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# Industrie 4.0 – opportunity for new business models

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Car of the Future

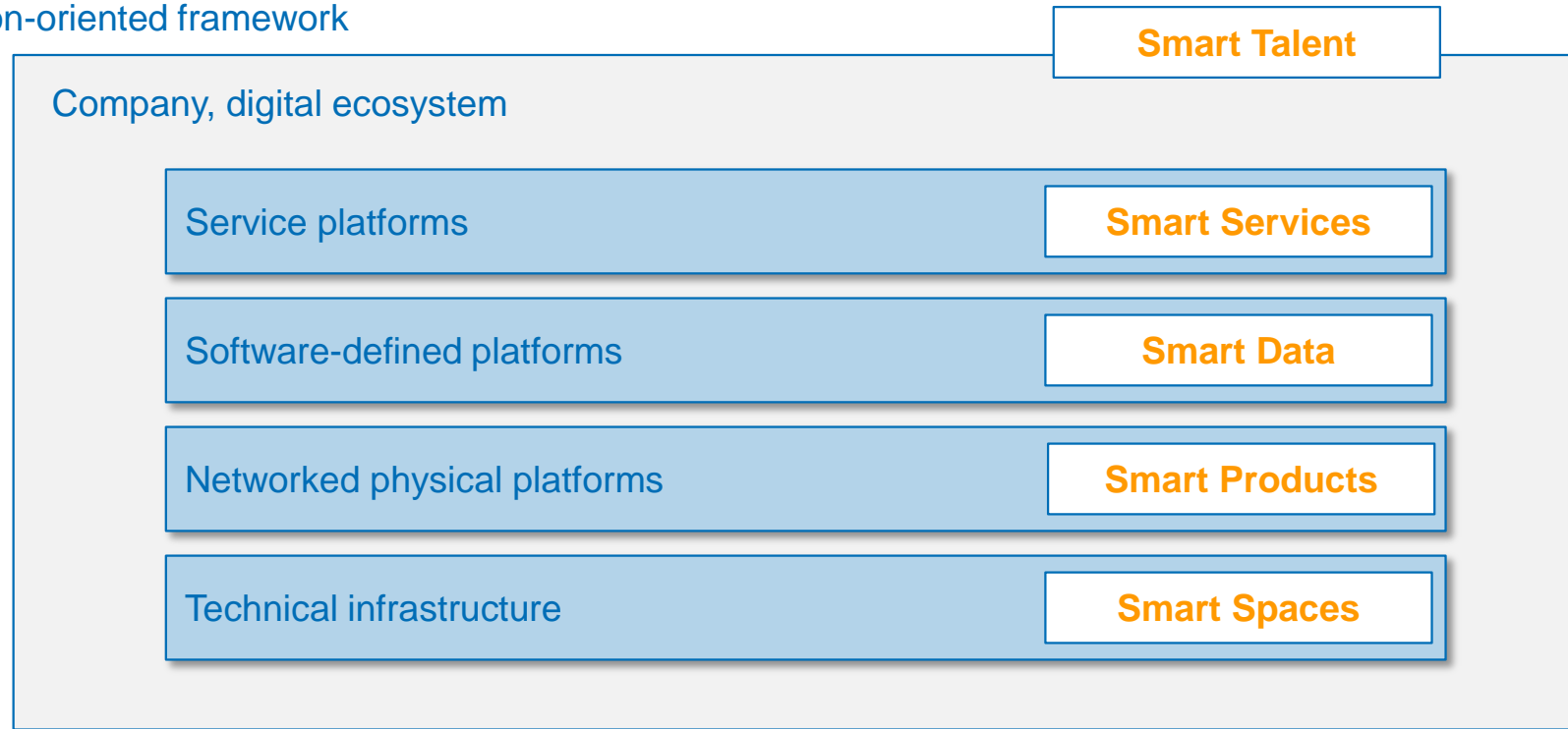
Perspectives of Autonomous Car Development in Hungary

Budapest, May 19<sup>th</sup>, 2016

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# Manufacturing companies can modify their business models by harnessing the full power of smart infrastructures

Innovation-oriented framework



**The exchange and usage of data will be the main driver of successful business models in manufacturing companies**

Source: Smart Service Welt, 2015

# Smart Spaces: Collaboration in heterarchic networks can only thrive by using sufficient tools for communication

PTC®

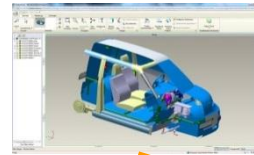
## Smart Spaces - Definition

Smart spaces are the smart environments where smart, Internet-enabled objects, devices and machines connect to each other.

