

Business Transformation for SW-Defined Vehicles

prostep ivip Tokyo SE Summit
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Agenda

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SDV Introduction

02

Business Transformation

03

SDV Product Transformation

04

Engineering Transformation

05

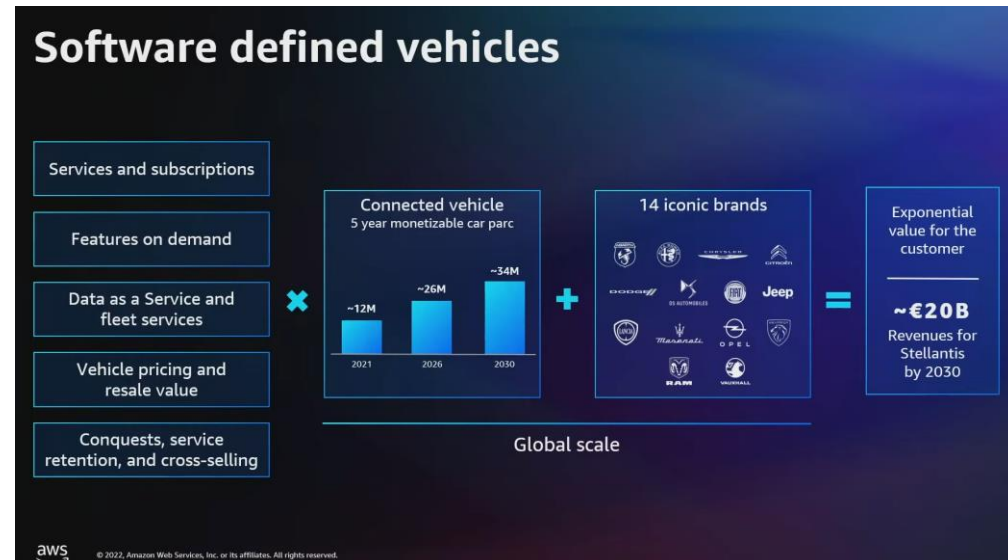
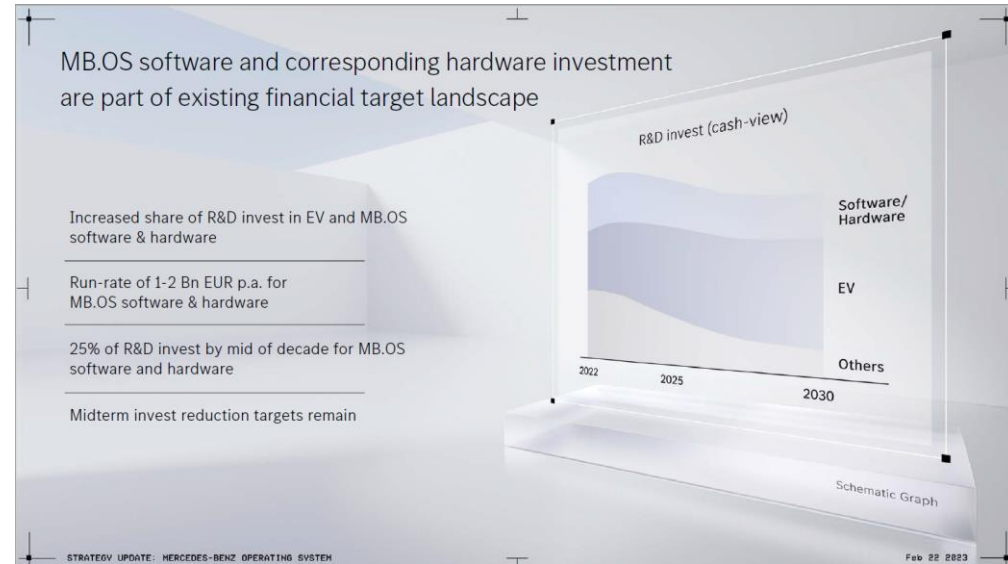
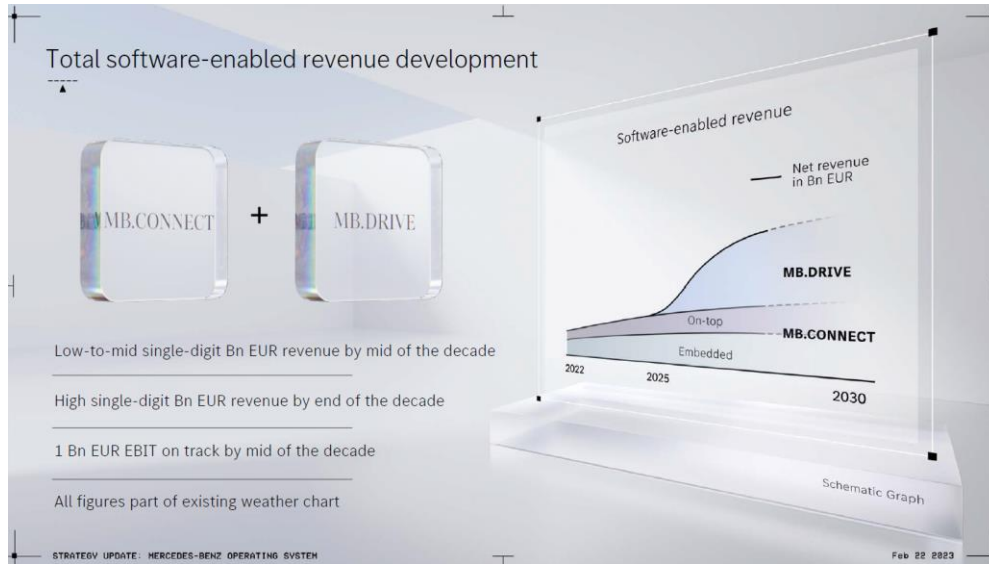
Transformation Management

