
FRAUNHOFER IMWS

CURRENT TRENDS IN TECHNOLOGY TRANSFER

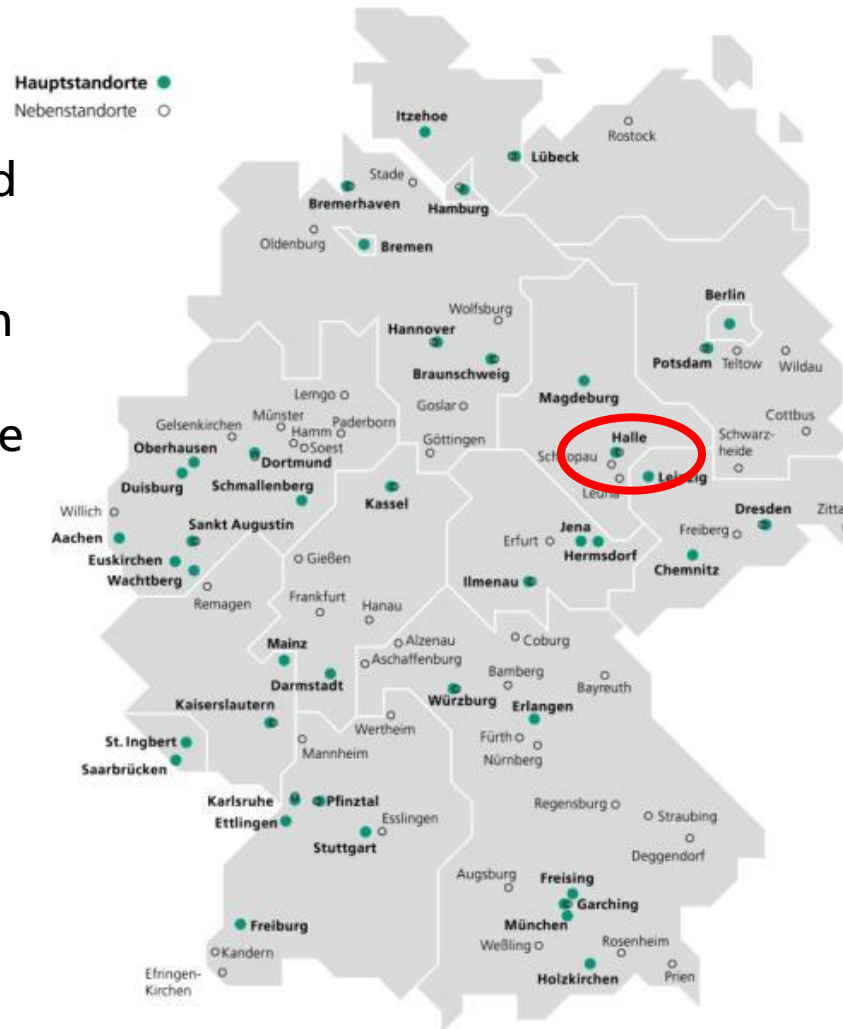
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Deputy Director



The Fraunhofer Gesellschaft at a glance

- Leading organization for applied research in Europe
- International collaborations with excellent research partners and innovative companies around the world



