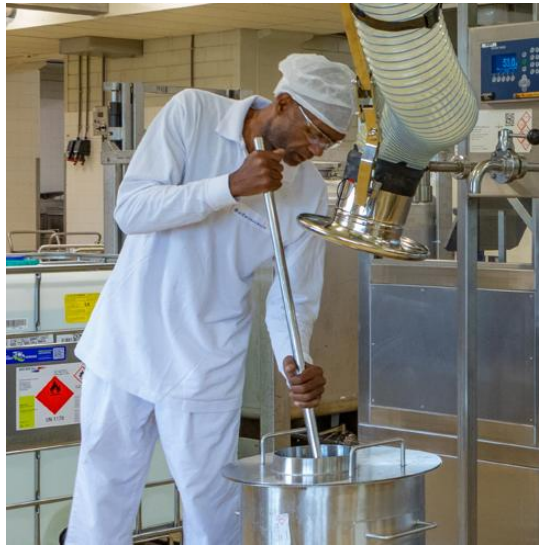
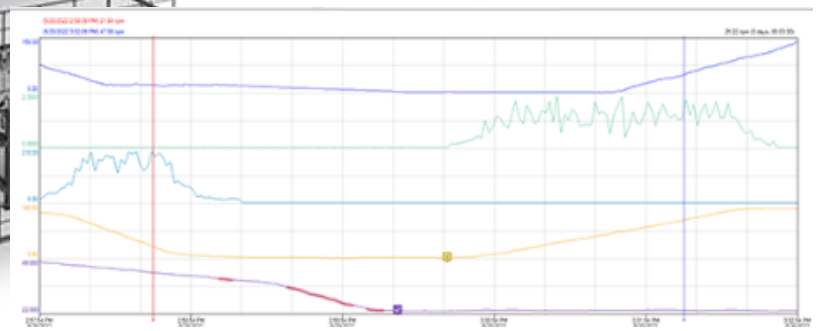
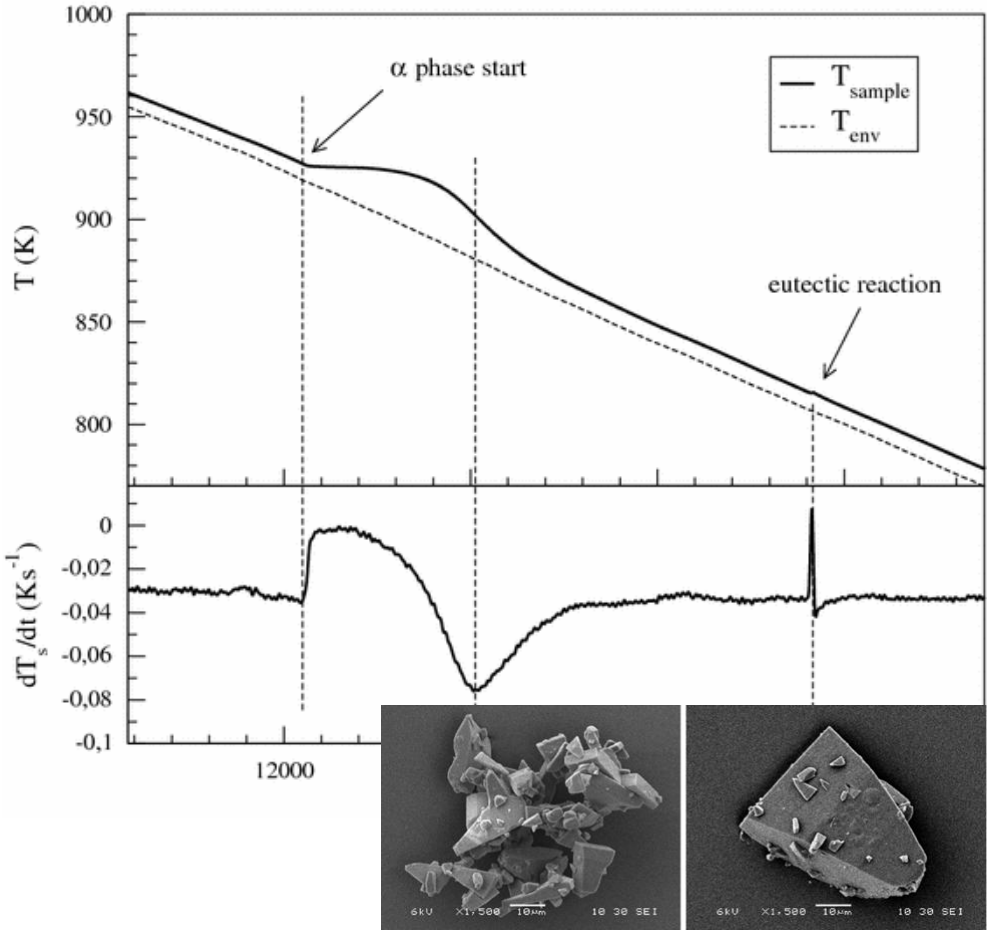
Source: buteressence

