
THE FRAUNHOFER-GESELLSCHAFT

Prof. Reimund Neugebauer
Milano, November 27, 2017



THE FRAUNHOFER-GESELLSCHAFT

- 1 Fraunhofer at a glance
- 2 Fraunhofer international
- 3 Conclusion

1 Fraunhofer at a glance

The Fraunhofer-Gesellschaft in Germany

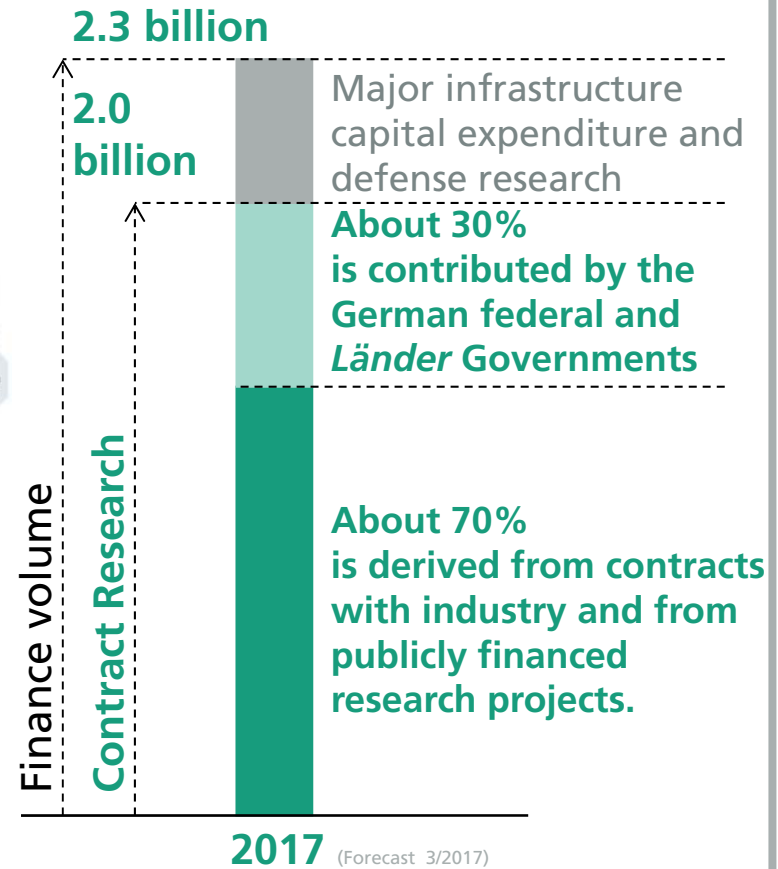
Mission: Promoting and conducting applied research for the benefit of private and public enterprises and society as a whole.


