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2015.11.12, Amersfoort, The Netherlands



Beyond Standards

-  Yuri's world
-  Technology
-  Win-Win



De procesindustrie is intrinsiek te conservatief om radicaal te innoveren.

56% Eens

6% Oneens

38% Neutraal

What made Yuri you feel like?



Ah! I don't want to become a Dinosaur!
or
I have a Lease Car... Relax!



Subject: Lots of names for the same Concept



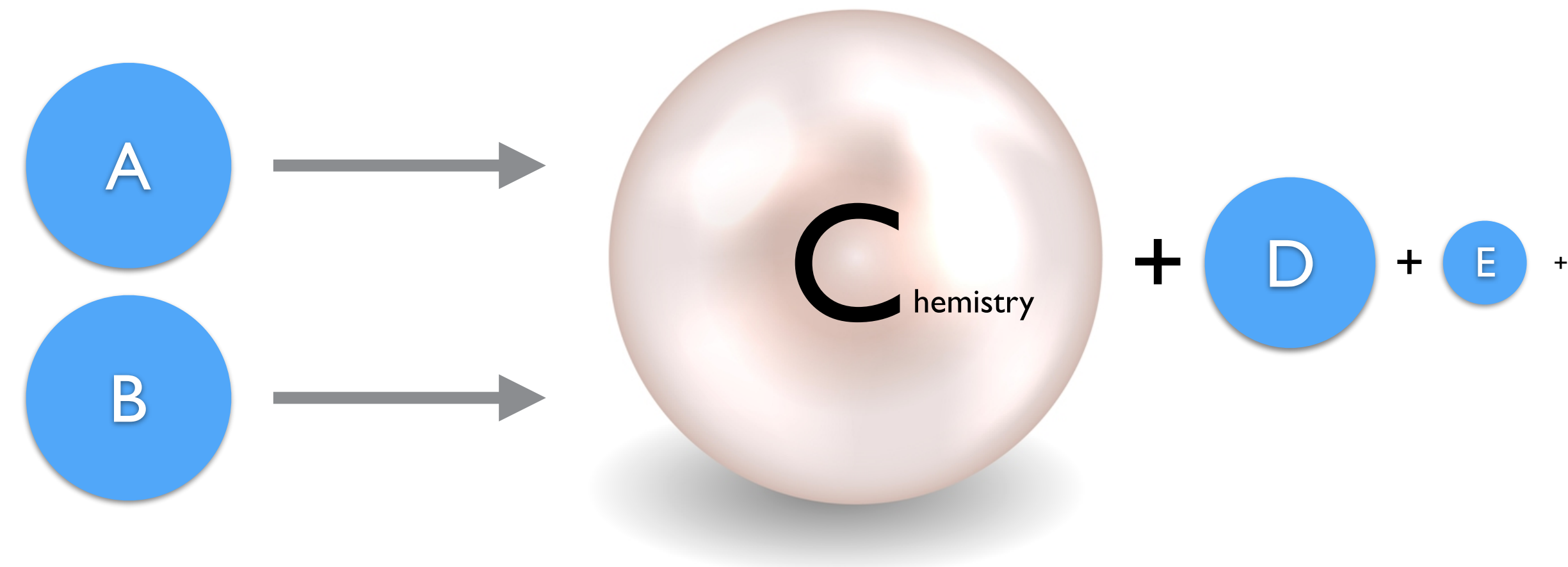
Continuous Processing Flow Chemistry Process Intensification

Know your Fundamentals
Know your Chemistry



80%

Of our clients has lost touch with its chemistry.
They don't know *how or why* their chemistry works

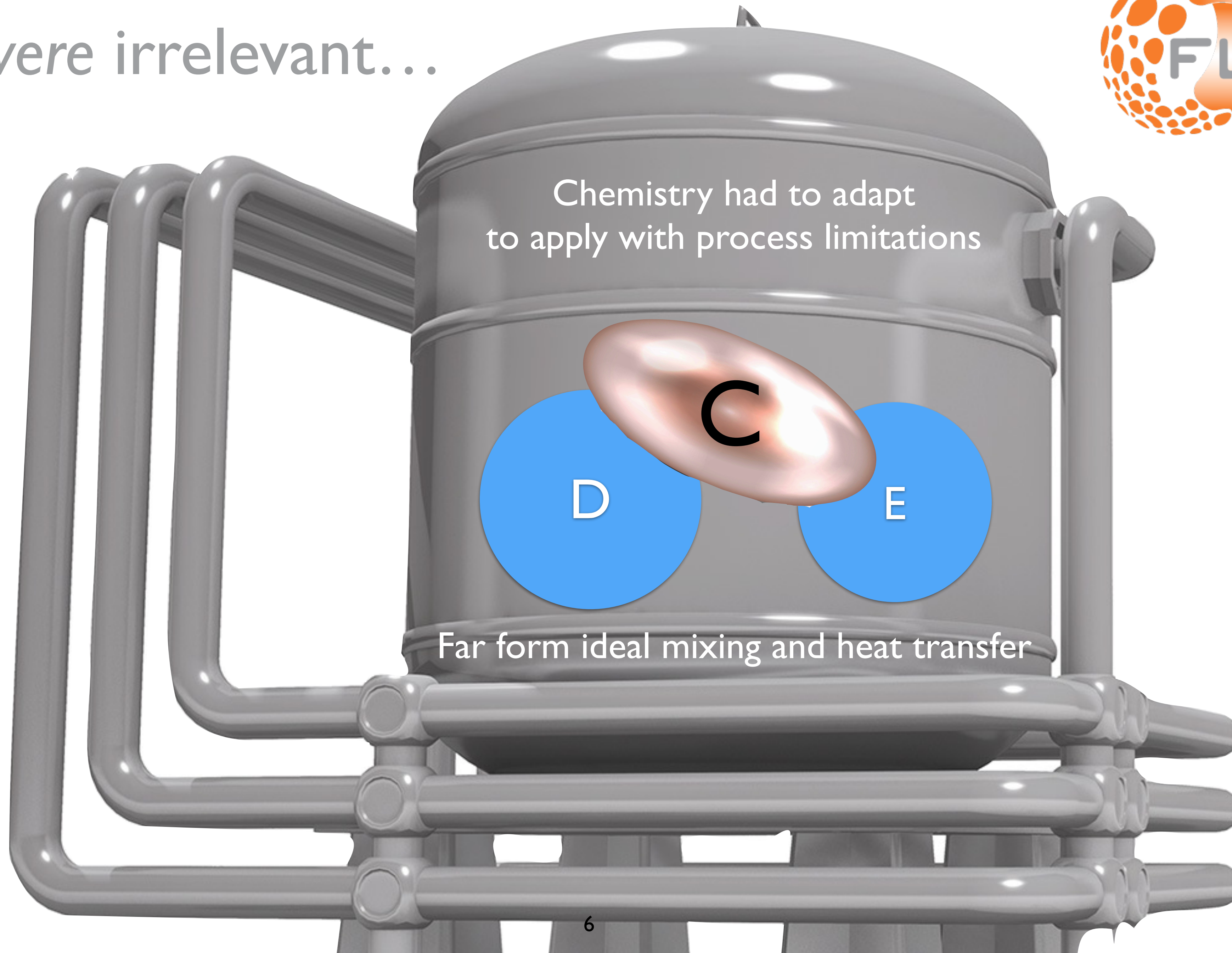


Kinetics or reaction speed
In relation to pressure & temperature

Kinetics were irrelevant...



