

Innovation Alliance Virtual Technologies: The Link between Technology Development and Application

ISMAR

Workshop on Industrial Augmented Reality: Needs and Solutions,
15. September 2008, Cambridge

Motivation / Initial Situation

- Hightech-Strategy of Federal Government of Germany
 - IKT 2020 Research program for information- and communication technologies
 - 4 technology networks
- Industry committee Augmented Reality
 - Founded subsequent to public funded project ARVIKA
 - Support and initiation of industry related research
- Partners from Industry, SME und Research
- Innovation Alliance Virtual Technologies (AVILUS, AVILUSplus, VIERforES)



IKT 2020
Forschung für Innovationen



Die Hightech-Strategie für Deutschland



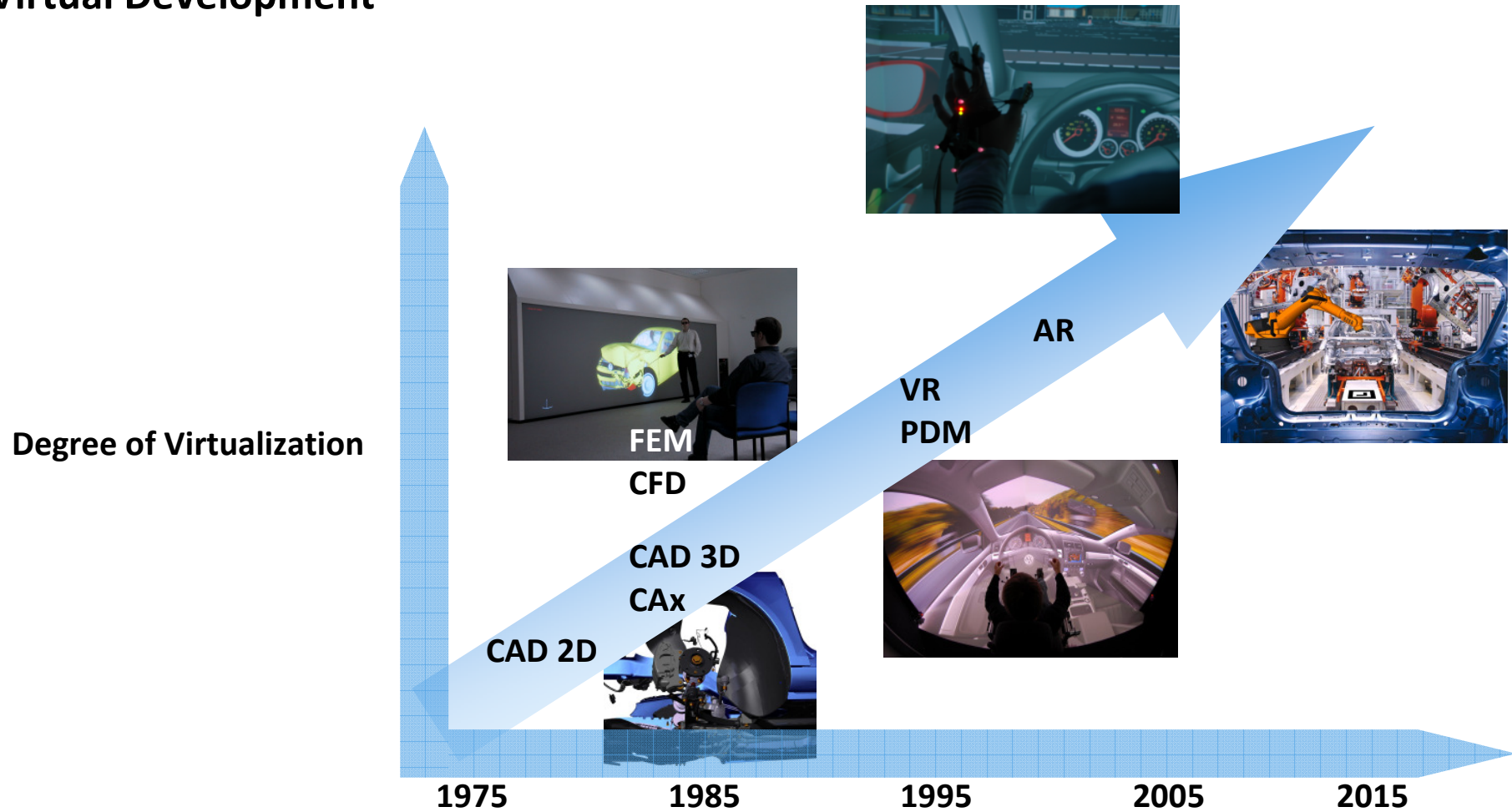
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Scenarios of the Future Competition Creates Innovation

- Competition in a globalized world
- New competitor pushing onto the market (Brasil, India, China, ...)
- Germany depends on
 - Innovation of products
 - Innovation of product creation
 - Education and infrastructure
- Changes within the industry
 - Networking
 - Virtualization



