

# DIGITALIZATION@BMW: FOCUS AI.

AKWI JAHRESFORUM: 2024-09-09.

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# 01 Introduction.

SETUP @ BMW GROUP –  
CORPORATE PROCESSES

IN 2023 THE BMW GROUP EXECUTED THE BIGGEST TRAININGSINITIATIVE IN ITS HISTORY: THE „DIGITAL BOOST“.



**Data &  
Analytics**



**Künstliche  
Intelligenz**



**Nachhaltigkeit  
& Technologie**



**Cloud**



**IT-  
Sicherheit**



**Extended  
Reality  
& Metaverse**



**Kunde**



**Prozess-  
digitalisierung**

Worldwide more than 80.000 Employees have participated this Base Training of Digitalization and so got a common Understanding of Digitalization.

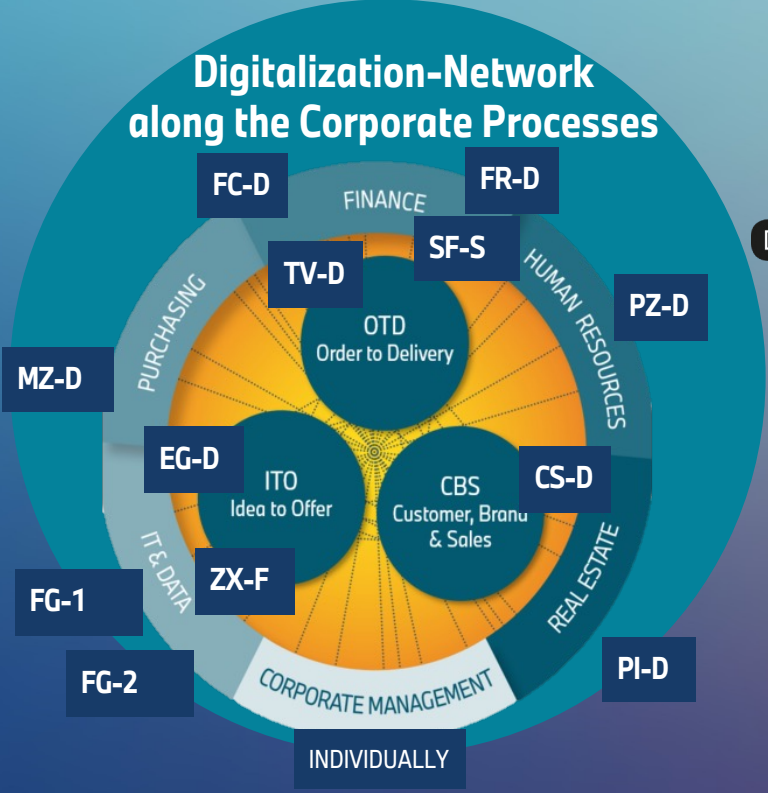


# TO FURTHER BOOST THE DIGITALIZATION THE BMW GROUP ESTABLISHED FURTHER STRUCTURES AND A STRATEGIC FRAME WORK.

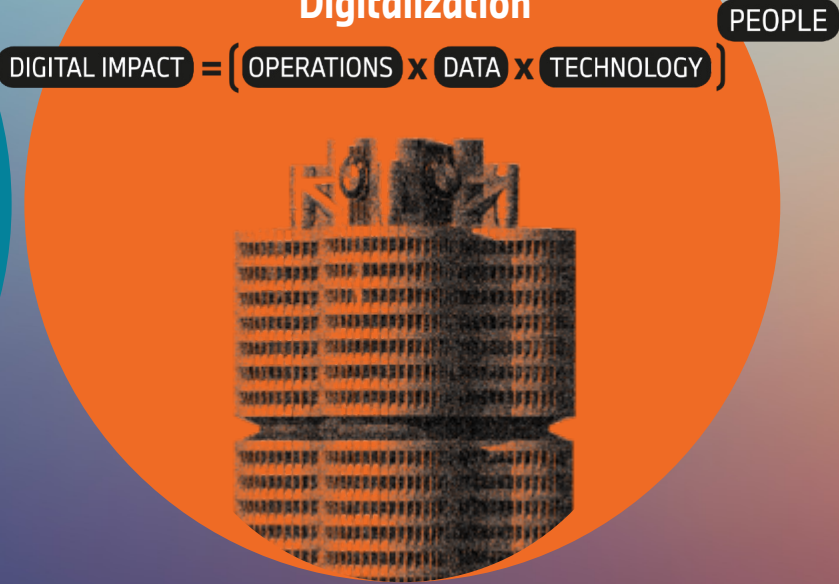
## Board Committee Process & Digitalization