Chemistry had to adapt
to apply with process limitations



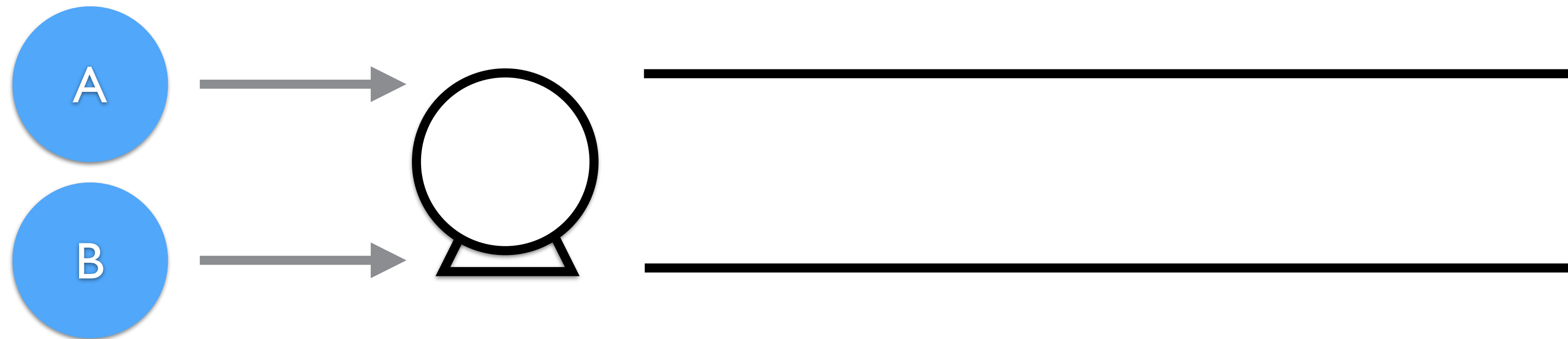
Far from ideal mixing and heat transfer

Take Control, get the Best out of your Process



Reactants

Products

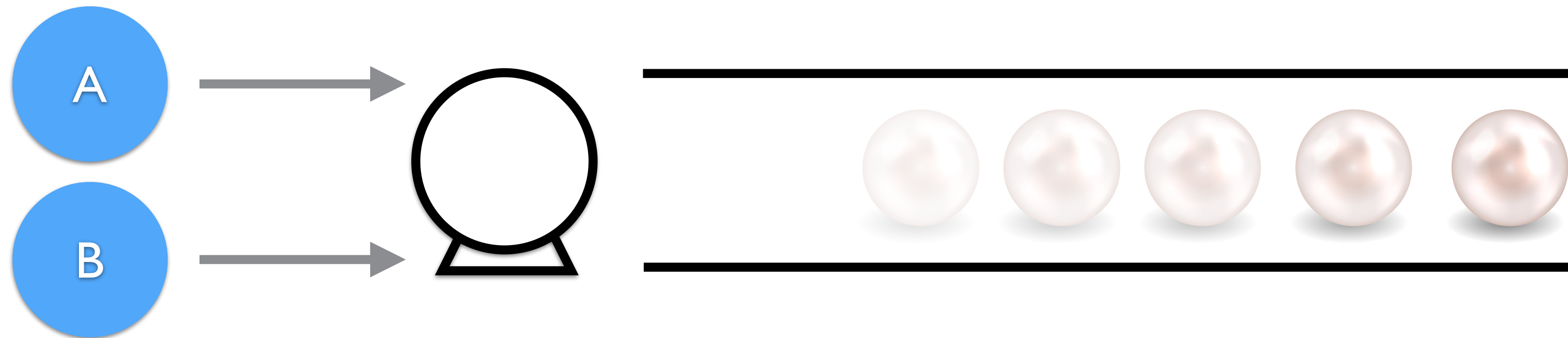


Steady:
Stoichiometry
Temperature
Residence time
Mixing

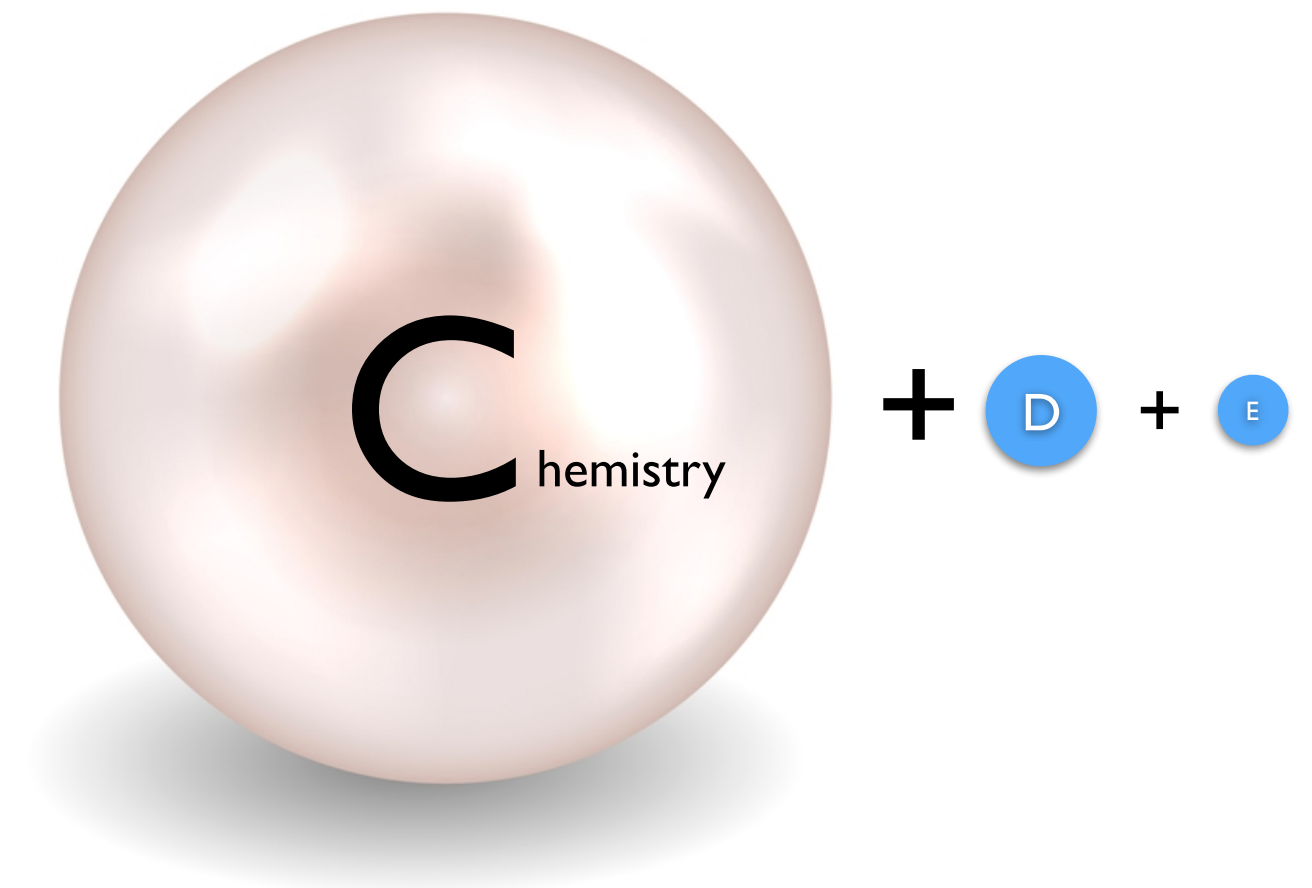
Take Control, get the Best out of your Process



Reactants



Products

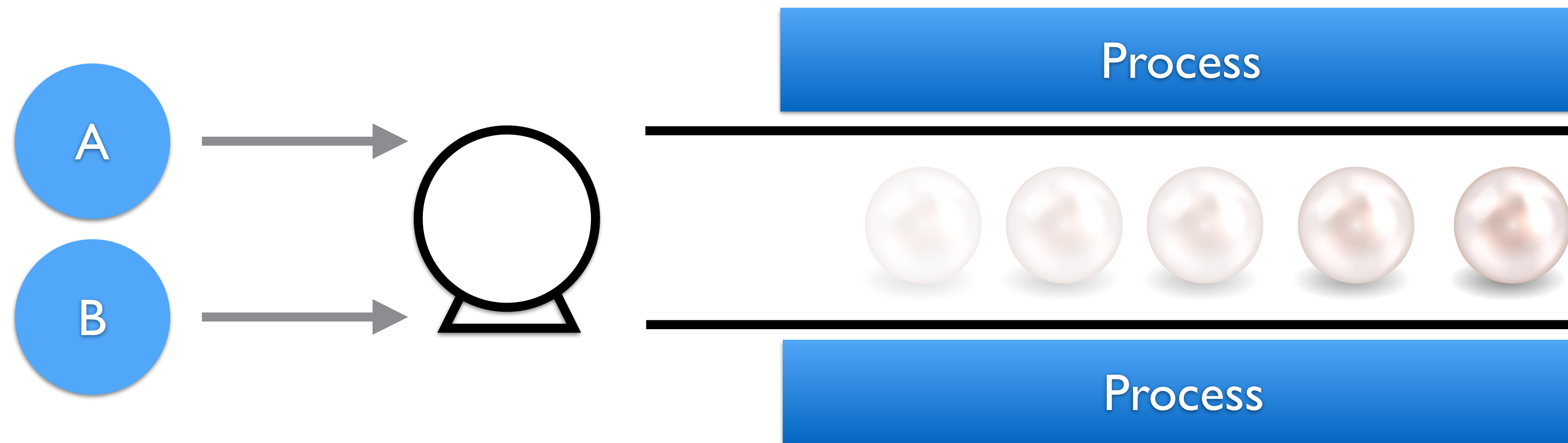


Steady:
Stoichiometry
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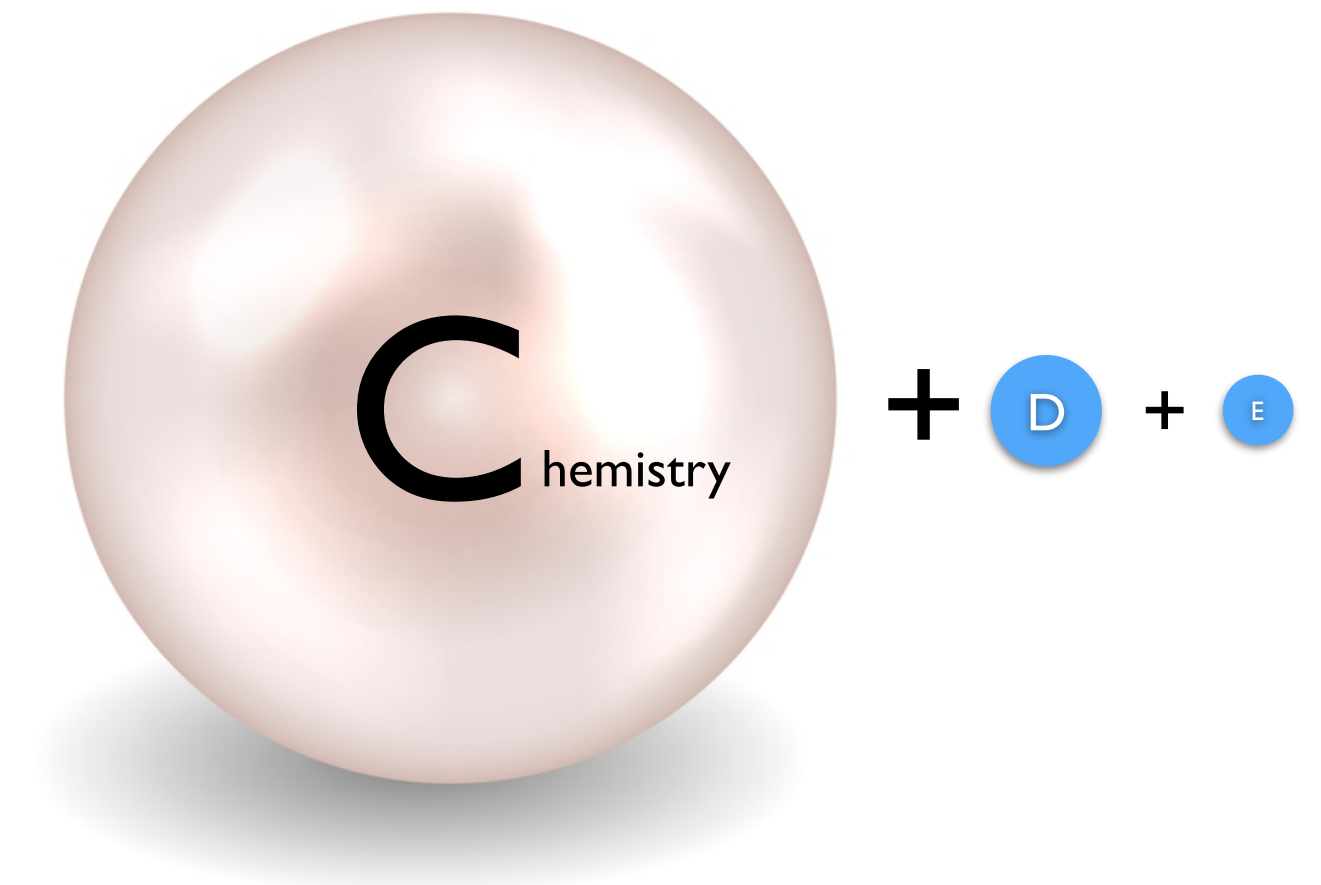
Take Control, get the Best out of your Process