25,000 staff



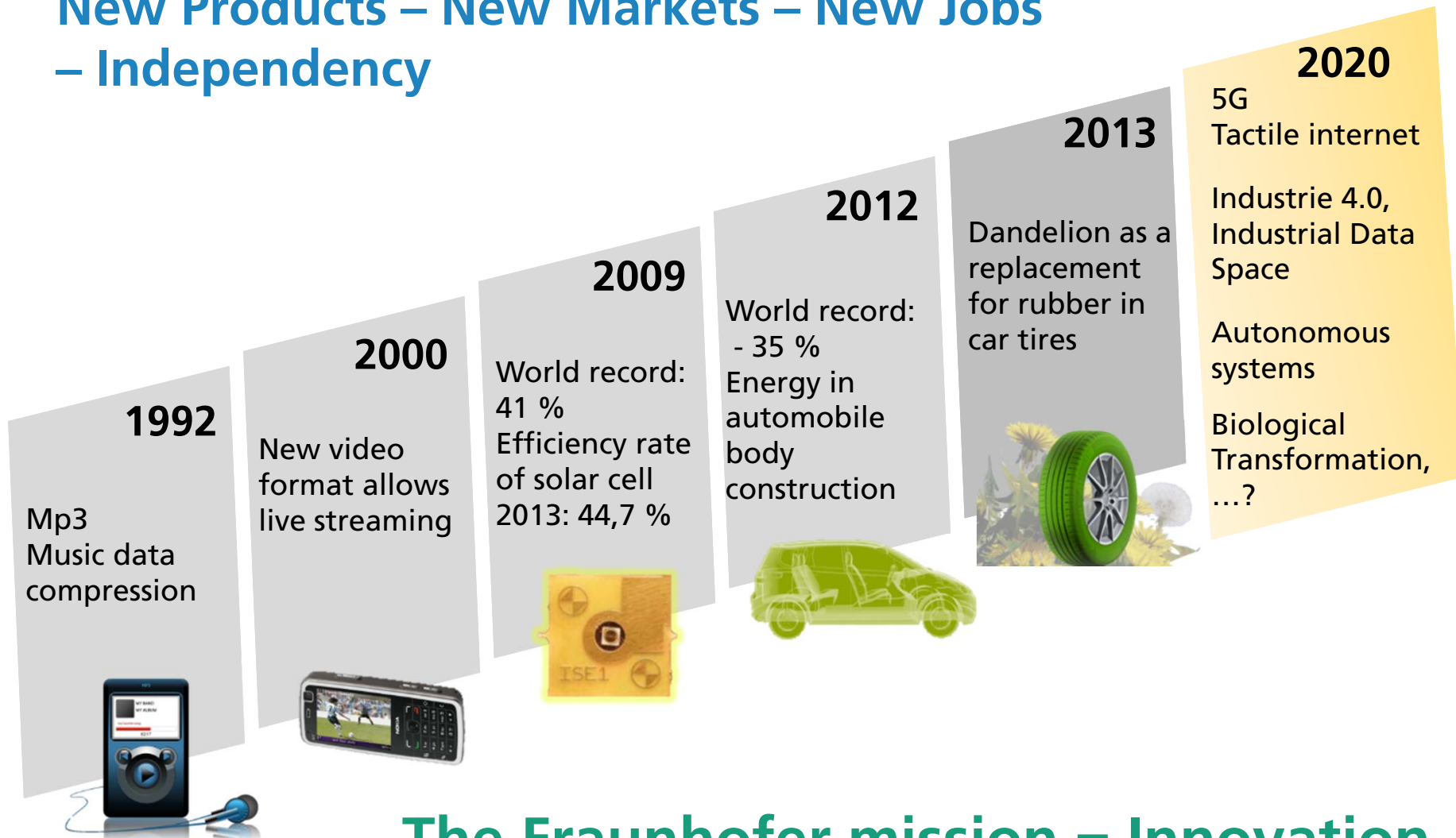
69 Institutes and Research Units

(From 2018: 72)



1 Fraunhofer at a glance

New Products – New Markets – New Jobs – Independency



The Fraunhofer mission = Innovation

1 Fraunhofer at a glance

The German Research Landscape



Mission

Applied research and development

Application-orientated research



Universities

Research and education



Topic-orientated science and large-scale research facilities



Leibniz-Gemeinschaft

Knowledge- and application-orientated science

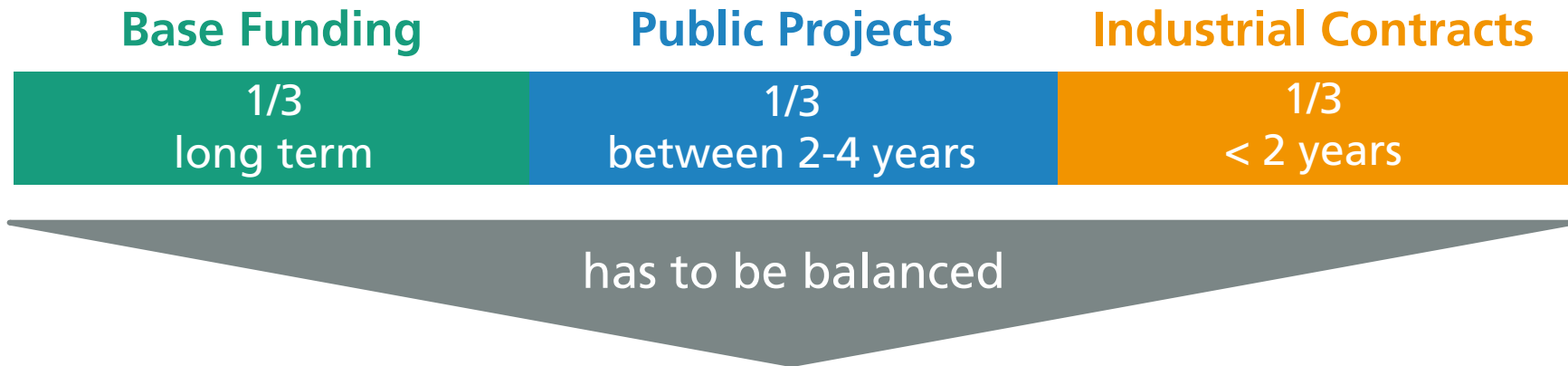


Fundamental science

Fundamental research

1 Fraunhofer at a glance

Fraunhofer Model



- **Base Funding:** continuity of scientific excellence
- **Public Projects:** precompetitive research (networks)
- **Industrial Contracts:** direct innovation push

