TRANSERT DE TECHNOLOGIE

COMMENT LE TRANSFERT DE TECHNOLOGIE PEUT-IL AVOIR UN IMPACT PLUS IMPORTANT SUR L'ÉCONOMIE ET LE DÉVELOPPEMENT SOCIO-ÉCONOMIQUE ?

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Ralf Lauterwasser
CEO, Steinbeis Beratungszentren GmbH
Ralf.lauterwasser@steinbeis.de
www.steinbeis.de

THE FUTURE OF EUROPEAN COMPETITIVENESS:

REPORT BY MARIO DRAGHI

"R&I are the main drivers of productivity and people's well-being."

BUT

"The innovation potential of the EU remains underused, as researchers and innovators do not fully exploit economies of scale and cooperate with other partners across the EU."

"The links between higher education and business are weak and researchers have few incentives to become entrepreneurs."

Source: Draghi, M. (2024). The future of European competitiveness. European Commission.
https://commission.europa.eu/topics/strengthening-european-competitiveness/eu-competitiveness-looking-ahead_en#paragraph_47059

RELEVANCE

99 % of companies in the EU are SMEs

SMEs employ two-thirds of employees in the EU ...

... and produce 57 ct of every euro of value added

TECHNOLOGY PUSH VS. DEMAND PULL

This is a rather old and simple model to describe the forces behind innovation. (Schmookler, 1966; von Hippel, 1976, various other scholars).

- Its simplicity is its great strength, which is why it is still taught.
- It still informs modern technology transfer practice.
- It is an incredibly useful model even 60 years later

WHAT IS TECHNOLOGY PUSH?

- Someone invents something and puts it on the market.
- Once it's on the market, people decide they need/want it.
- The **technology** (or product, service, technique, material…) is **pushed** onto the market.
- The demand is created by the offer.

- "Traditional" university technology transfer works like this

WHAT IS DEMAND PULL?

- Enough people need/want something that the need can be articulated in some way.
- An innovator responds to the need with a product.
- The **demand "pulls"** a technology (or product, service, material, technique or knowledge) onto the market
- The offer is created in response to an existing demand.

- "Traditional" applied research often works like this, but so does innovation in response to legislation