06

Summary



The SDV business case: additional software-enable revenue over the lifetime from a large fleet of connected vehicles



The SDV operates in a system-of-systems context and requires transformation of business capabilities and engineering processes / methods / tools




Context

System of Systems

Smart City	Environment / Sustainability	Society	Economy	...
V2X	Charging	Parking	Mobility	...

Business Transformation

SDV

 Incar		 Network	 Backend	
Incar Apps	Connectivity	<- Service	Edge	Cloud Apps
Middleware		<- OTA		Middleware
OS		Data ->		OS
E/E (HPC)		...		E/E (virtual ECU)

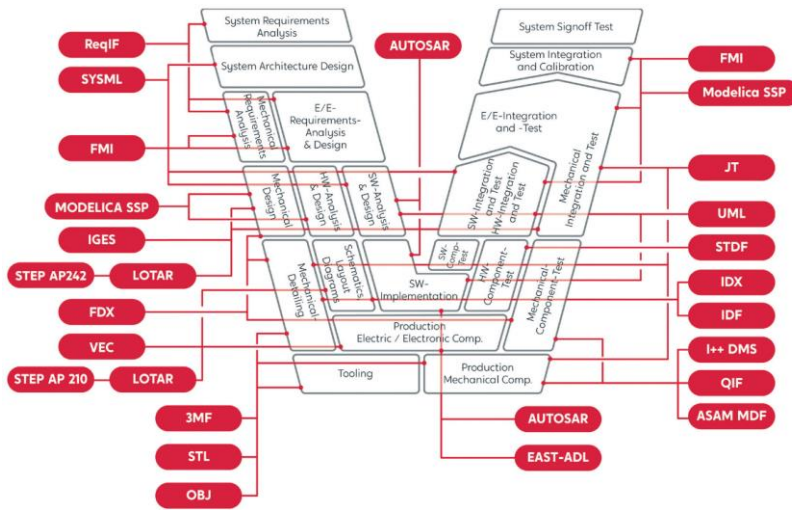
SDV Product Transformation

Engineering

Business Model Innovation SoS	MBSE & Agile	Cloud-native Toolchain	Data-driven engineering	...
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Engineering Transformation