Reactants



Products

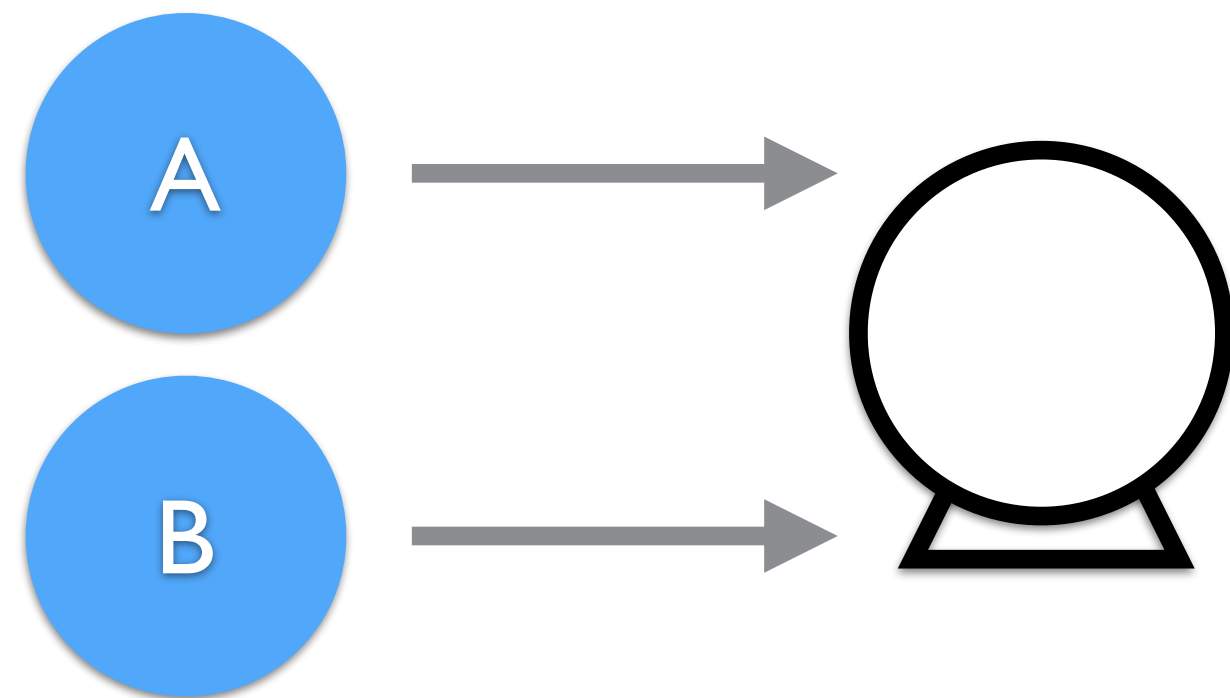


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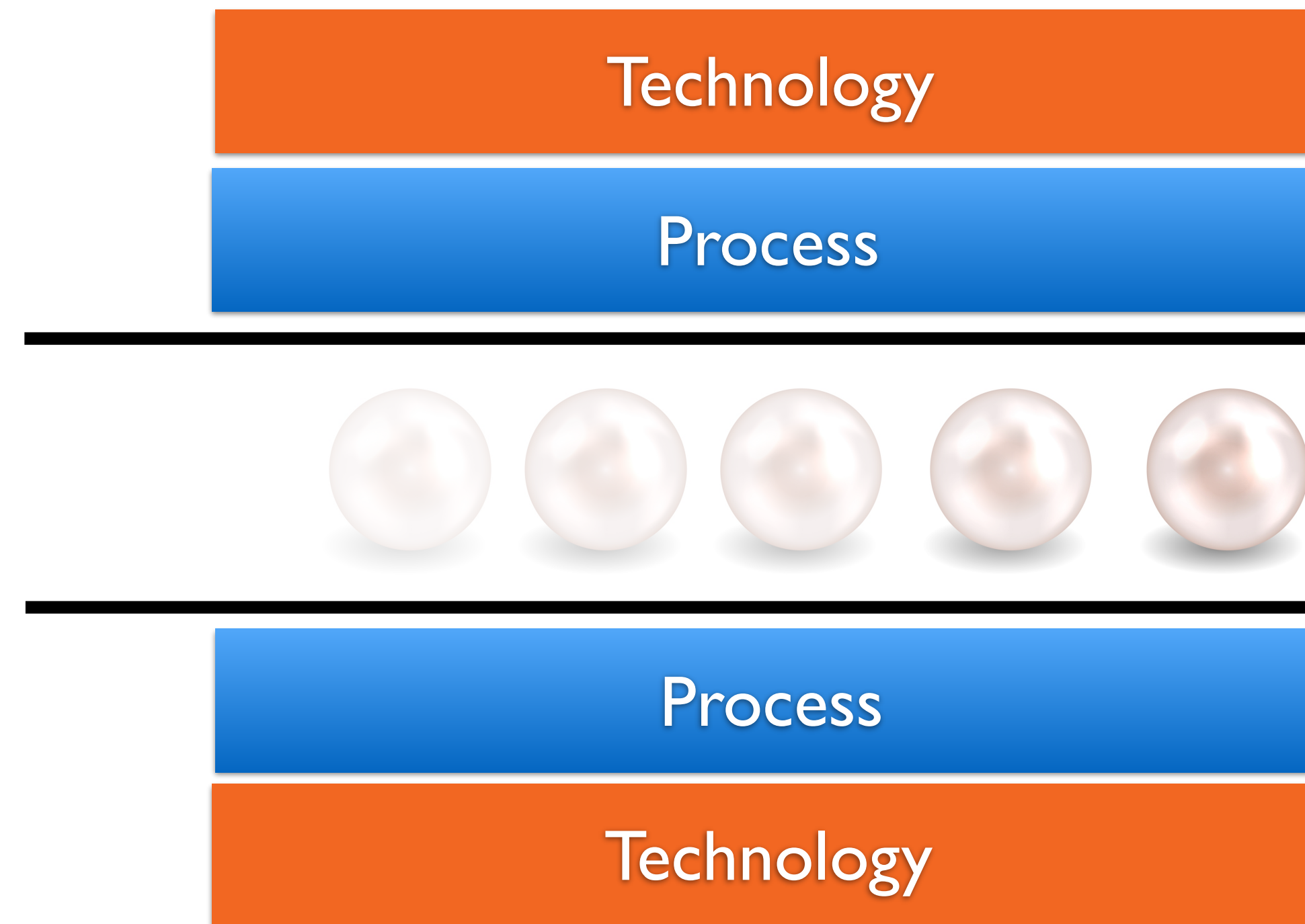
Take Control, get the Best out of your Process



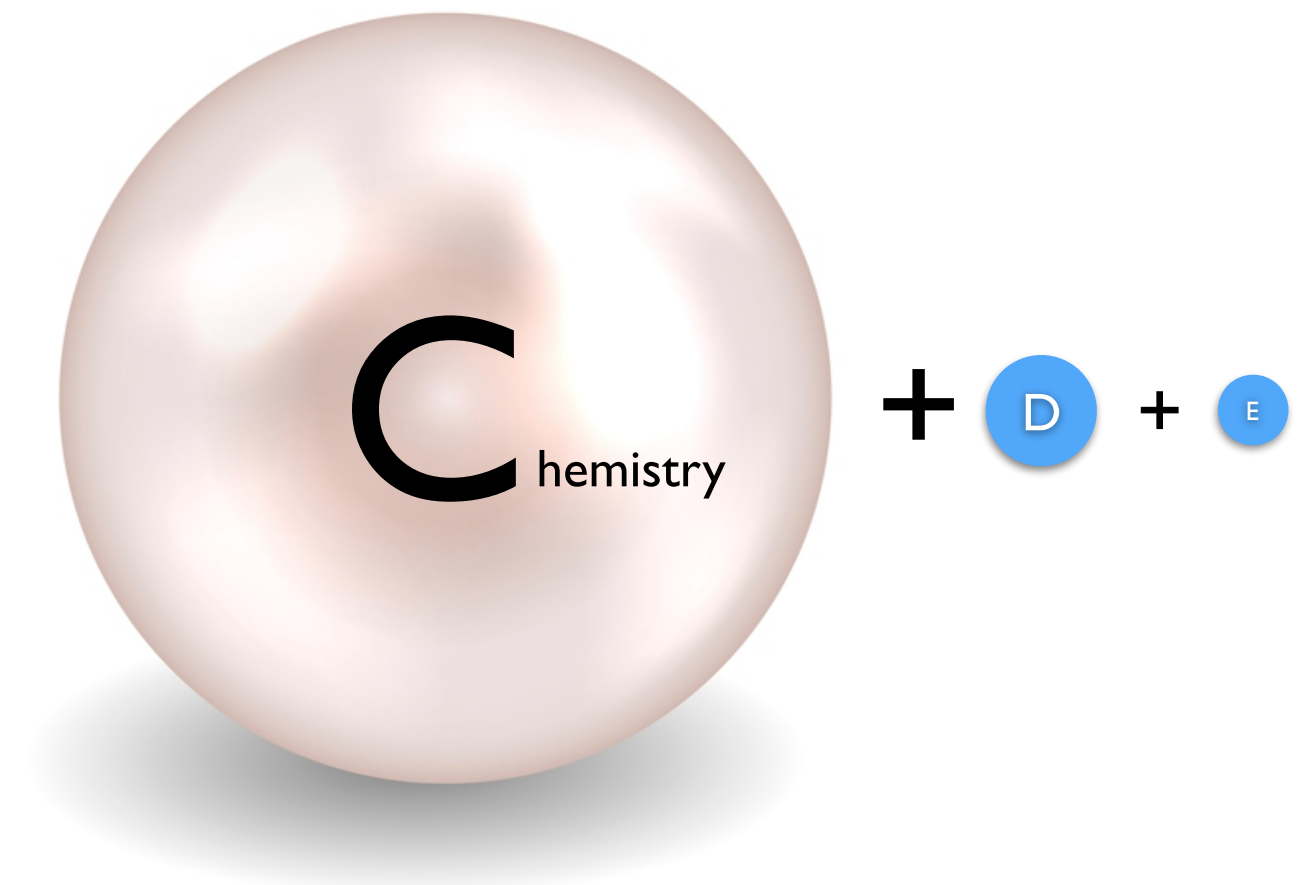
Reactants



Steady:
Stoichiometry
Temperature
Residence time
Mixing



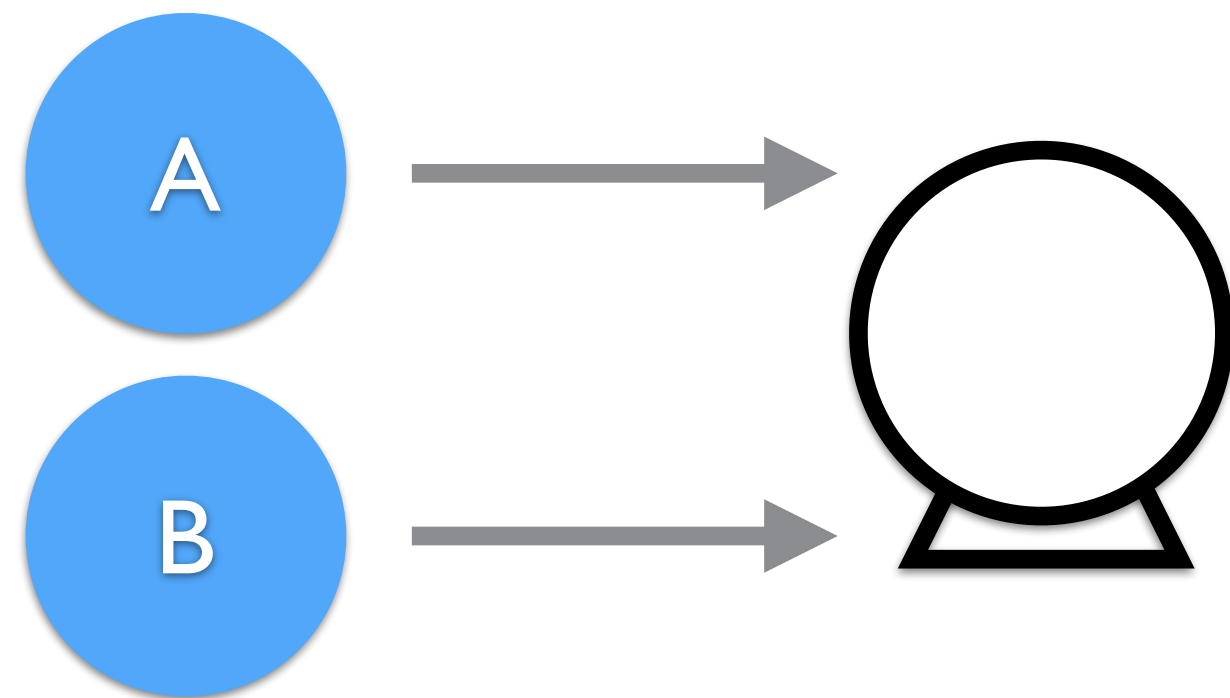
Products



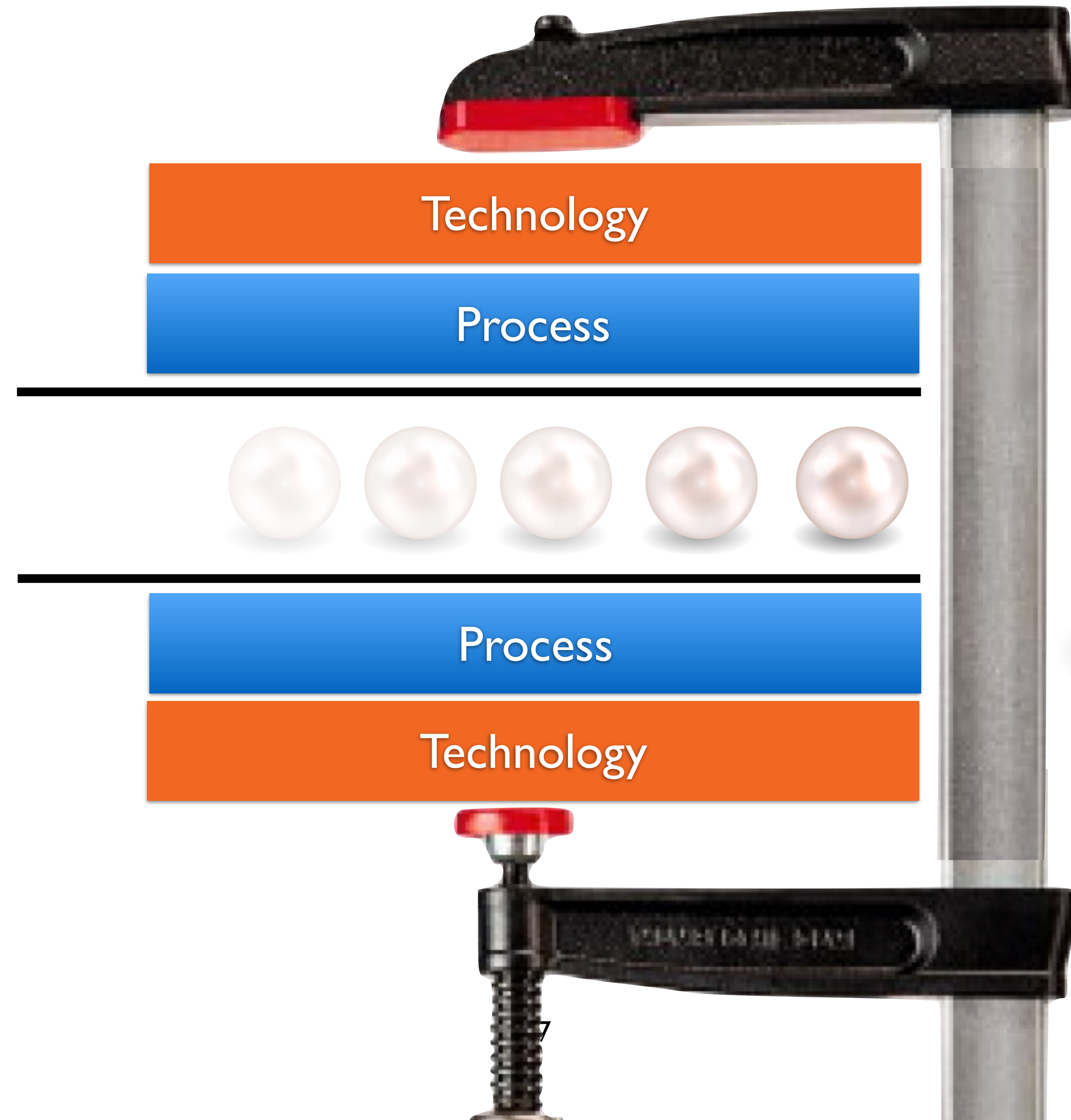
Take Control, get the Best out of your Process