The essentials? Not many, but precisely right









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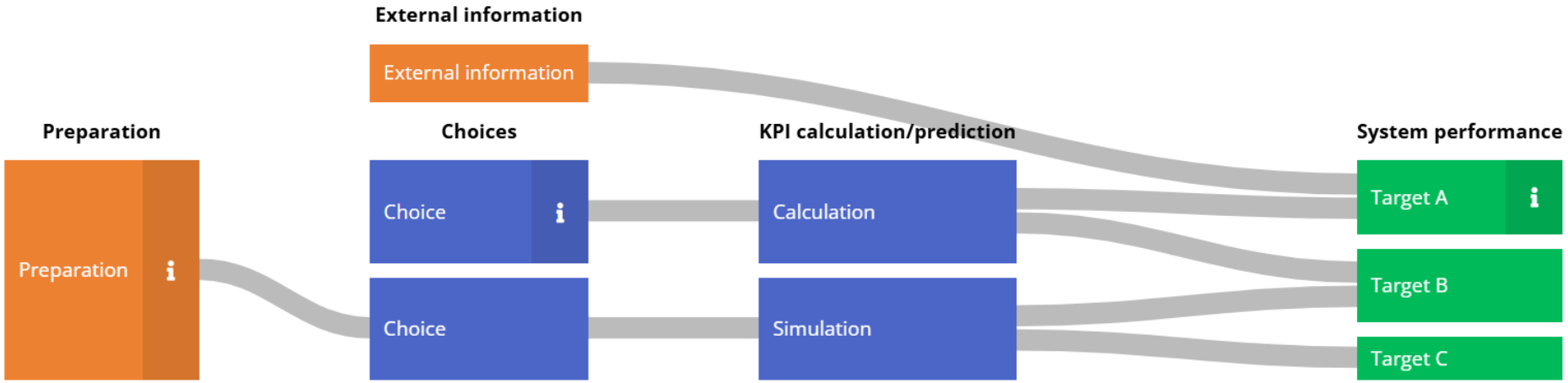
What does it look like? General decision-process



