

Industry 4.0 -Research and Funding of Advanced Manufacturing in Austria

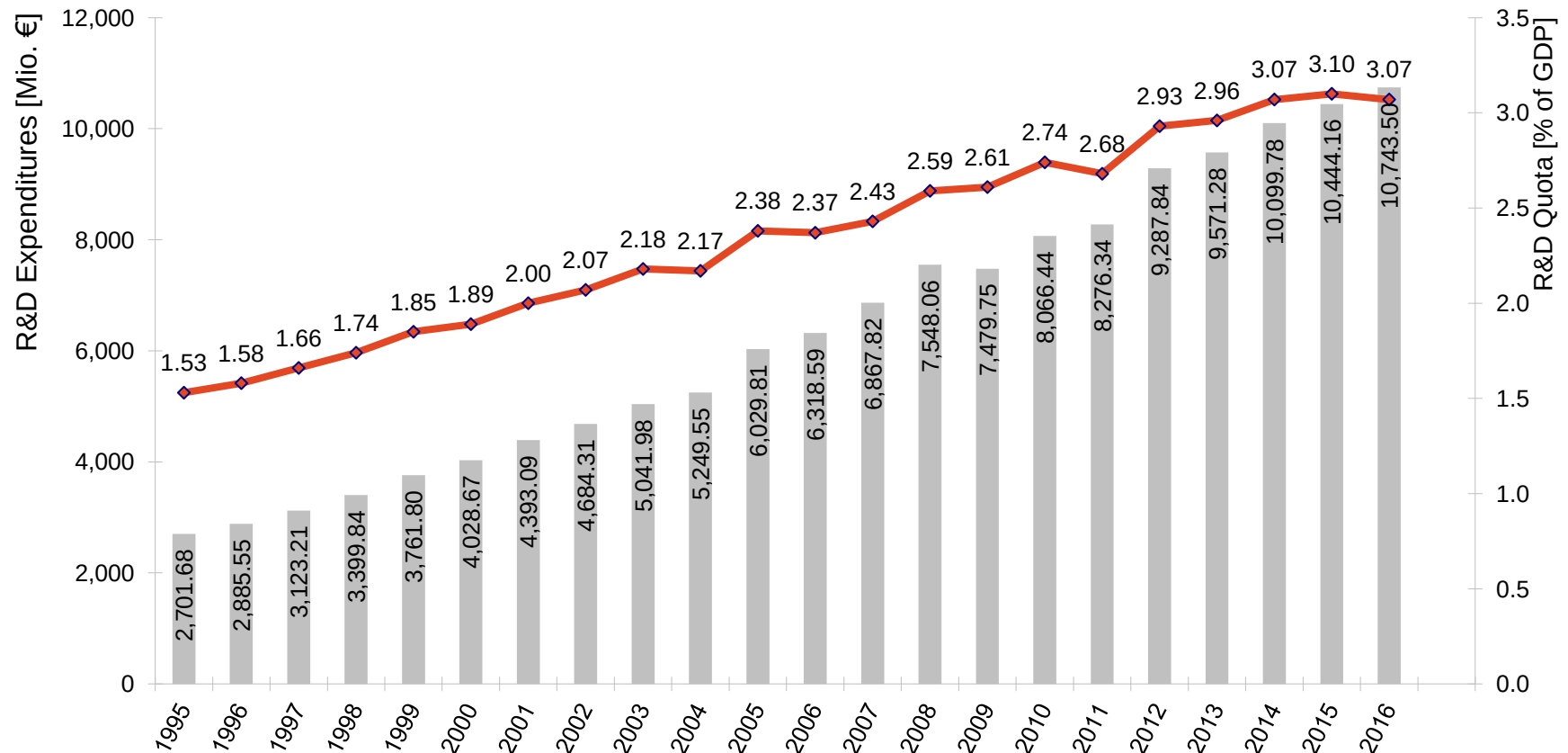
The Austrian Research Promotion Agency

Roland Brandenburg
FFG Austrian Research Promotion Agency
16 October 2017

- introduction to FFG
- Industry 4.0 in Austria
- support for RTD cooperation Austria-Taiwan

