

# Porsche Smart Factory

How to Successfully Master the Transformation of Production & Logistics

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**Porsche Consulting**

Strategic Vision. Smart Implementation.



“NEW AUTO”

## Volkswagen Group reinvents itself



“Our industry is undergoing the greatest transformation in its history. In the next five years, there will be more change than in the past 50 years. This transformation is generating high momentum. At the same time, transformation also requires stability. We need to find the right rhythm here. A clear strategy, implementing it consistently and reviewing the course at appropriate times..”

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**Oliver Blume | Chairman of the Board of Management of  
Volkswagen AG and Porsche AG**

August 2022

# Aspiration requires change of rules & mindset

<b>Effort</b> $\div 2$	<b>Speed</b> $\times 2$
<b>Requirements</b>	
<small>ENVIRONMENTAL</small> <b>Impact</b> $= 0$	<b>Team</b> $= 1$

» Change of  
**RULES & MINDSET**

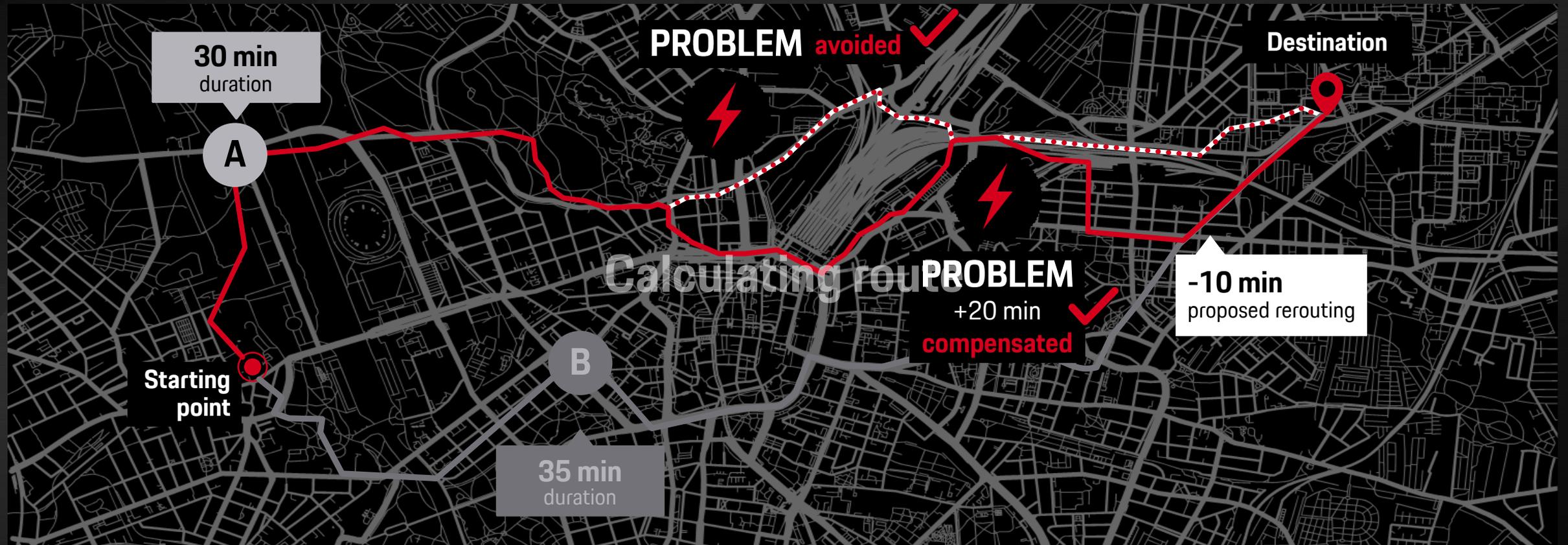


**NEW AUTO needs NEW PRODUCTION**

Paradigm shift of product & mobility requires a radical change in production!

What if...