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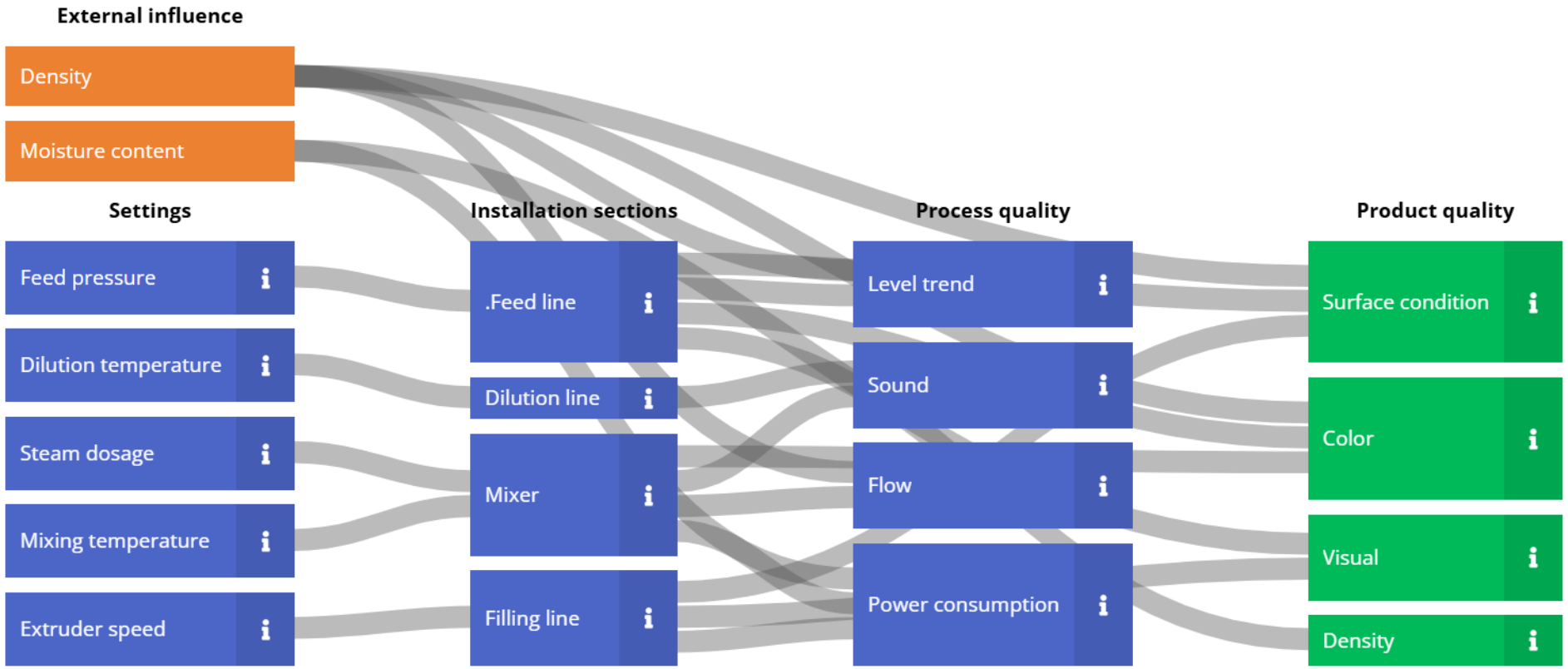
What does it look like? Operator process control