Standards allow for flexible business model innovation through decoupling of domains and layers

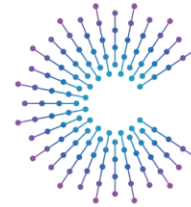


prostep ivip SSB
Standardization Strategy Board

&



digital.auto



COVESA

Accelerating the future of connected vehicles



SOAFEE

AUTOSAR



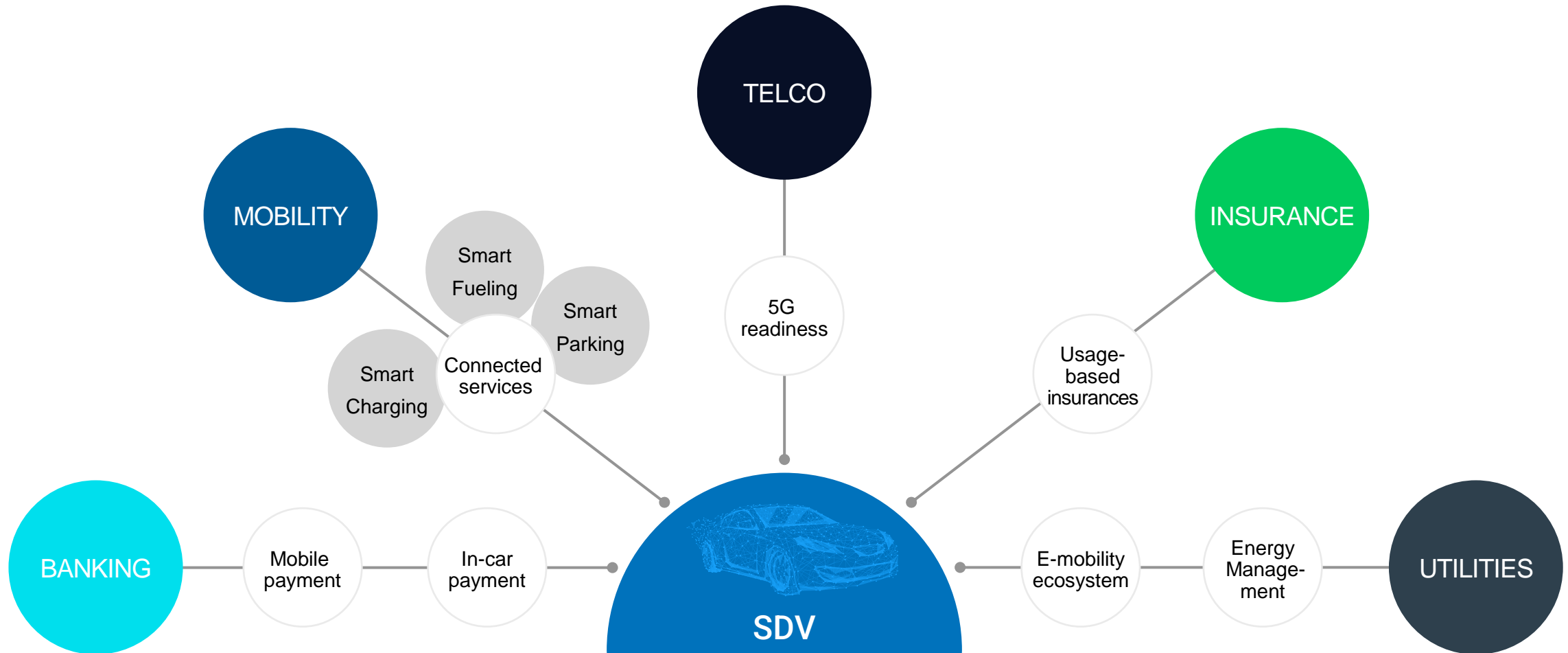
**AUTOMOTIVE
GRADE LINUX**



SDV initiatives

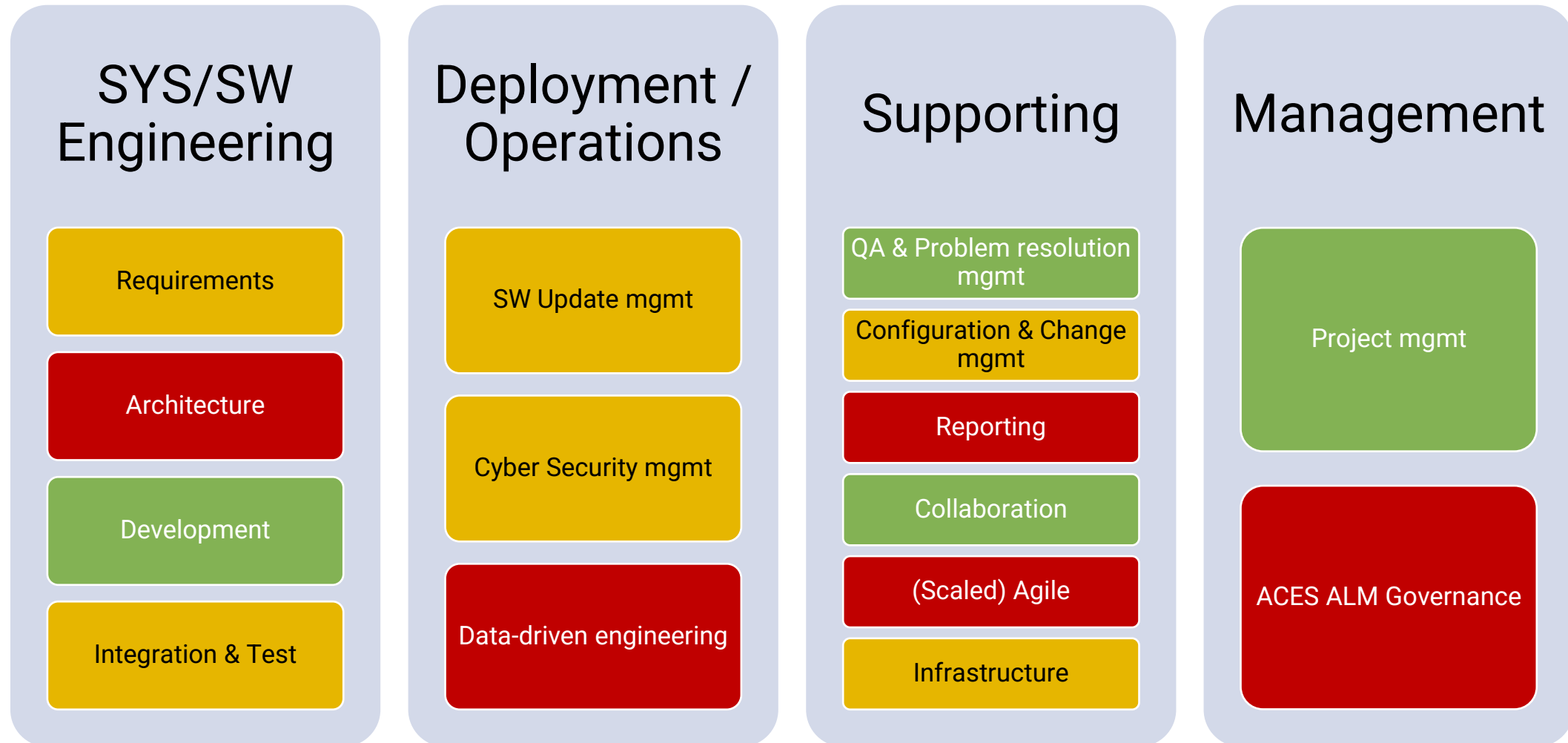
Product Development in a System of Systems