## Business Model Opportunities

- Increase speed of product development by supplying the needed information to members of heterarchic networks
- Software-defined platforms together with their associated ecosystems will be key to competing successfully on the global market

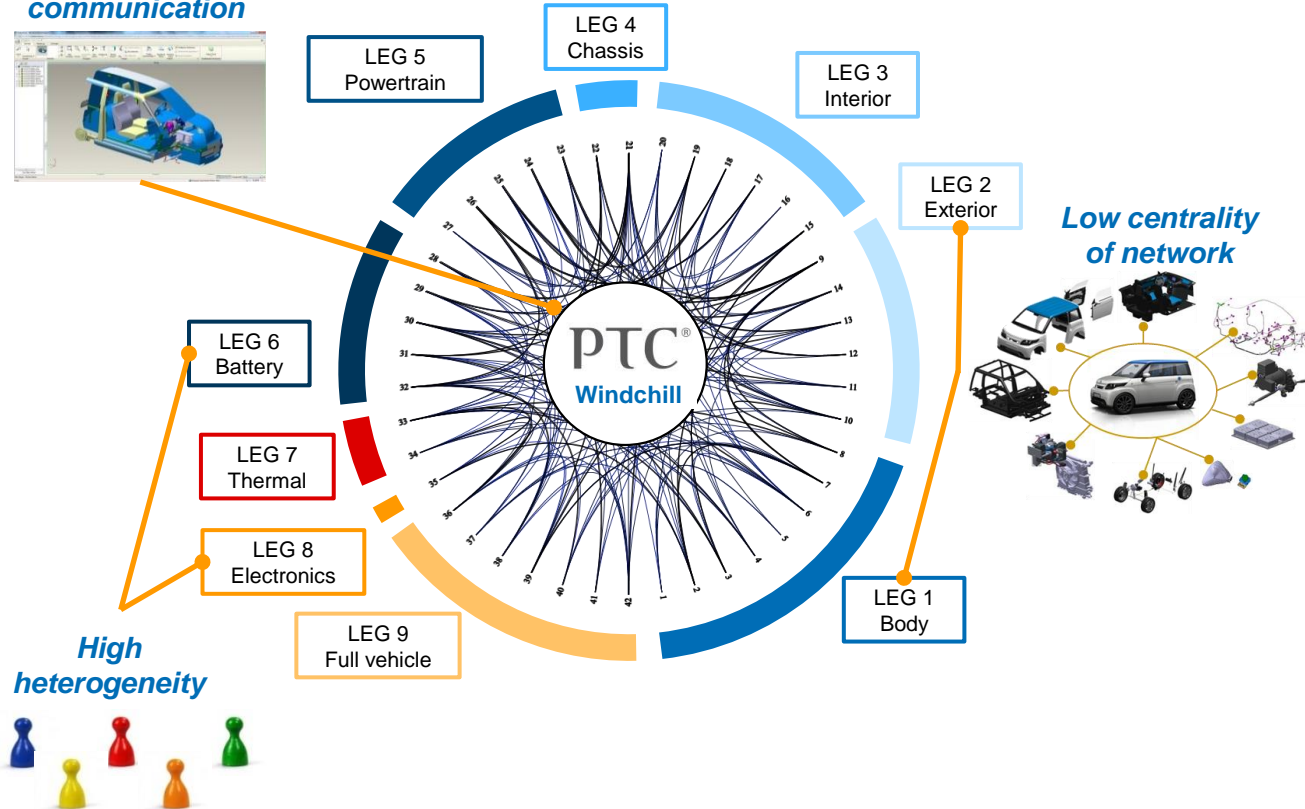
High level of communication



High heterogeneity



Low centrality of network



Source: Smart Service Welt, 2015 ; PTC, StreetScooter, LEG: Lead Engineering Group

# Smart Product Development: Highly iterative development is supported by the rapid implementation and testing of prototypes

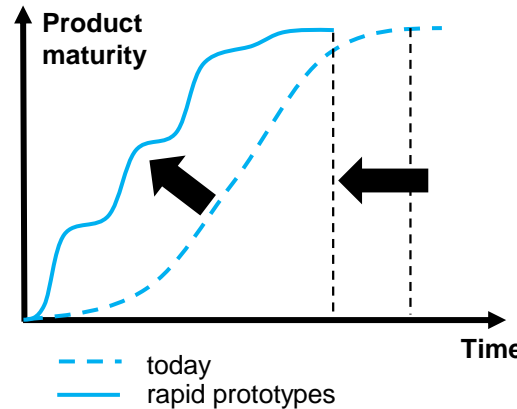
## Smart Product Development - Definition

Smart Product Development is a highly iterative process which enhances cross functional communication and leads to disruptive business models.