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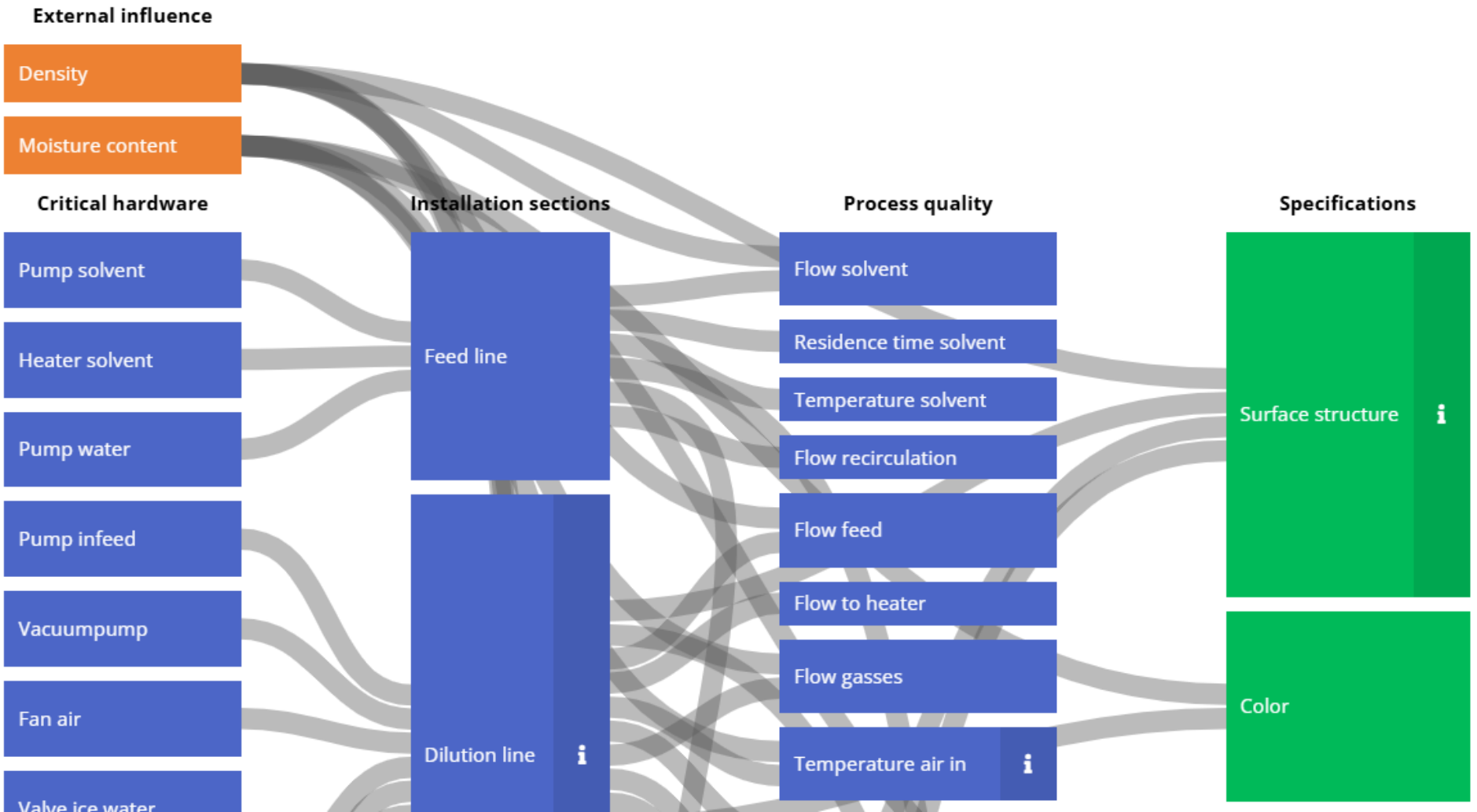
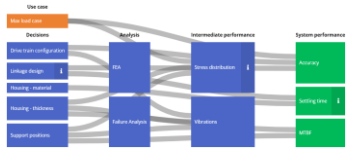
What does it look like? Automated process control

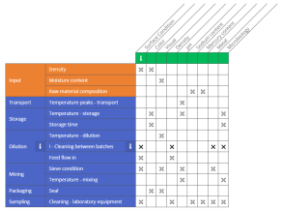


Knowledge per role and area

System / process / machine



Design

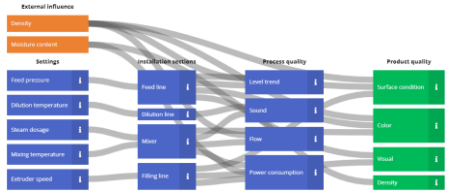


Quality Assurance (QA)

Process/product interactions

(system knowledge)