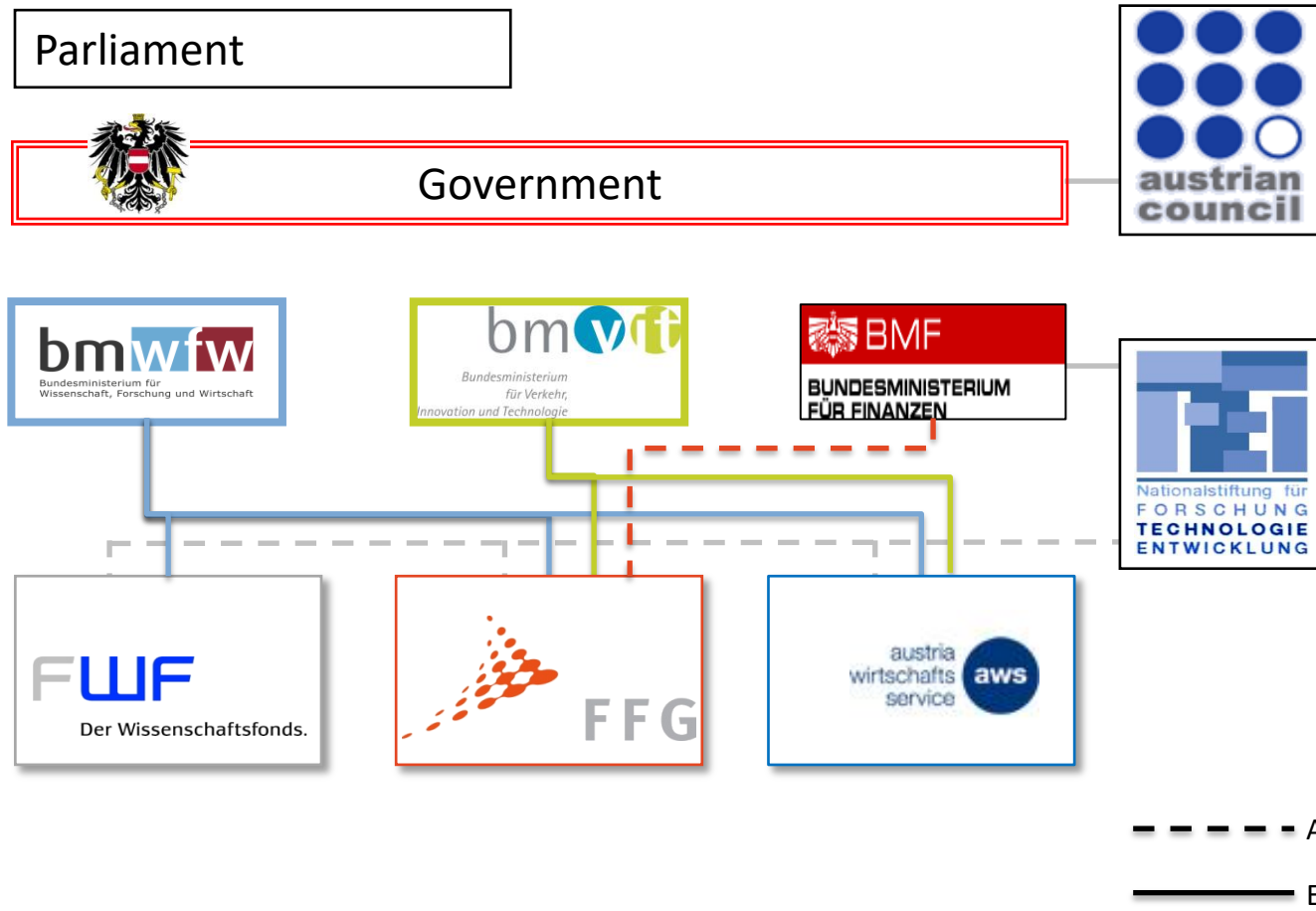
R&D EXPENDITURES IN AUSTRIA

2016: 3,07% of GDP



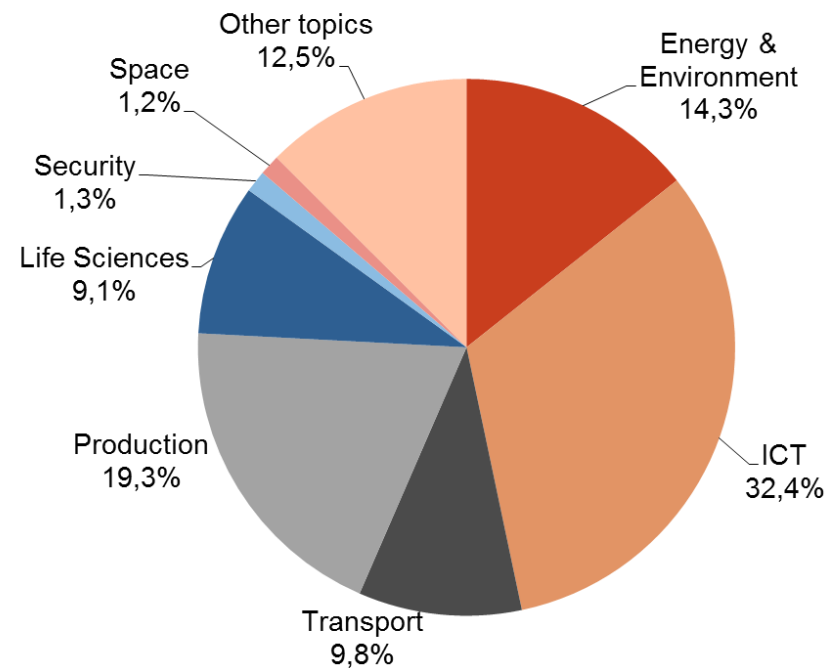
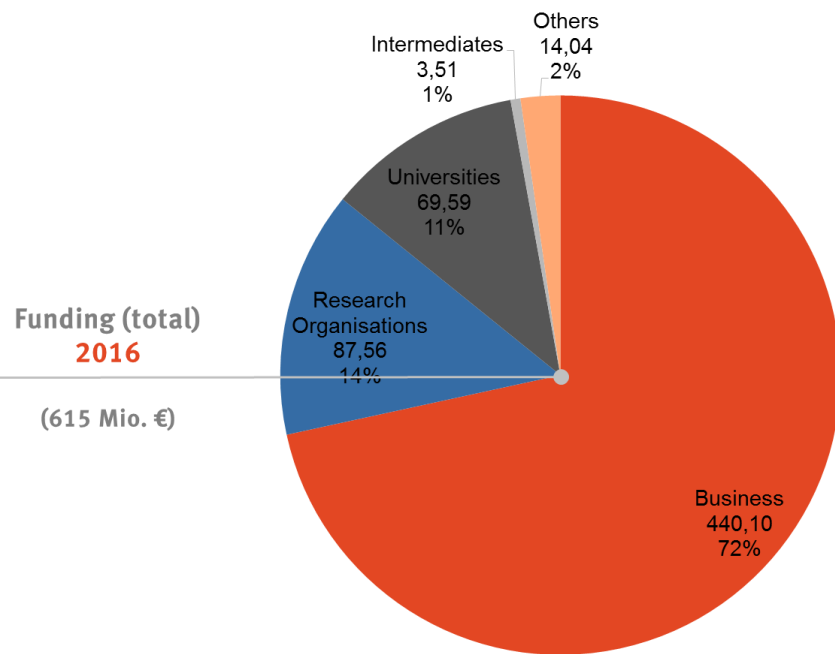
Source: Statistik Austria; Globalschätzung 2016

THE AUSTRIAN INNOVATION SYSTEM



FFG Research Statistics 2016:

funding per org.type / funding per topic



- **Thematically open programmes**

- Innovation Vouchers, Feasibility Studies
- Competence Headquarter, Bridge
- General Programme (R&D-projects)
- Competence Centers, Human Resources
- Beyond Europe
- Global Incubator Network

