

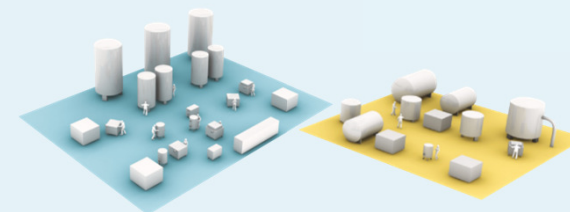
10's of types of DSP
Unit Operations



10's of types of DSP
Unit Operations



Bioprocessing



Downstream Processing

Cell disruption

- homogenisator

Solid-Liquid separation

- membrane filter press
- multiple centrifuges
- membrane filtration

Bioconversions

- 60 l – 4 m³ vessels

Purification

- extraction
- UF/MF filtration
- chromatography

Electro dialysis

Concentration

- evaporation

Crystallization

Distillation

Drying

- bolz dryer
- spraydryer
- fluid-bed
- double cone
- ventilation
- vacuum plate

Formulation

- mixing
- sieving
- milling

Third party unit operations

FOOD / ATEX



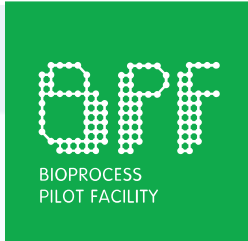
**High
flexibility**

**Batch or
continuous**



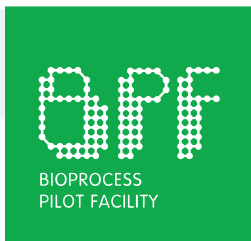
Including food grade



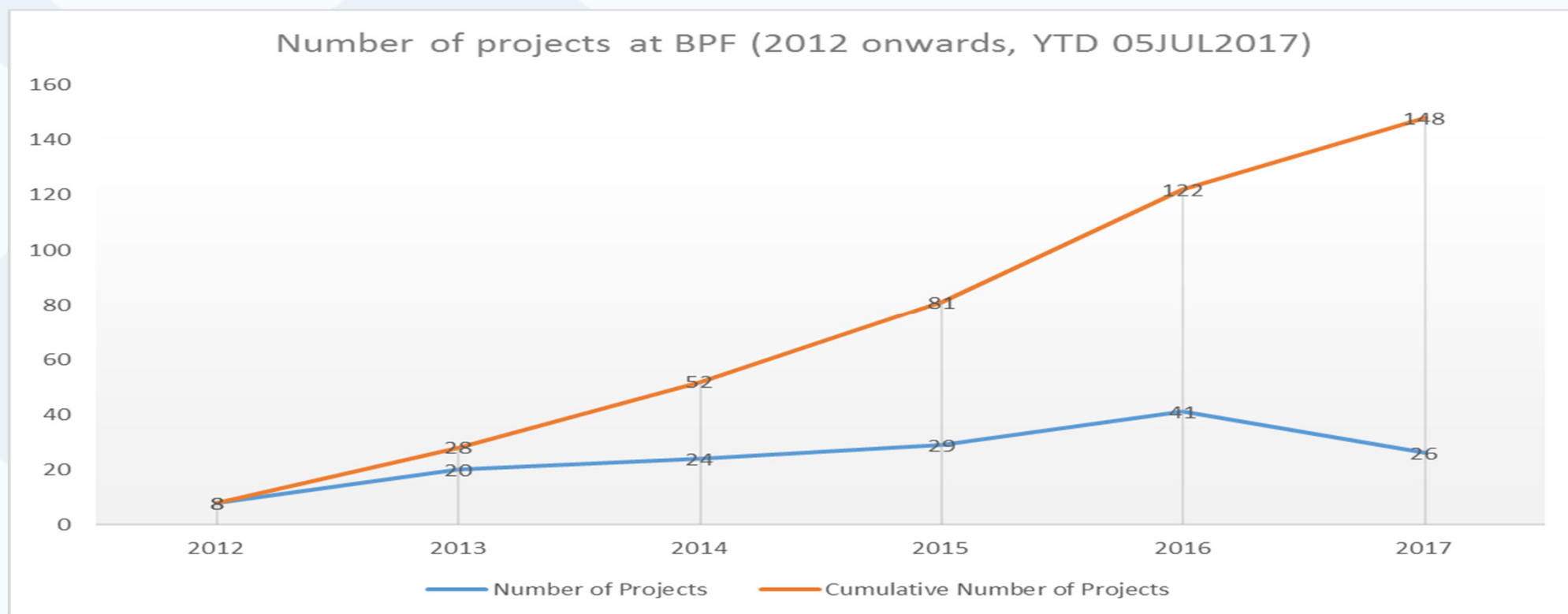


BPF knows the business...