Recipe management



Operator – process control

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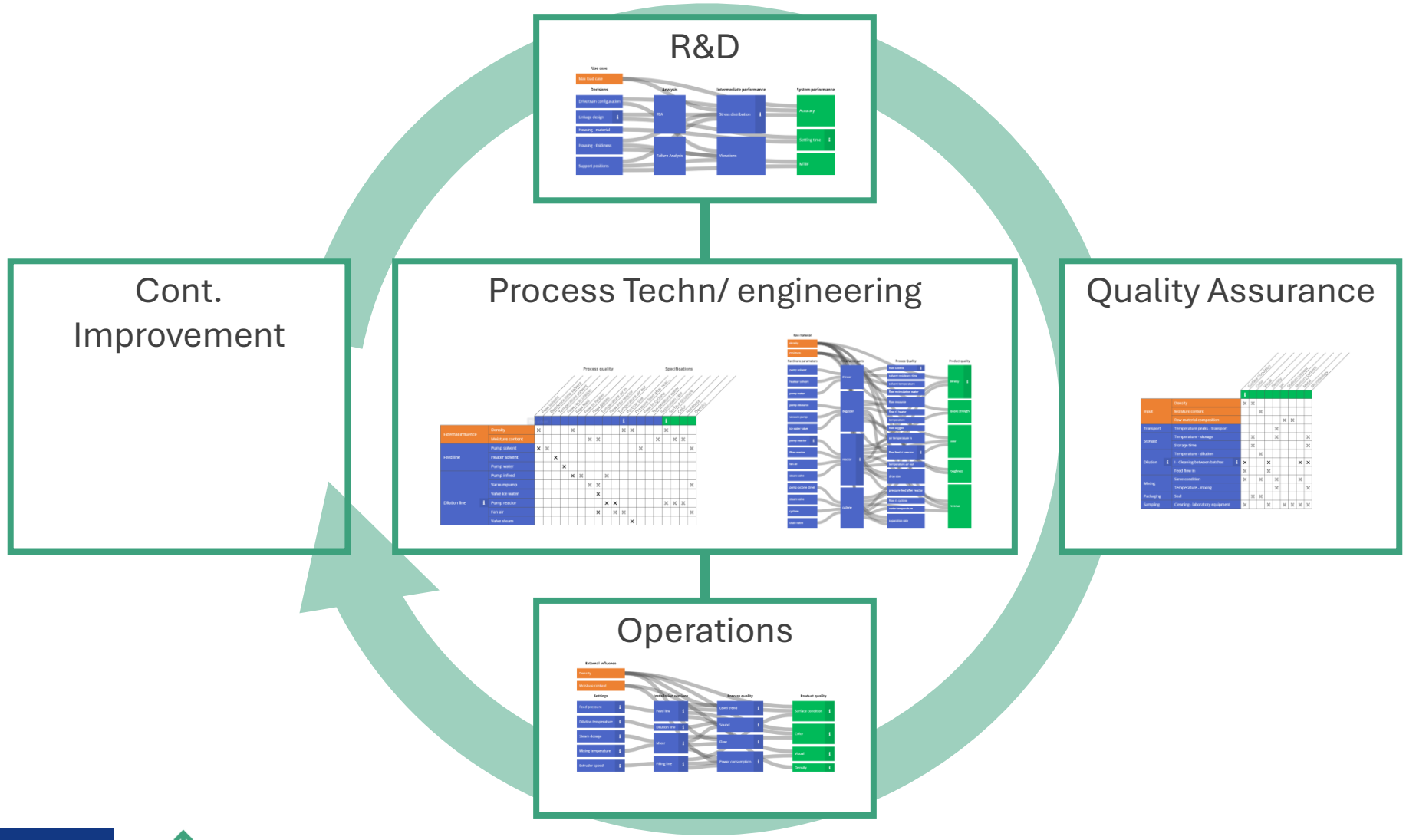
Knowledge is everywhere



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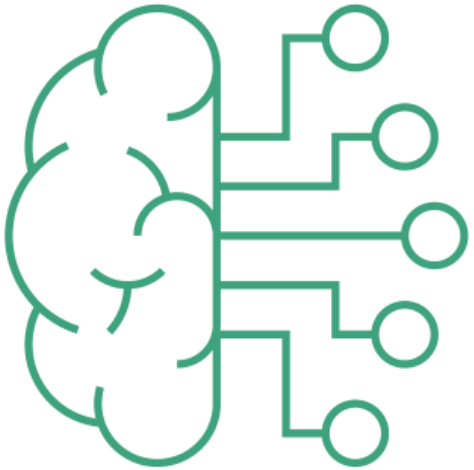
How to capture knowledge

Capturing process in general:

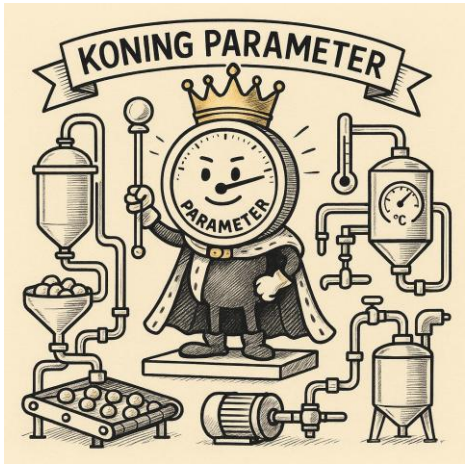
1. Define scope and role
2. The essentials: interviews the experts
    1. From result to control
    2. Cause-and-effect relations
    3. 80 – 90% dominant
    4. Decision ready