...you could navigate through production like using google maps



# Porsche Production – We make dreams come true



## SMART.

We need to  
**think further**  
than just digitization & automation

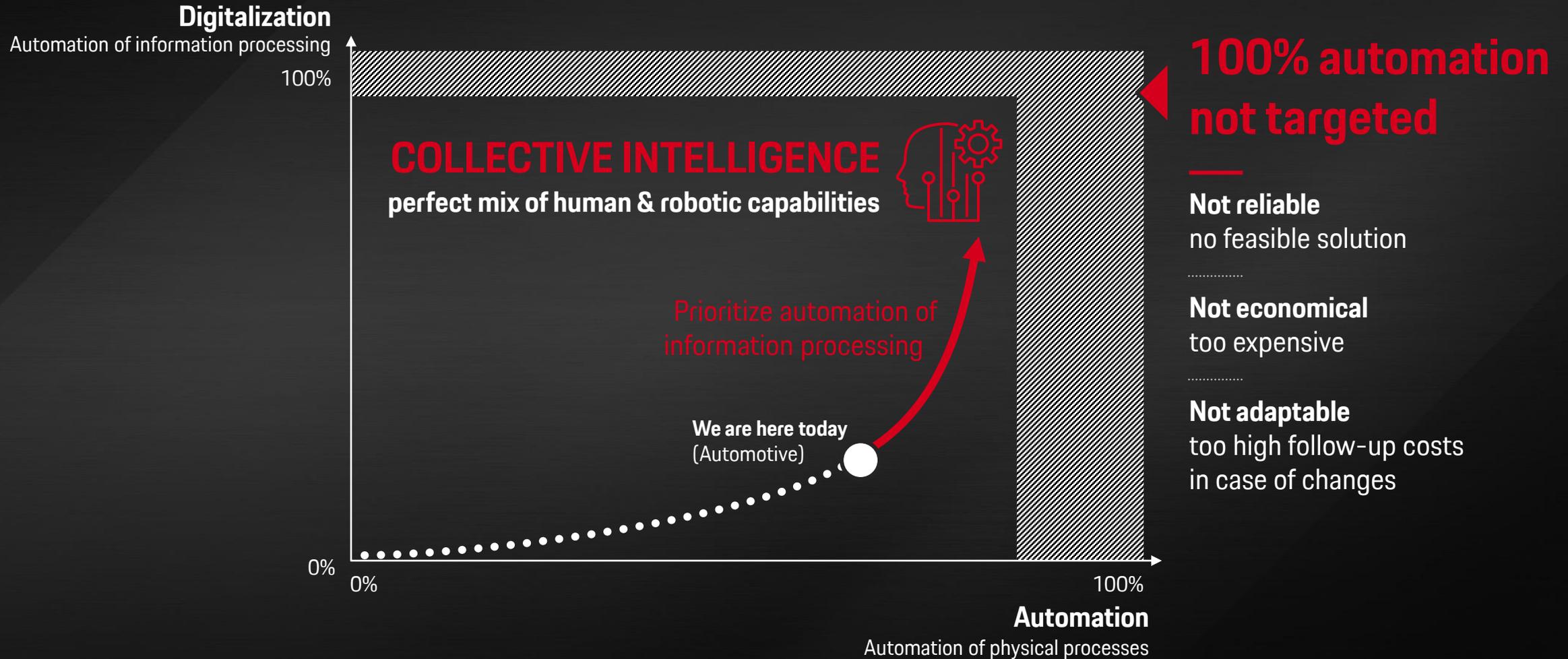
## LEAN.

Thinking lean is  
**our driver**  
for digital transformation

## GREEN.

Our vision of the  
**Zero Impact Factory**  
is being implemented

# We focus on digitization to maximize collective process efficiency



# Key strategic pitfalls and hurdles keeping companies from succeeding

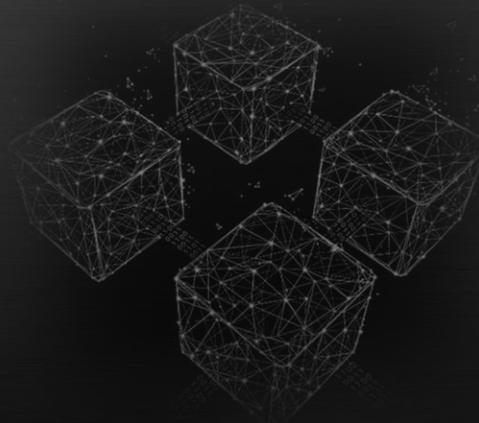
01

**Technology-driven approach without a clear target picture**



02

**Limited scaling within production network & supply chain**



03

**Missing commitment & consistent tracking of financial benefits**



COMMON PITFALL 01

# Technology-driven approach without a clear target picture



# Our Smart Factory transformation is driven by a clear vision



# We defined 10 design guidelines to achieve the vision

<p>01   Decisions</p> <p><b>Data-driven decisions</b></p> 	<p>02   Processes &amp; structures</p> <p><b>Versatile processes and structures</b></p> 	<p>03   Factory control</p> <p><b>Situationally adaptable factory control</b></p> 	<p>04   Staff assignment</p> <p><b>Self-reliant and flexible staff assignment</b></p> 	<p>05   Workstations</p> <p><b>Assisted and ergonomic workstations</b></p> 
<p>06   Means of production</p> <p><b>Connected, communicating means of production</b></p> 	<p>07   Resources</p> <p><b>Resource-saving processes and technologies</b></p> 	<p>08   Problem solving</p> <p><b>Problem solving with new technologies</b></p> 	<p>09   Qualification</p> <p><b>Proactive qualification and active regeneration</b></p> 	<p>10   Customer integration</p> <p><b>Transparent and tangible production for customers</b></p> 

Consistently available, secure and ready-to-use data

Lean, end-to-end planned production

# Target pictures with >200 use cases are our north star

>200  
USE CASES

## A Core factory processes

**Shopfloormanagement | „Selbstorganisierte und eigenverantwortliche Teams als Fundament der Smart Factory.“**

**Shop floor management** 29

**Instandhaltung | „Unsere Anlagen sind jederzeit für die Fertigung verfügbar!“**

**Maintenance** 26

## B Extended factory processes

**Fertigungsplanung | „Wir planen den Fertigungsprozess! Digital, Durchgängig, Effizient.“**

**Manufacturing planning** 21

## C Overarching & Supply Chain

**Porsche Intelligent Planning and Ordering | „Wir steuern die Prozesse vom Kunden-Bedarf bis zur Kunden-Auslieferung!“**

**Order management** 32

**Logistik | „Wir stellen die ressourceneffiziente Materialversorgung der Fertigung sicher.“**

**Logistics** 38

**Qualität | „Effiziente Q-Prozesse für die Smart Factory.“**

**Quality** 32

**Fahrzeug- und Fertigungssteuerung | „Automatisiert und ressourcennoptimiert geplant. Dynamisch und transparent gesteuert.“**