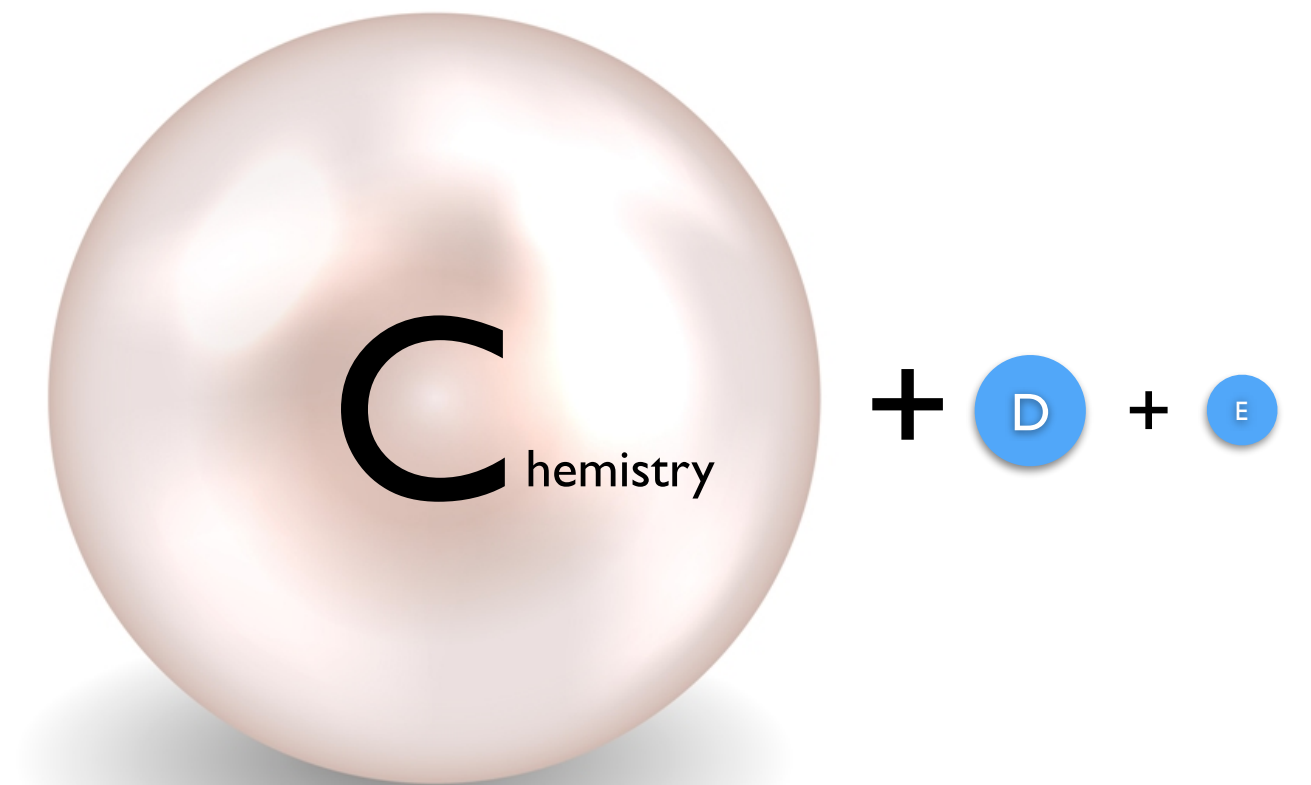
Reactants



Steady:
Stoichiometry
Temperature
Residence time
Mixing



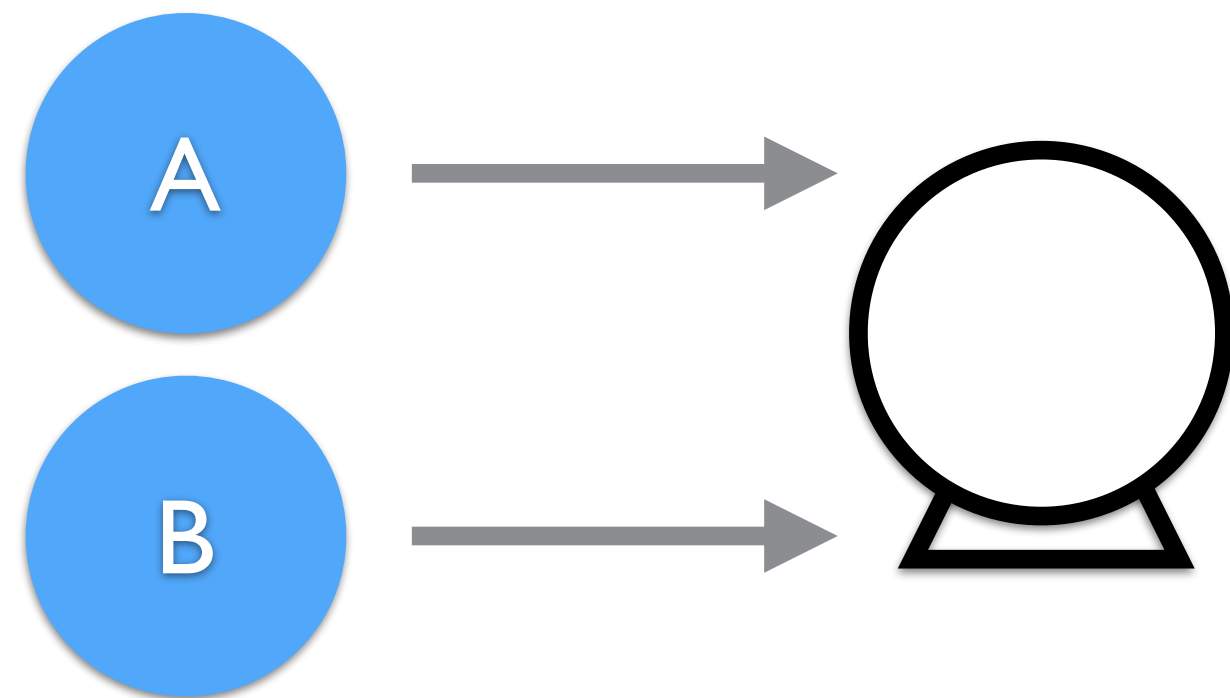
Products



Take Control, get the Best out of your Process



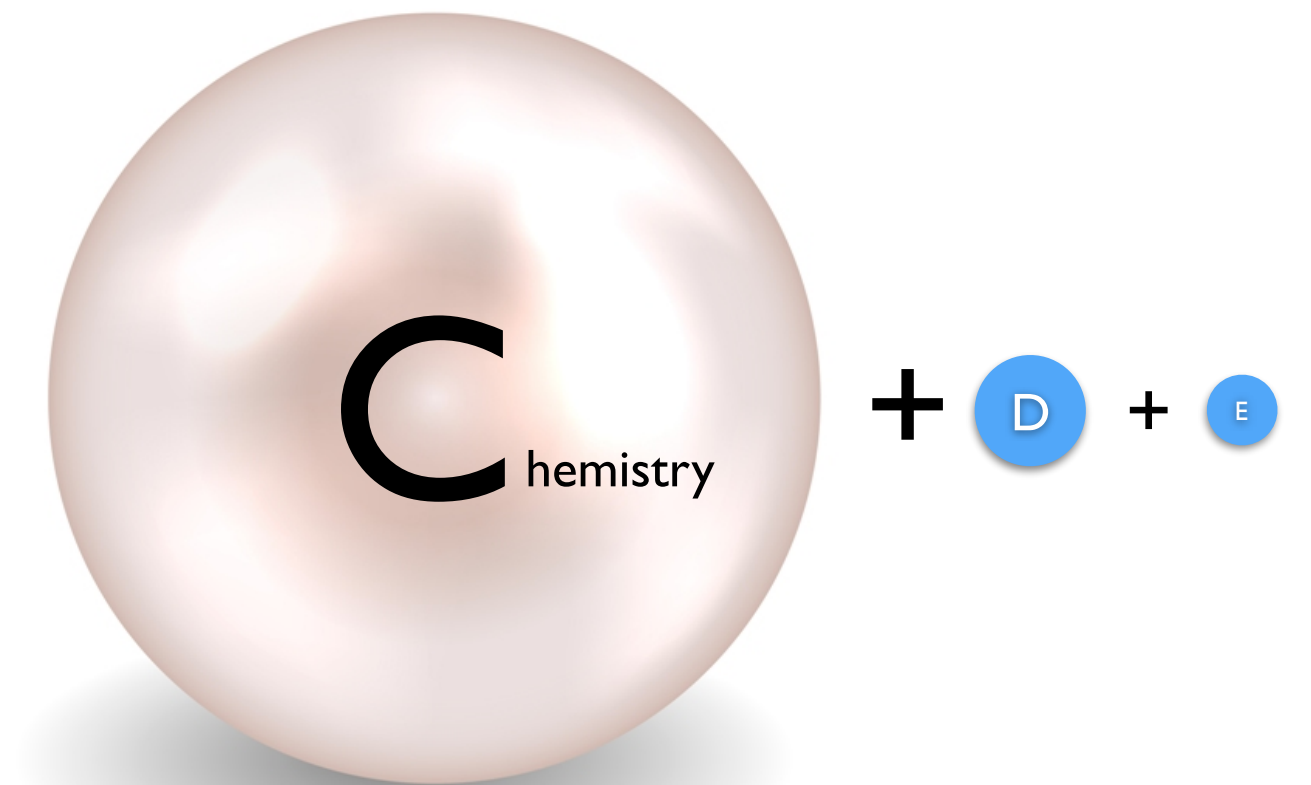
Reactants



Steady:
Stoichiometry
Temperature
Residence time
Mixing



Products



Add:
Pressure
Temperature



Flowid offers... **Process Controllability
on Production Scale**
... just by making process equipment smaller

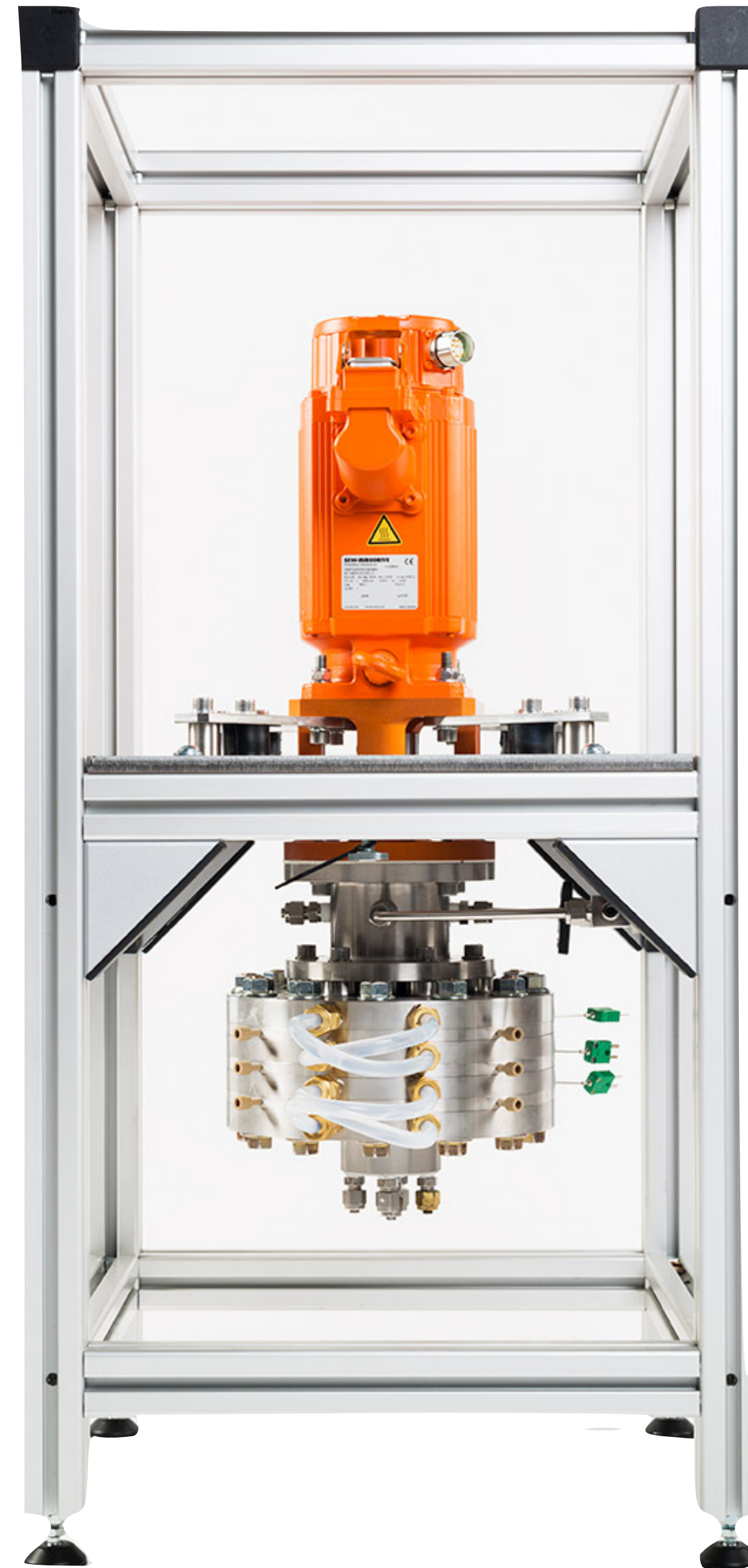
-  **Efficient**
-  **Safe**
-  **Flexible**