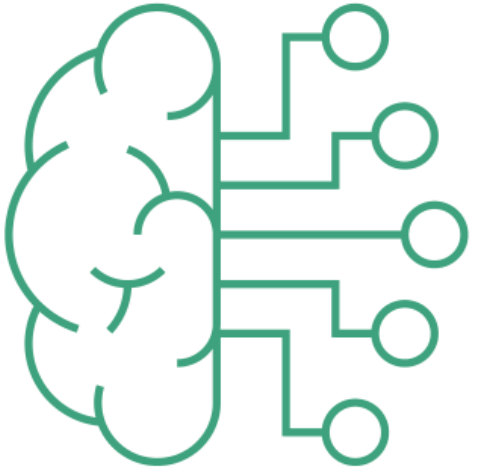


How to capture knowledge

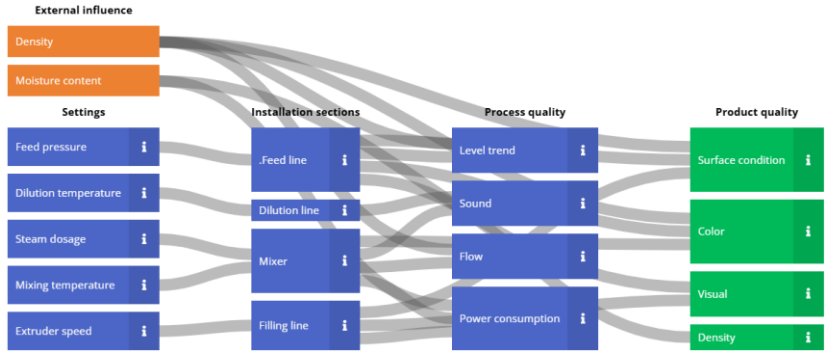
Search and find parameters!

1. ‘Stuff you can measure’ (or quantify as good/bad)
2. Parameters → method to quantify → value [unit]
    1. Pressure, flow, temperature, …
    2. Viscosity, moisture content, fat content, …
    3. Color, shape, taste, …
    4. …





How to capture knowledge



Model: parameters and relations

1. Product qualities
2. Process qualities
3. External influences
4. Control parameters (decision items)
    1. Operations: settings
    2. Process technology: actuators
    3. NPD: recipe setpoints