- **Thematic programmes**

- Production
- ICT
- Transport
- Energy
- Security
- Broadband-Infrastructure

- **European programmes**



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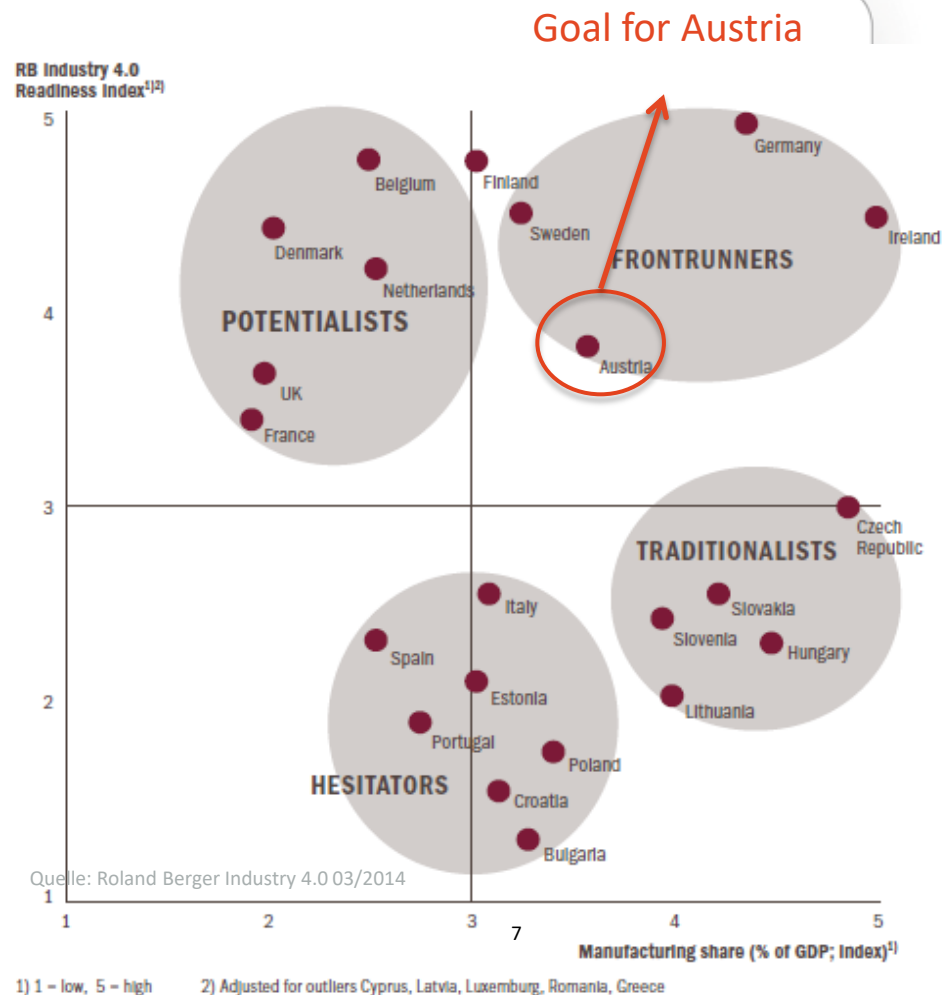
INDUSTRY 4.0 - READINESS LEVEL

>> AUSTRIA IN COMPETITION AND IN COOPERATION
WITH OTHER COUNTRIES

>> AUSTRIA HAS FRONTRUNNER POSITION



- **Germany, USA, Japan, Taiwan, South Korea, China** as well as **Austria** focus on Cyber-Physical Systems (Industry 4.0)
- **USA:** Strategy of Re-Industrialisation
- **Europe:** European Commission with ambitious plan for digitalisation of industry in Europe.
50 billion EUR investment of public and private sector mobilised (April 2016)
- **Austria-Goal:** Synergies, Cooperation, Strategy-Alignment, extend position in Front Runner Group...