25 527 Staff



**2,3 Billion Euro
Budget**



**72 Institutes and
Research Facilities**

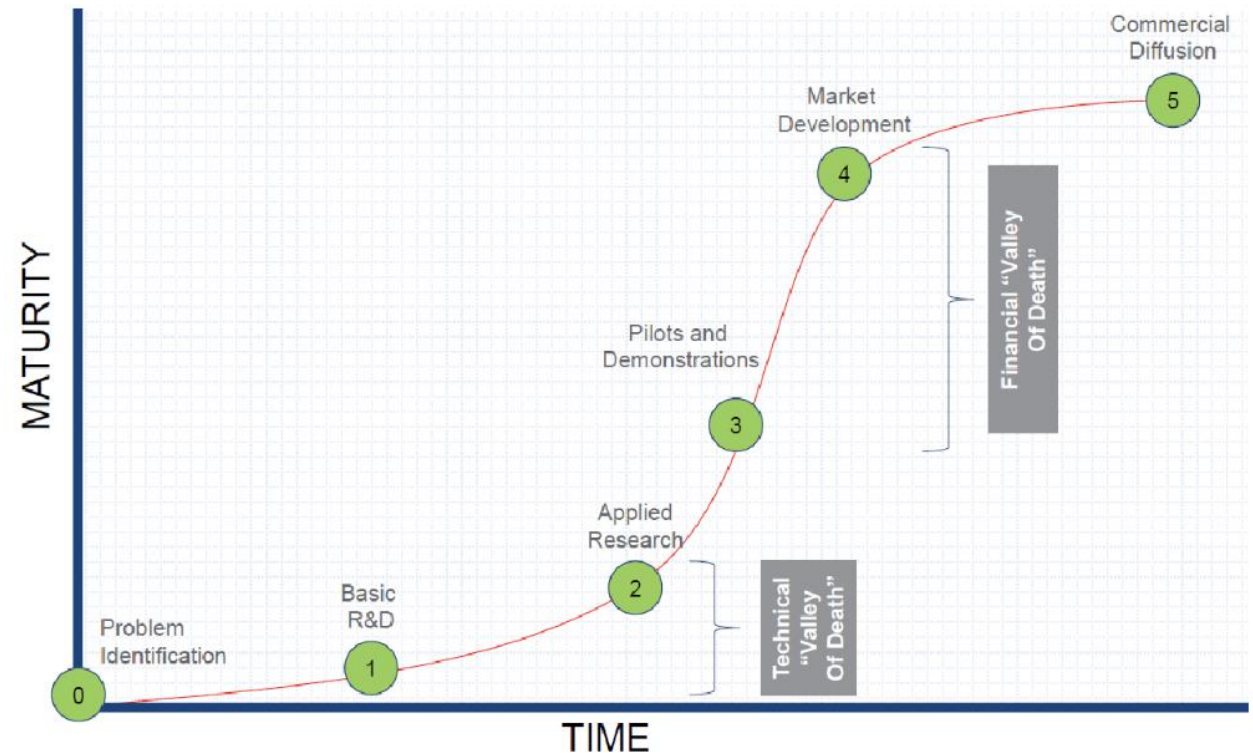
Innovation and Technology Transfer

Theoretical foundation

- Basic research generates knowledge, industry needs products and business models
- Fundamental challenge for technology transfer: knowledge spillovers
- Market failure reduces technology transfer below optimal levels
- Public-private partnerships correct for market failure

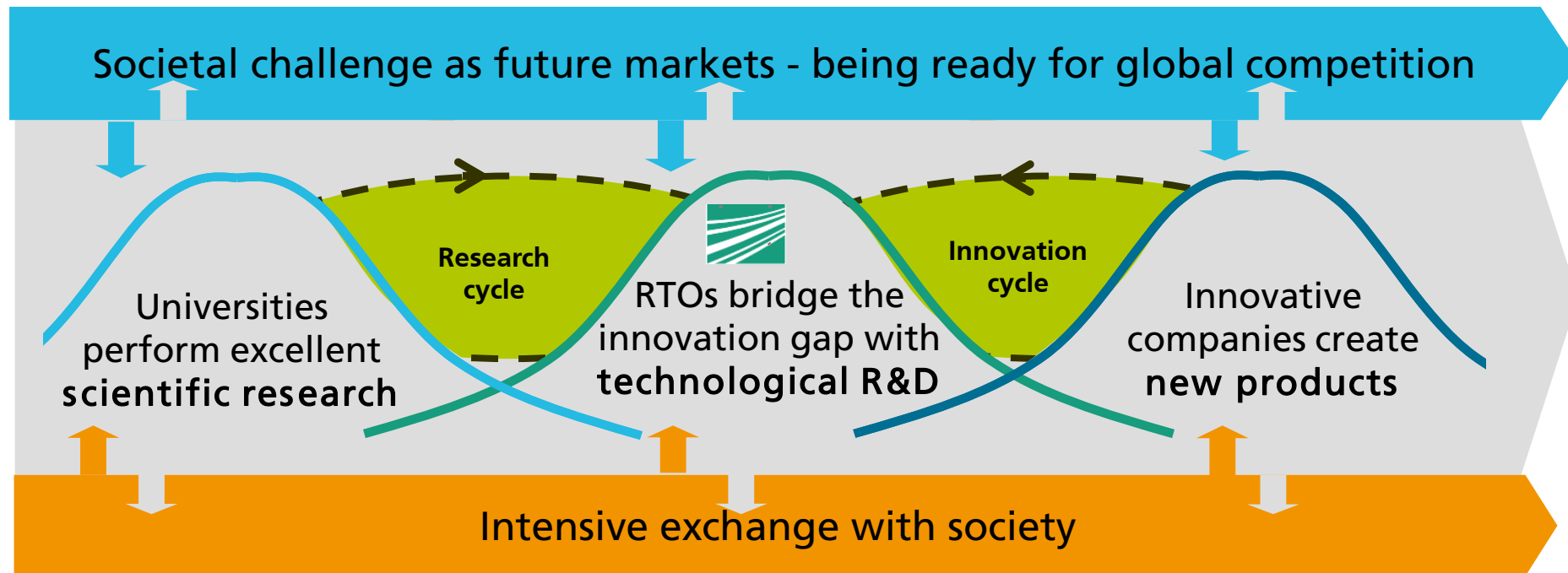
- Fraunhofer specialized in climbing the steep slope of maturity