1 Fraunhofer at a glance

Our role in the German national innovation strategy

High Level committees/working groups

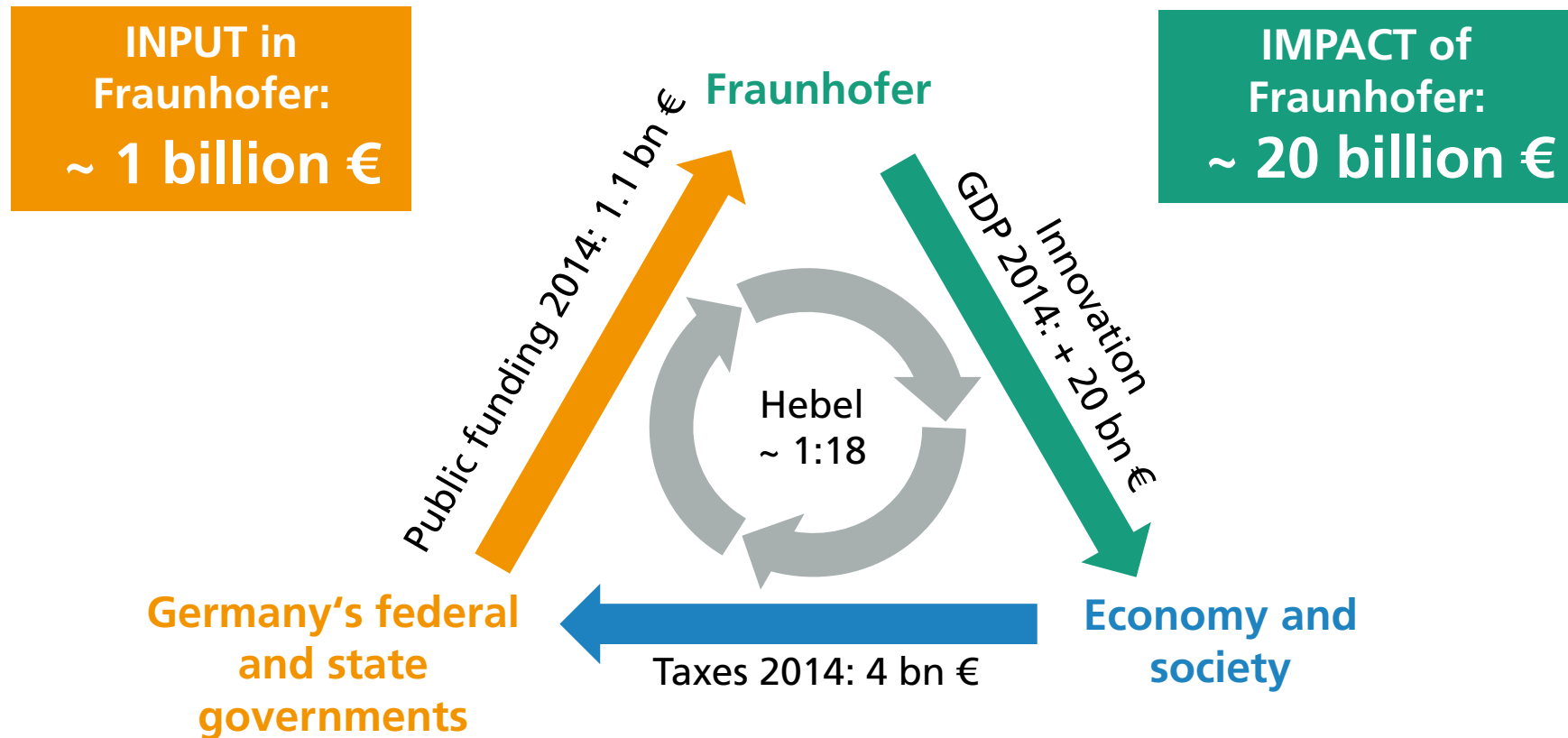
1. **Chancellor's Innovation Dialogue**
2. **Federal government High-Tech Strategy**
3. **National Platforms:**
 - **Electromobility**
 - **Industrie 4.0**
 - **Cognitive Systems (AI)**

Following activities

1. **New program for Disruptive Innovation**
2. **Fraunhofer – MaxPlanck Alliance Deep Learning**
3. **National Lab Microelectronics (Fraunhofer – Leibniz)**
4. **National Agenda Biological Transformation**
5. **National Innovation Lab Public Security**

1 Fraunhofer at a glance

Creation of measurable added value for Germany's economy – Results for 2014



Quelle: Frietsch/Lutz/Neuhäusler et al. (2016): The Impact of Fraunhofer on the German Innovation System, S. 61 ff.