## Business Model Opportunities

- Rapid feedback of customers with functional prototypes accelerates time-to-market
- Innovation in loops leads to radically new ideas and higher fulfillment of customer requirements
- Decentralized production in small batches replaces traditional mass production

Rapid implementation of prototypes ... the example of e.GO Life



concept design

e.GO

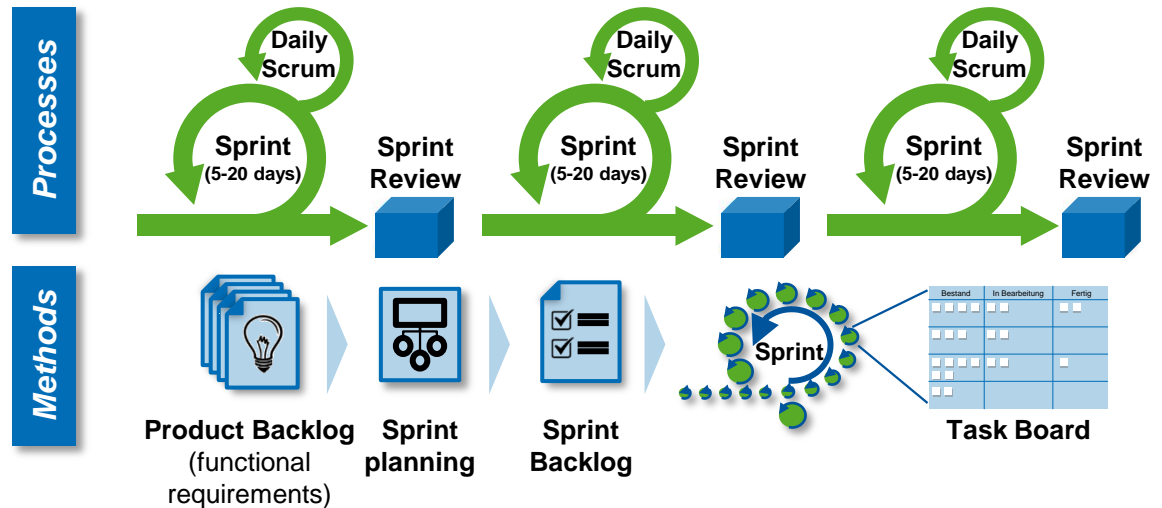


body parts from 3D printer



building of a functional prototype

fast expert tests



Source: Smart Service Welt, 2015; e.GO Mobile

# Smart Product: Products need to adapt to their surrounding by using tracked data in order to produce additional features

## Smart Product - Definition

Smart Products are objects, devices and machines that are equipped with sensors, controlled by software and connected to the Internet in order to form networked physical platforms.