## Digitalization-Network along the Corporate Processes

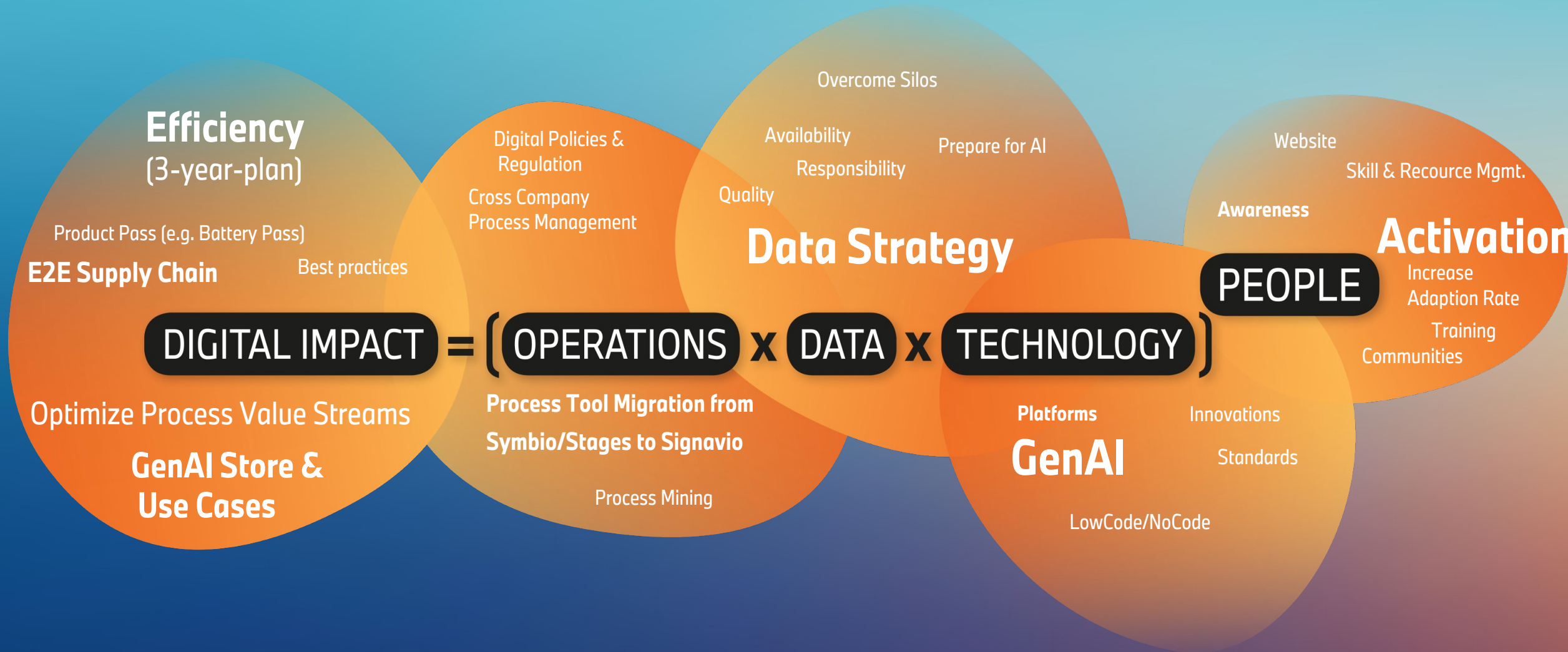


## BMW GROUP Strategic Framework for Digitalization





# THE FORMULA FOR #DIGITAL IMPACT – THE BMW GROUP WAY OF DIGITALIZATION.



The target is, that all BMW Associates are enabled to recognize and realize Potentials from Digitalization in their environment as well as to prepare the BMW Group in advance for the upcoming next steps.

# EXPONENTIAL TECHNOLOGIES VS. INCREMENTAL HUMAN & SOCIETAL DEVELOPMENT. WE HAVE TO KEEP OUR ASSOCIATES CLOSE TO THE TECHNICAL DEVELOPMENT

Development / Change

## EXPONENTIAL TECHNOLOGIES

(Computing: AI, Human Genom, Renewable Energie,  
Additive Manufacturing)

exponential  
**TECH CHANGE**

linear  
**SOCIETAL CHANGE**

If the GAP gets to big,  
it can create **fear**  
**and rejections**

Time / Velocity

"We need to find ways of  
managing the new realities of a  
world where technologies  
change as rapidly as they do."

*Azeem Azhar*  
Futurist





# 01 AI @ BMW.

AND THE FORMULA.



# THE BMW GROUP UTILIZES THE FULL POTENTIAL OF **ARTIFICIAL INTELLIGENCE** IN ITS **PRODUCTS** AND **PROCESSES**.

## Artificial Intelligence

Systems imitating human capabilities.

Examples: Expert systems

## DEEP LEARNING

Multilayer neural networks learn complex patterns from large amounts of data.

Example: Visual quality checks

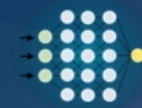


## GENERATIVE AI

Deep learning method for generating new content such as text, images, audio and code.

Example: Vehicle expert, hyper-personalized marketing.

„Image of a yellow BMW“



Input „prompt“

Generative AI

Content

## AGENTIC AI

AI agents, large multimodal models, and action models continue to advance the capabilities of AI.

Examples: post-smartphone, humanoid robots



1956

Origin of the term  
"artificial intelligence"