1 Fraunhofer at a glance

Fraunhofer Fields of Research



1 Fraunhofer at a glance

Lighthouse Projects

ML4P – Maschine Learning for Production

Integration of human expertise and machine learning in manufacturing of tomorrow



ZEPOWEL – Towards Zero Power Electronics

With the Internet of things to a minimum of energy and resource demand for smart Cities and smart Fabrication



eHARSH – Sensorsystems for extreme environments

Sensorsystems and electronics for extreme environments



QUILT – Quantum Methods for Advanced Imaging Solutions

Transformation of the second generation of quantum technologies to innovation in measurement techniques

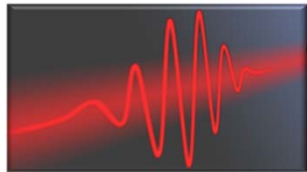


1 Fraunhofer at a glance

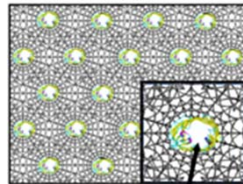
Fraunhofer Cluster of Excellence

- Claim
 - Scientific excellence
 - Sustained lead through synergies
 - Worldwide leadership in themes

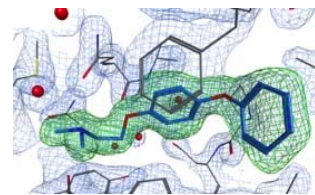
■ Concept »Virtual Institutes«



**Advanced Photon
Sources /
Quantum
technology**



**Programmable
Materials**



**Immune Mediated
Diseases**



**Cognitive
Internet
Technologies**

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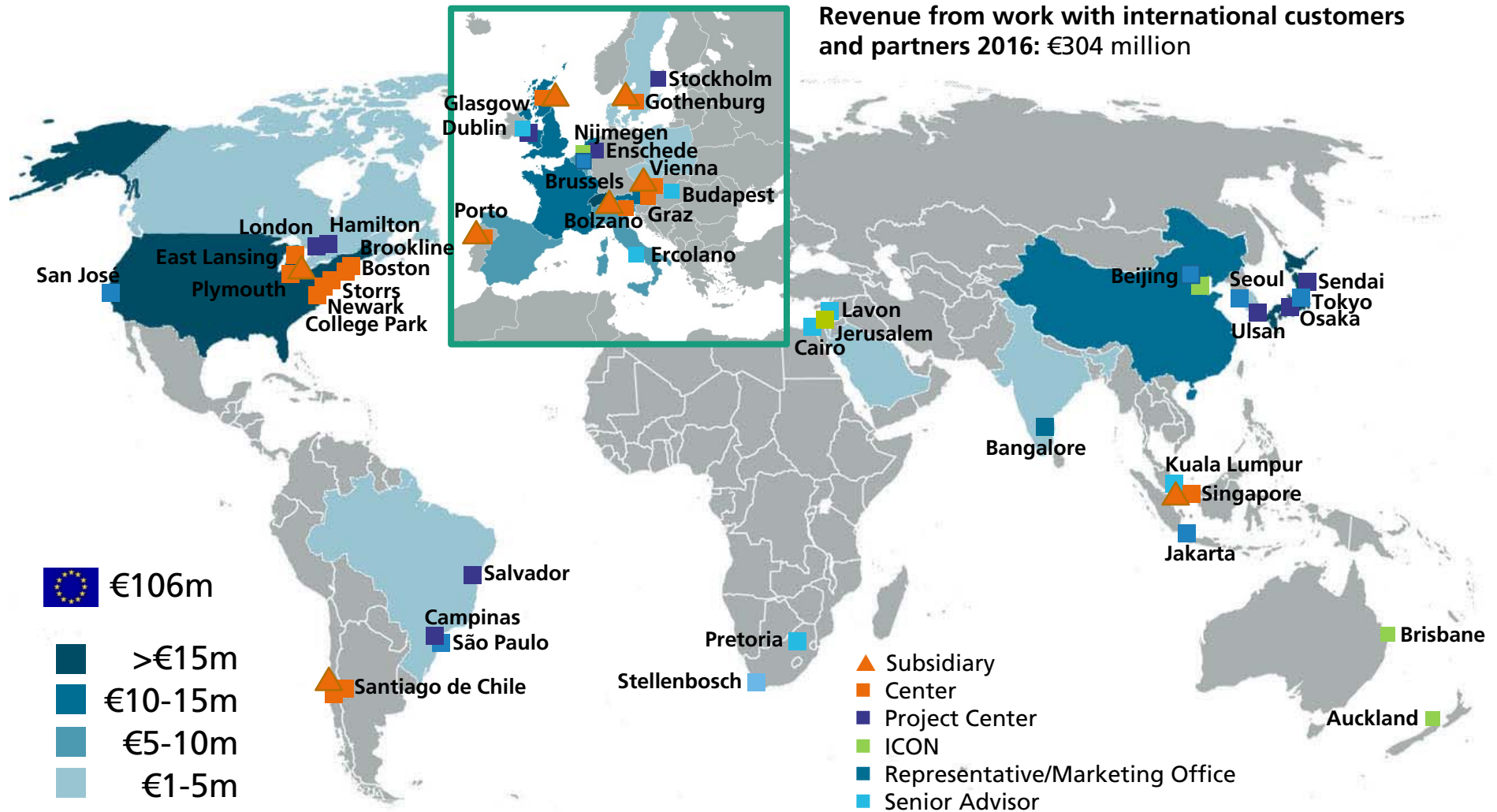
- 1 **Fraunhofer at a glance**
- 2 **Fraunhofer international**
- 3 **Conclusion**