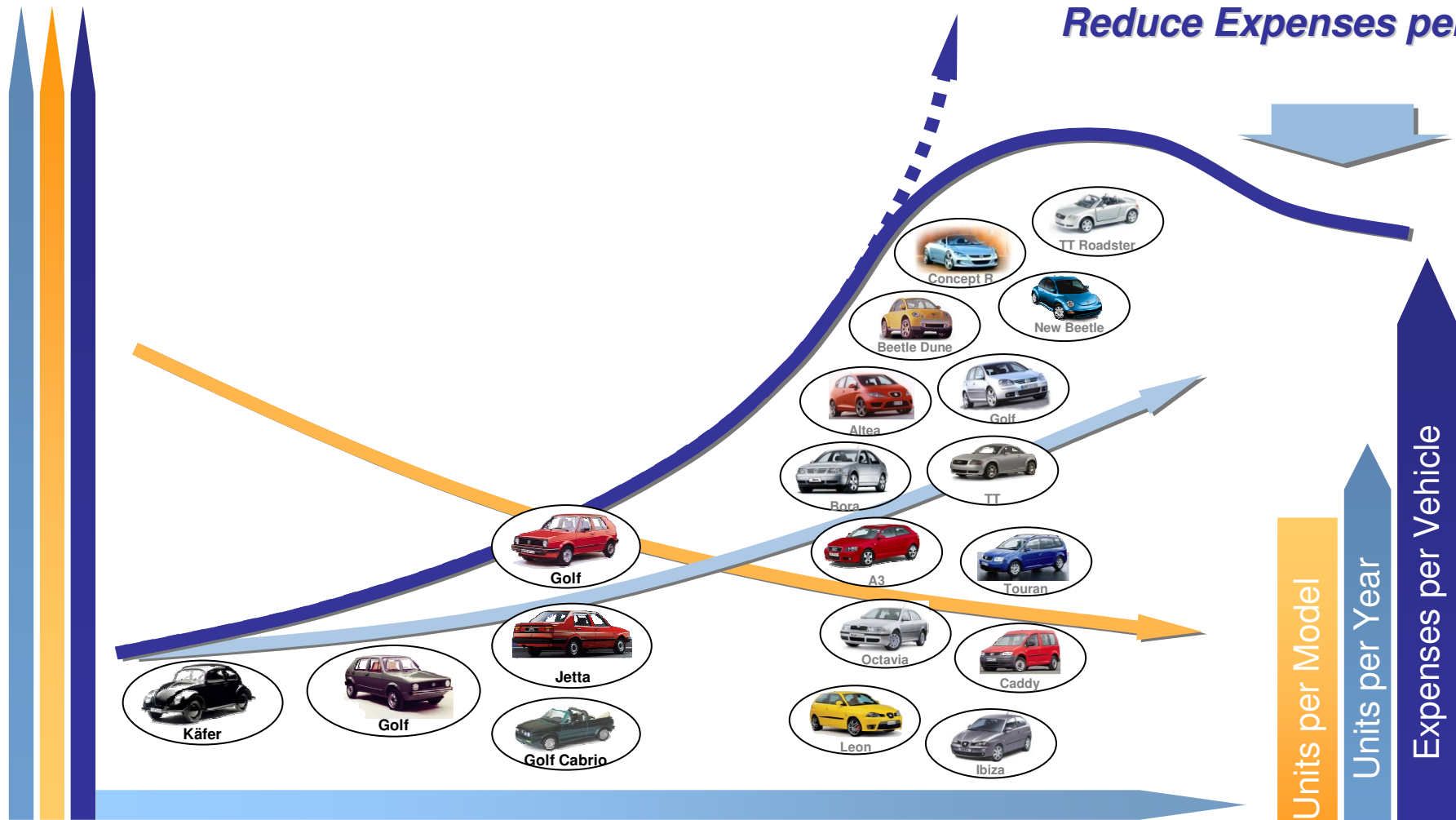
Scenario of the Future Virtual Development



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Future Scenarios of Production within Automotive Industry