Business
Transformation



SDV requires new business capabilities

**Business
Transformation**



NTT DATA ACES ALM Business Capability Model (Layer 1 + 2)

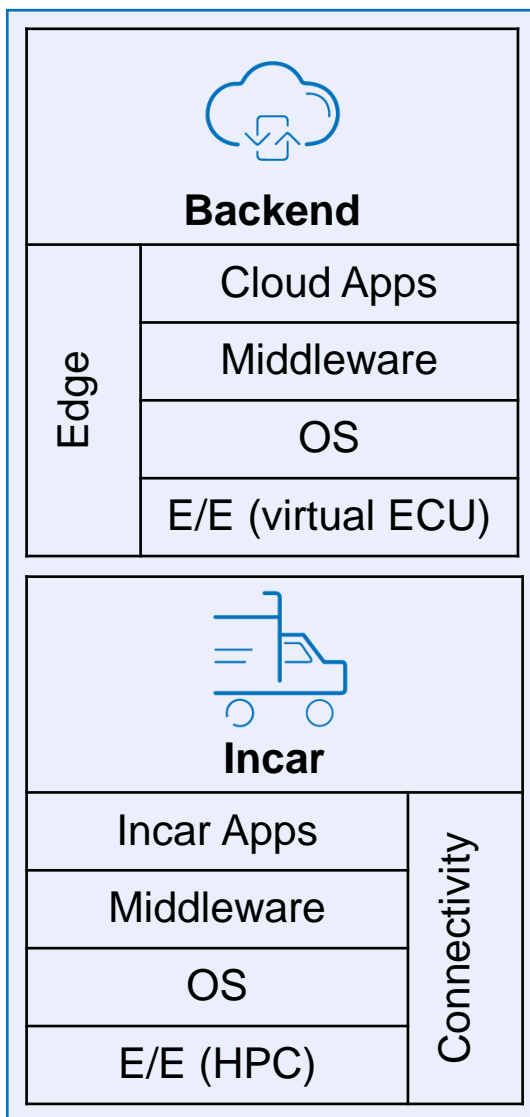
Acceleration through shifting of software-based functions into upper layers of the stack

Shift North

to Cloud

to Edge

to HPC
from Chip



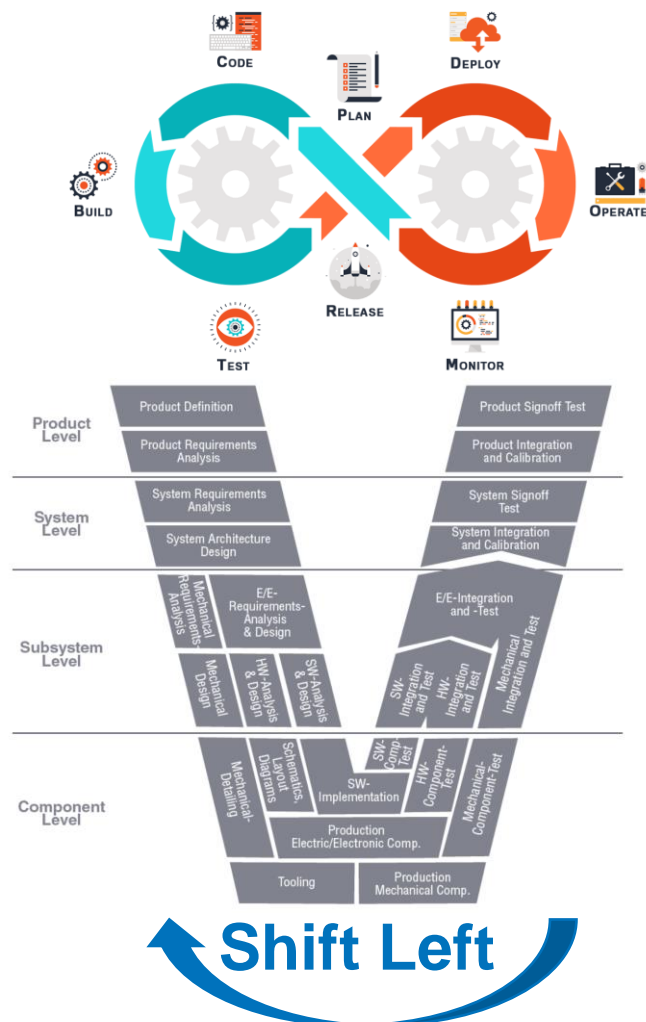
Hardware /
Software
separation and
abstraction