**Vehicle & factory control** 21

**Energie- & Umweltmanagement | „Mit ressourceneffizienter Produktion und verantwortungsvollem Handeln erreichen wir die Zero Impact Factory.“**

**Energy/Environment mgmt.** 25

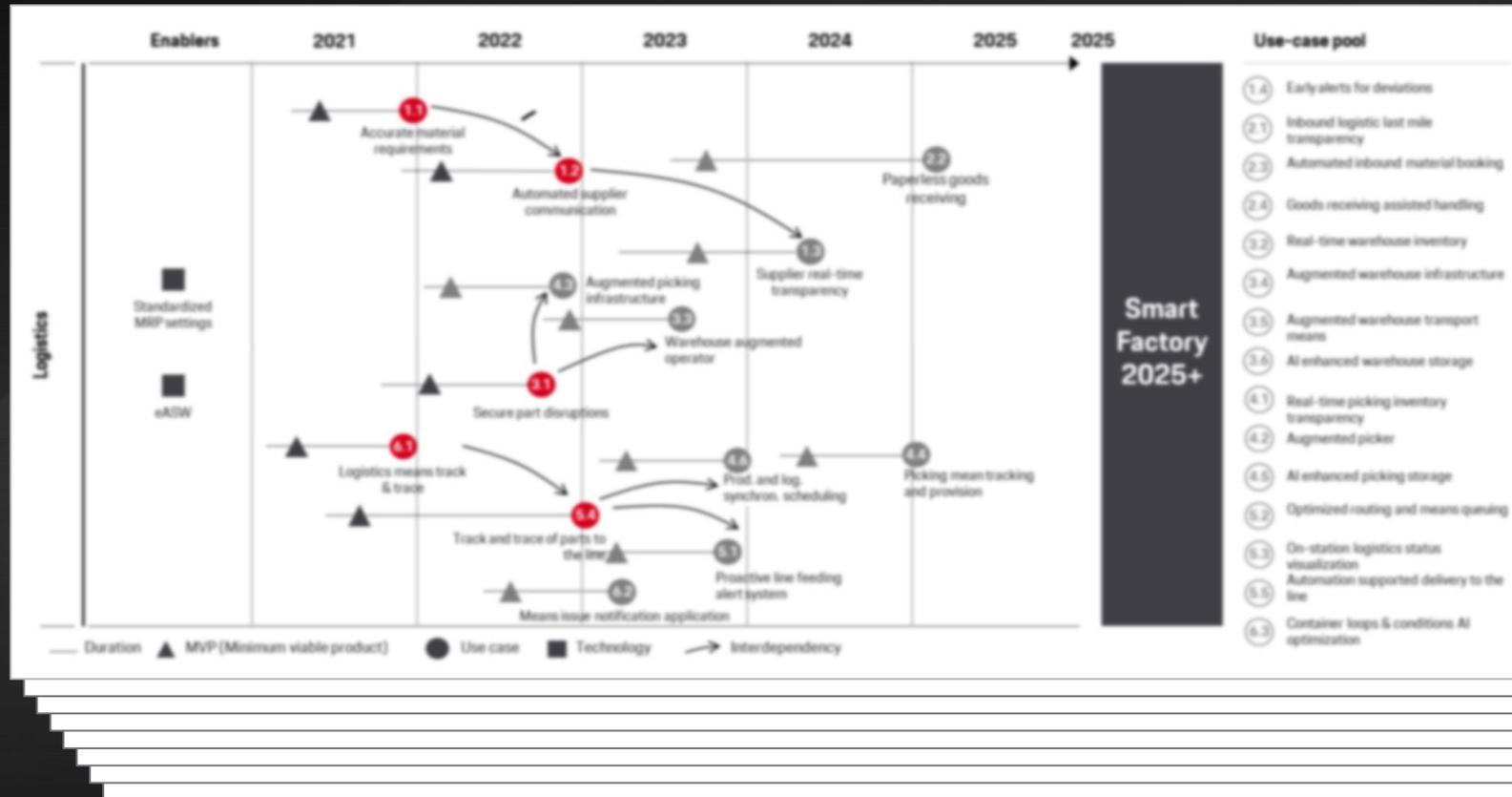
✓ Ensure link to business needs by tackling current pain points