2015

First AI

2010

Multilayer  
neural networks

2017

BMW Group Data

2019

Data Transformation

2021

AI Platform

2022

Release of Chat GPT  
up to 1 million users in 5 days  
iPhone Moment AI

2022

AI am BMW

2023

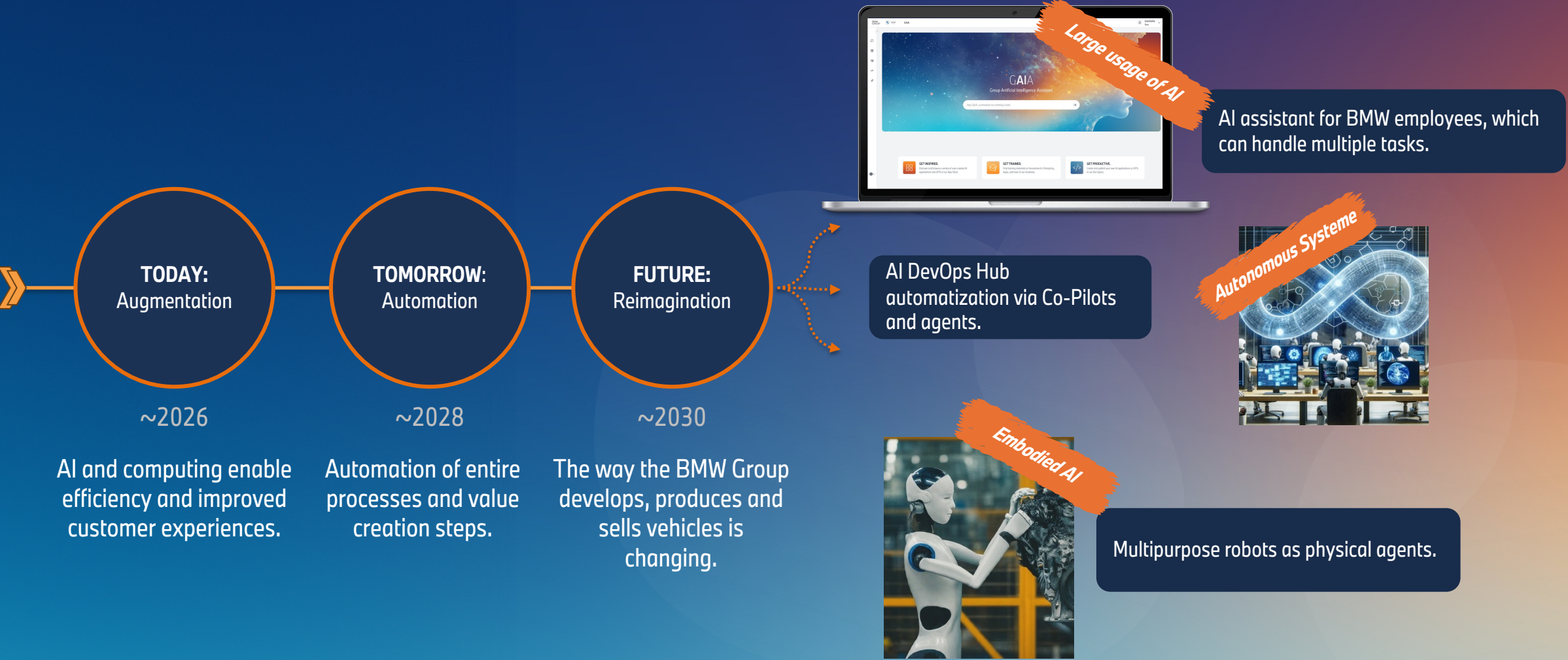
Digital Boost  
Genext

2024 & Beyond

Scale AI across platform,  
app store, and low-code



# WE ARE ONLY AT THE BEGINNING! AI IS DRIVING OUR DIGITAL TRANSFORMATION FORWARD.





# GEN AI TRANSFORMS THE KNOWLEDGE WORK IN OUR PROCESSES LEVERAGING PROMISING EFFICIENCIES.



83% of the the evaluated Use Case are localized in seven areas

...& more areas to use Gen AI.



# USE CASE "1:1 TEXT GENERATION": GENERATIVE AI IS USED TO PROVIDE NEW TEXTS IN OUR APPS.

GenAI-based Content in our Apps  
already sent to customers

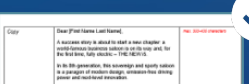
Already contained:



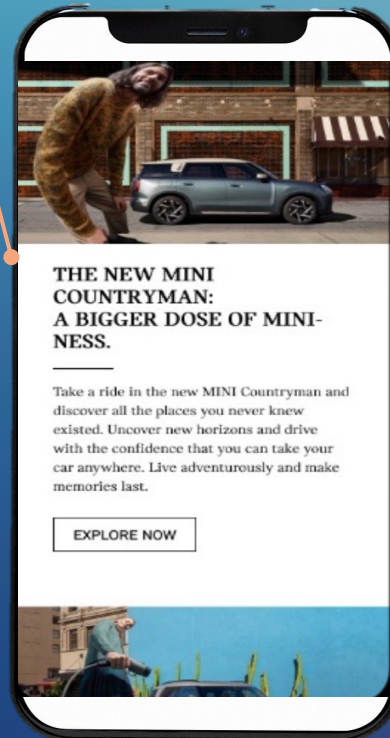
Marketing Guidelines.



Tonality & Style.



Past Marketing texts.