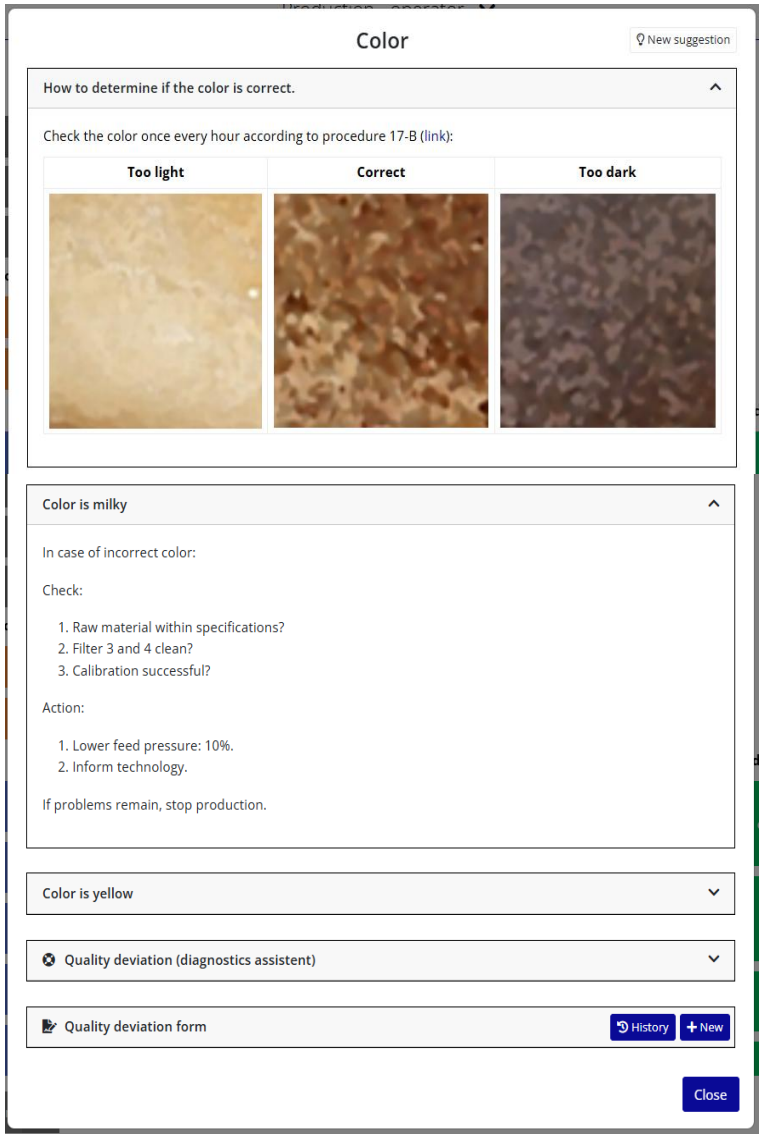
How to capture knowledge

Content

1. How to quantify parameters and good/bad.
2. What to do if bad.

... scope dependent: aimed at decision making

    1. Checks
    2. Diagnostics
    3. Troubleshooting
    4. Escalation



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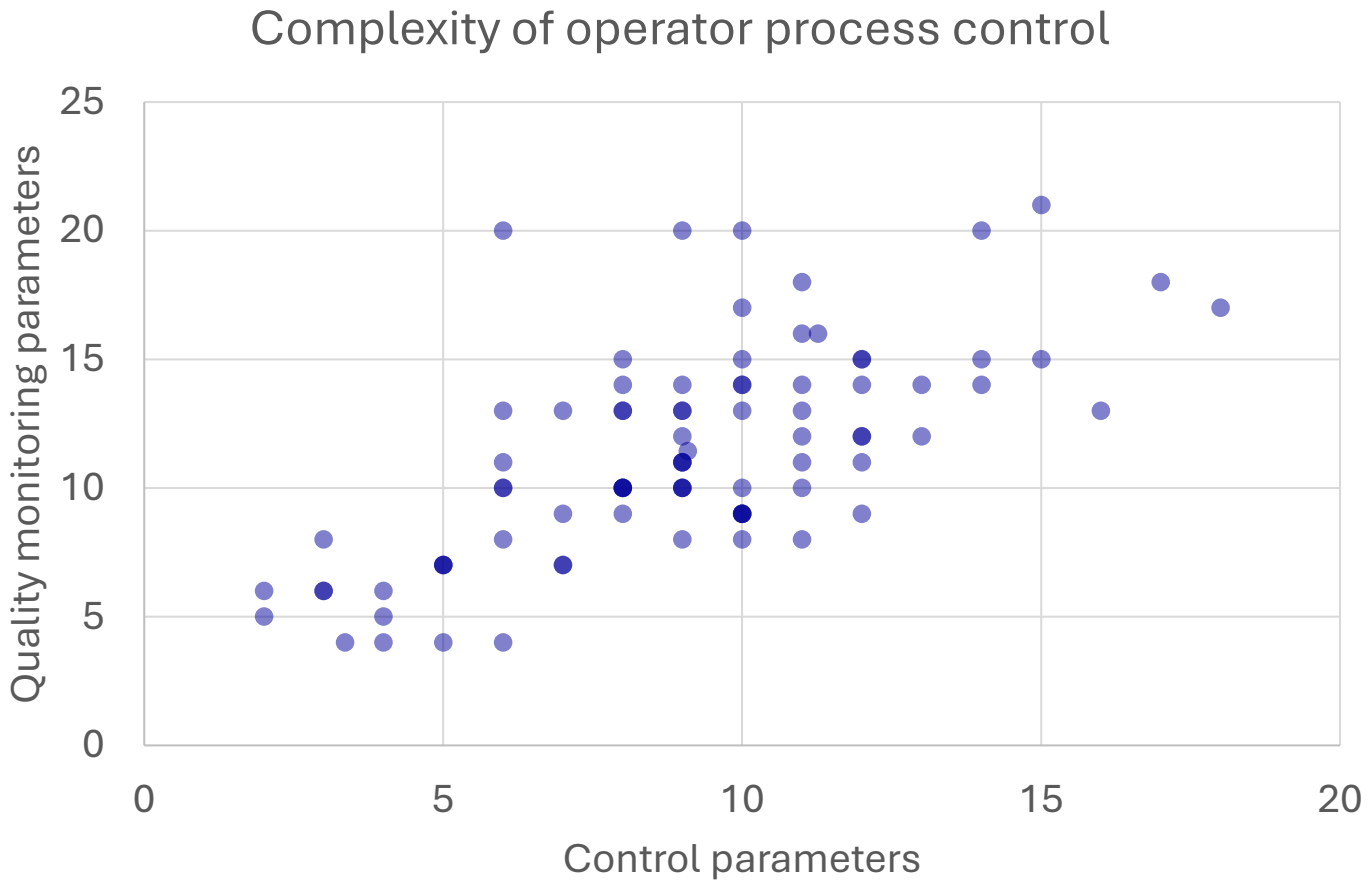