- Number of hours FERM: ~~105,000~~ **105,000**
- Number of hours DSP: ~~120,000~~ **120,000**
- Number of hours PT&H: ~~12,500~~ **12,500**
- Number of hours Food: ~~2,000~~ **2,000**

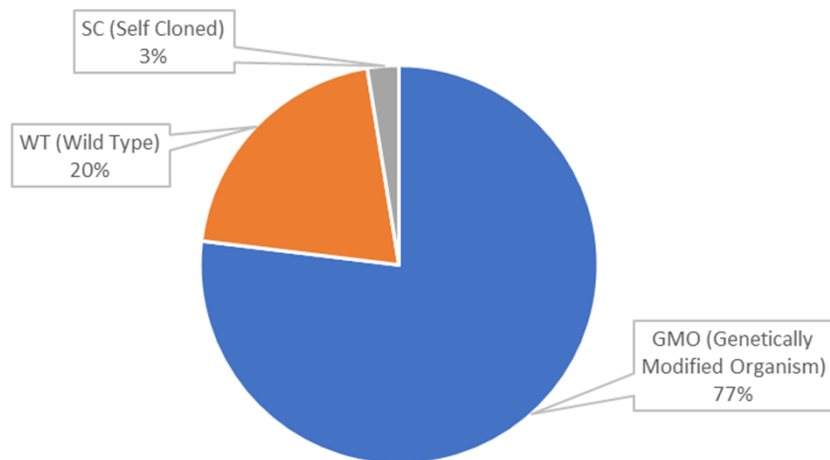


...and the business knows BPF

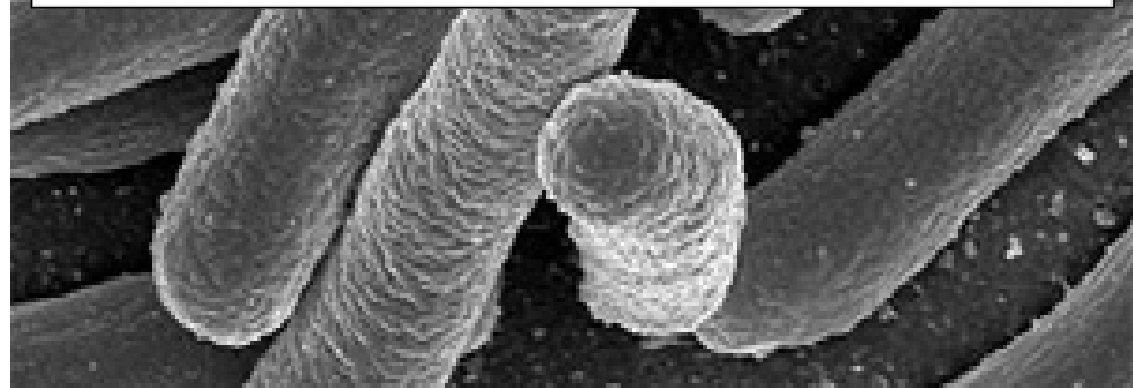
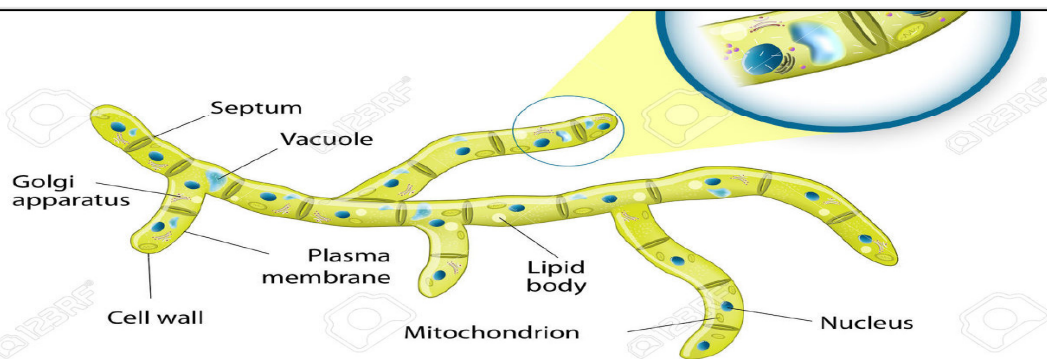
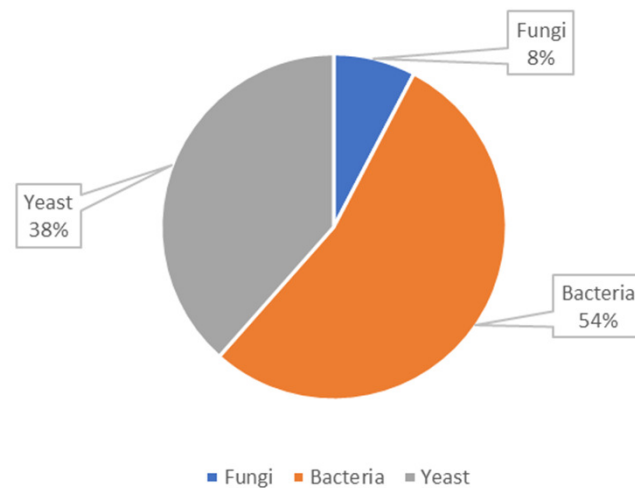