✓ Create a single source of truth for digitization efforts

✓ Build the basis for use case prioritization

✓ Generate acceptance in the plants and central divisions

# Our roadmap sets priorities and shows dependencies



## Implementation roadmap

**8 Roadmaps** incl.

**> 200 Uses cases**

Sequencing & interdependencies

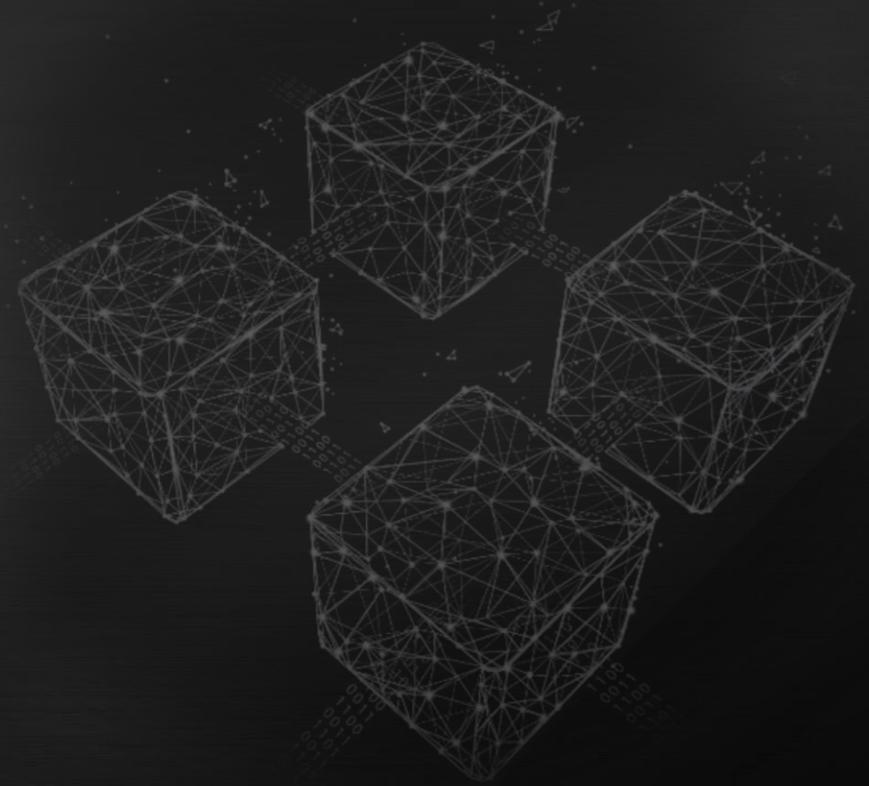
Prioritization

Business Cases

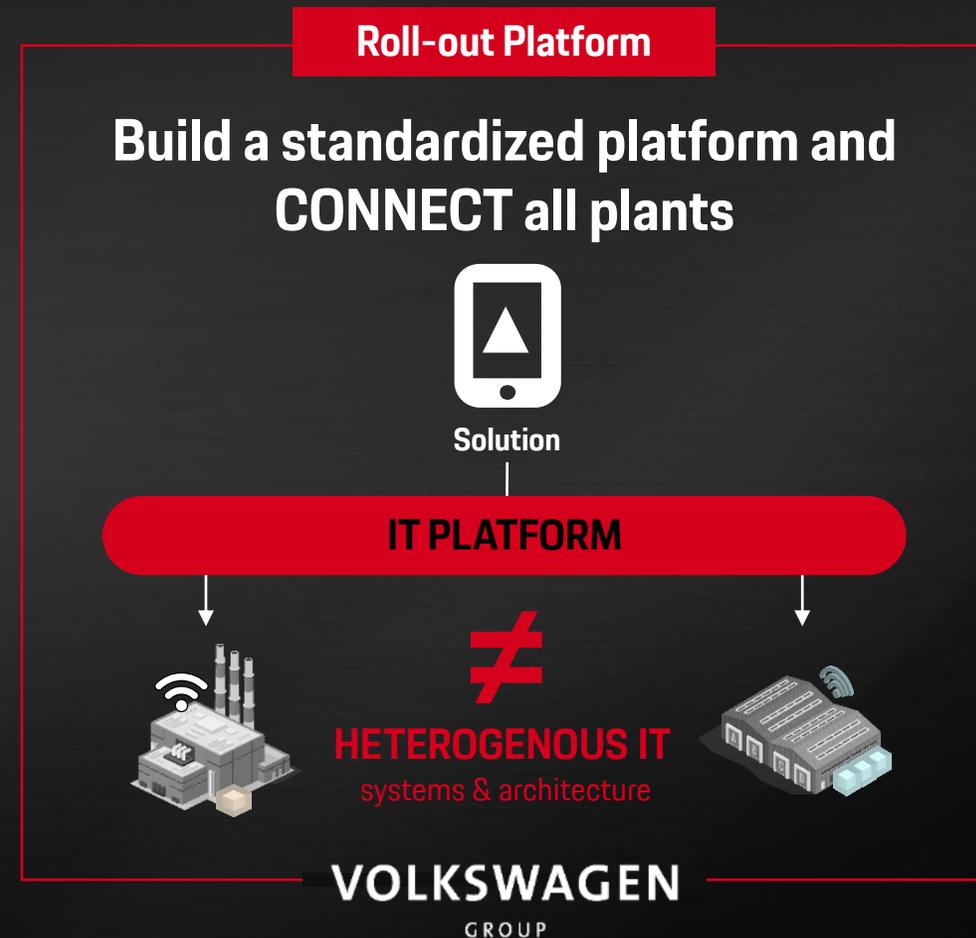
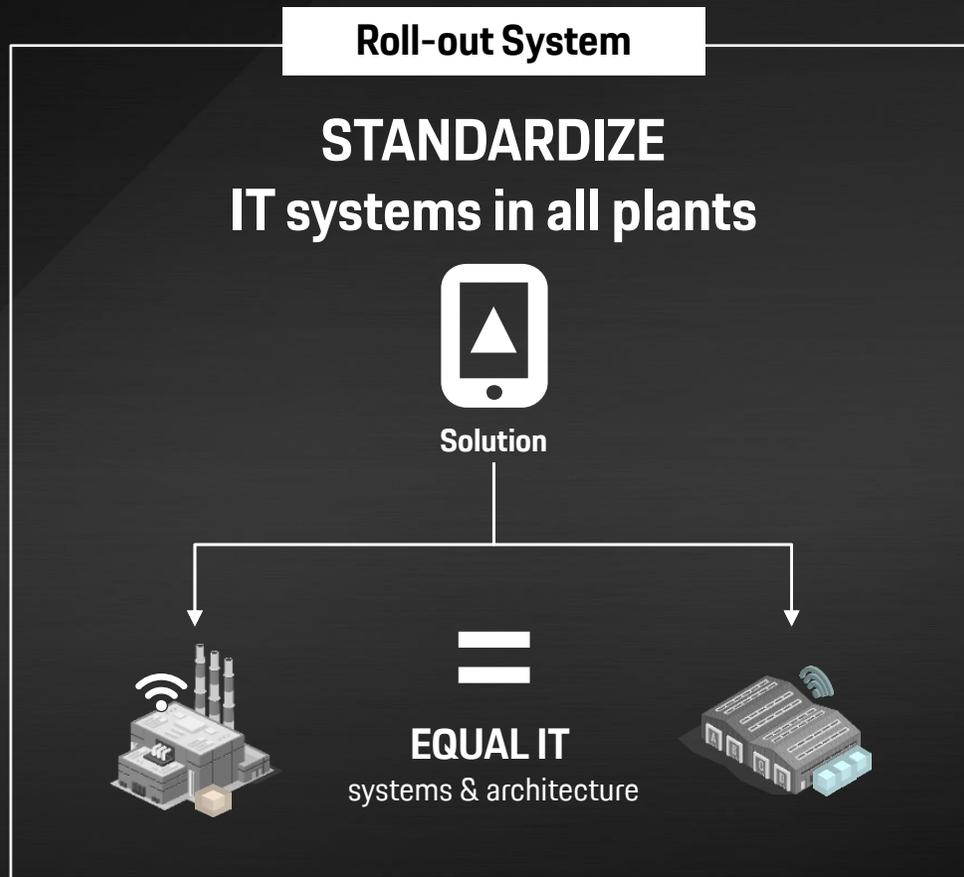
5-year scope