INTERACTION BETWEEN TECHNOLOGY AND MARKET

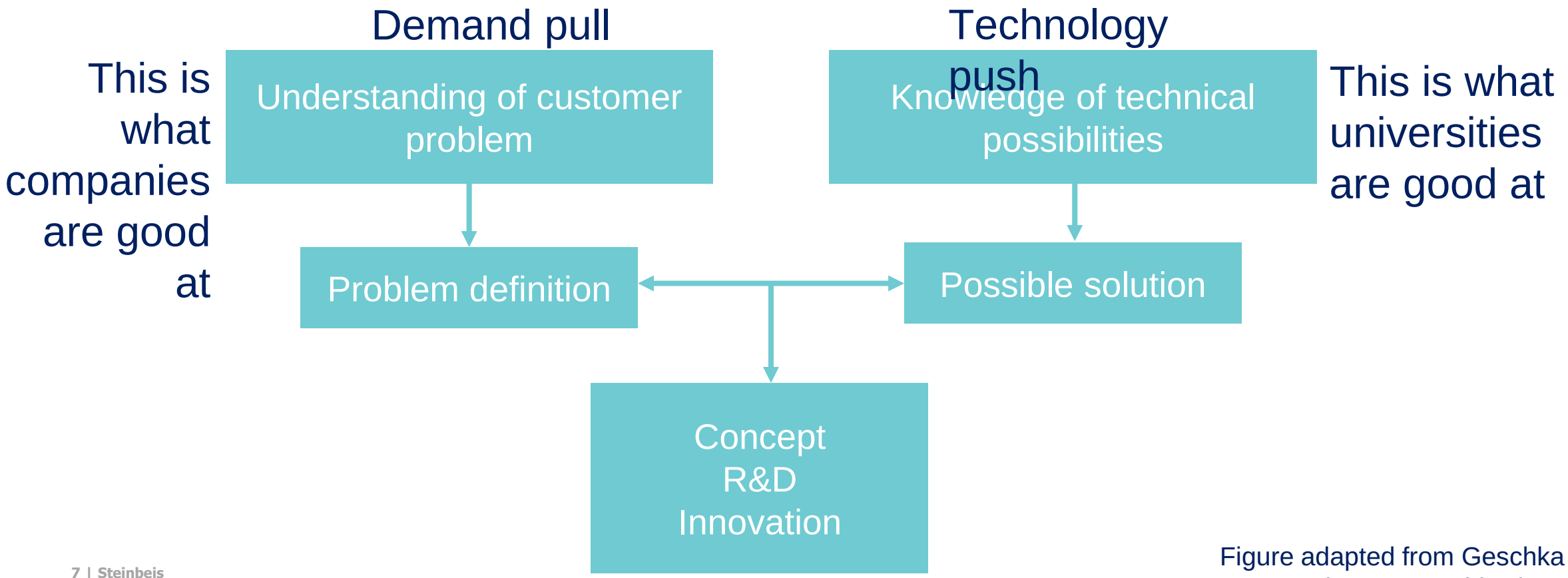
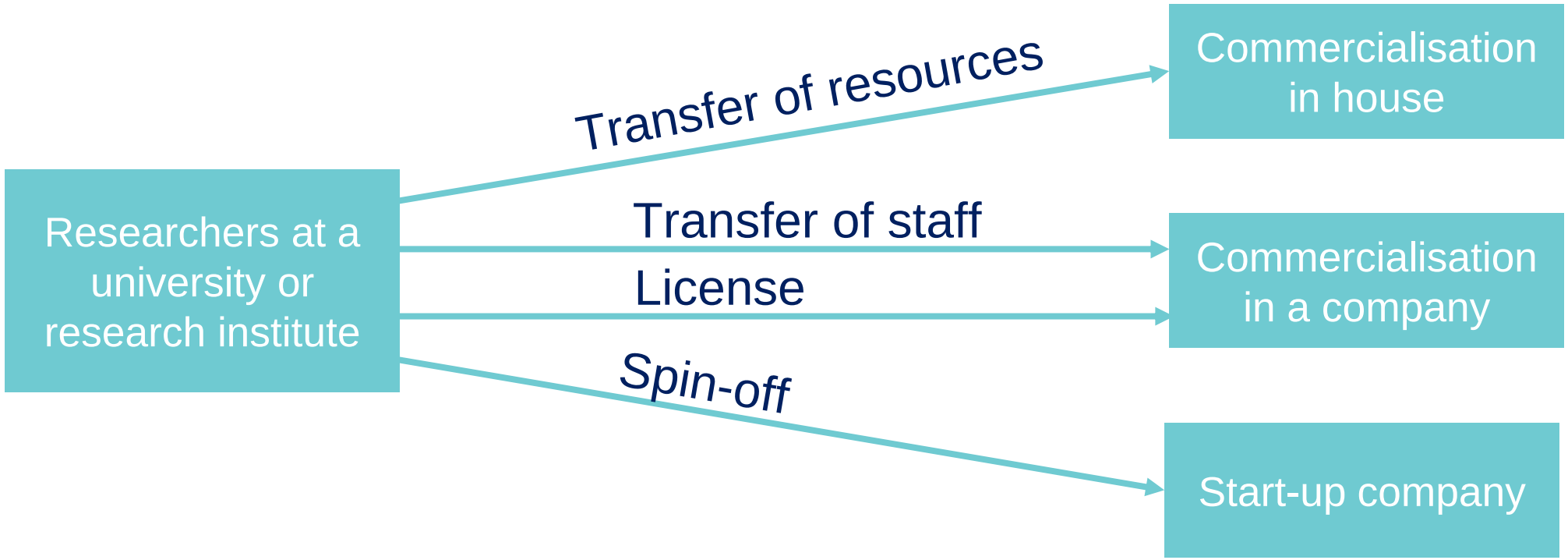


Figure adapted from Geschka & Schwarz-Geschka (2015)