Distributed
federated
computing
models

Standardized
platform
architecture

Seamless digital
user experience
across channels

Acceleration through shifting of activities to earlier phases of the engineering process



Virtualization

(MB)SE

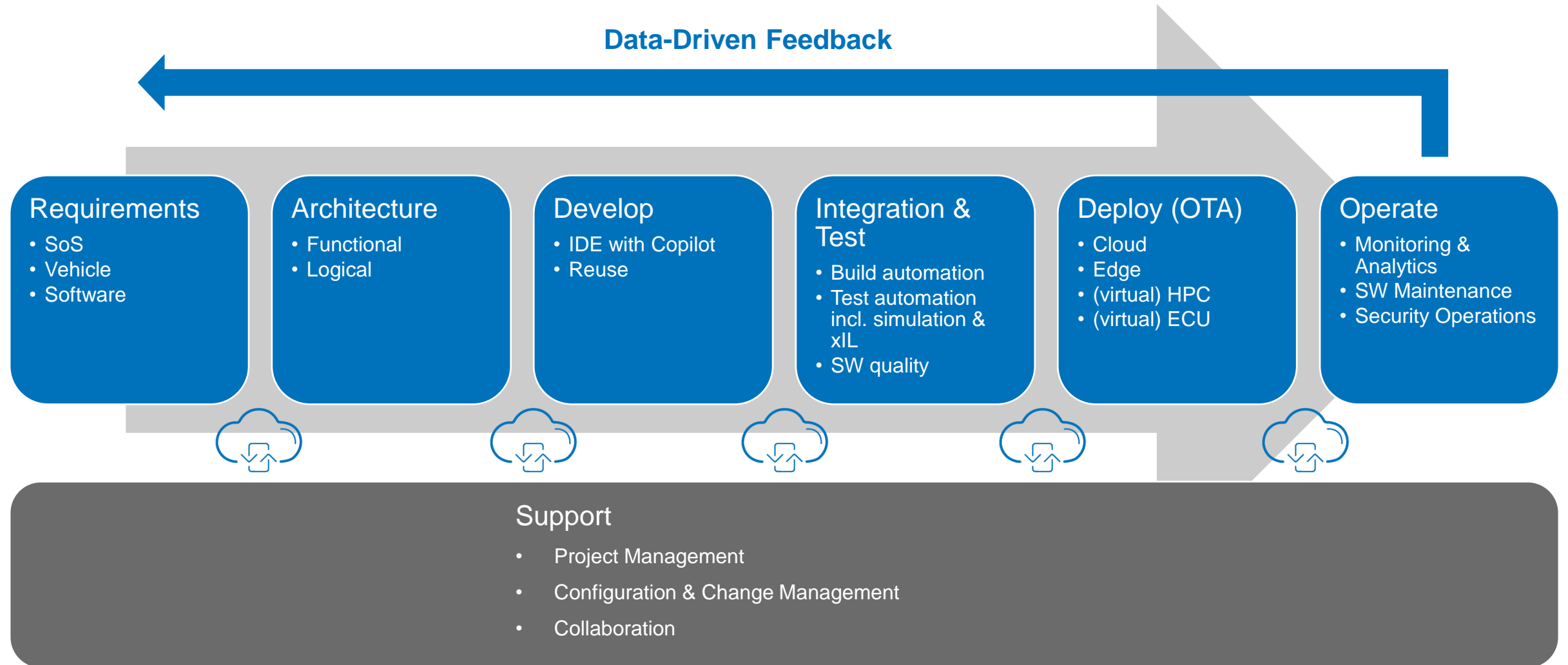
Data-driven
engineering

Digital-first

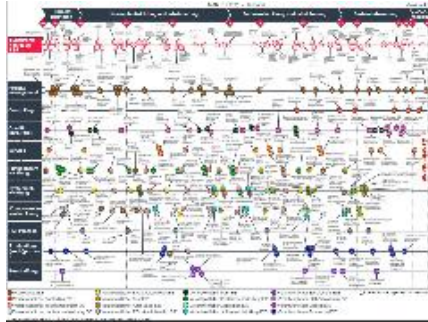
Security &
Compliance
by Design

Platforms &
Modular
Architectures

Integrated, Cloud-Native DevOps Toolchain



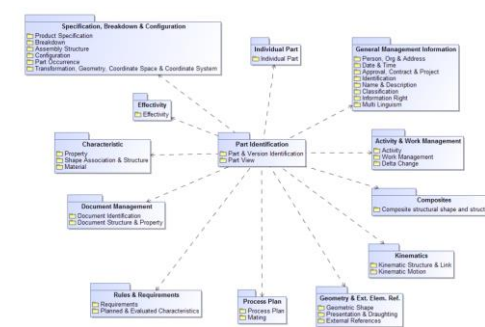
Enterprise Architecture Management supports a holistic transformation of the business capabilities for SDV



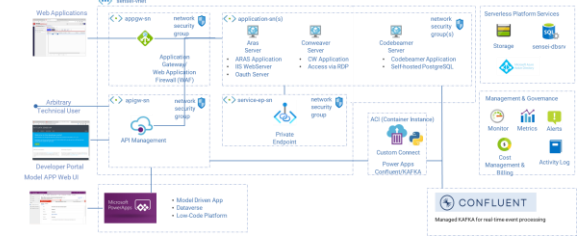