MARKETINGTEXTE  
ERSTELLEN MIT GENEXT -  
ERKLÄRT IN 2 SEKUNDEN

CREATE

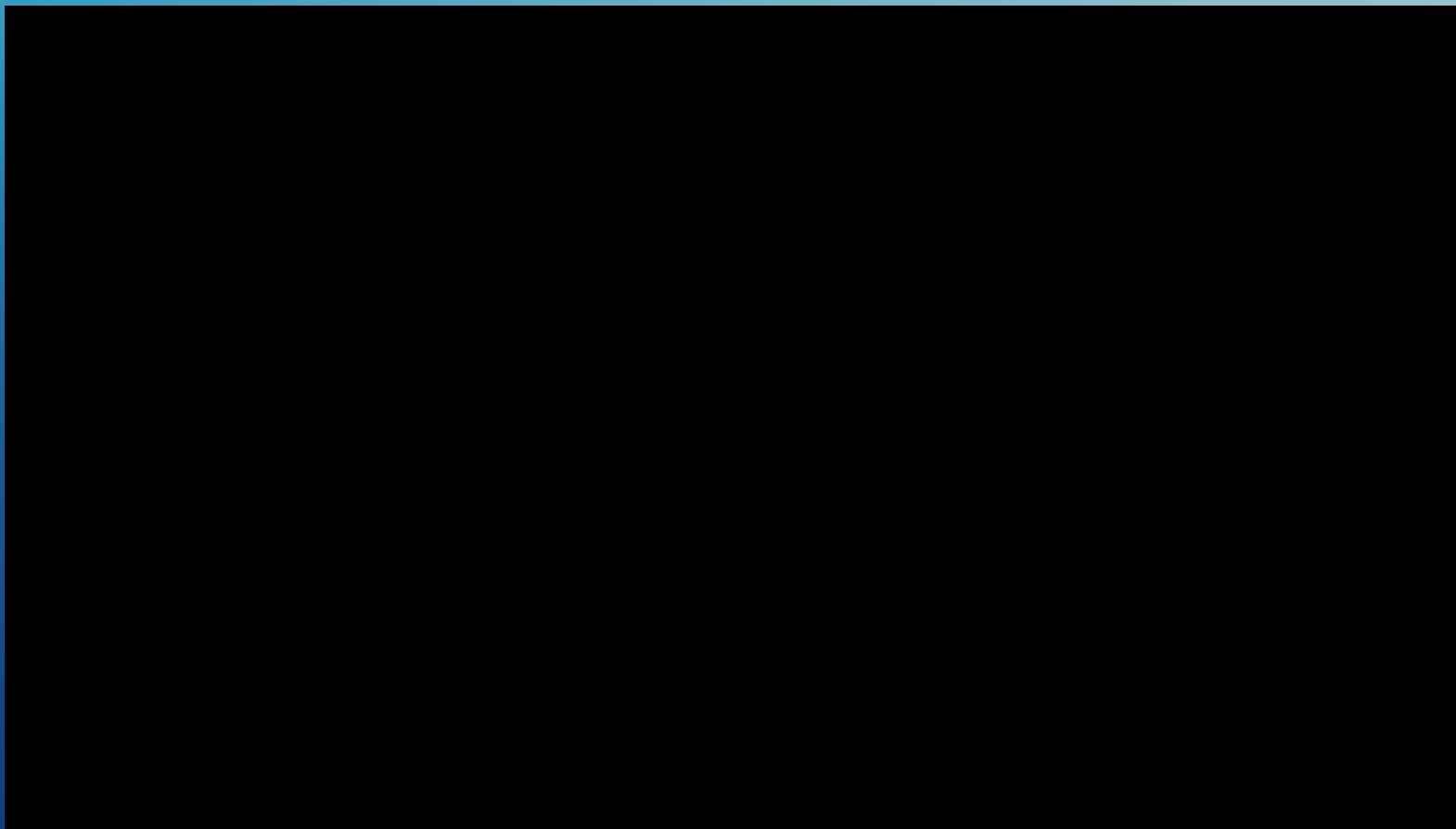
~ **66%** time saved  
→ Creation takes **2 weeks**  
instead of **6 weeks**

**Efficiency gains on  
the agency side. →**  
Reduction of external  
services.



# MANAGEMENT & SUPPORT: TENDER ASSISTENT

## SUPPORTS AND GUIDES