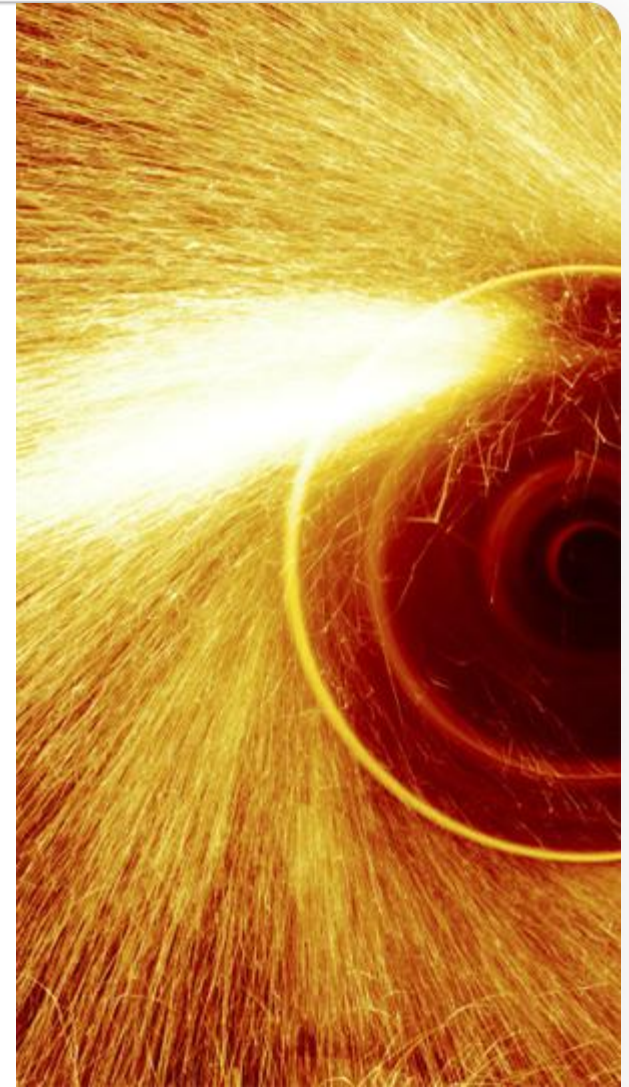


AUSTRIA HAS A LEADING POSITION IN INDUSTRIAL TECHNOLOGIES AND HIGH TECH MATERIALS

FACTS & FIGURES



- ❖ **About 600,000 employees** in the Austrian manufacturing sector.
- ❖ **In EU comparison: manufacturing sector in Austria** is with 22% gross value above the EU average of 18.7%.
- ❖ **The number of patent applications** in Austria increased from 2000 to 2010 in all fields of production technology by 38%. In key industrial technologies, the increase was even higher with 72%.
- ❖ **Strong international competitive position** in high tech materials, photonics and micro- and nanoelectronics.
- ❖ **Outstanding Research:** metal production and metal processing is outstanding beside a strong industry in the field of data processors, electronic and optical products, engineering of machines and the manufacturing of rubber and plastic products.



FLAGSHIP PROJECTS IN MATERIALS AND PRODUCTION COMPETENCE CENTERS



MCL Material Center Leoben - Materials, Processing und Product Engineering

https://www.ffg.at/sites/default/files/allgemeine_downloads/strukturprogramme/comet_k2-factsheets_mppe_eng.pdf

PCCL Polymer Competence Center

https://www.ffg.at/sites/default/files/allgemeine_downloads/strukturprogramme/comet_k1-factsheet_pccl_eng_2014.pdf

CEST Centre of Excellence in Electrochemical Surface Technology and Materials

https://www.ffg.at/sites/default/files/allgemeine_downloads/strukturprogramme/comet_k1_call3_factsheet_cest_en.pdf

K1-MET Competence Center for excellent Technologies in Advanced Metallurgical and Environmental Process Development

https://www.ffg.at/sites/default/files/allgemeine_downloads/strukturprogramme/comet_k1_call3_factsheet_k1-met_en.pdf

WOOD Next generation materials & processes – from fundamentals to implementations

https://www.ffg.at/sites/default/files/allgemeine_downloads/strukturprogramme/comet_k1_call3_factsheet_wood_en.pdf

ACCM Austrian Center of Competence in Mechatronics

https://www.ffg.at/sites/default/files/allgemeine_downloads/strukturprogramme/comet_k2-factsheet_accm_en_2014_0.pdf

VIRTUAL VEHICLE Research Center Mechanics and Material in the vehicle sector

<http://www.v2c2.at/en/>

XTribology Austrian Excellence Center of Tribology

https://www.ffg.at/sites/default/files/allgemeine_downloads/strukturprogramme/comet_k2-factsheet_xtribology_eng.pdf

Association Industry 4.0 Austria – The Platform for Smart Production



- established in 2015 to foster collaboration among all stakeholders and facilitate new technological developments and innovations in the context of digitization ('Industry 4.0').
- facilitates the implementation of digital transformation in Austria and unifies the Industry 4.0 community. It aims to secure and create highly innovative industrial production and to boost quality employment, thus strengthening Austria's future competitiveness.
- considers Industry 4.0 a societal challenge that
 - can only be addressed by collaboration of industry, science, regional and national policy makers, associations, trade unions and NGOs
 - is driven by technological innovation, new business models, knowledge transfer and its widespread socially acceptable deployment and implementation