TECHNOLOGY PUSH FROM ACADEMIC RESEARCH



Services of the technology transfer or knowledge transfer office

Figure adapted from Geschka & Schwarz-Geschka (2015)

DRIVING TECHNOLOGY-BASED INNOVATION

	Innovation driver	
Criterion	Technology push	Demand pull
Potential market applications	Unknown	Known
Customer knowledge	Does not exist	Exists
Early customer involvement	Difficult	Unproblematic
Change in customer behaviour	Usually necessary	Not necessary
Method	Exploratory market research	Conventional market research
Innovation process	Non-linear “probe and learn“	Linear, stage-gate process

Figure adapted from Herstatt & Lettl (2000)

TECHNOLOGY PUSH VS. DEMAND PULL

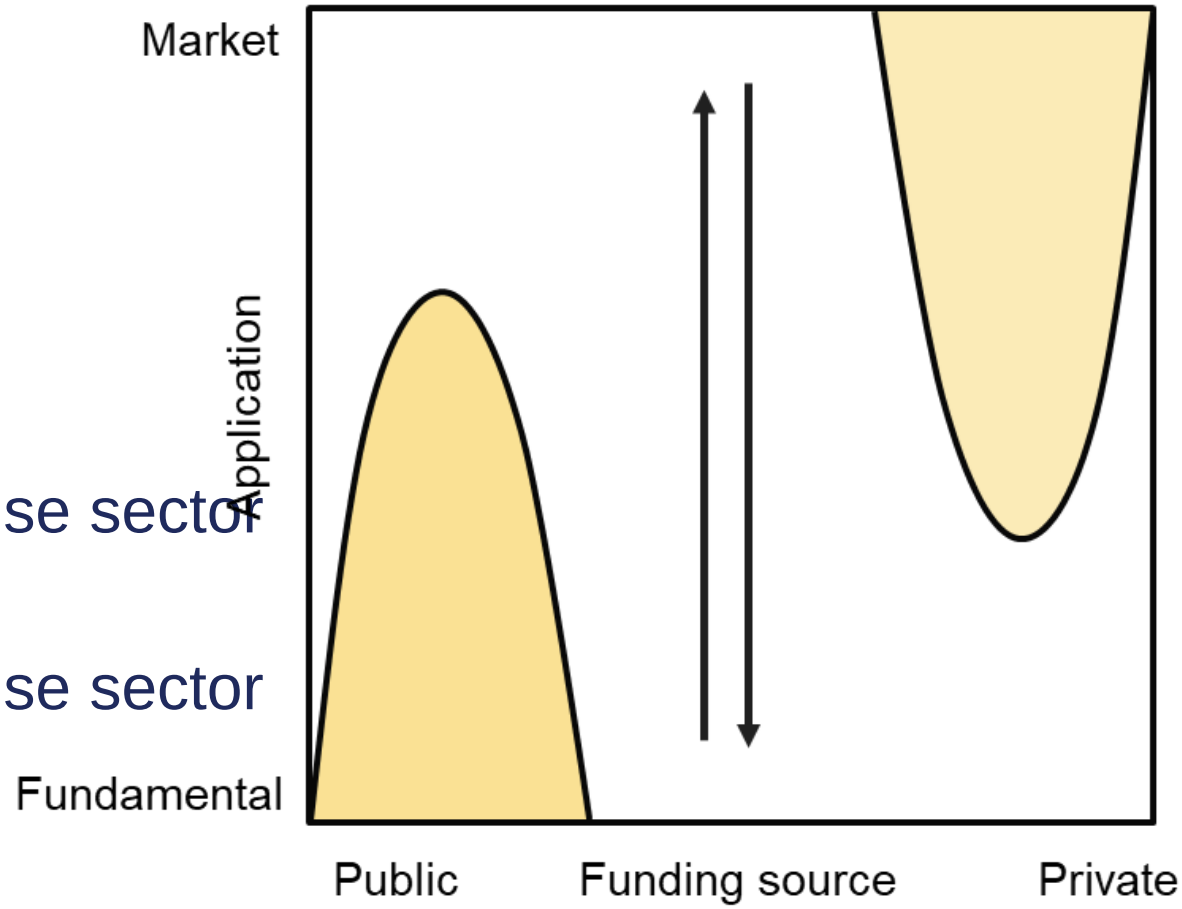
Funding sources vs application

- Funding sources in Germany

33% public/non-profit, 66% enterprise sector

- Average in the EU

45% public/non-profit, 55% enterprise sector



TECHNOLOGY PUSH VS. DEMAND PULL

The figures refer to Baden-Württemberg, a state with 11 m inhabitants

Academia

Total:
41,600 researchers

17,500 MINT researchers

offer

Bottom-up:
all companies have a chance to get advice!