OUR PURCHASING & BUSINESS DEPARTMENT CREATING A TENDER DOCUMENT.



**Hinweis:** Erste Einschätzung auf Basis von Einzelgesprächen, Effizienzsteigerungen hängen stark von Komplexität der Ausschreibung und Erfahrung des Benutzers ab.























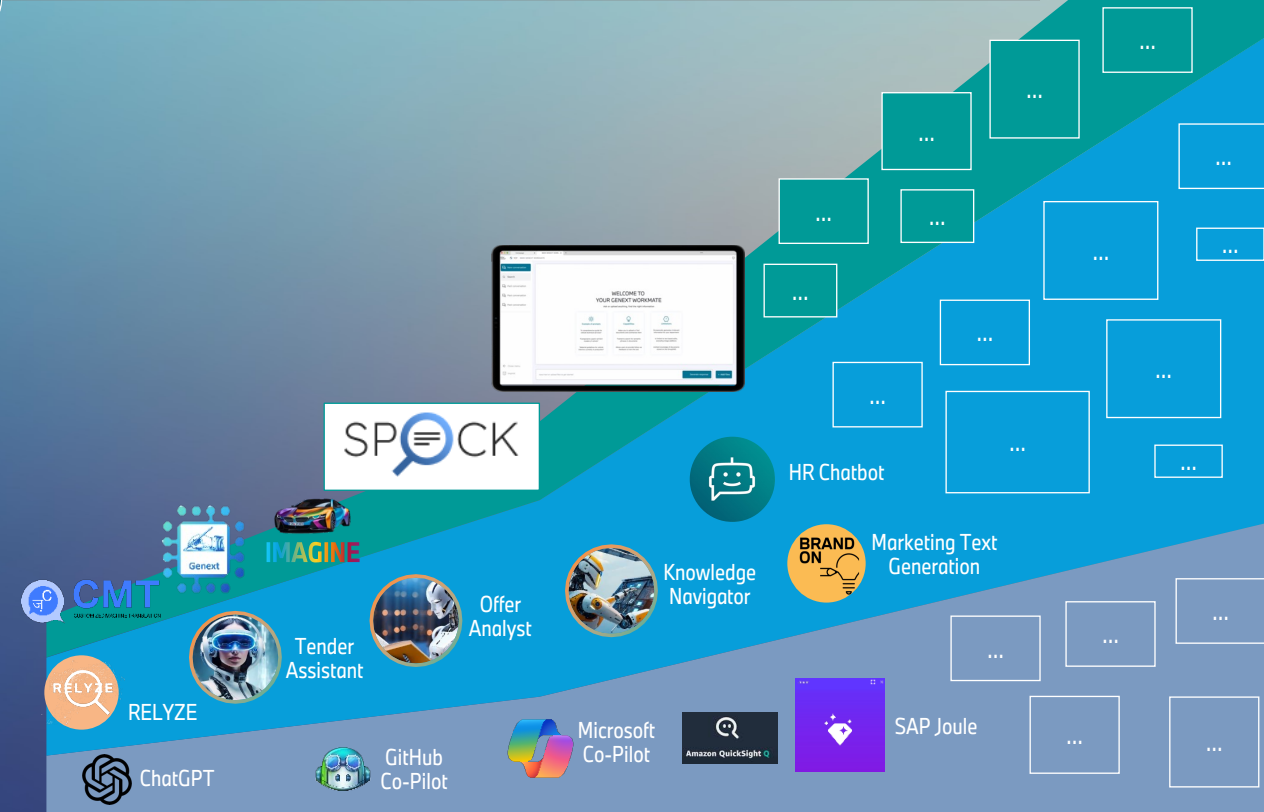
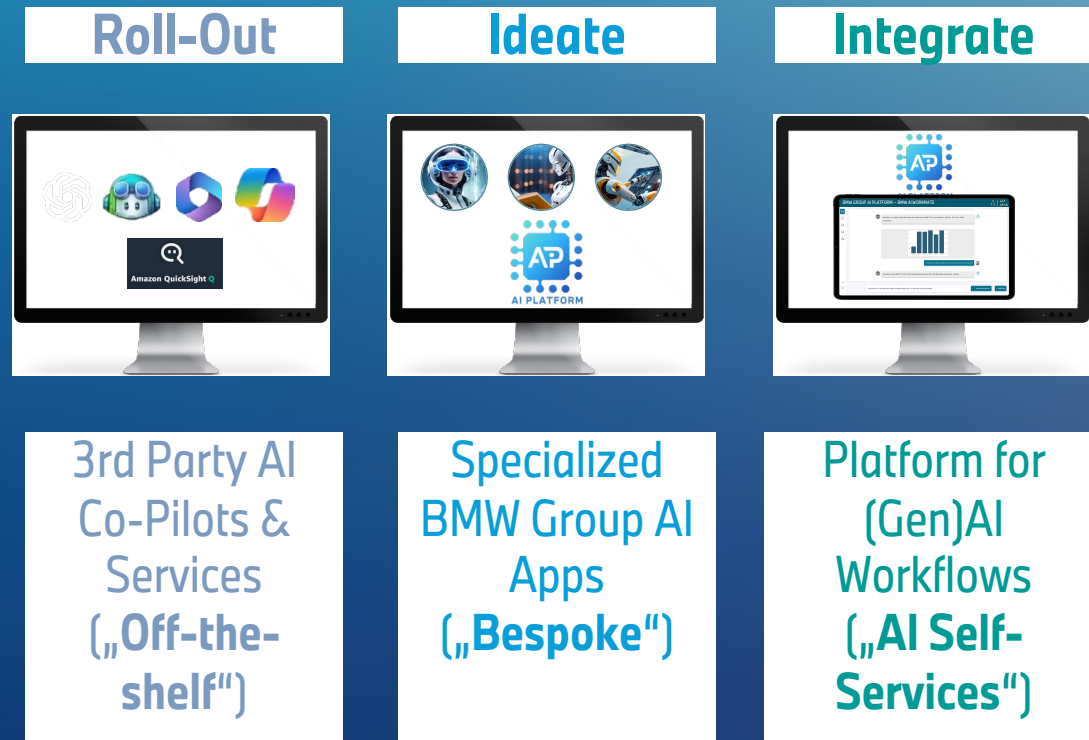