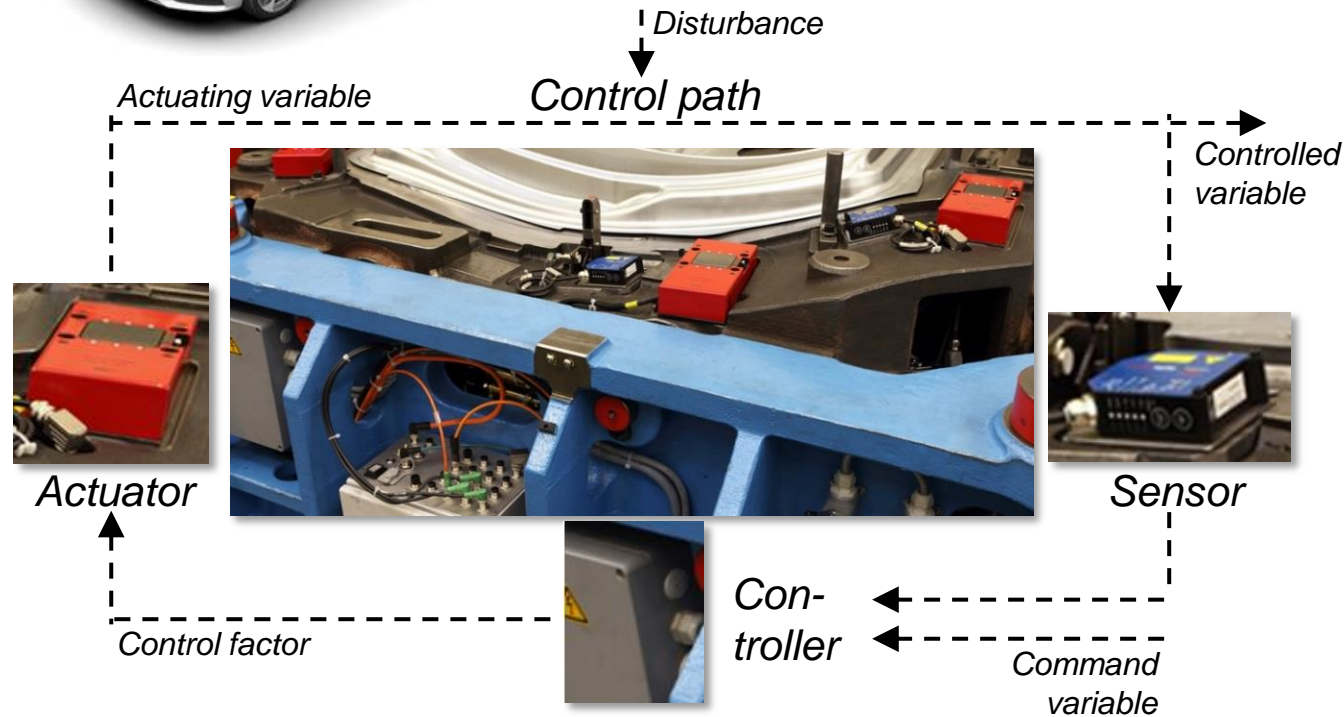


Audi  
Werkzeugbau



## Business Model Opportunities

- New and more complex geometries can be produced with more reliable process parameters
- To equip physical products with sensors and actuators allows for new services of remote surveillance and optimization alongside the product life-cycle



Source: Smart Service Welt, 2015; Audi Werkzeugbau

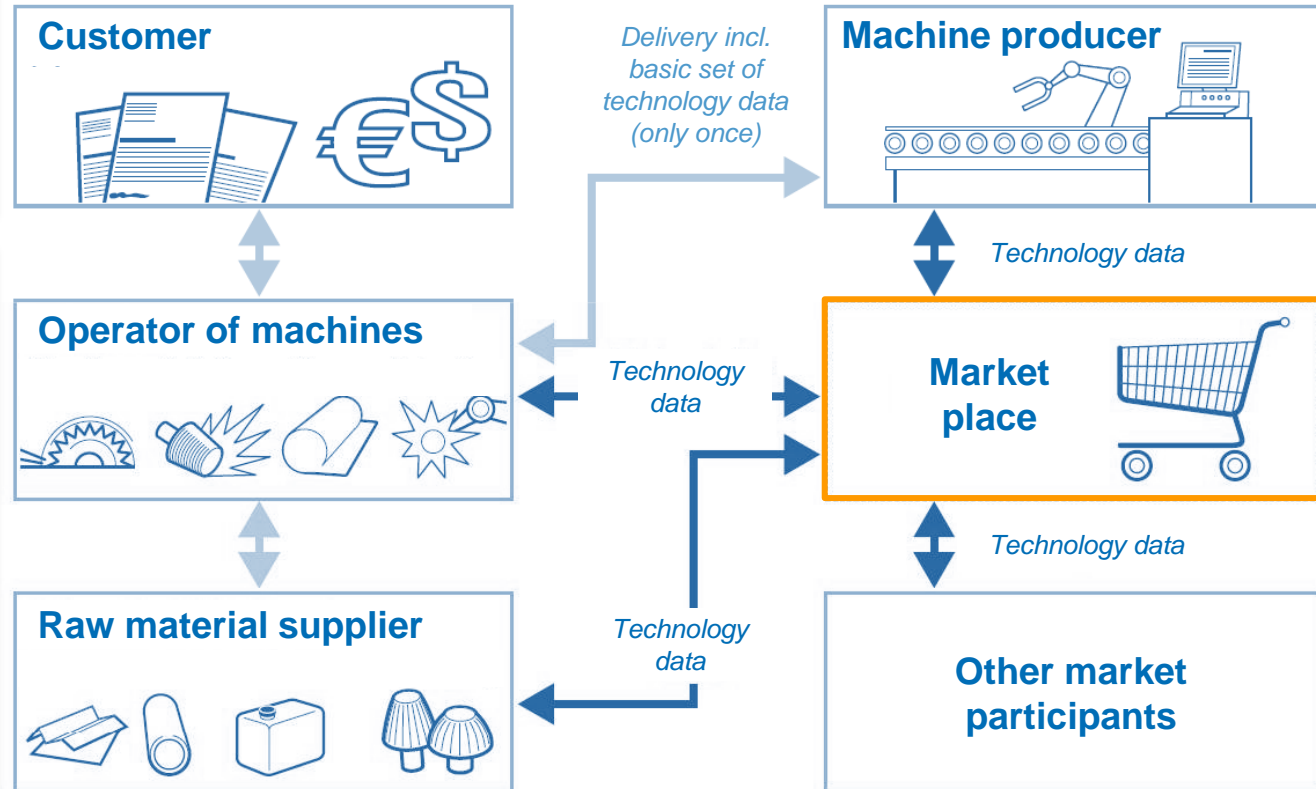
# Smart Data: Understanding the data generated in the field of application creates previously untapped value