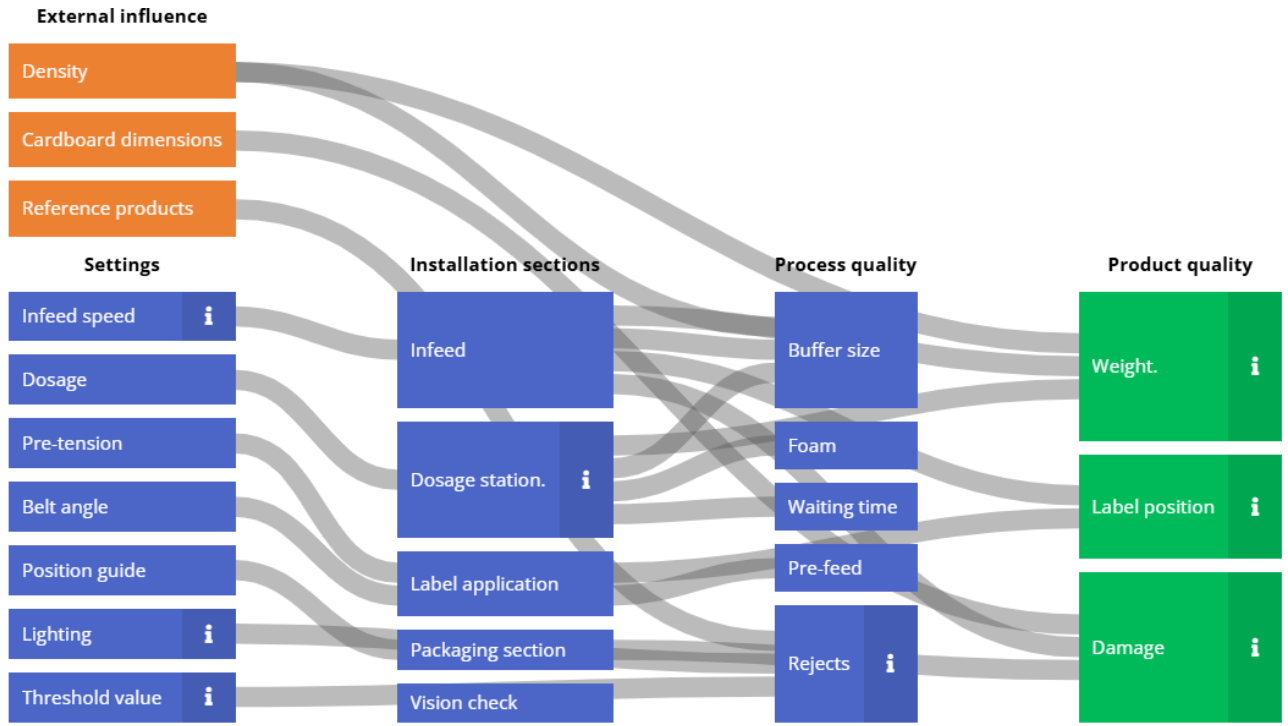
How complex is an operator workstation



Demonstration: packaging line



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Workshop 16:00

Apply the method!

5 teams of 5 people (mixed companies)

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Questions

Clear?

Recognizable?

…

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