Reduce Expenses per Vehicle



Units per Model
Units per Year
Expenses per Vehicle

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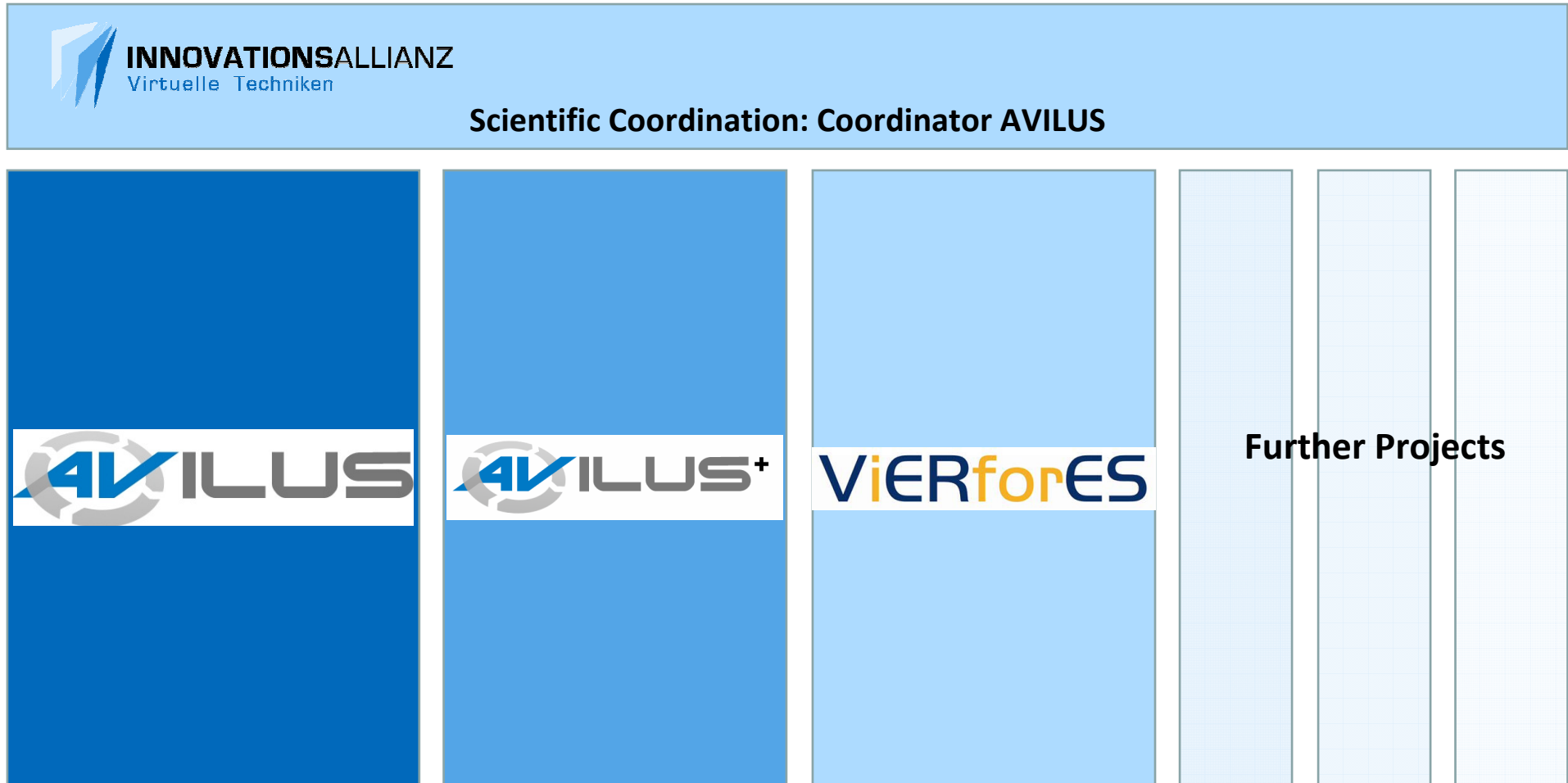
1950