BPF has the licenses in place...

Organisms used at BPF from 2012 - 2017



Types of organisms used at BPF from 2012 - 2017



Track record

Customer base

- Young company
- Longstanding industrial experience
- Open access
- Growing customer base

Enablers

- Confidentiality
- IP remains with client



Track record with startup's, SME's and corporates for wide range of applications *(permission to be named)*





And a Team that makes the difference



Summary

BPF is a truly multi-purpose pilot facility

Open access
Confidential
IP remains with
client



Large variety
of scale,
technologies
and unit
operations

*(covering full supply
chain from large
variety biomasses
to end product)*

Long-standing
historical track
record in bio-
process piloting

(Fermentation & DSP)



Hands-on,
professional
know-how and
scaling up and
scaling down
experience of
bio-processes



Proven experience

with GMP- and food quality regimes,
resulting in reliable engineering as
well as process/product data



Biotech Campus Delft:

Perfect embedding in a strong know-
ledge infrastructure and perfect fit
with regional developments



Benefits of scaling up / piloting at BPF

- Industrial scale knowledge
- Extensive and hands-on experience with multiple products and processes
- High flexibility in equipment



The Future

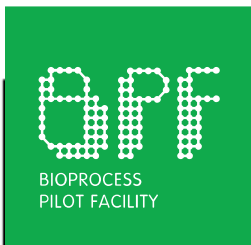
Our challenge, your challenge...