COMMON PITFALL 02

# Limited scaling within production network & supply chain



# You can choose two strategies to scale your solutions



# Volkswagen teamed up to build a cloud-based ecosystem

## The Volkswagen Industrial Cloud

in collaboration with



- Scalability
- Sustainable technology standards
- Implementation speed
- Flexibility
- Culture



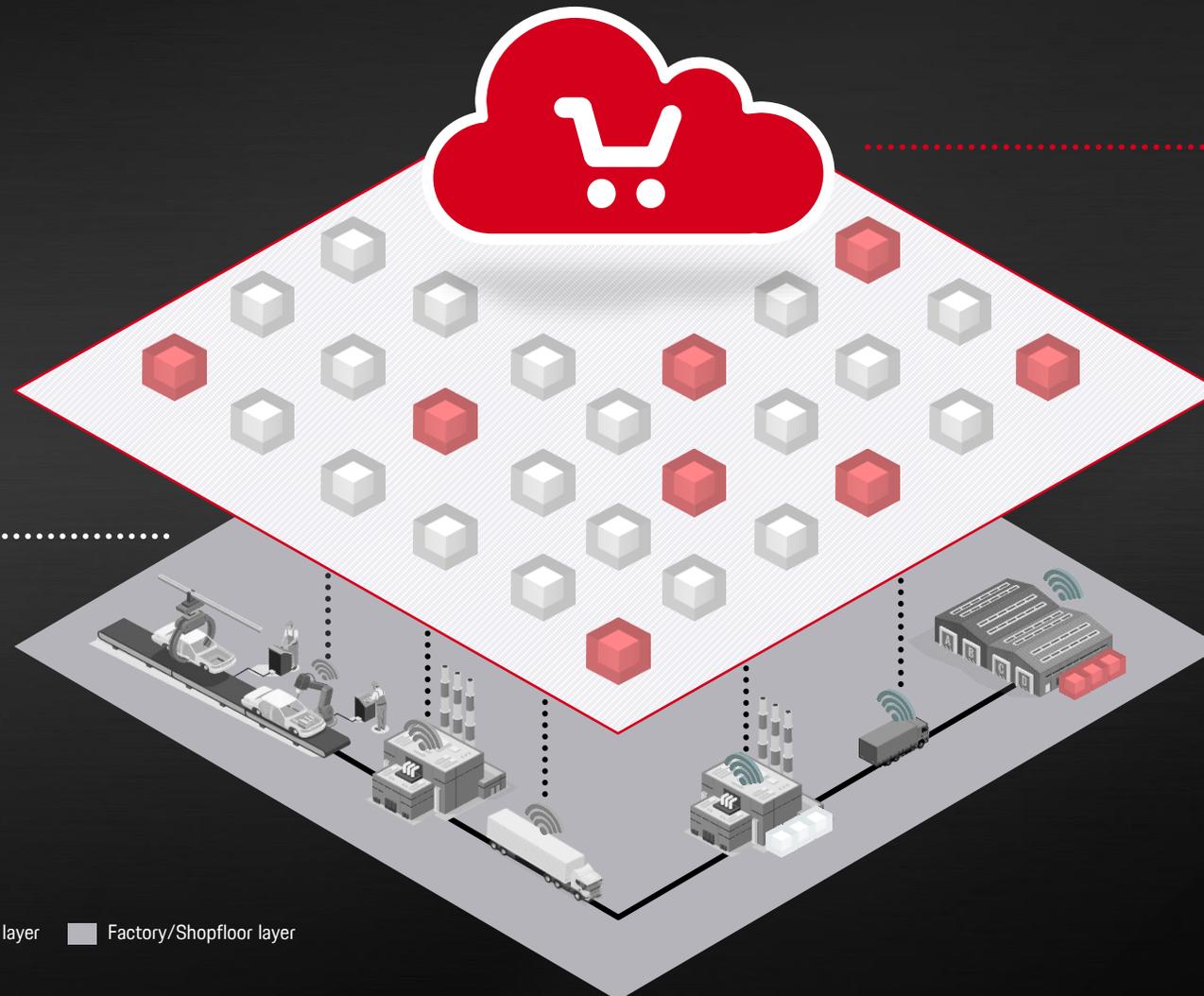
**"Today we launch a huge IIoT project to connect with >120 sites worldwide"**