Figure 1: Stages of Innovation (Illustrative)



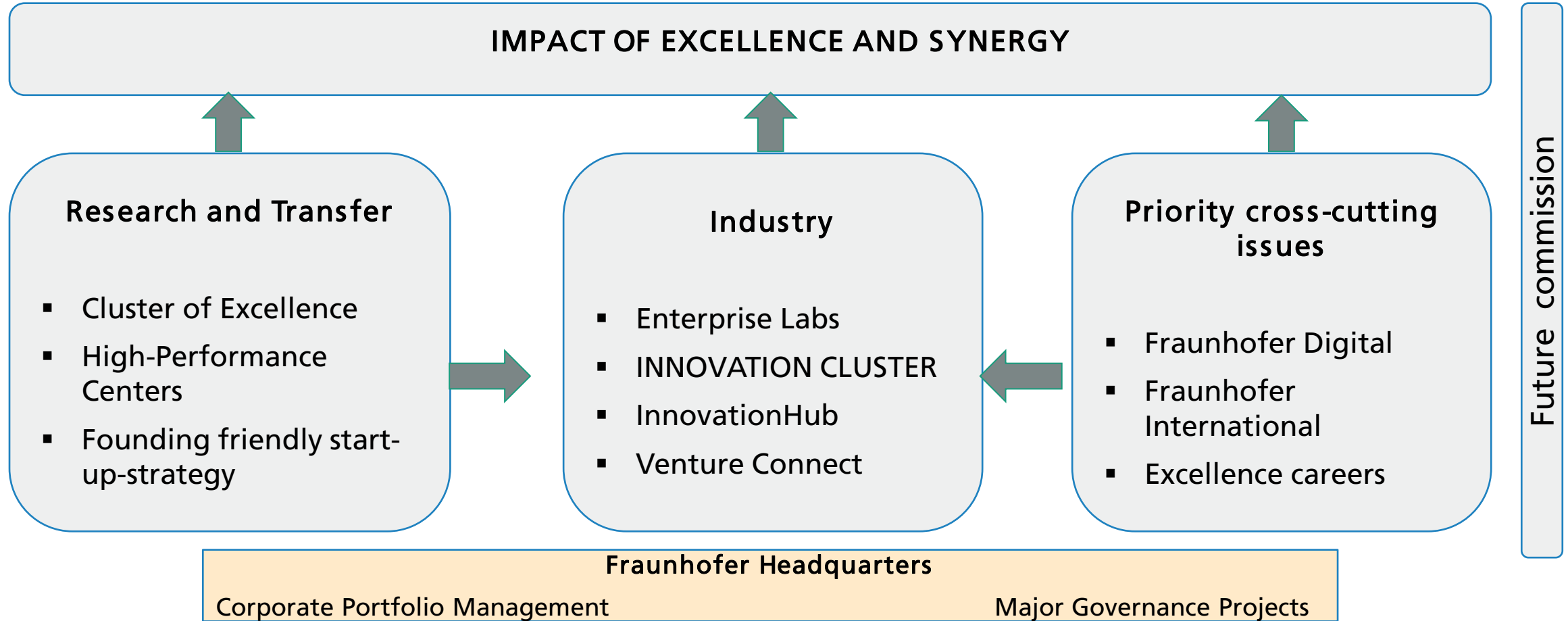
Quelle: World Economic Forum

Fraunhofer helps in synchronizing Research cycle and innovation cycle



Fraunhofer 2022

Structure and agenda



Examples of success

Fraunhofer Leistungszentren

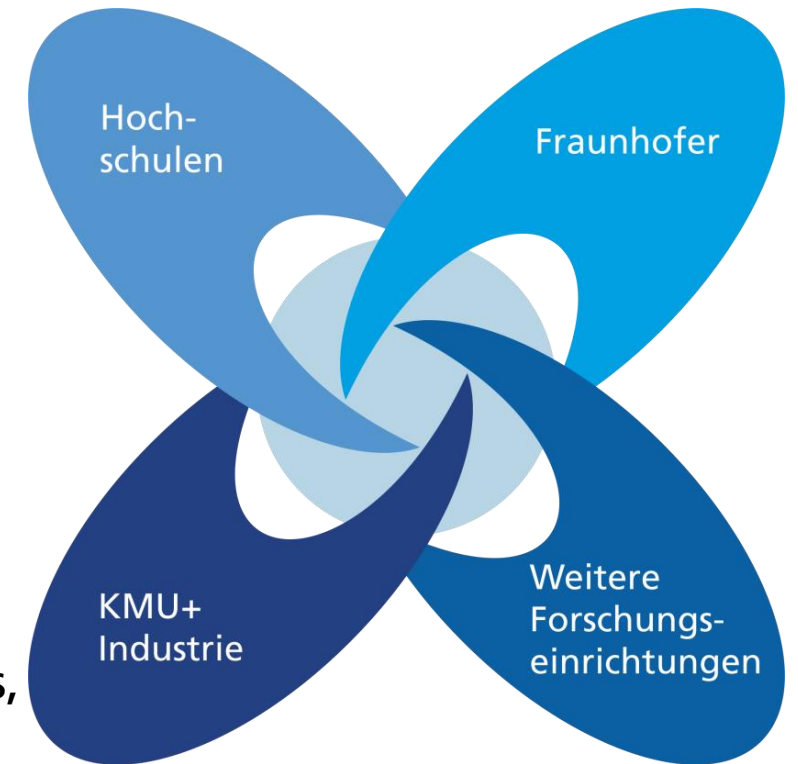
■ Fraunhofer high-performance center as a regional cooperation of:

- Universities (technology readiness level 1-5)
- Fraunhofer institutes (TRL 3-8)
- Other research institutions (TRL 3-8)
- Cooperating companies and Industry (TRL 5-9)

■ Specifications:

- One-Stop-Shop for industry
- Transfer paths:

Contract research, further education, licensing, Career, spin-offs, transfer to society



Examples of success

Innovation Cluster

- **Initiating innovation through regional networks**
 - Co-funded by private enterprises, Federal and regional funds and Fraunhofer
 - Average size / Cluster: €10- 50 million for 3-5 years
- **Closure of a structural gap in innovation processes**
 - Concentration of participants' strengths and resources
 - Improving the visibility of regions' specific characteristics
 - Persistent value chains in respect of the three-pillar-model
 - Focusing on technology development **vertical** or **horizontal**
 - Vertical Clusters: market driven such as Microelectronics or Automotive
 - Horizontal Clusters: chemical industry or material clusters such as carbon fibers

Examples of success

Enterprise Labs

- Cooperation with iterative project design
- 100% rewarded research cooperation with industrial companies on strategically superior research topics
- Selected developers / engineers of the customer cooperate with Fraunhofer experts in "Enterprise labs" at the institute