1974

1985

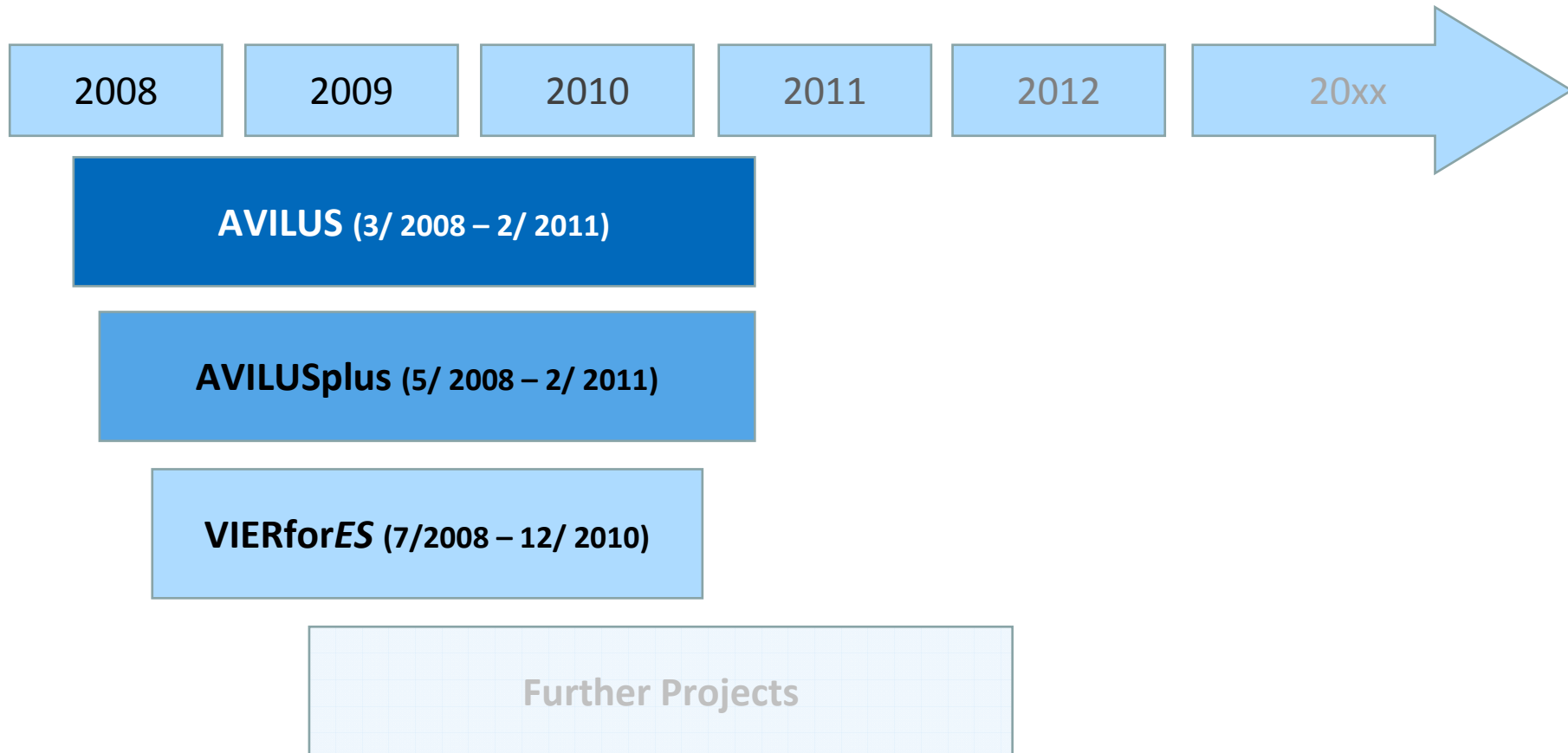
2006

Innovation Alliance Virtual Technologies Structure



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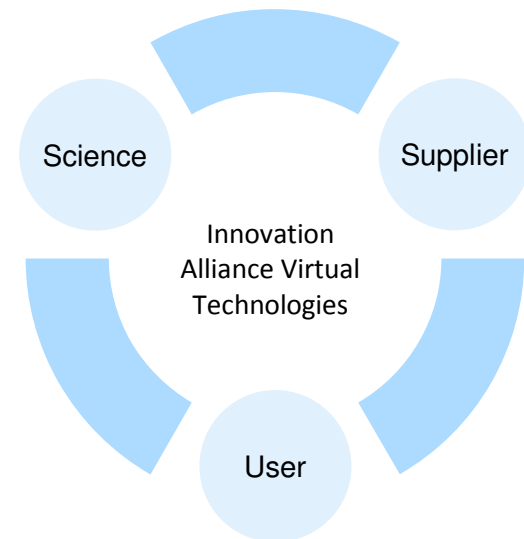
Innovation Alliance Virtual Technologies Time table of Projects



Innovation Alliance Virtual Technologies Objectives

The objective of the Innovation Alliance Virtual Technologies is the usage of human centered virtual technologies

- within industry
- prepare, initiate and support
- close cooperation between SMEs, industry and science