2 Fraunhofer international

International activities and revenues worldwide

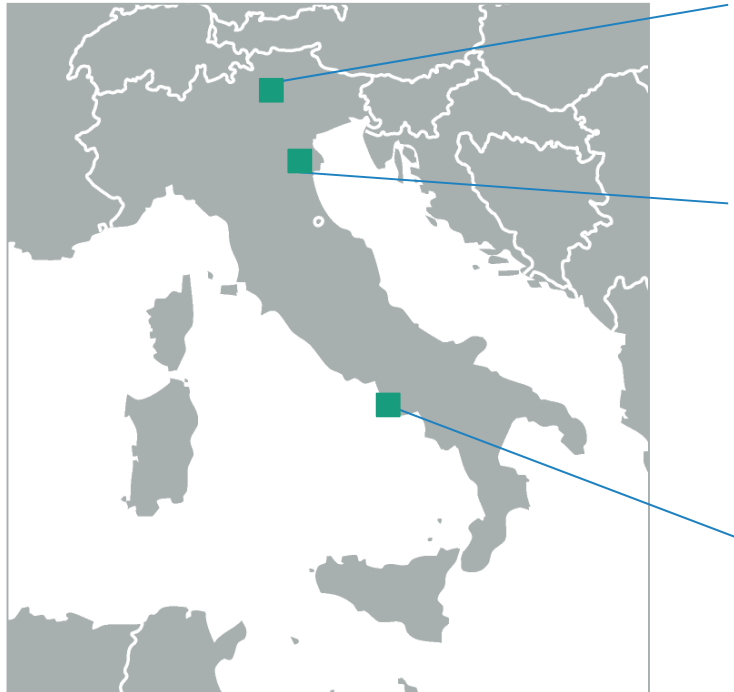
(2016, without subsidiaries, without licensing)

Revenue from work with international customers and partners 2016: €304 million



2 Fraunhofer international Fraunhofer in Italy

- Fraunhofer **Senior Advisor** Italy: Prof. **Luigi Nicolais**
- **40 Fraunhofer-Institutes** are working with Italian companies