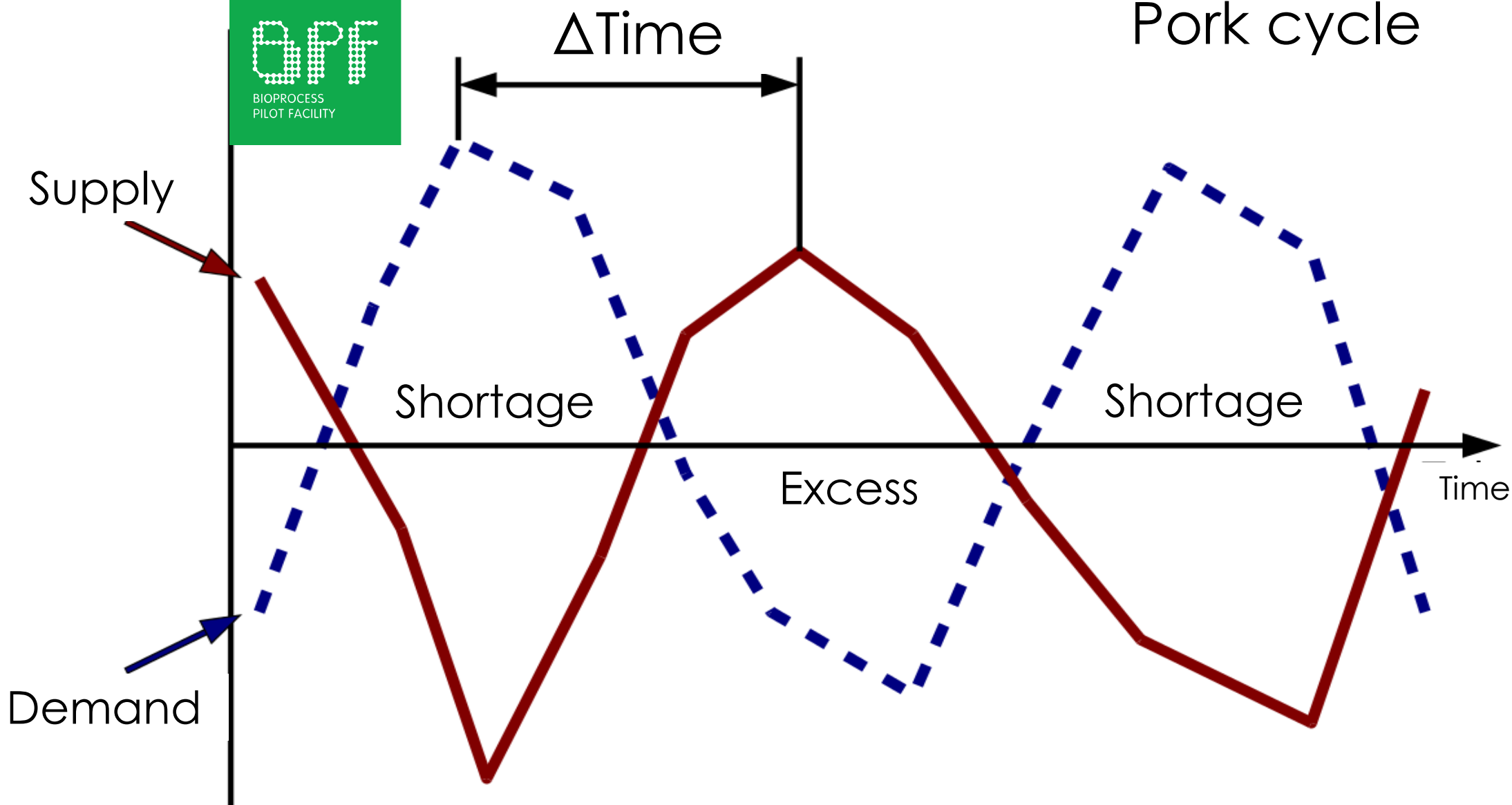


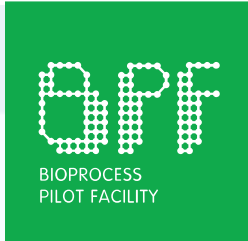
So, what's the challenge?





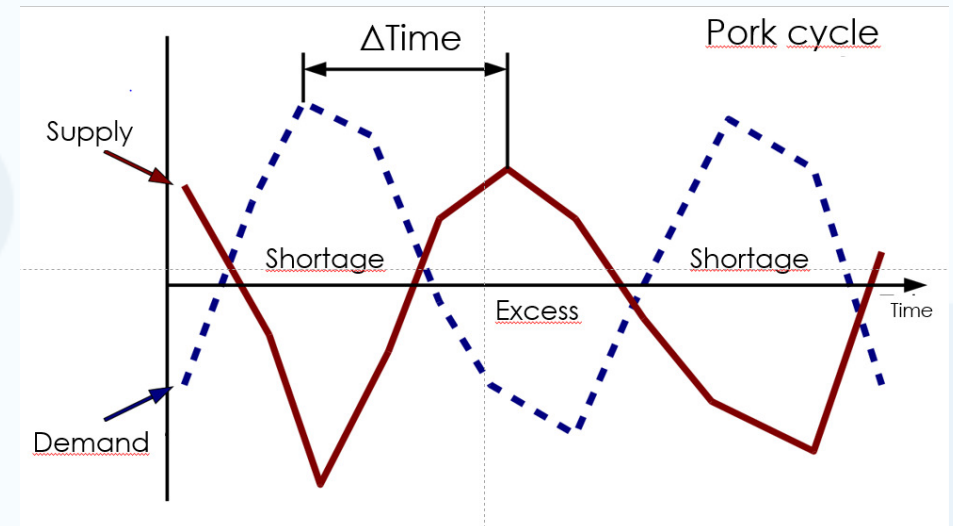
Pork cycle





What will be the impact?

- Not only CAPEX.
- You need skilled people with a broad experience.
- There needs to be market potential to have a 'sound P&L'.
- So, we have to be smart!