Top-down:
only 3% IP valorisations will be successful on the market

Companies

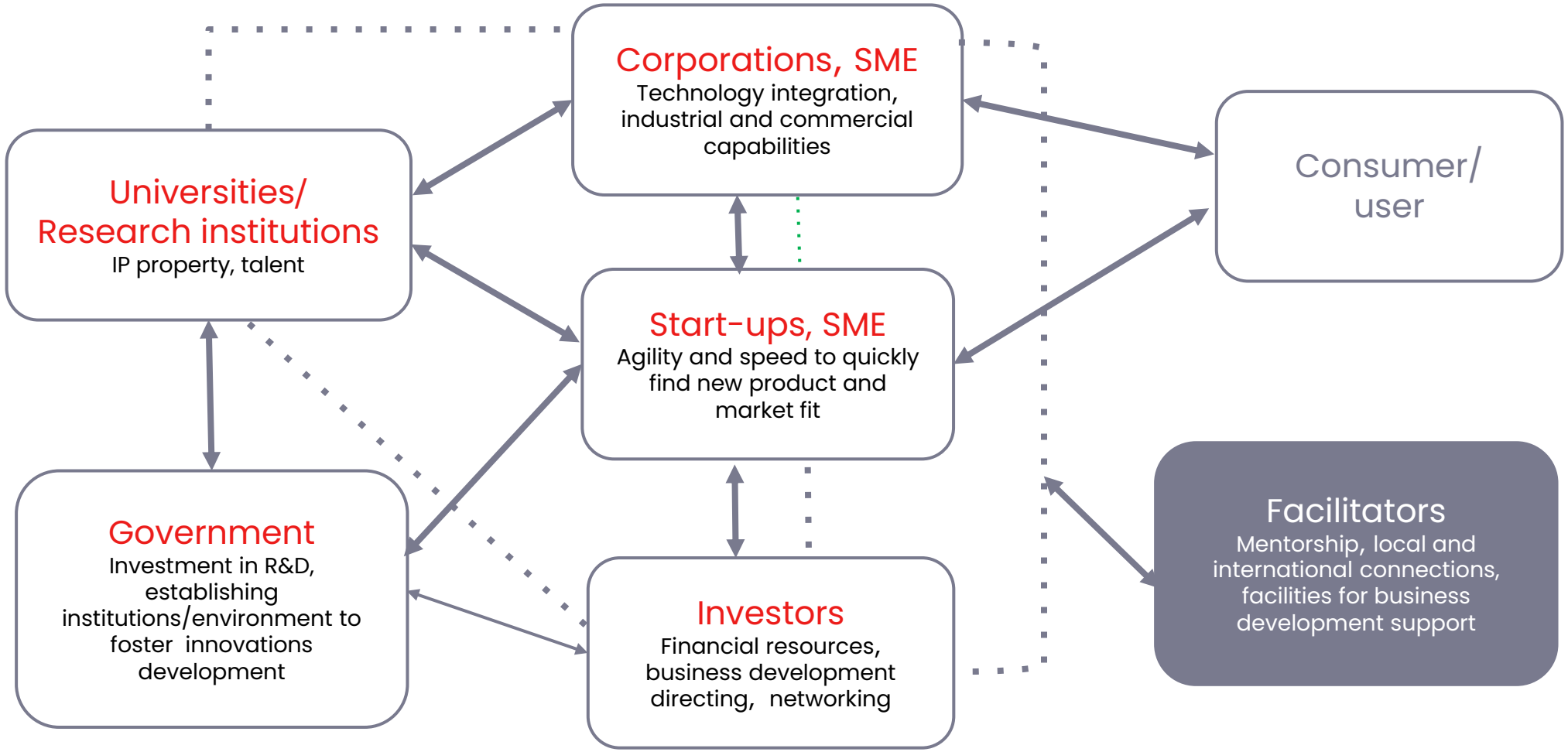
Total:
460,000 companies

Manufacturing companies:
88,000

demand

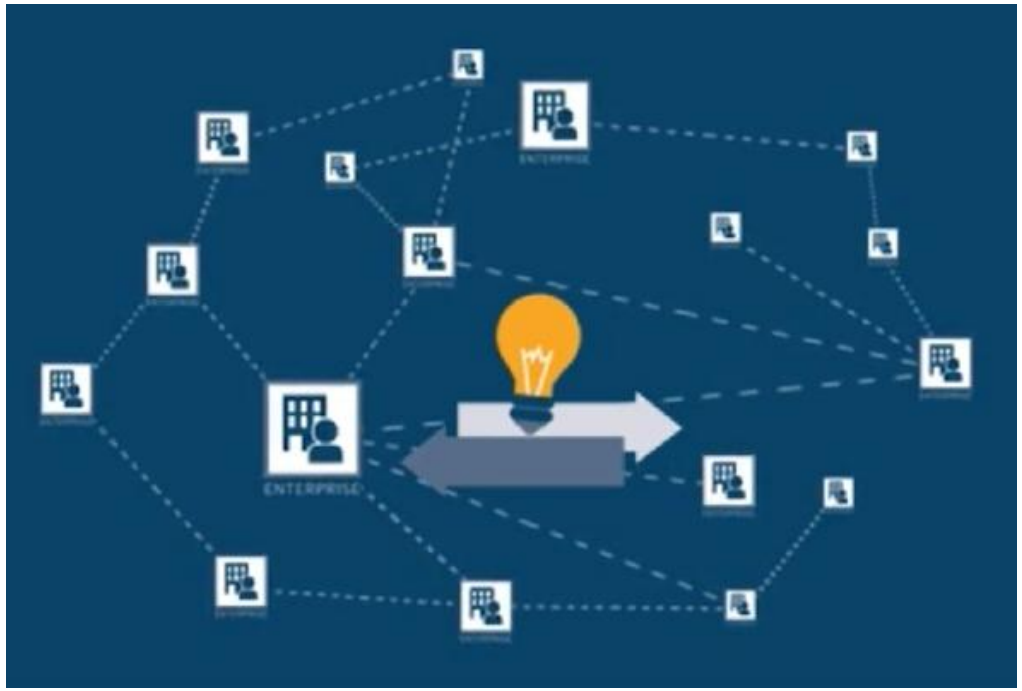
To capture the innovation potential of universities, we need a well-equipped transfer toolbox.

NETWORK MODEL



Deep Tech: The Great Wave of Innovation https://hello-tomorrow.org/deep-tech-observatory/

TRANSFER AS MARKET-DRIVEN APPROACH
THE STEINBEIS PLATFORM



- Aligned to German economic structure
- Needs of industy in the focus
- Based on already available scientific experise and research infrastructure
- Not based on scientific excellence but on market-ready solutions
- Patents and publications play a minor role
- Oriented to long-term value creation, not on short-term profit maximization

TYPES OF TRANSFER PROJECTS WITHIN THE NETWORK

RESEARCH AND DEVELOPMENT

Steinbeis experts act like a flywheel, operating in the area of overlap between acquired knowledge and industrial application