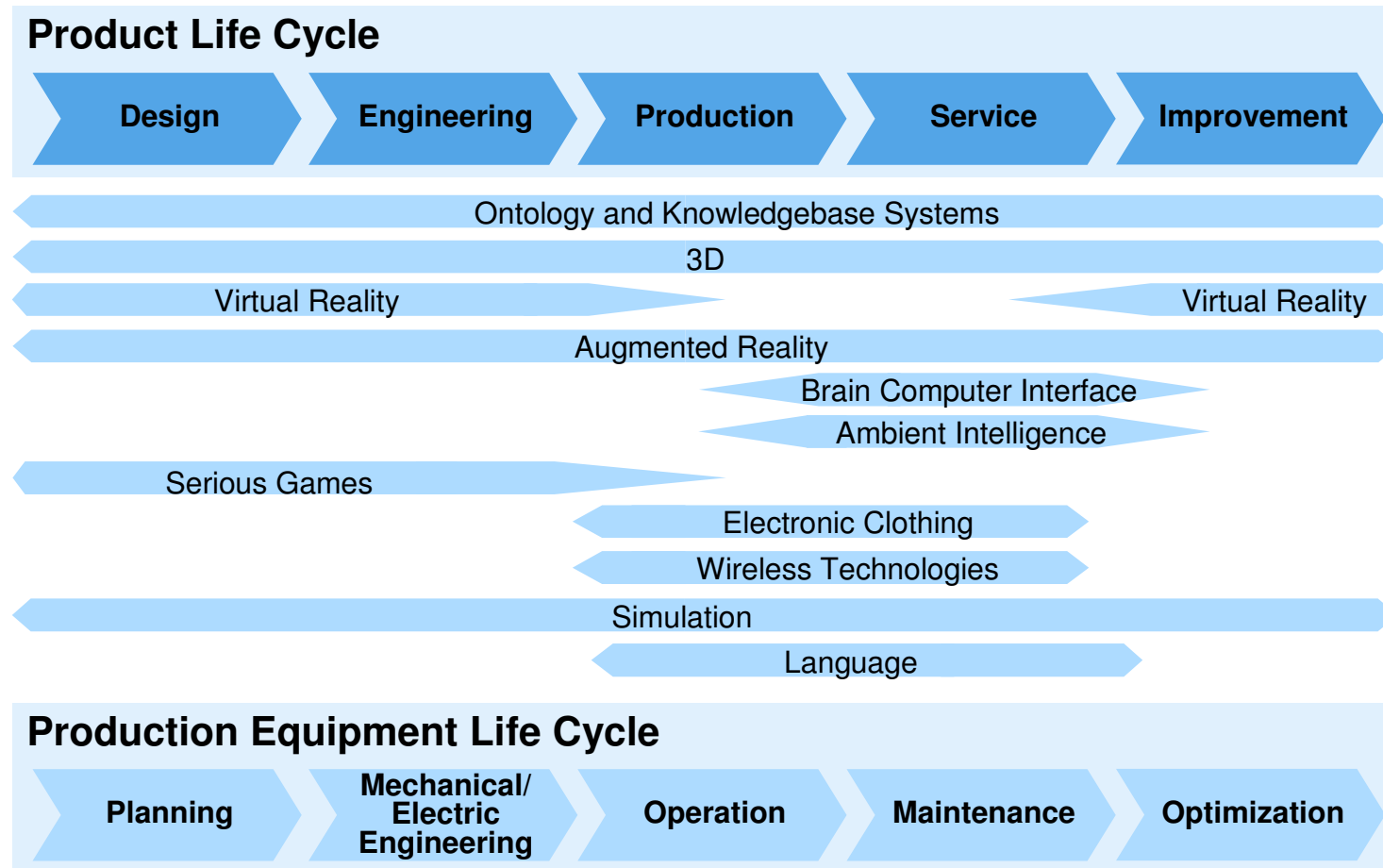


The Innovation Alliance Virtual Technologies supports the strength of the economics and technological potential of Germany

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Scenarios of the Future

Virtual Development through the Product Life Cycle



AVILUS

Angewandte Virtuelle Technologien im Produkt- und Produktionsmittellebenszyklus

- Research on Technologies for Virtual and Augmented Reality to
 - improve the significance of virtual models by using physical correct simulation of characteristics
 - improve the interaction through innovative input devices
 - combine the real and virtual world by using robust markerless tracking
- Powerful industry driven consortium
- Ensuring sustainability by potential product creation



6 SME partner, 11 industry partner, 11 scientific partner
Project volume: approx. 42 Mio €

AVILUSplus

Angewandte Virtuelle Technologien mit Langfristfokus im Produkt- und Produktionsmittellebenszyklus