More information: www.plattformindustrie40.at

EXPERT GROUPS



INDUSTRY 4.0 -Pilot Factory



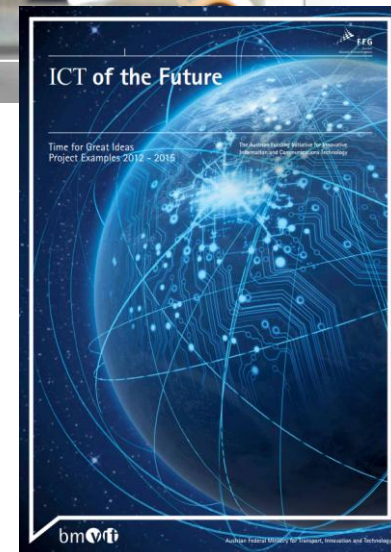
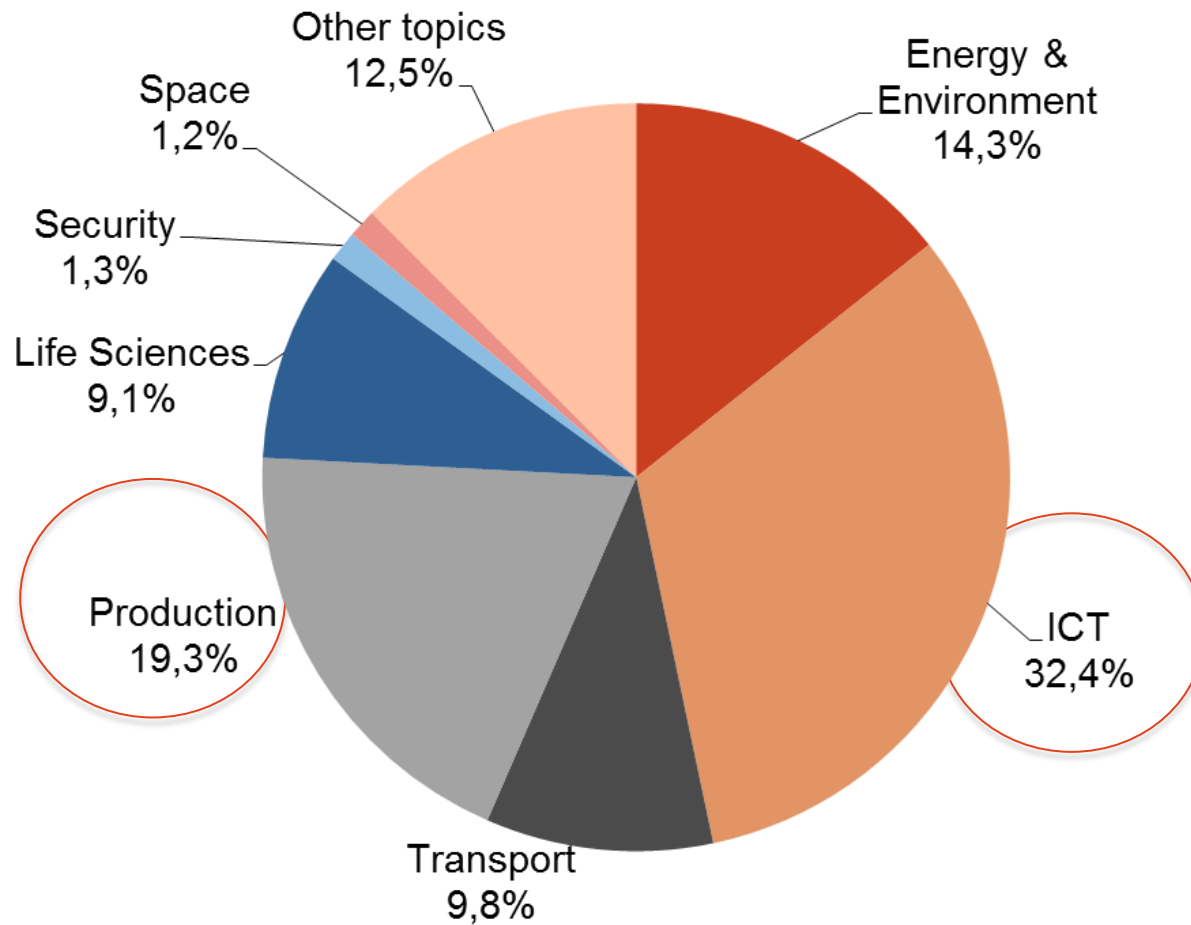
- simulations of a real factory; a lab situation with real machines and logistics systems.
- authentic test and research environment for companies to conduct in near-real conditions and perform analyses without interrupting the production process
- Industry 4.0 key technologies were identified:
 - smart electronic based systems
 - discrete manufacturing and process engineering.
- first pilot factory established in Vienna (2015)
- Ministry for Transport, Innovation and Technology will finance a second appeal for three further pilot factories in Austria in 2017/2018.