CONSULTING

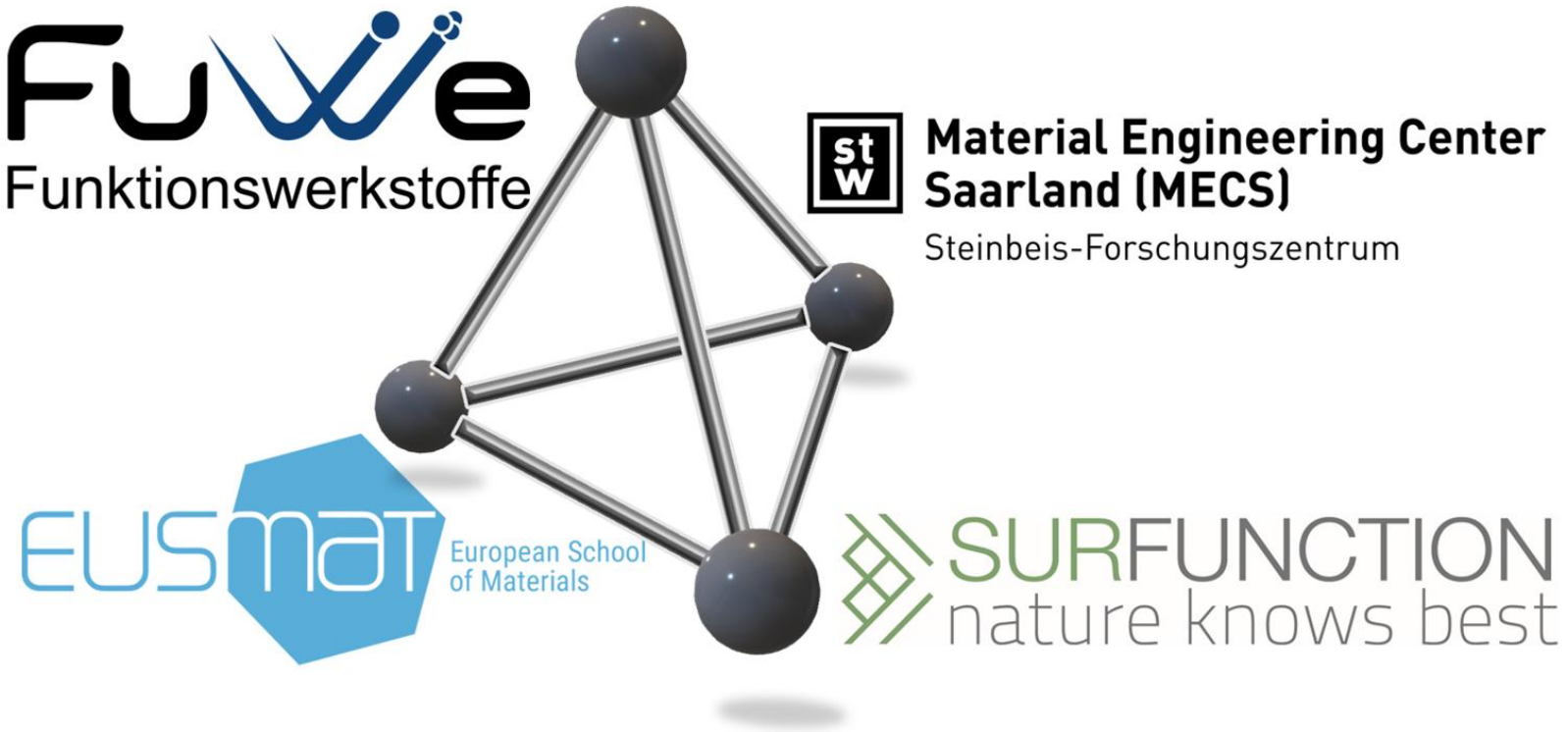
Steinbeis consultants work with customers to develop concepts that make sense in commercial and economic terms, and are technologically viable – also providing support with implementation

TRAINING

Methods based on business practice for developing and expanding staff skills

- COMPETENCE DEVELOPMENT FOR COMPANIES AND EMPLOYEES

EXAMPLES OF A FRUITFUL „MICRO-NETWORK“



- Chair of Functional Materials at Saarland University
- Steinbeis Research Center MECS (Material Engineering Center Saarland)
- Student laboratory (SAM)
- Spin off SURFUNCTION
- European School for Materials Research (EUSMAT)

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Ralf Lauterwasser

ralf.lauterwasser@steinbeis.de

www.steinbeis.de

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