Research on Technologies for Virtual and Augmented Reality to

- Increase the significance of virtual models by using physical correct simulation of characteristics
- improve the interaction through innovative input devices
- combine the real and virtual world by using robust markerless tracking

8 scientific partners

Project volume: approx. 11 Mio €



Deutsches
Forschungszentrum
für Künstliche
Intelligenz GmbH

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VIERforES

Virtuelle und Erweiterte Realität für höchste Sicherheit und Zuverlässigkeit Eingebetteter Systeme

Increase of safety und reliability of complex technical systems through

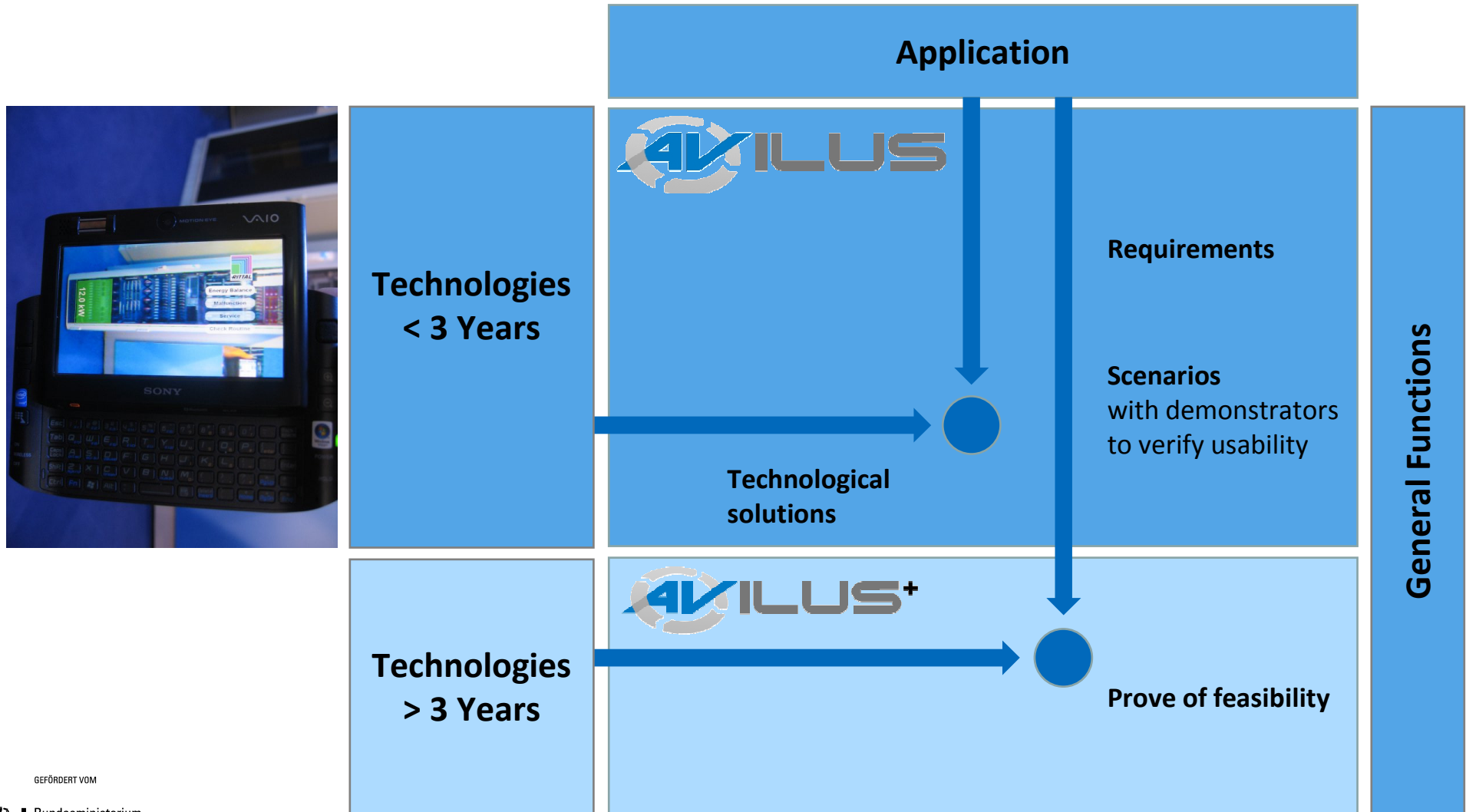
- simulation of mechatronic properties close to realistic test environments
- Virtual Reality as a tool to display software functions of embedded systems
- software engineering methods for the evaluation the quality of software