SpinPro Reactors

2016

R10

From millilitres



R300



R700

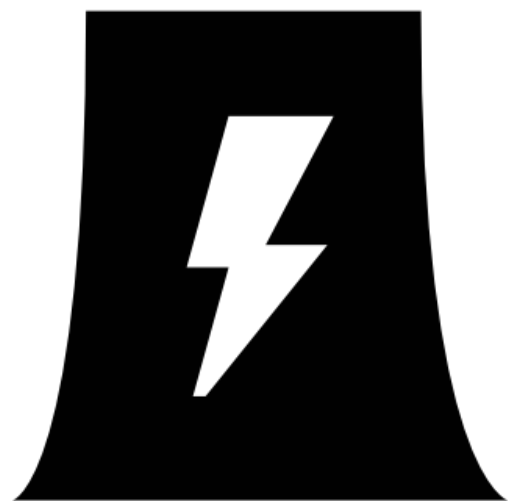
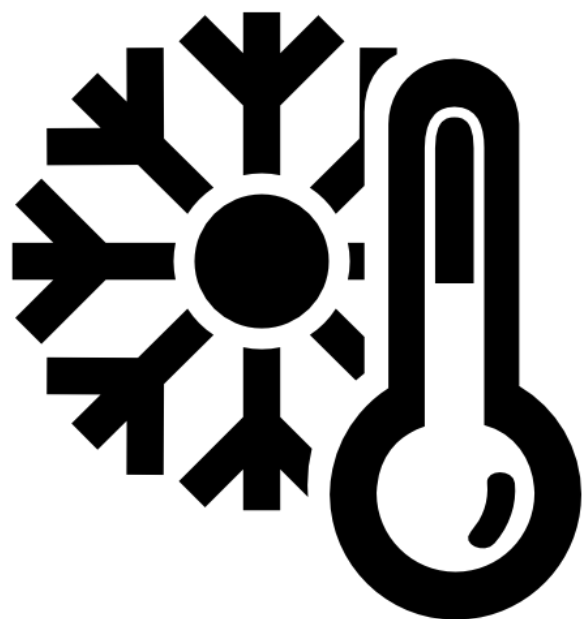
...up to 80 tons per reactor per day production

Factory Continuous Style is Efficient

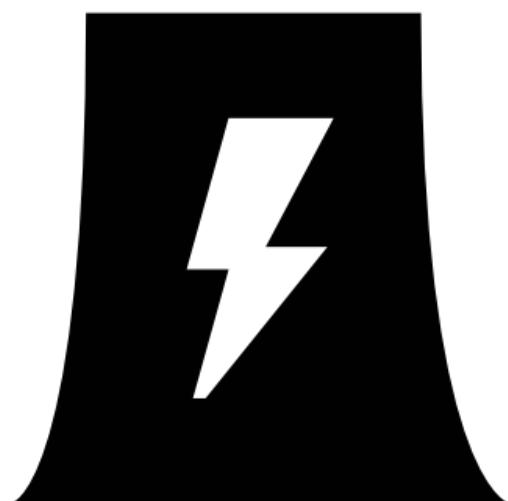
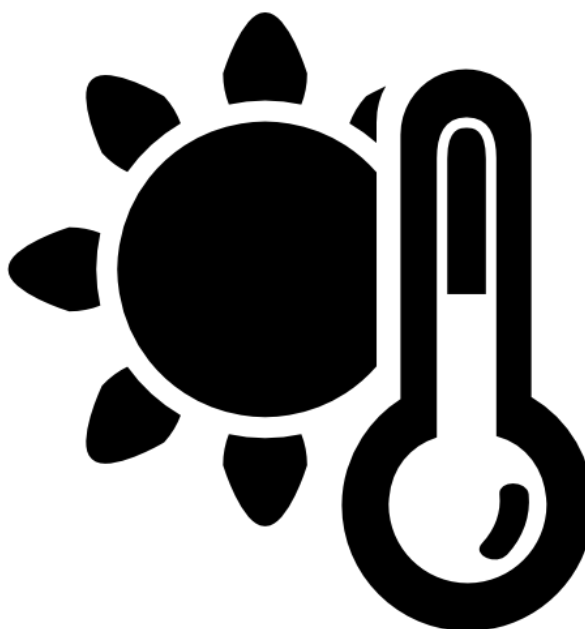


Batch

First
Cool



Then
Heat

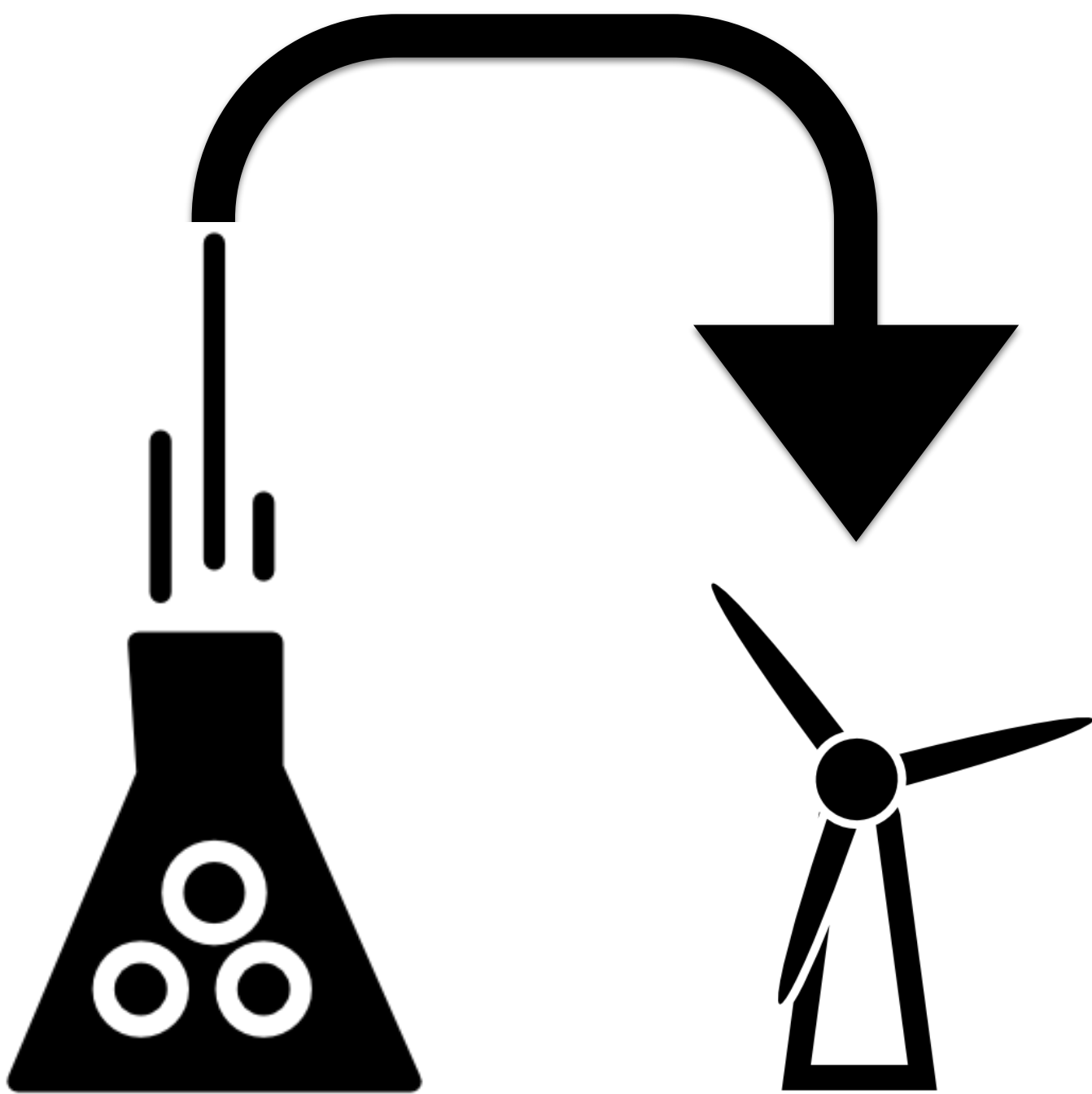


Result:

25ton -4MW +

Flow

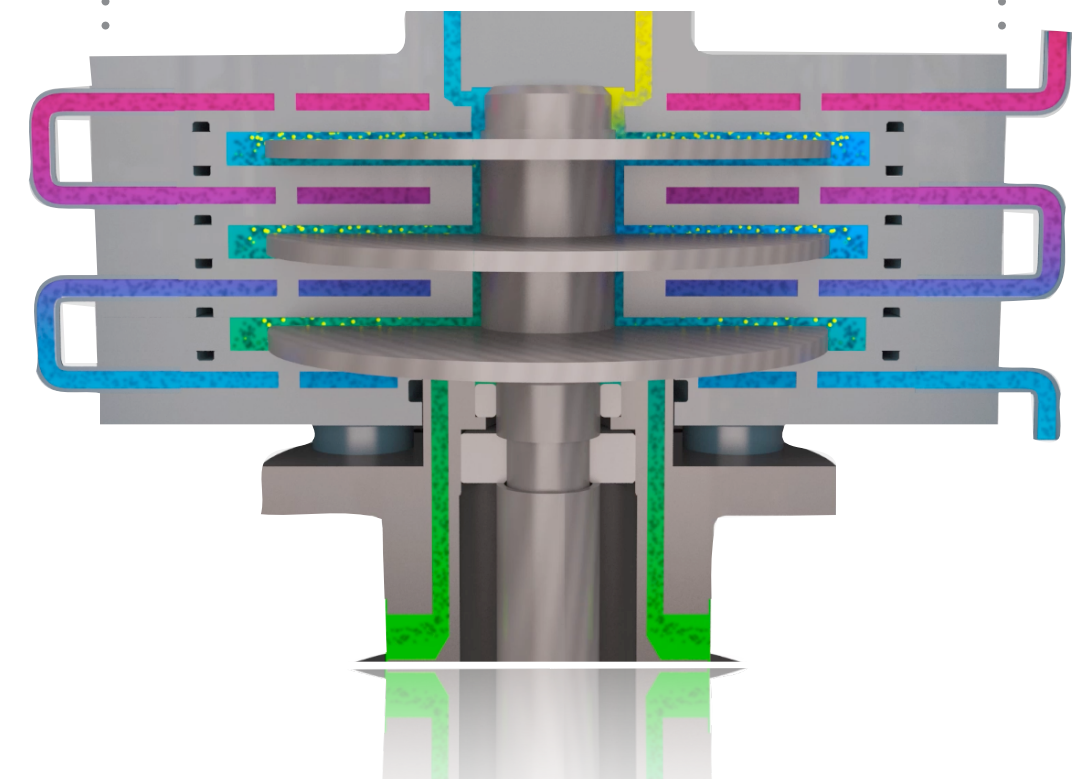
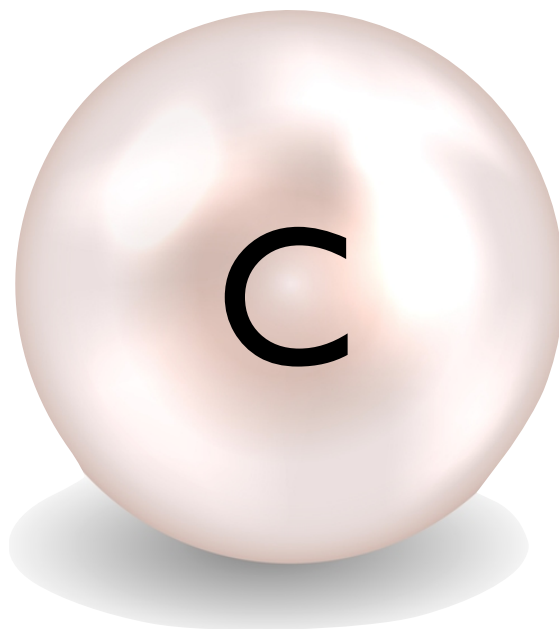
Flowid:



Result:

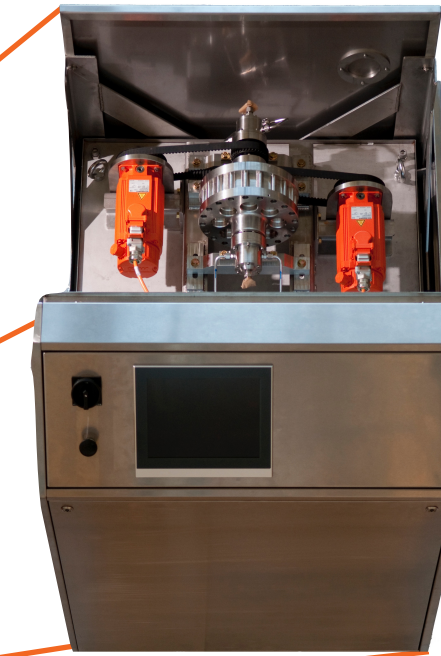
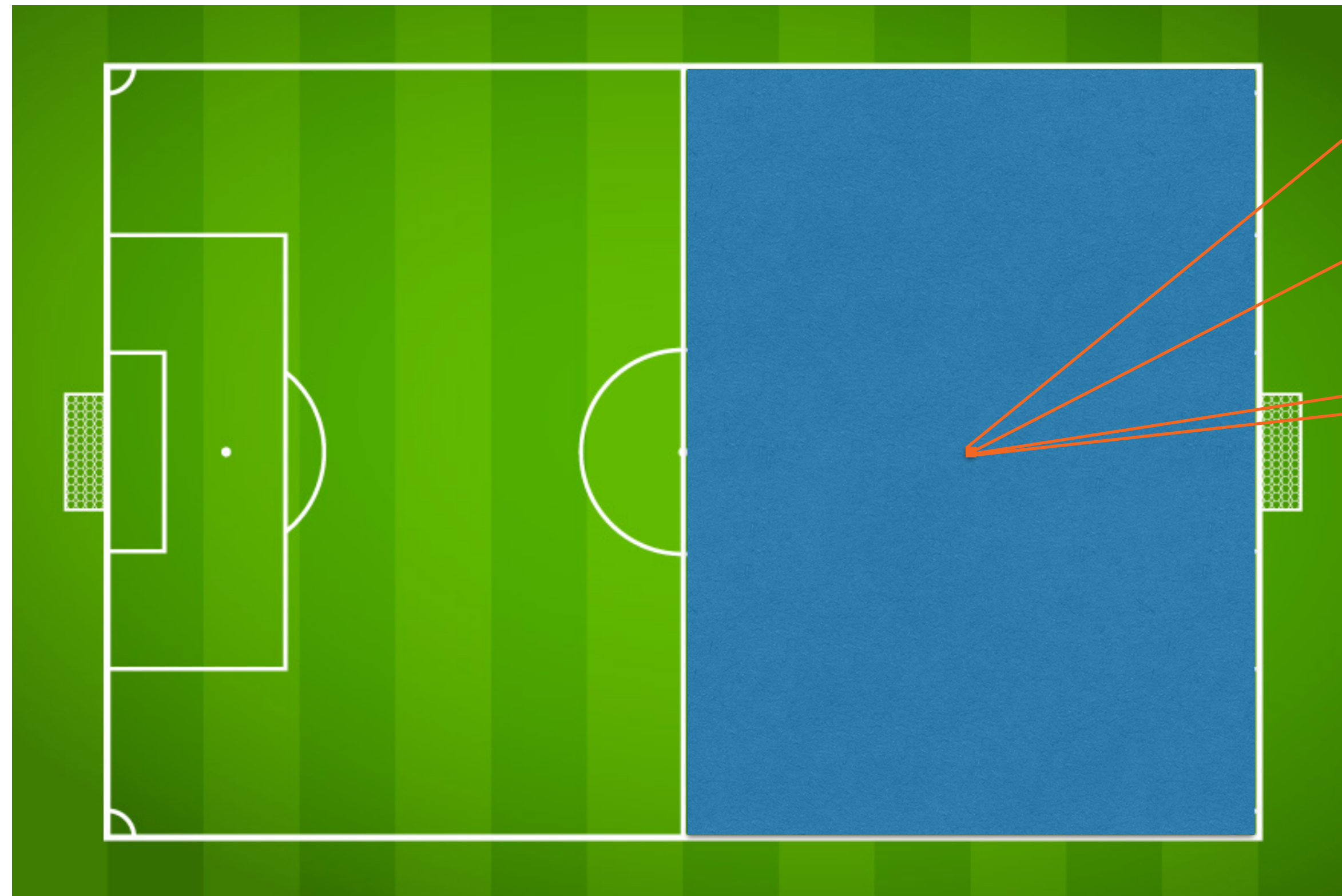
25ton +300kW +

Factory Continuous Style is Safe



Factory Continuous Style is Flexible

From half a football field to 1m³



TU/e
30 fte in SpinPro research



Who has laboratory facilities?

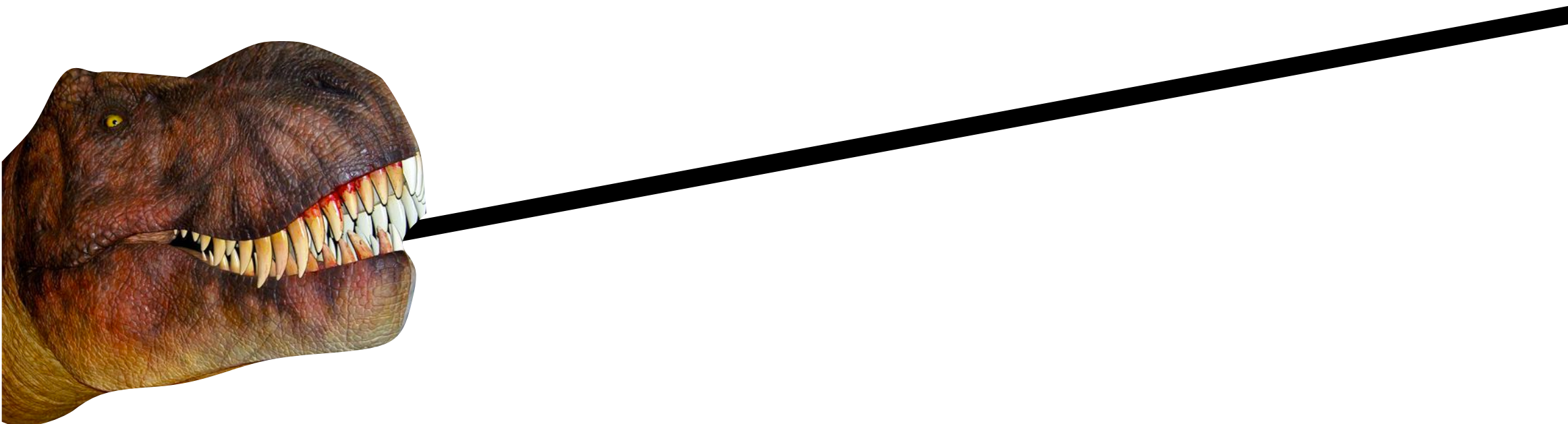


“Als we onze eigen toekomst mede willen bepalen zullen we onze innovatieve ideeën meer moeten delen met elkaar. Tevens moeten we meer moeten doen wat we zeggen of in andere woorden: sneller uitvoeren en minder polderen (neem het risico dat 80% slaagt en 20% faalt).”

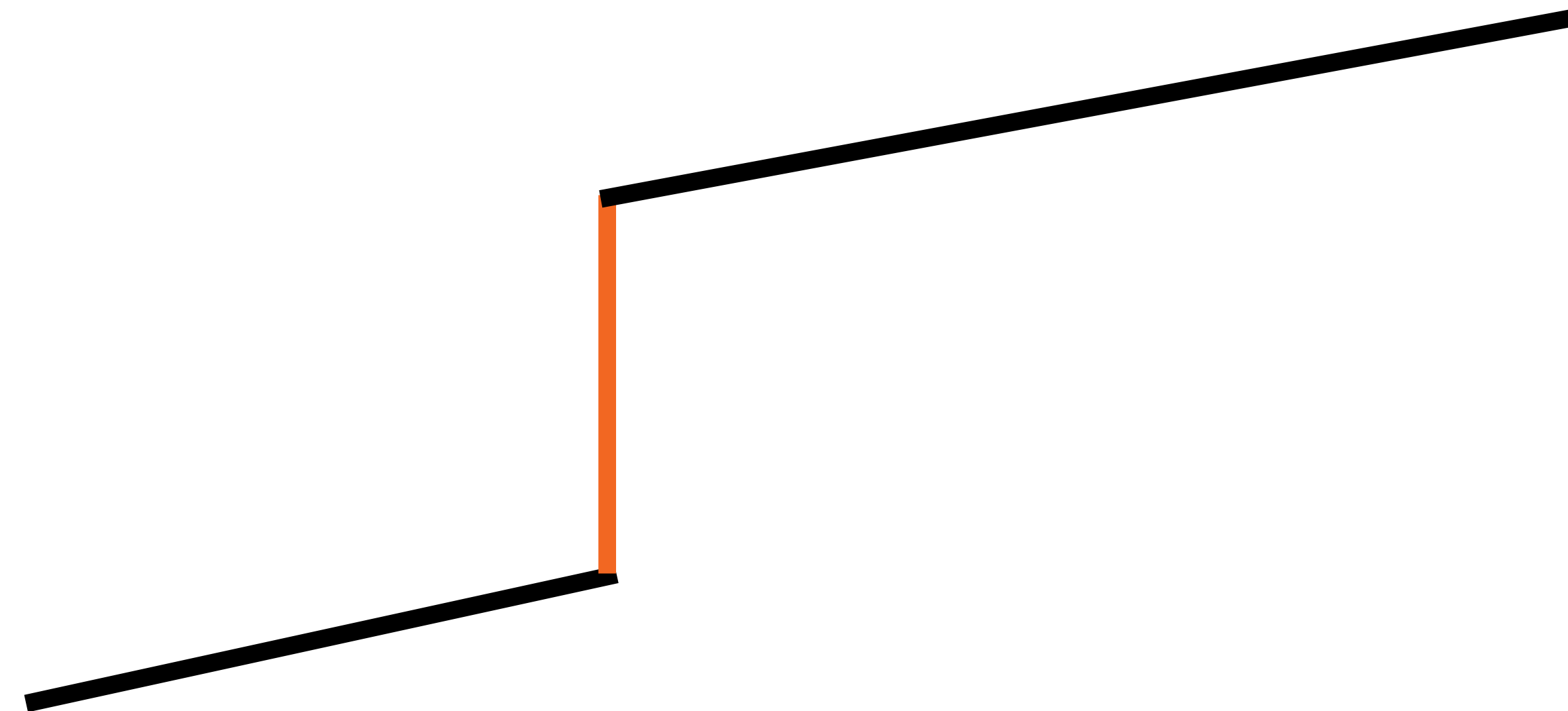
Definition of Innovation



Incremental improvement



Innovation



“Risico analyse als een kansen generator ipv een kansen beperking.”

Innovation

=

Risk Management



How it looks for real to take a risk...