OUTLINE



- introduction to FFG
- Industry 4.0 in Austria
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INDUSTRY 4.0. related topics >> strong in overall FFG funding



PRODUCTION OF THE FUTURE CALL 2018



TRANSNATIONAL COOPERATION

Topics 2018:

- 1. Industry 4.0 (advanced manufacturing, modeling, simulation of production processes, systems and components; agile, integrated product and process development); TRL 2-7
- 2. Biobased Industry
- 3. Photonics
- 4. Nanotechnology
- 5. Manufactured Materials and Raw Materials
- 6. Robotics

Call open: May 2018

Deadline: September 2018

Instrument: Cooperative R&D Projects

Budget: 18 Million EURO



Transnational cooperation is possible:

- partners from Taiwan welcome
- up to 20% of total project funding available to non-Austrian partners

M-ERA.NET:

TRANSNATIONAL NETWORK ON MATERIALS RESEARCH

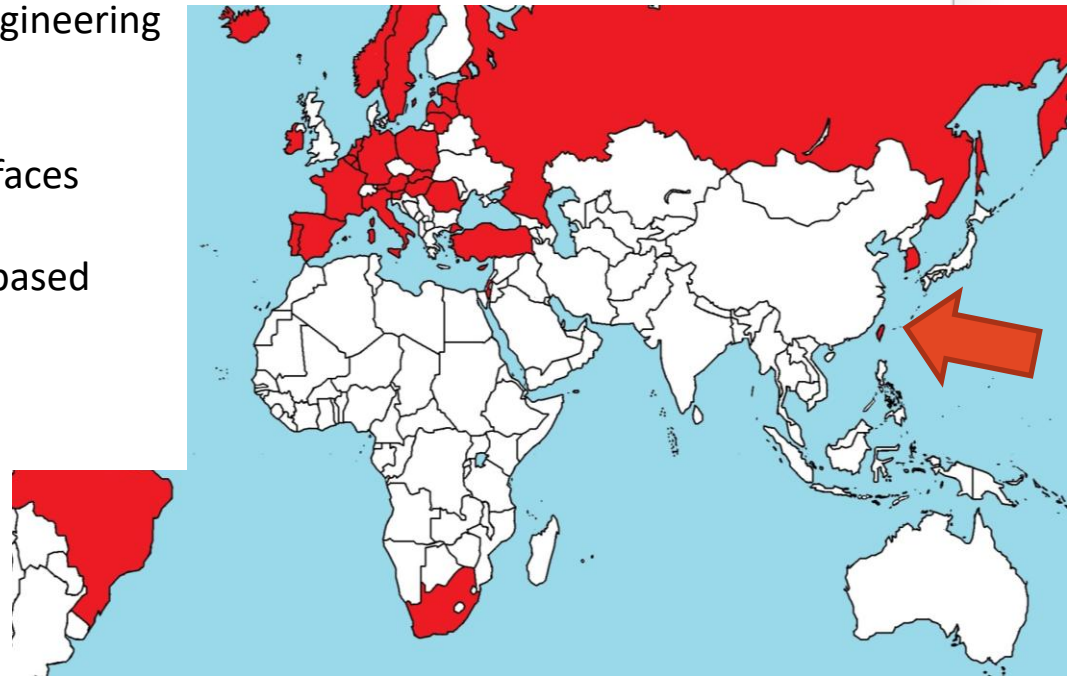


- network coordinated by FFG: 43 funding organisations from 30 countries
- MOST (TW) is a full network member since 2016
- MOST participated in annual joint calls since 2012
- 14 funded Taiwanese participations; 2 funded projects Austria-Taiwan

Topics Call 2018 (DRAFT):

- Integrated computational materials engineering
- Materials for additive manufacturing
- High performance composites
- Innovative surfaces, coatings and interfaces
- Multifunctional materials
- New strategies for advanced material-based technologies in health applications