4 scientific partners

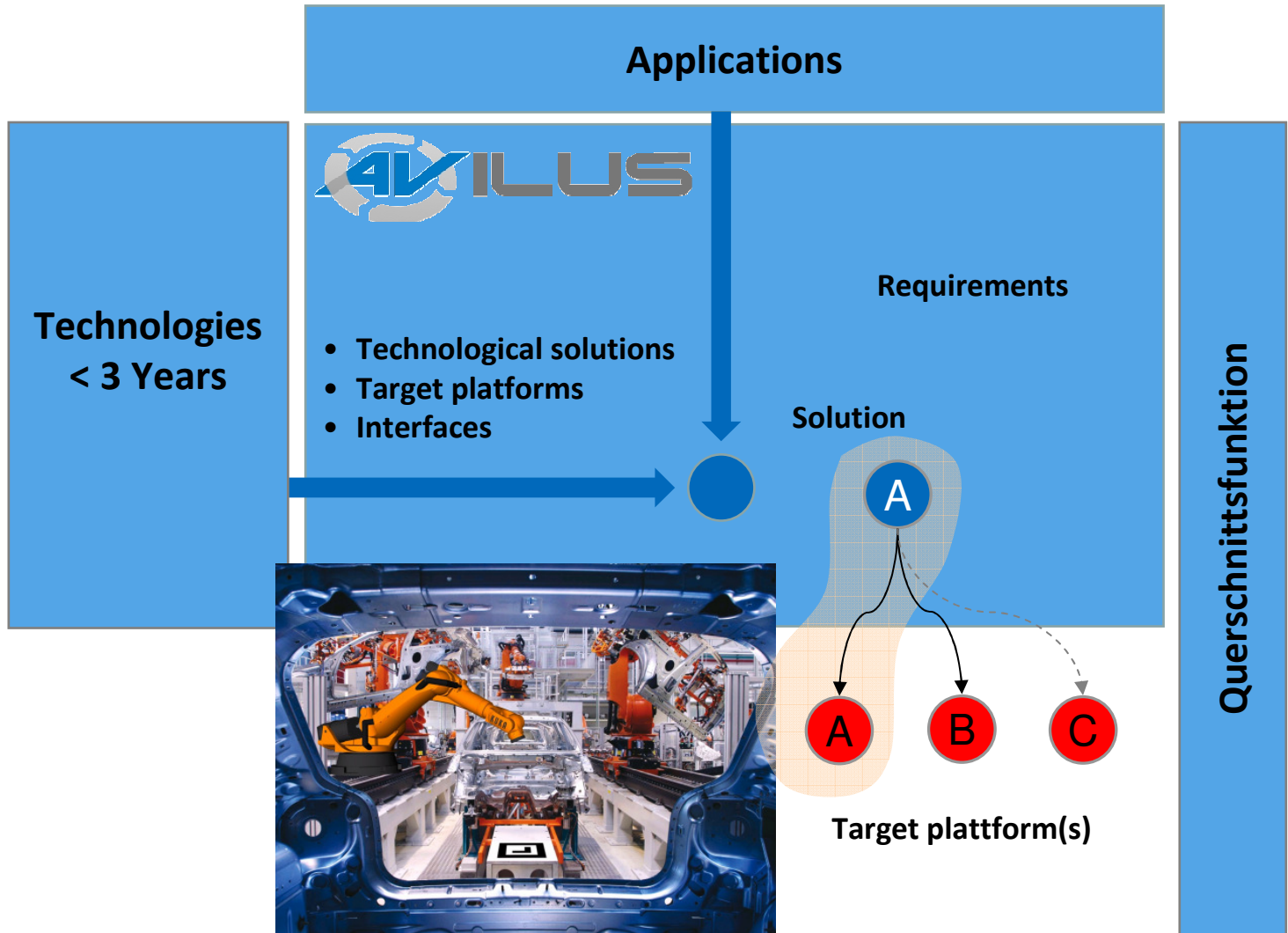
Project volume: approx. 7,5 Mio €



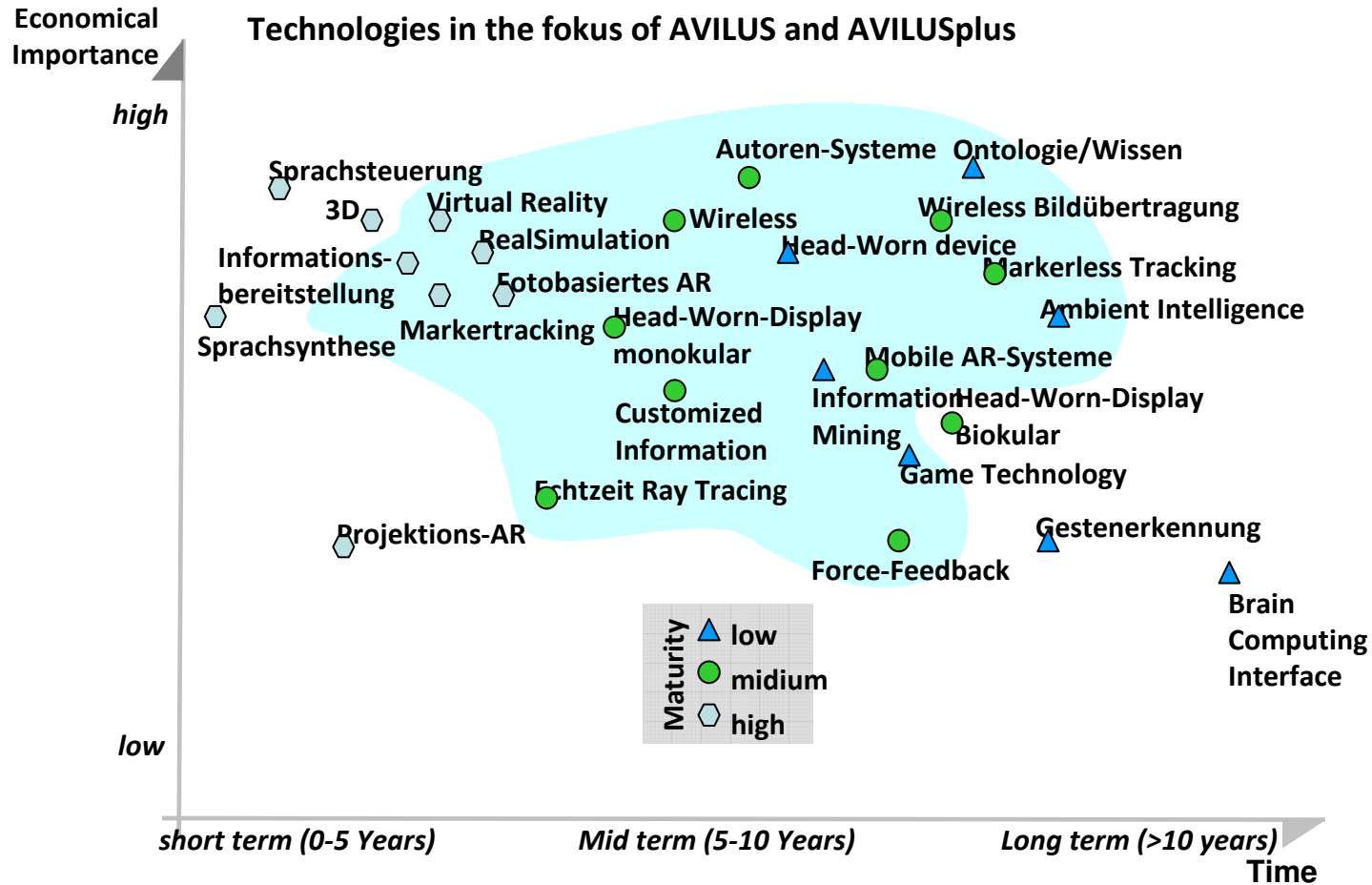
Interaction of Projects AVILUS and AVILUSplus



Integration



Technologies



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Demonstrators / Applications

TP1.1 Design / Construction / Planning

Example:

TP1.1.01 Visuelle Absicherung eines Produktes

Technologie-Lieferanten:

TP2.....

TP2.2.06 HDR Rendering....

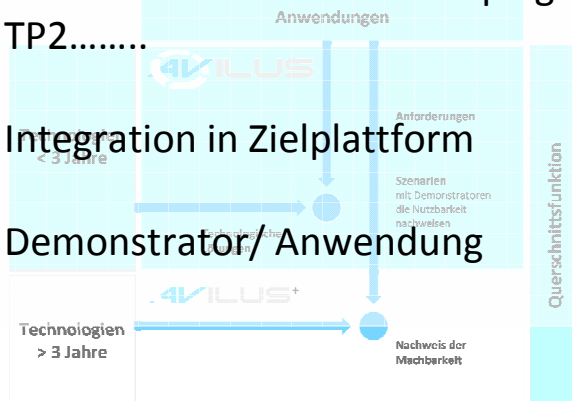
TP2.2.07 Tone Mapping/ Farbkalibrierung

TP2.2.08 ...Simulation von Spiegelungen, ...

TP2.....