It is Important to Understand the Nuance



**Take
a
Risk**

Don't be Stupid

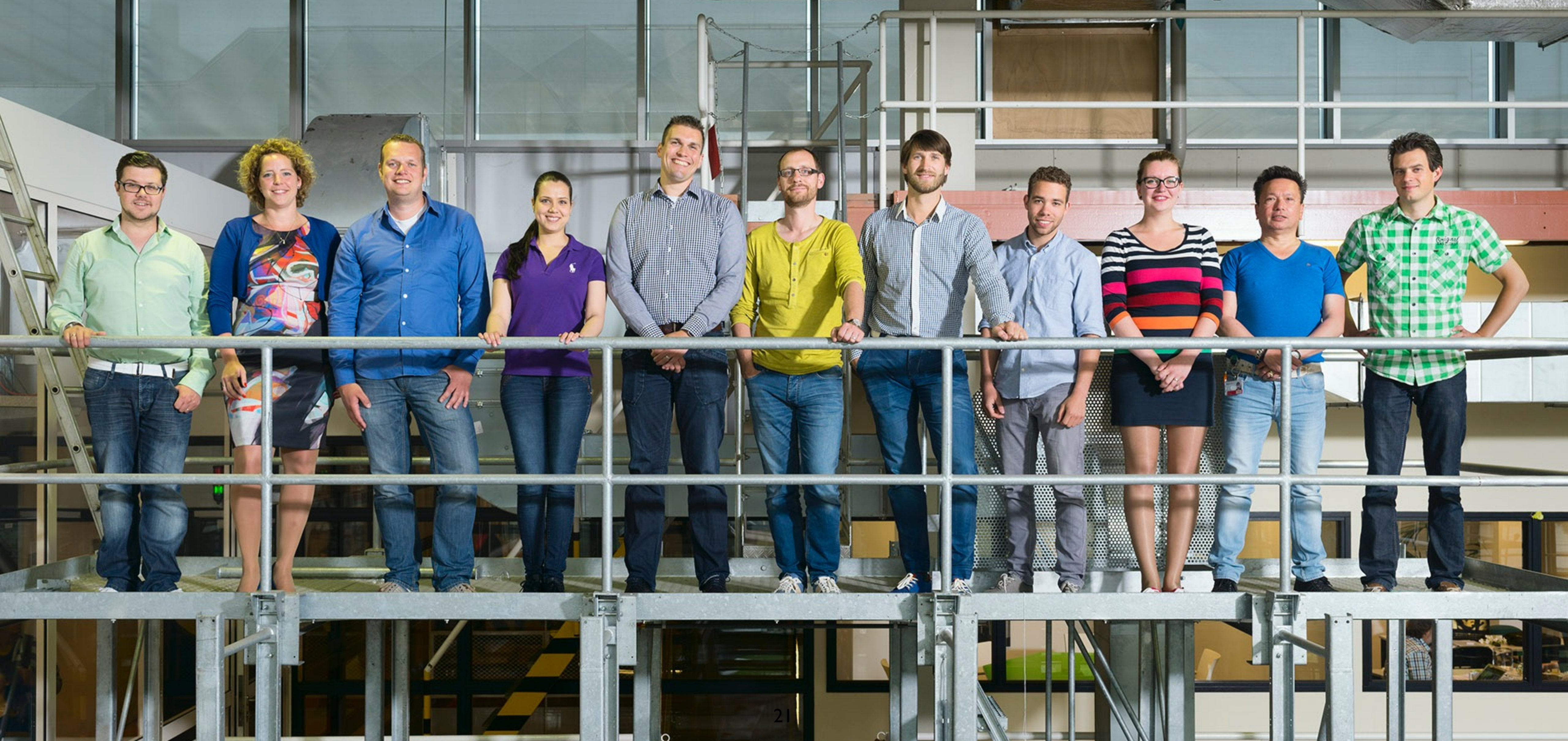


**Rule
out
Uncertainty**

Don't be Stupid



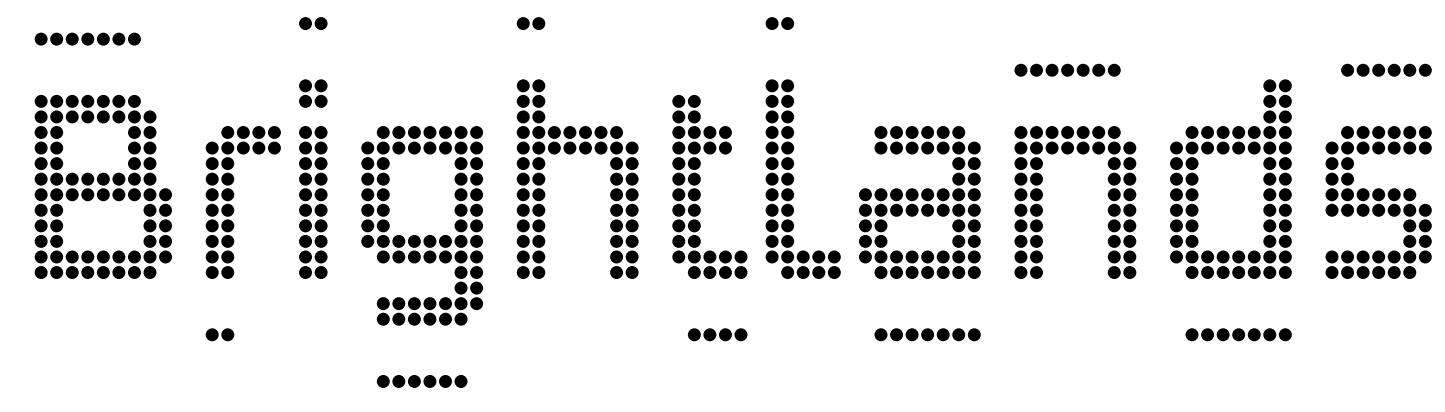
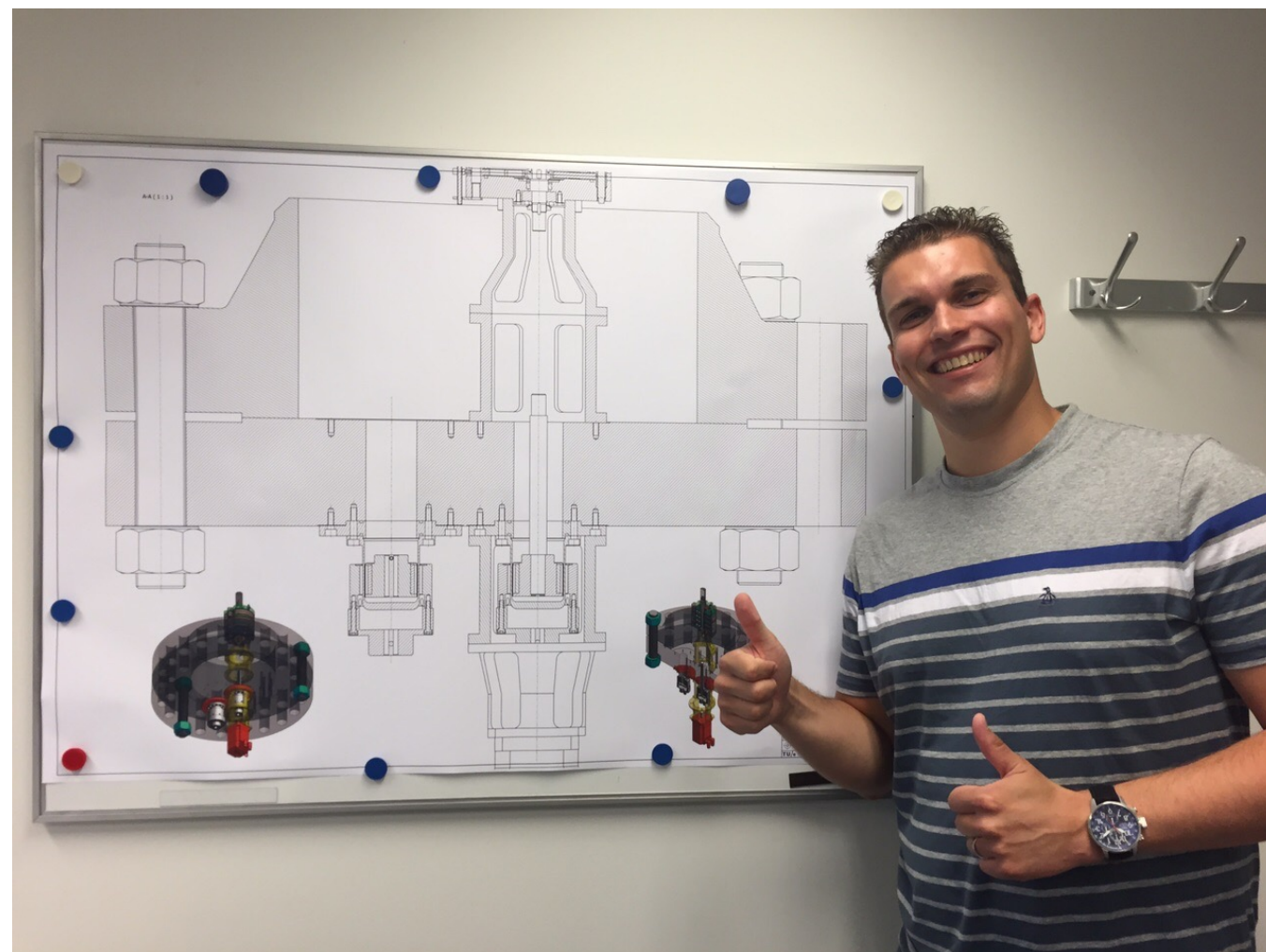
Pleased to meet you: Flowid = 15 people and counting