(Martin Hofmann, CIO 2019)

# A platform accelerates scaling within your industrial ecosystem

## SMART FACTORIES

Digitalization and automation of processes within a factory



## INDUSTRIAL CLOUD

Platform with scalable use cases & services

Seamless connectivity of production equipment

Standards for data exchange

Implemented solution Offered solution Platform layer Factory/Shopfloor layer

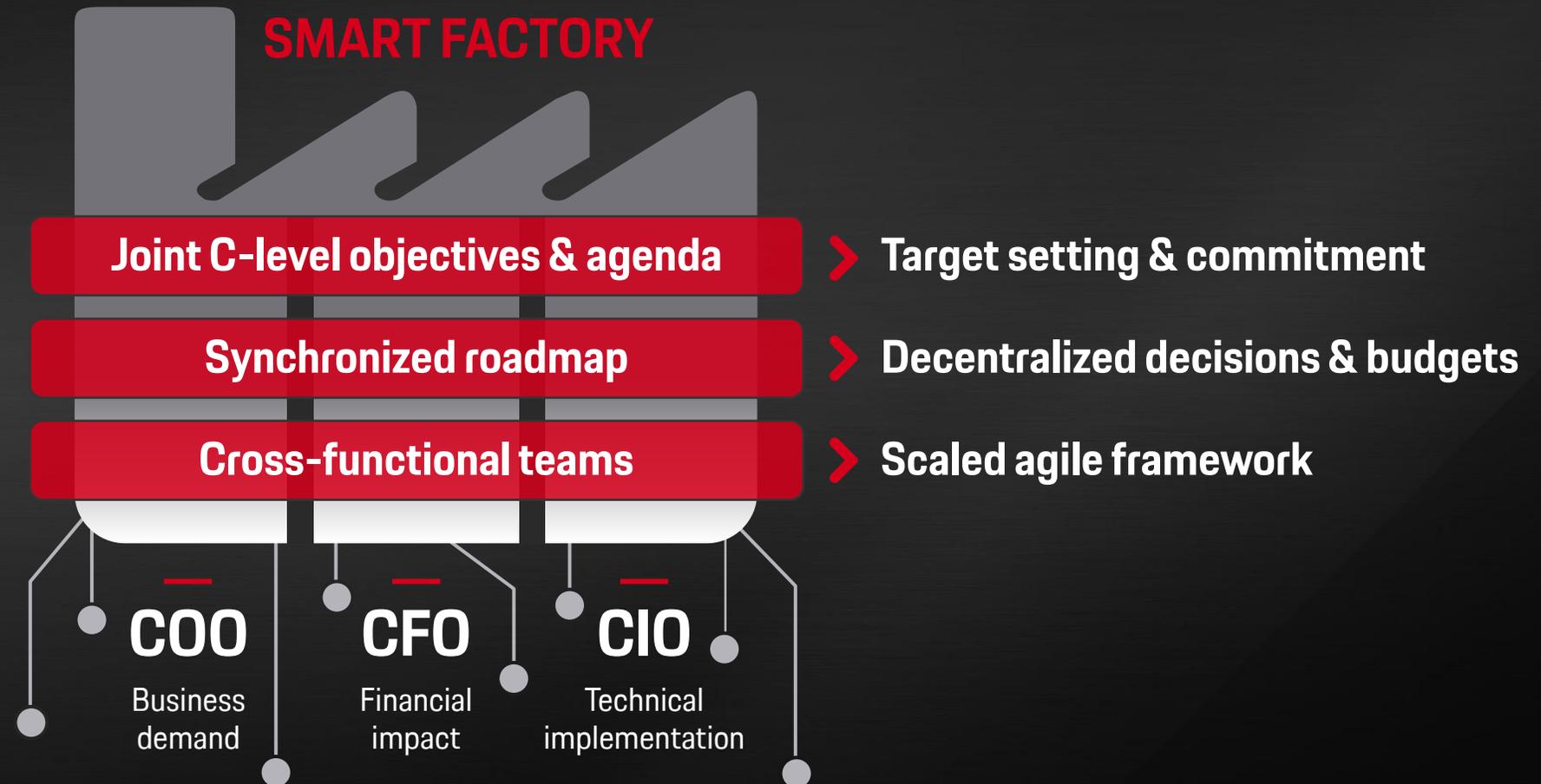
Source: Porsche Consulting

COMMON PITFALL 03

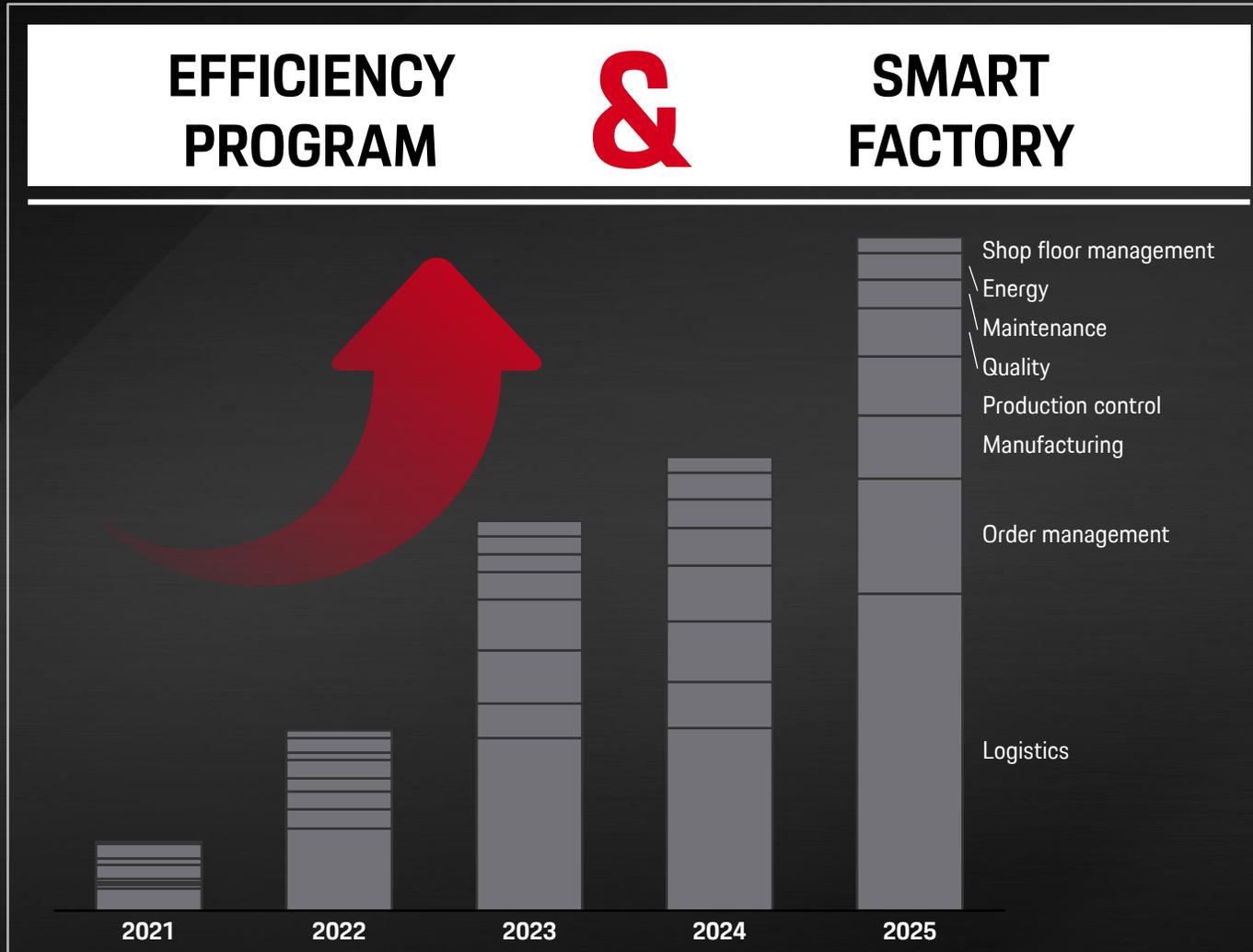
# Missing commitment & consistent tracking of financial benefits