Integration in Zielplattform

Demonstrator/Anwendung



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Demonstrators/ Applications

TP1.1 Design / Construction / Planning

Example:

TP1.1.04 Brücke digitale/reale Welt

Technologie-Lieferanten:

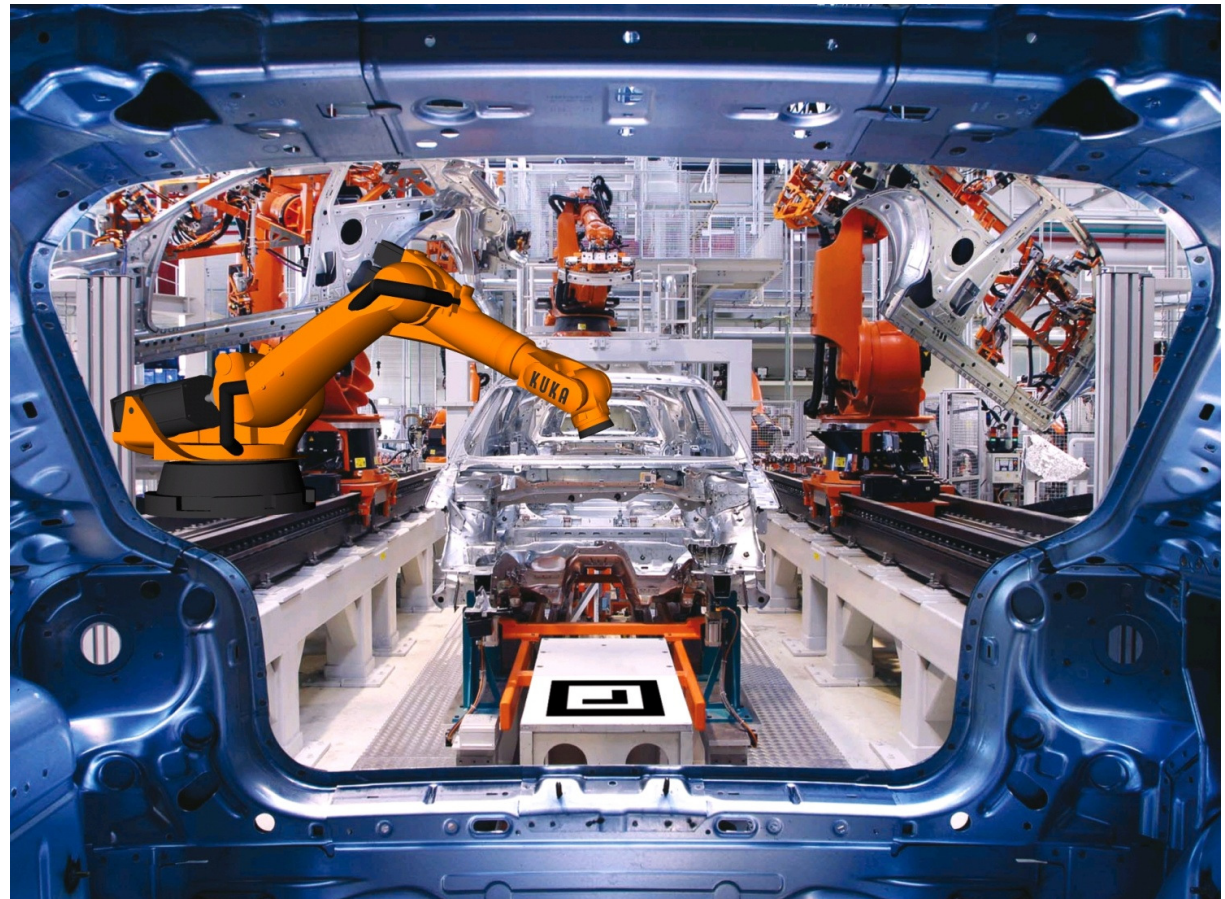
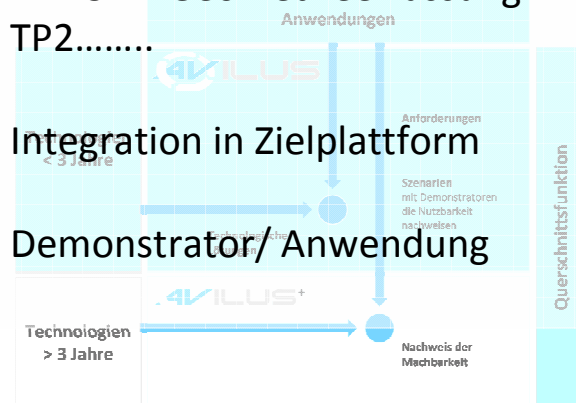
TP2.....

TP2.2.05 Anlagensimulation

TP2.3.01 Trackingsysteme...

TP2.5.Geometrieerfassung

TP2.....



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Demonstrators / Applications

TP1.2 Production / Operation / Service / Maintenance

Example:

TP1.2.04 Multimodale Unterstützung
im Service

Technologie-Lieferanten:

TP2.....

TP2.3..... Lokalisation/ Tracking

TP2.4..... Interaktion....

TP2.5.Geometrieerfassung

TP2.....

Integration in Zielplattform

Technologien
> 3 Jahre
Demonstrator/ Anwendung



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Summary

The Innovation Alliance Virtual Technologies is

- consequent continuation of German research in the area of Virtual Technologies
- effective combination of different research projects
- cooperative partnership of different SMEs, industries and scientific partners in Germany
- a successful team/portfolio of Virtual Technologies



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