# "SCALE" OR "FAIL": HOW DO WE REACH THE MAXIMUM BENEFIT WITH GEN AI IN OUR PROCESSES?

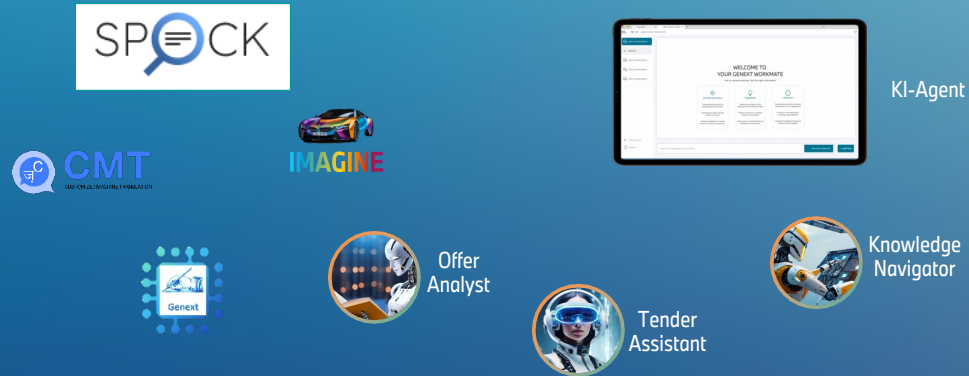
Our strategy relies on three building blocks...

...for maximum realization of the (Gen)AI-Potential<sup>1</sup>:



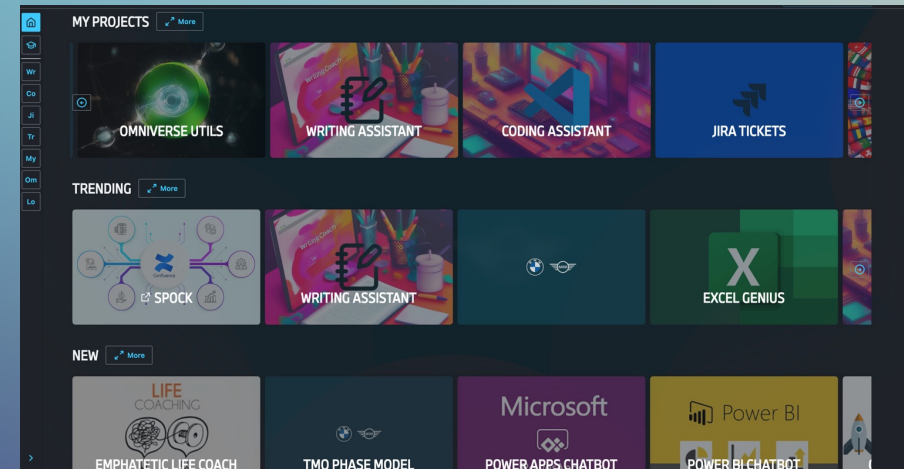
# WE SUCCESSFULLY IMPLEMENTED ONE-OFF USE CASES, AND ARE NOW BRINGING THEM TO SERIES PRODUCTION.