Processes / Methods



Applications

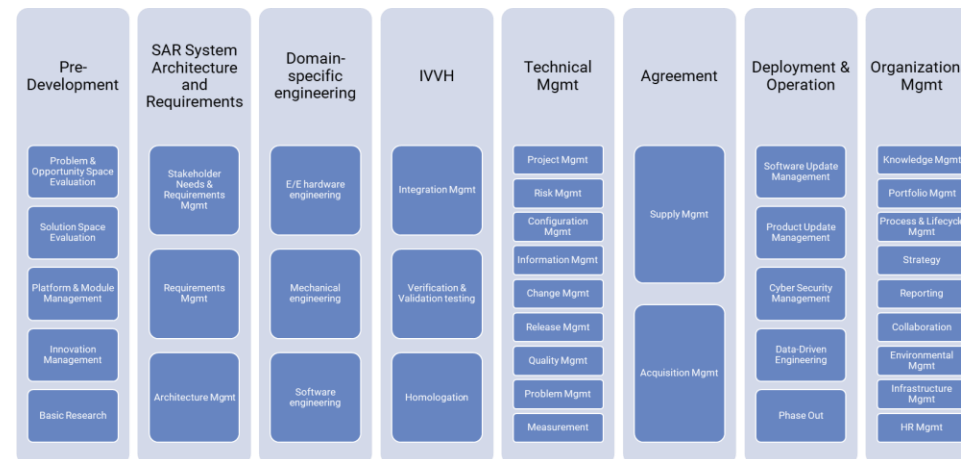


Business Objects



Technology

Mapped to



Business Capabilities

Summary



Business Case

SDV promises
software-enabled
revenue

Transformation
requires massive
invest

Shift North

Decoupling of SW
and HW

Chip-to-Cloud
Architecture

Standards

Standards and open
source allow for
flexible business
model innovation

Shift Left

Virtualization
Cloud-Native
DevOps Toolchain

(MB)SE

Systems engineering
supports system-of-
systems development

Addition of agile
methods

Transformation

Enterprise
Architecture
Management
supports a holistic
transformation of the
business capabilities
for SDV