Flowid: Spin-off Located on the TU/e Campus

30 fte SpinPro research





Flowid: Brightlands High Pressure Pilot Reactor & Extractor



India - First SpinPro Reactors are Sold



Knowledge



Speed



Money

The actual start



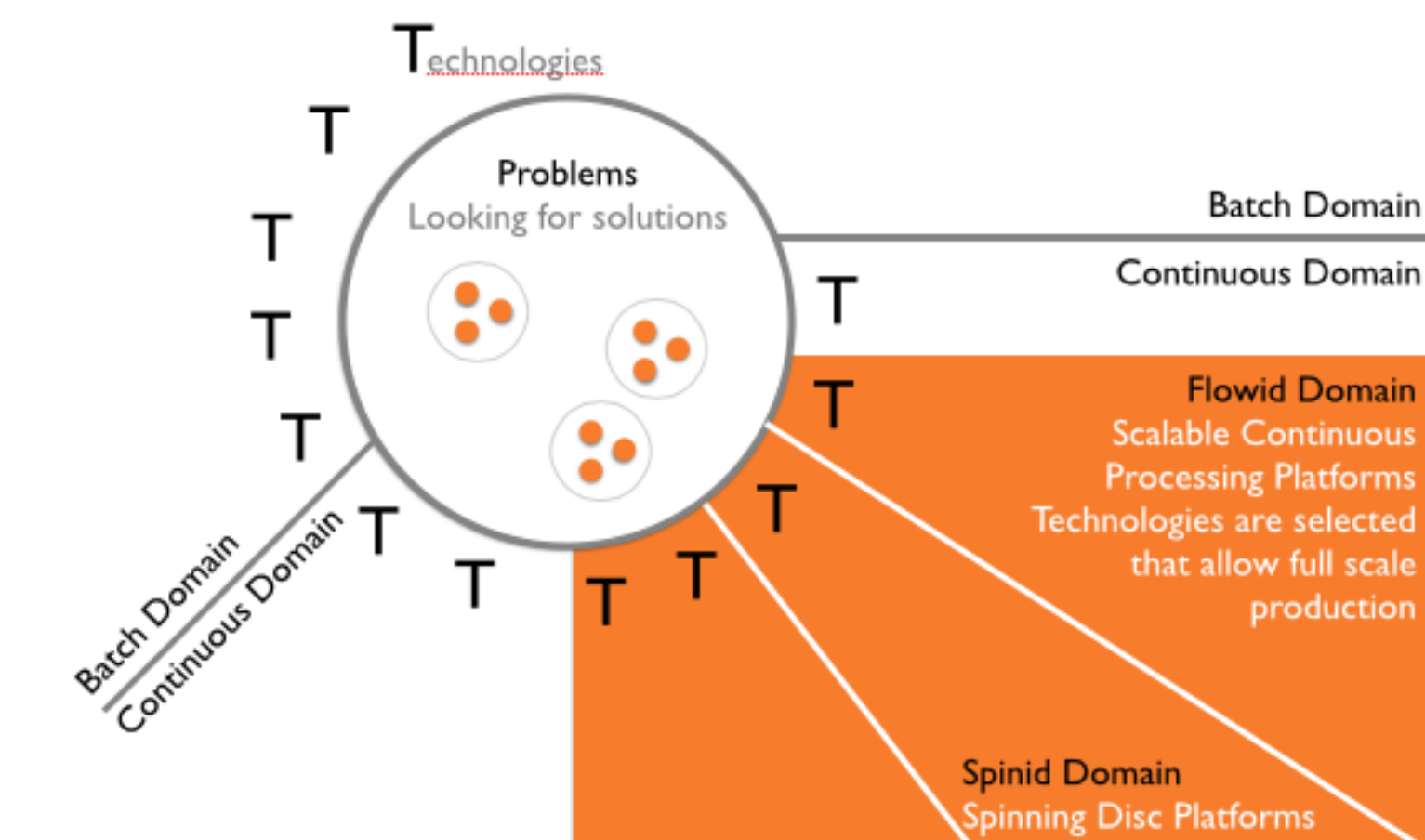
Step by Step - Core Believes



Focus on production

Turning industry up side down

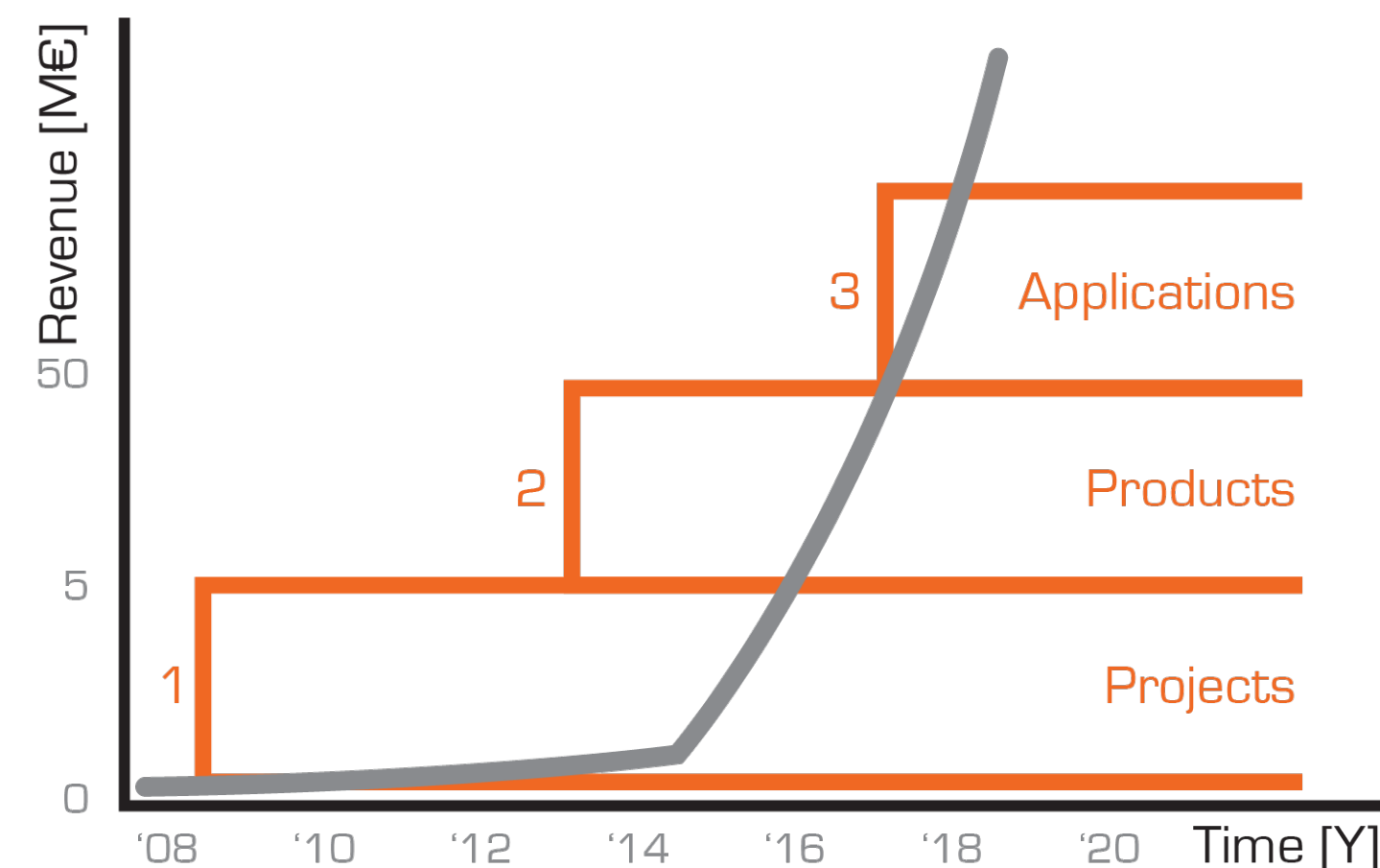
- Miniaturising processes
- Boosting efficiency, safety and flexibility
- From batch to continuous processes using scalable continuous technologies



Learn by solving client problems

Project, Product, Application approach

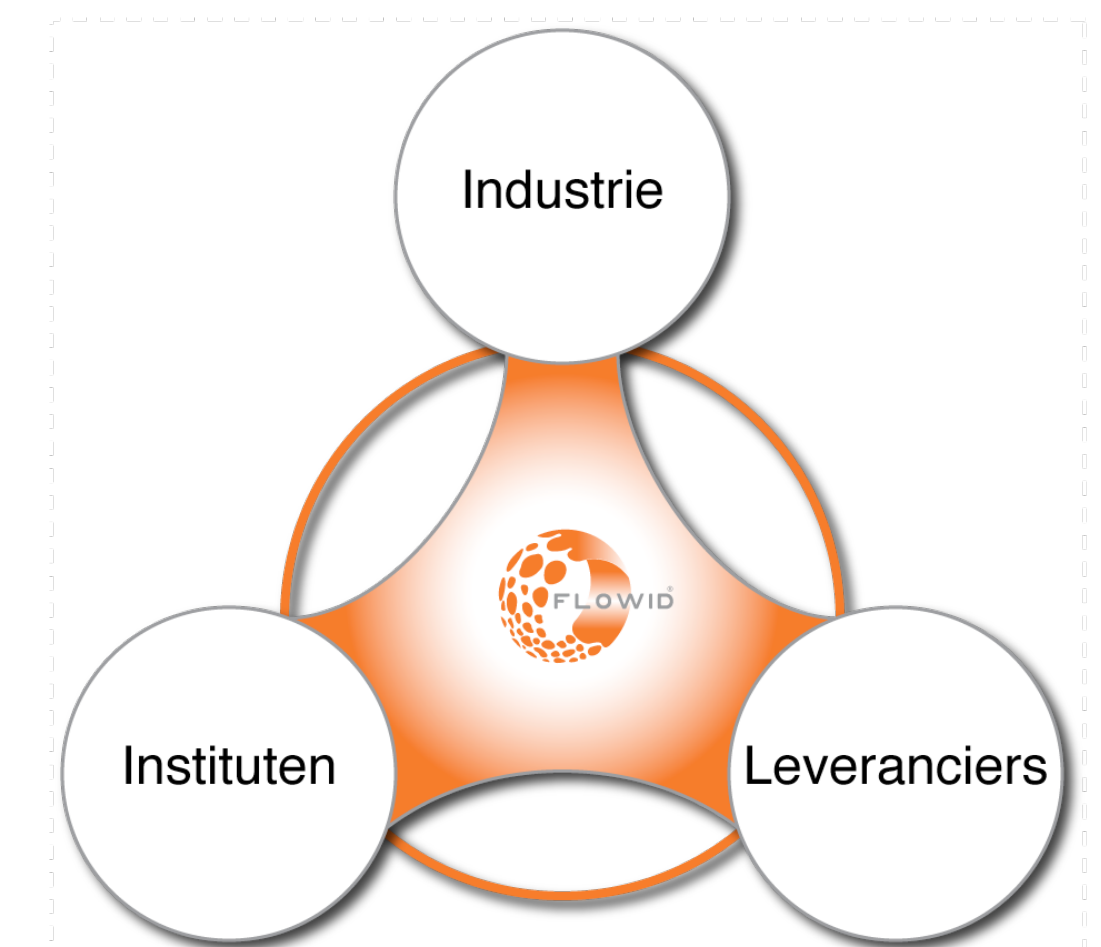
- When innovating you need to be able to manage the risks involved
- Put chemistry first, adapt the process
- Great looking with pleasant interface



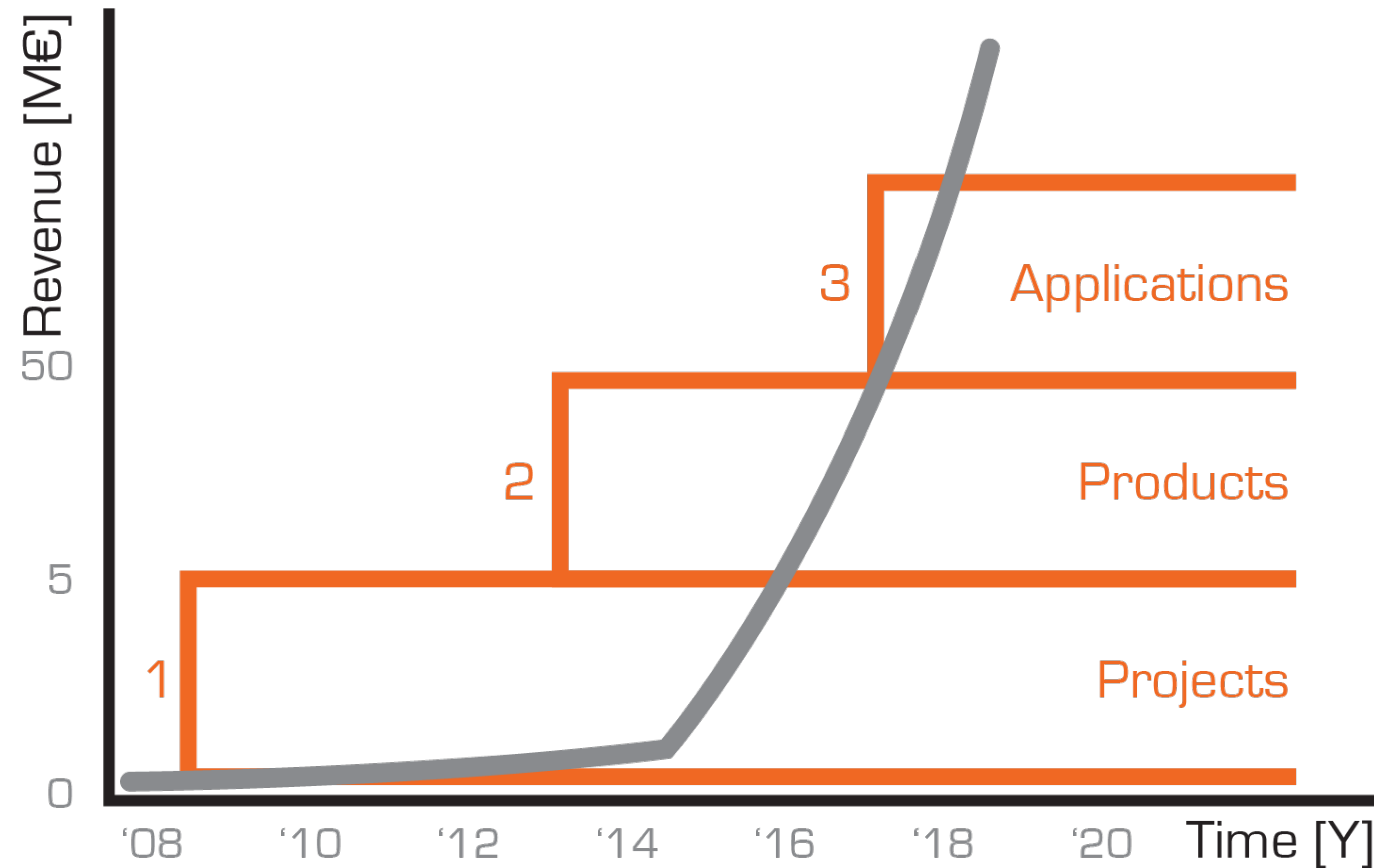
Believe in partnerships

Cooperate

- Different fields of expertise required
- Tangible (in FlowFlex modules)
- Autonomous creative core



Flowid - From Engineering to Configuring



Scalability

Standardising

Engineering - Process Development

Hoe maken we gebruik van de kennis in de markt en werken we meer samen?

Hoe kunnen we het innovatieproces in de procesindustrie versnellen ?

Hoe maken we onze proces industrie en ruggengraat van onze economie toekomst bestendig?

We can create a Win-Win
if we Cooperate

So we won't become dinosaurs...

Implementation = Proven

We offer Expertise,
Laboratory & Pilot Facilities

€ for speed and development

Diversiteit in de procesindustrie is gewenst voor een goede toekomst.
100% Eens



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