From „Crafting“...



- **Industrialization** of single / individual Gen AI use cases
- **Building up the baseline of the AI platform**
- Distributed training and training options

...to scale AI across the company:



- **Simplified** implementation of domain-specific Gen AI use cases due to **high reuse** of AI Platform components
- **Creating the technological framework** for the dynamic and volatile external environment
- Central use case entry point and training initiatives

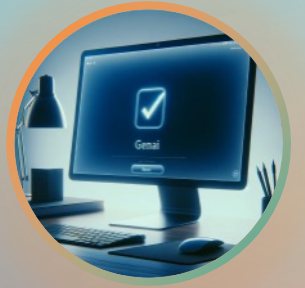
# OUR VISION: A **SELF-SERVICE PLATFORM** TO SCALE GEN-AI AT LARGE.

## One Platform for everyone at BMW



### Integrated BMW Systems

Leverage relevant BMW systems with agentic workflows or connect further BMW systems



### Robust governance

Creation of new Apps is accompanied by an comprehensive governance process.



### Customized Apps

Automate your workflows & everyday tasks with Gen AI-powered Apps



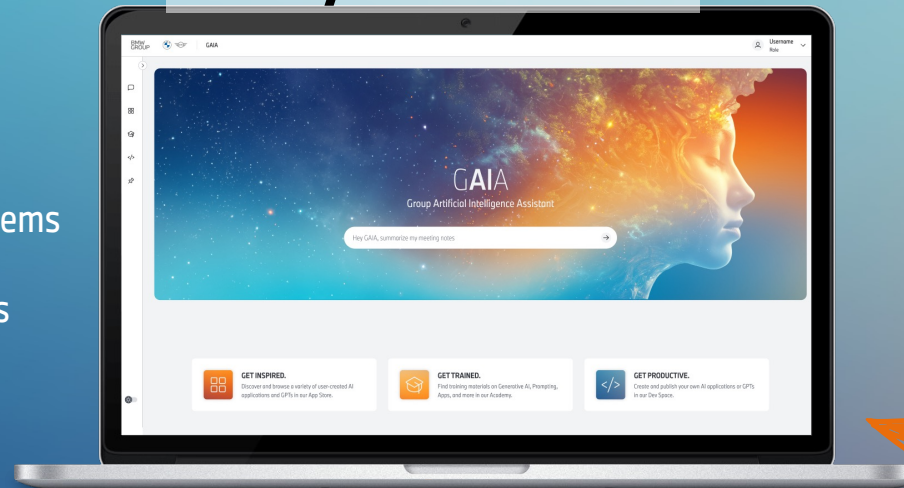
### No or low code creation

Create new Apps by recombining existing building blocks



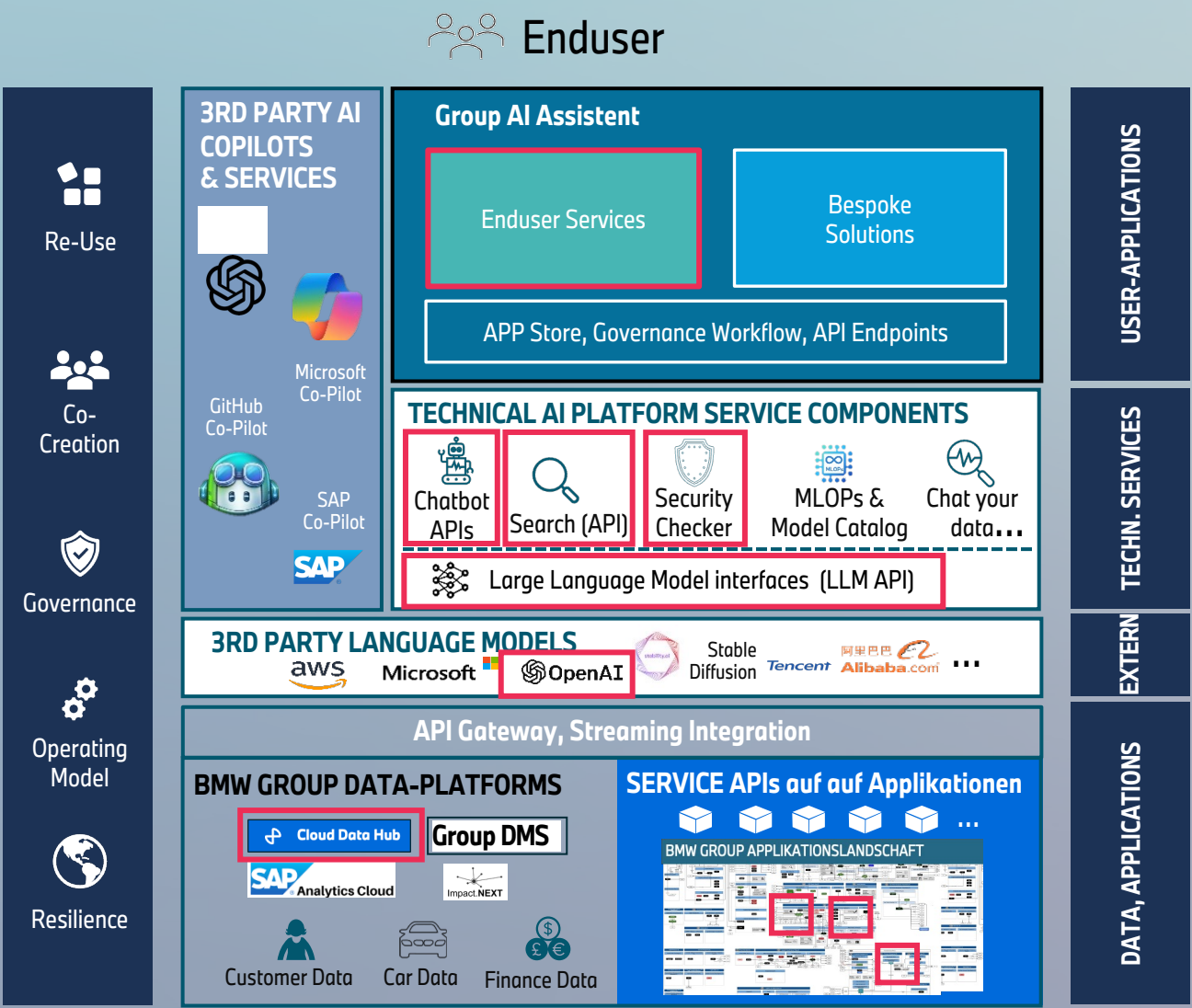
### Shared App store

Contribute prompted and coded Apps to the BMW Group community





# NEXT STEP: INTEGRATION OF AN AI-AGENT TO AUTOMATE PURCHASE REQUESTS BASED ON THE AI PLATFORM.



**AI AGENT | create PRs ("EKWs")**

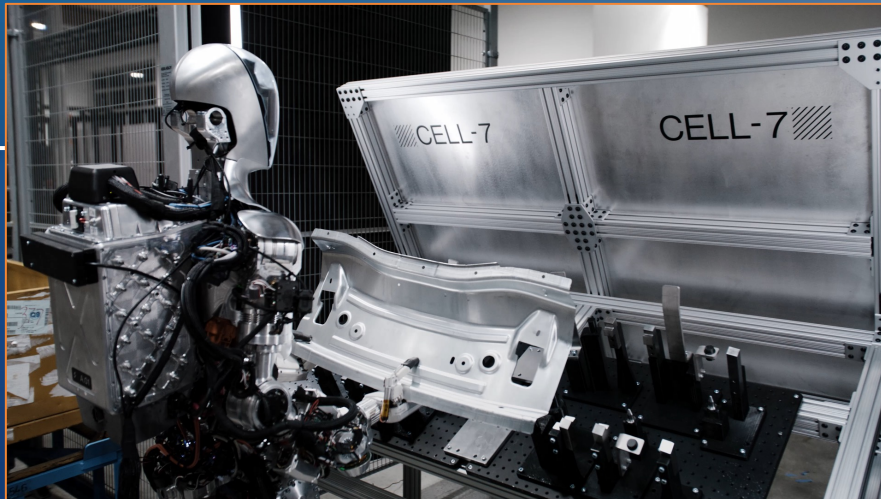
**AI AGENT to create purchase requests („EKWs“) using several Platform services & integrating of at least 3 BMW IT systems (SAP SRM, COUPA, EWoC).**



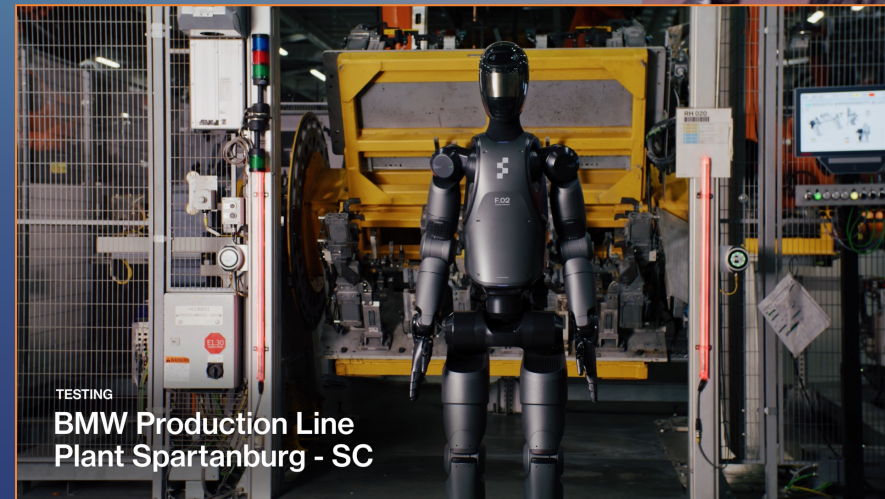
# BMW & FIGURE.AI.

- Q1/2024: First commercial agreement between BMW Manufacturing and Figure.AI.
- Q2/2024: Autonomous BMW UseCase with Figure.01 @ Figure HQ SFO.
- Q3/2024: Trial run of Figure.02 in BMW production environment: With the data gathered, BMW is now collaborating with Figure in preparation for further development and testing. Both companies see Figure.02 serving in roles that would be ergonomically awkward and tiring to humans.

*"The developments in the field of robotics are very promising," said Milan Nedeljkovic, member of the board of management for production at BMW. "With an early test operation, we are now determining possible applications for humanoid robots in production. We want to accompany this technology from development to industrialization."*