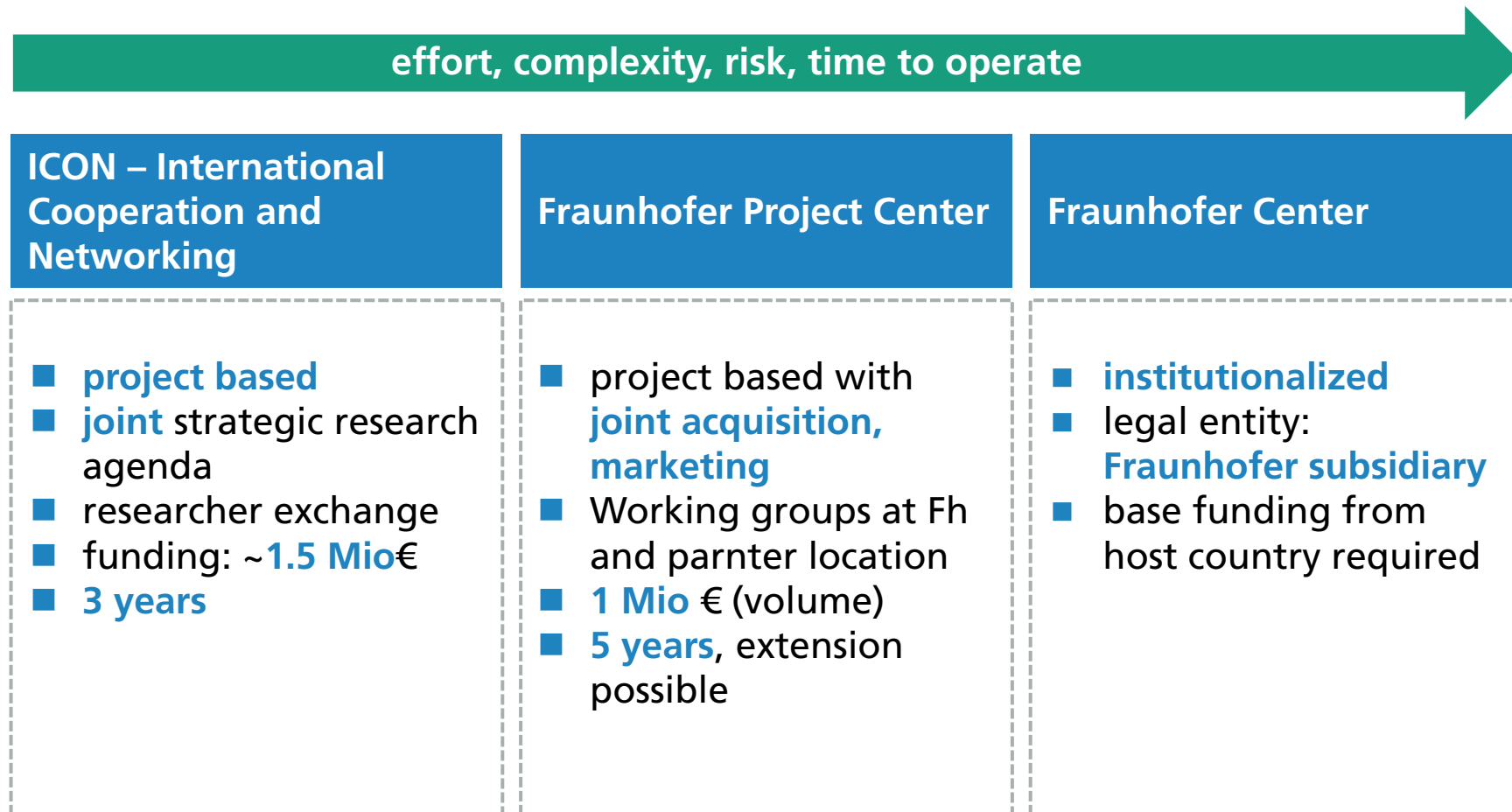
- **Fraunhofer Innovation Engineering Center IEC** in Bolzano, 2010
- **Fraunhofer Project Center for Waste Management and Future Energy Supply**, Fh UMSICHT / University of Bologna, Campus Ravenna, 2018
- **Joint Lab of Excellence on Advanced Production Technology (J_LEAPT)**: Fh IWU / University of Naples Federico II, 2010

2 Fraunhofer international Requirements for international cooperation



- Scientific added value for Fraunhofer
- Advantages for German and partner country's economy
- Project-driven
- Support through R&D-policy

2 Fraunhofer international Business models for international cooperation¹



¹beyond e.g. project cooperation within EU-project and bilateral contract research

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3 Conclusion

Fraunhofer's motivation is more relevant than ever..

„I have to set aside everything in my scientific endeavours which does not further the product.“

*Joseph von Fraunhofer
(correspondence with entrepreneur Utzschneider)*

The consequence for us today is:

- Scientific Excellence,
- Innovation Efficiency,
- Technology-Push for Society



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