# Our board members see the transformation as a joint approach



# Focus on the expected effects, not the solutions



## SAVINGS

1

Targeted benefits are confirmed by controlling



2

Results are bindingly tracked against budget

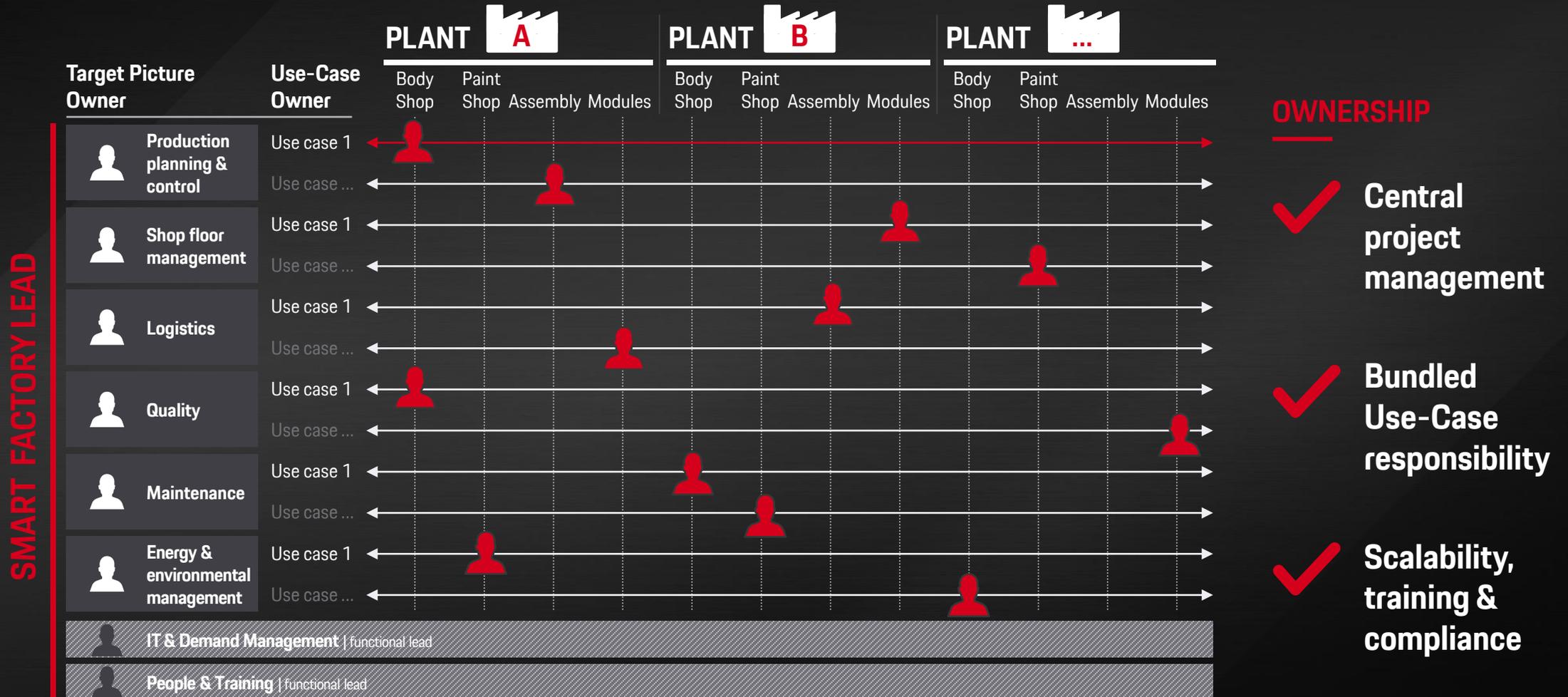


3

Benefits are realized  
e.g. through reduced budgets



# With clear owners who can manage and convince internal clients





SMART FACTORY TRANSFORMATION

Where to start...

# Four great steps to start or review your existing strategy

01

## Vision & Design Guidelines

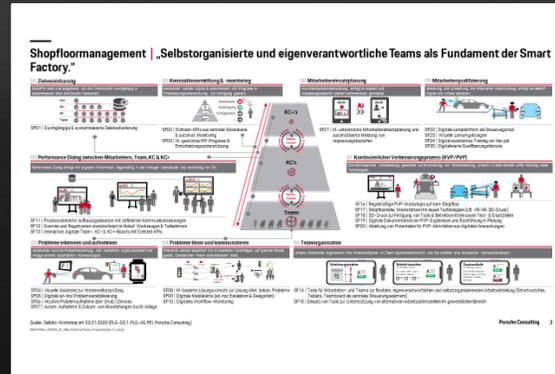
Clear vision with descriptive design guidelines for internal and external communication



02

## Process Target Pictures

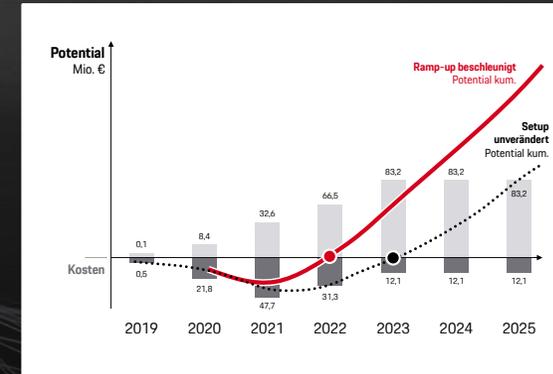
Clearly defined process target pictures for future process including their use cases



03

## Potentials & Business Case

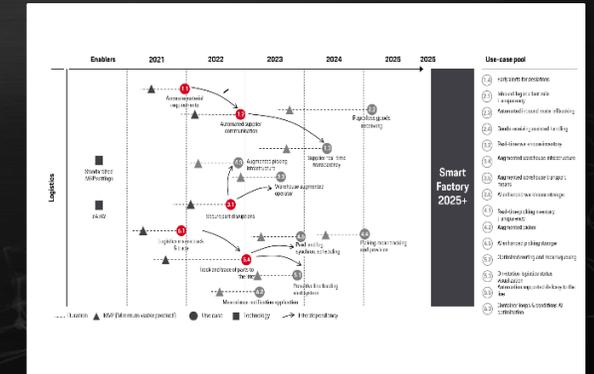
Estimated potentials e.g. on savings for factory costs or supply chain



04

## Implementation Roadmap

Prioritized use cases including dependencies allocated in an implementation roadmap



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**We are happy to answer your questions and to stay in contact**



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Production 4.0 | Smart Factory



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