BMW Use Case & Figure.01 @ Figure HQ SFO



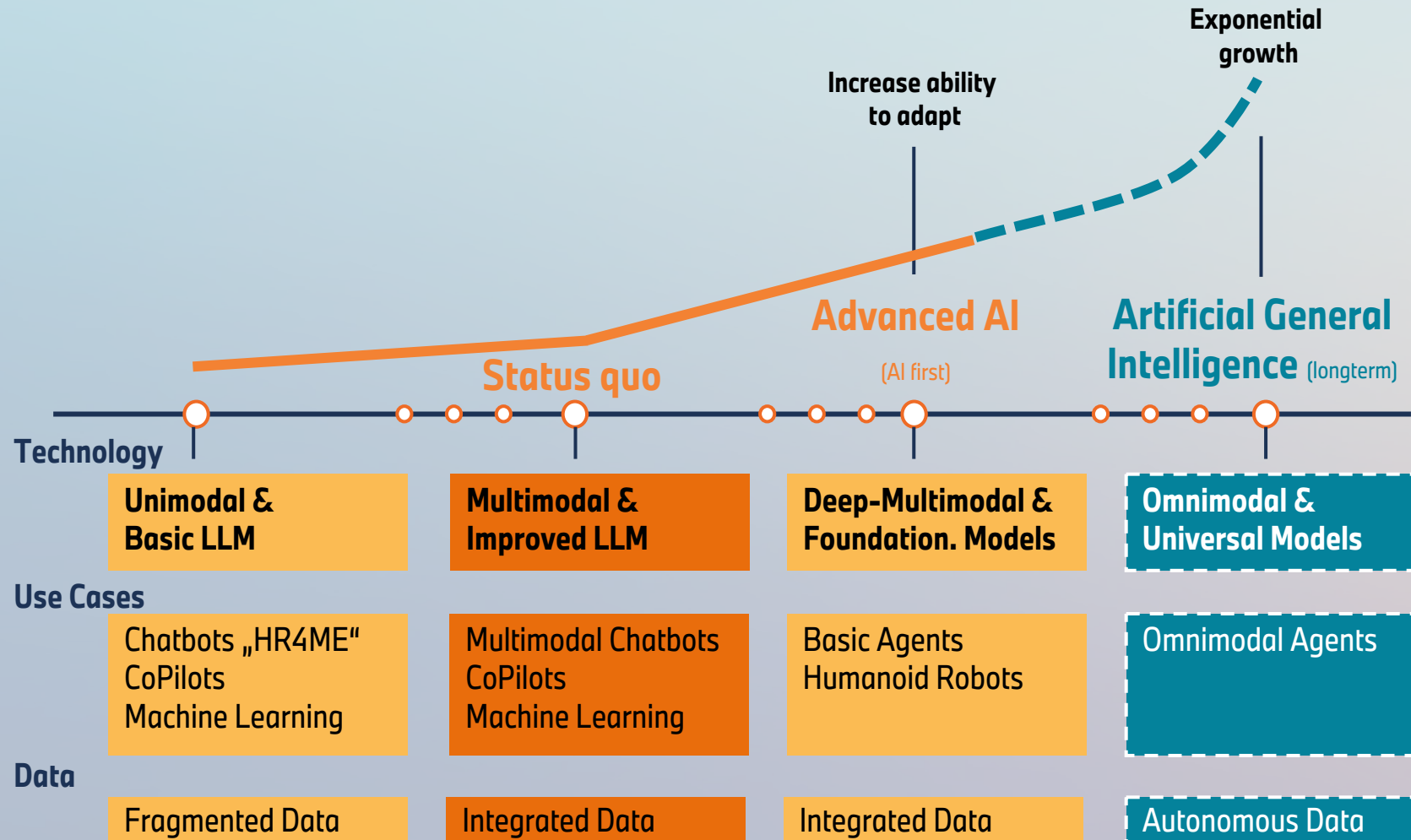
BMW Use Case & Figure.02 @ BMW plant Spartanburg

# BIGGEST CHALLENGES IN INTRODUCING AI.

- Scale Adaption Rate of Users – AI becomes daily practice of an associate.
- Comply to the EU AI ACT as an overall organization and still be fast in executing new AI Use Case.
- Data Quality Management of unstructured Data (mainly Documents).
- Cyber Security (AI based attacks & AI biasing via Data Integrity Manipulation)

# FROM (GEN) AI TO DATA: AI HEAVILY RELIES ON DATA... ... AND REQUIREMENTS WILL FURTHER GROW.

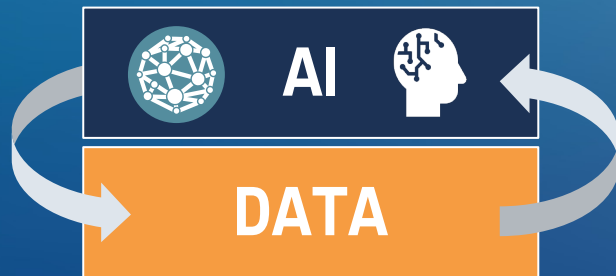
## ILLUSTRATION








# FROM (GEN) AI TO DATA: AI HEAVILY RELIES ON DATA.

## Data is key for AI...








## ...and already used, ...

### Products:





	<b>Connected Drive</b> (CDC, LSC, V. Shadow)	1.8 bn. Data Packages 4-5 Terrabyte per day
	<b>Navigation</b>	180 Mio. driven kilometres 650 Mio. GPS positions
	<b>ADAS</b>	80 Mio. km Road Segment Data (3 Mio. customer cars) 100-200 GB videos for reprocessing (test fleet)
...& many more...		

### Processes:

	<b>BMW Group DATA Platforms</b> (R&D, Prod., Sales etc.)	~2.500 curated Data Assets 9 Petabyte of Data
	<b>BMW IT Systems</b>	850 Source Systems across the BMW IT Systems landscape
	<b>ReUse-Quota</b>	30% of Data
	<b>Data Use Cases</b>	>1.000 Data Use Cases based on the provided Data Assets
	<b>User</b>	6.500 active User working on the Data Assets

## ...but AI raises demands significantly.

### Insufficient usage of Data alongside R&D, Production, Sales, Services & across Enabling processes:

-  **Consumption of BMW Data by AI** throughout our **Products** to offer **distinguished Features** (UI/UX, ADAS, Interior) ...&...
-  throughout our **Processes** for smart, fast & optimized **value creation**.
-  **Privacy, Data-Ownership & Data Quality** as **strategic Check points** (regulations, consumer protection, quality, accessibility).
-  **Data usage as a core value creation** alongside the complete value chain.



**Thanks for listening.**

**Any Questions?**