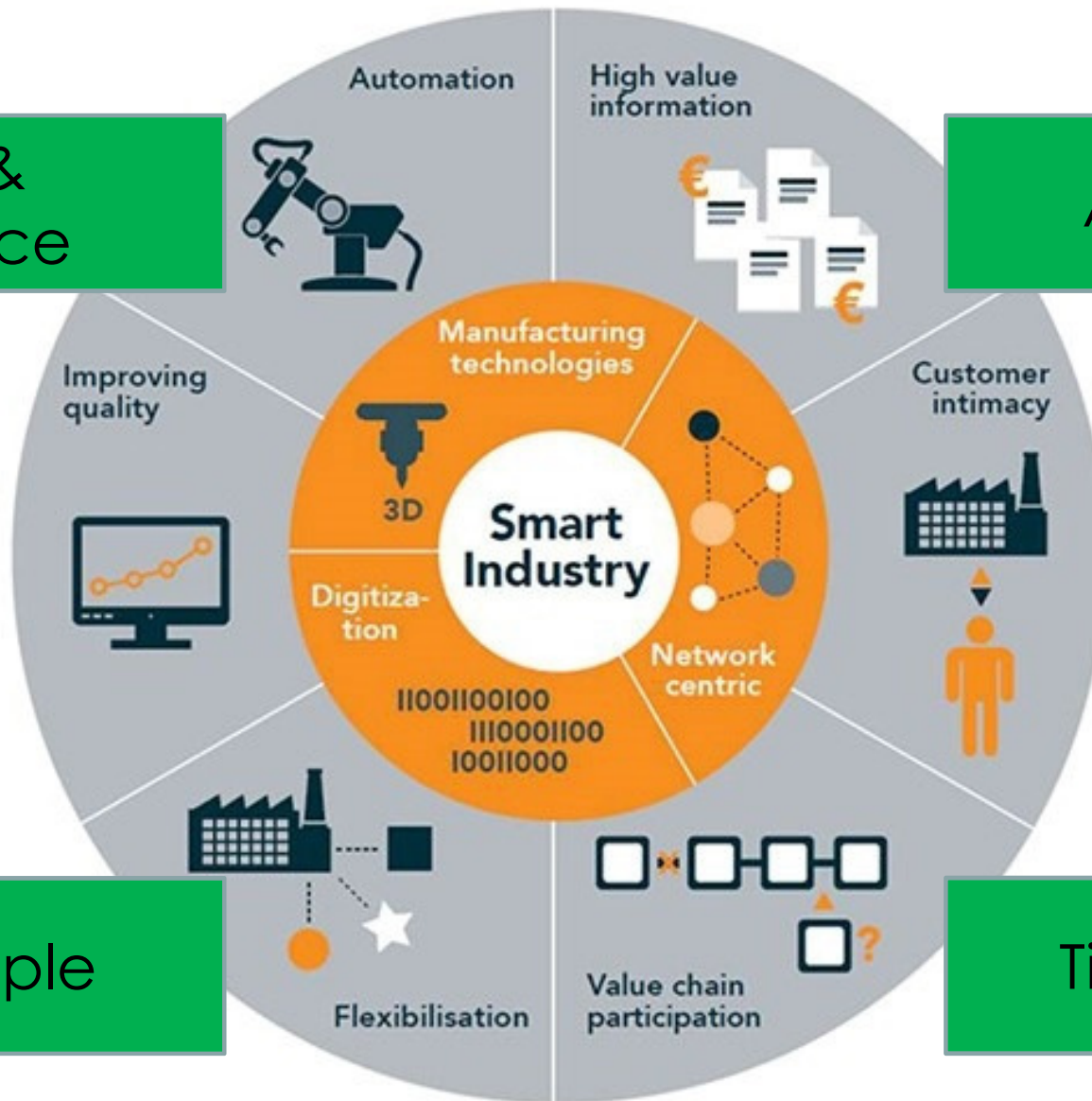


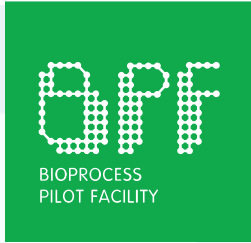
Quality & compliance

Added value

Skilled people

Time to market





Our challenge, your challenge...

- Smart Industries require → Smart Pilots require → Pilot Smart!
- Align capabilities.
- Healthy competition.

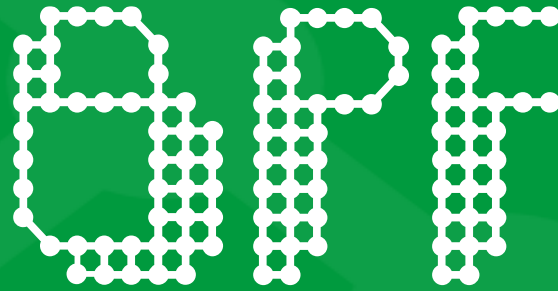


Together for the future... Smart...

...workshop tomorrow.



Thank you!



BIOPROCESS
PILOT FACILITY

BPF is a truly multi-purpose pilot facility



Backup



Feriticon

Koelwater retour

Proces water

Stoom 4 bar

Koelwater aanvoer

CIP aanvoer

Stoom 2,5 bar

13 / 12