 - Interaction of research & industrial needs
- Good-Practice-Example:
 - Fraunhofer IML cooperation with DB Schenker:
 - Internet of Things, Industry 4.0, Big Data, Cloud Computing, change from process to service
 - Further cooperations with BMW, Würth and Sick are following

Examples of success

Venture Connect

- Supports companies, especially SMEs, and Fraunhofer institutes in the joint identification and exploitation of technologies.
- Identifying the needs of the companies as well as common formats of business model development of technologies with respect to the corresponding business needs.
 - Mediation, initiation and implementation of utilization-oriented entrepreneurial cooperation between companies and Fraunhofer Institutes
 - Recording and channeling of technology search fields of companies
 - Identification of suitable institutions for the company partner
 - Targeted business model development of identified technologies to the company partner
 - Determination of the optimal common utilization route of the technology

Latest trends in Germany

»Research Factory« and »Real Laboratory«

■ »Research Fab«

Anja Karliczek, Federal Minister of Education and Research:

»More money for battery research, development of battery cell production in Germany, faster transfer of research results into the application«

- Research fab: battery
- Initiative „excellent battery“
- Research cluster „solid state battery“

■ »Real-World Laboratories«

Federal Ministry of Economics and Energy:

»Real-World laboratories as test rooms for innovation and regulation serve to gain experience with digital innovation under real conditions.«

→ Development of a smart legal framework

- Focus: Sector Coupling (power-to-x)
- Investment incentives
- Regulatory holidays