NTT Group at a glance

Facts and Figures

\$108B

in total revenue 2021



\$3.6B

R&D investment with

330,000+

Employees worldwide 2021



5,000

dedicated R&D professionals

NTT Group

supports customers in their transformation through consulting, industry solutions, business process services, IT full stack services, including application development, managed ICT, through their companies worldwide

80+

Countries & regions



>75% of **Fortune Global 100 companies** choose NTT

Top 5

Global IT Service Provider



#2

in global data center sites

#1 **Customer satisfaction**

In Whitelane study
(five times in a row)



NTT DATA Global Engineering At a Glance

~500



Consultants with Engineering focus

Locations



Germany, Spain, Italy

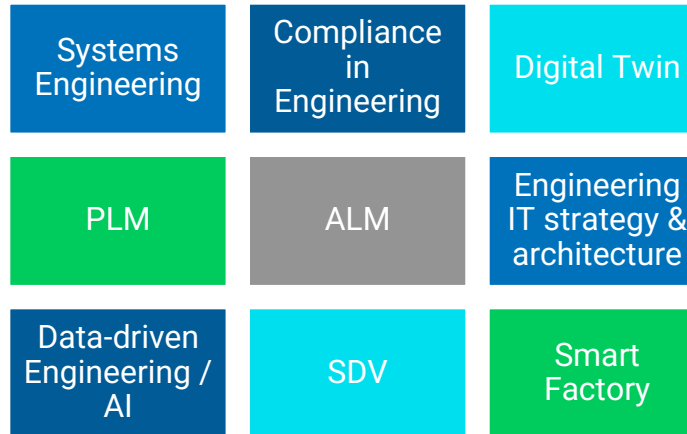
Japan, India, China

> 100



Mio € IT + consulting
revenue per year

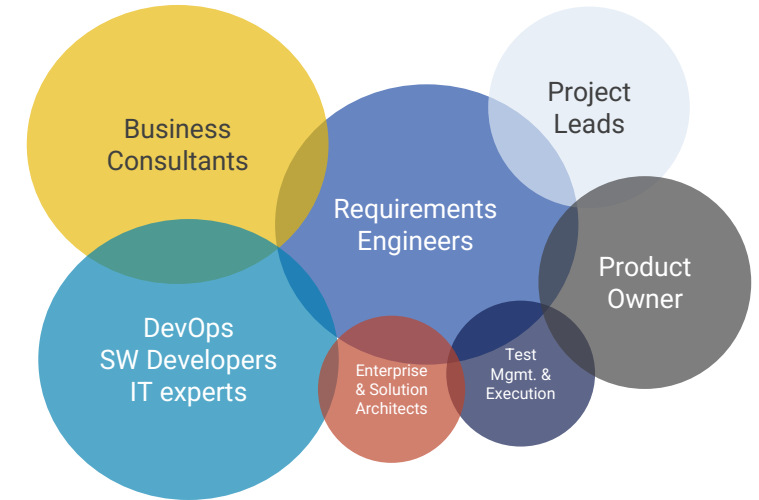
Focus topics



Key clients



Key skills



Partners

Partner Company	Focus
Dassault	3DExperience PLM
PTC	Codebeamer ALM
Siemens	Teamcenter PLM *
Aras	Innovator PLM
Atlassian	ALM
Collaboration Factory	cplace Project Management
LeanIX	Enterprise Architecture Management
Conweaver	Enterprise Knowledge Graph
Azure, AWS	Public Cloud

* Frame contract



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Automotive & Manufacturing - Engineering

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