## Smart Data - Definition

Smart Data is the refinement of analyzed, interpreted, correlated and supplemented big data. It can generate knowledge that forms the basis of new business models.

## Business Model Opportunities

- Data becomes marketable, shifting the perceived value from physical to digital product
- Data analytics allows for deeper integration in customer's processes
- Data market places create new value streams besides existing customer-supplier relationships



Source: Smart Service Welt, 2015; Trumpf



# Smart Services: Cyber physical systems will be a channel to deliver smart services to customers and add value to platforms

## Smart Services - Definition

Smart Services are centered around the user in its respective role as customer, employee, citizen etc. They obtain the right combination of products and services to meet the needs of their current situation, anytime, anywhere in cross-sectoral ecosystems.

## Business Model Opportunities

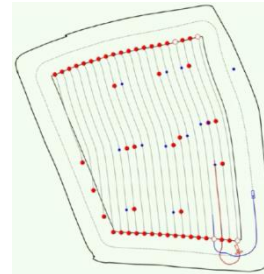
- Service bundles connected to the physical product allow for new revenue models
- Digital services use different sales channels and thereby acquire new customers
- Using platforms allows for external improvement of the performance of the entire product service system



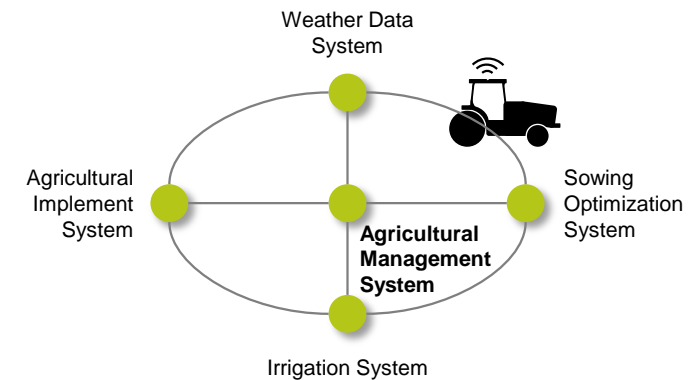
Harvest with drone surveillance



Cooperative Infield Processes



**Automated Rendezvous**  
of harvester and tractor dependent upon current harvest progress  
→ **High efficiency surplus through uninterrupted harvest**



Source: Smart Service Welt, 2015; Claas

# Smart Talent: Start-ups give the opportunity to find entrepreneurs and to be one step ahead in the war for talent

## Smart Talent - Definition

Smart Talents are the architects of digital business models. They are well-trained digital natives who are capable of working with integrated physical and digital services.

## Business Model Opportunities

- Start-ups are a source for lateral thinking
- Agile innovation processes with decentralized structures shorten time-to-market
- Entrepreneurship independent from the core business increases the identification and involvement



**Smart Talents** want responsibility and to contribute directly. **Start-ups** are an undeniable vehicle for entrepreneurs, software engineers, lateral thinkers and digital natives.

The **war for talent** can be answered with **Start-up satellites** flying around the core brand. Start-ups transport a feeling of **newness**.

Source: Smart Service Welt, 2015; myTaxi; Daimler; Car2go; carpooling.com; moovel; tiramizoo.com



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# Thank you very much

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