www.m-era.net

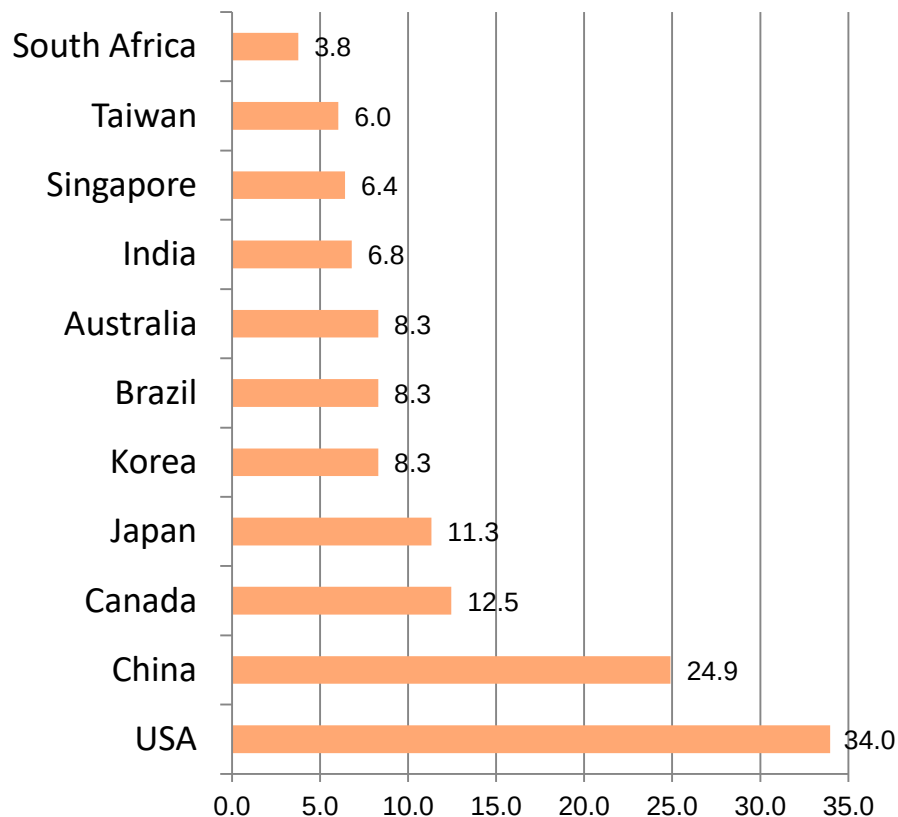


FFG INTERNATIONAL ACTIVITIES:

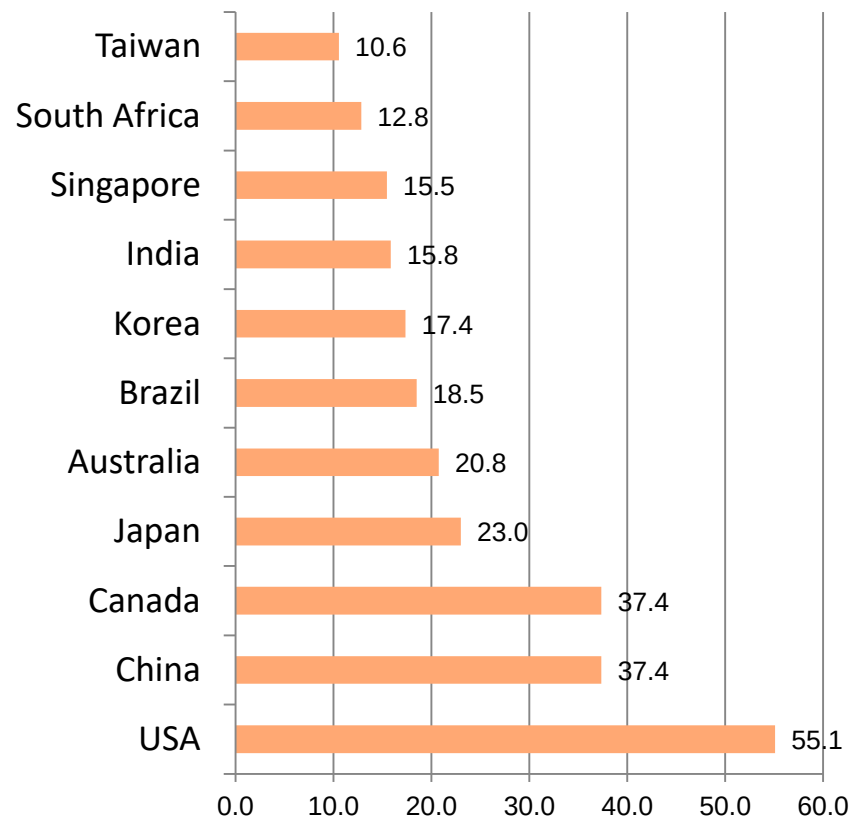
>> ANALYSIS OF RTD COOPERATION INTERESTS AMONG FFG CLIENTS (2016)



RTD cooperation experience
[% of respondents]

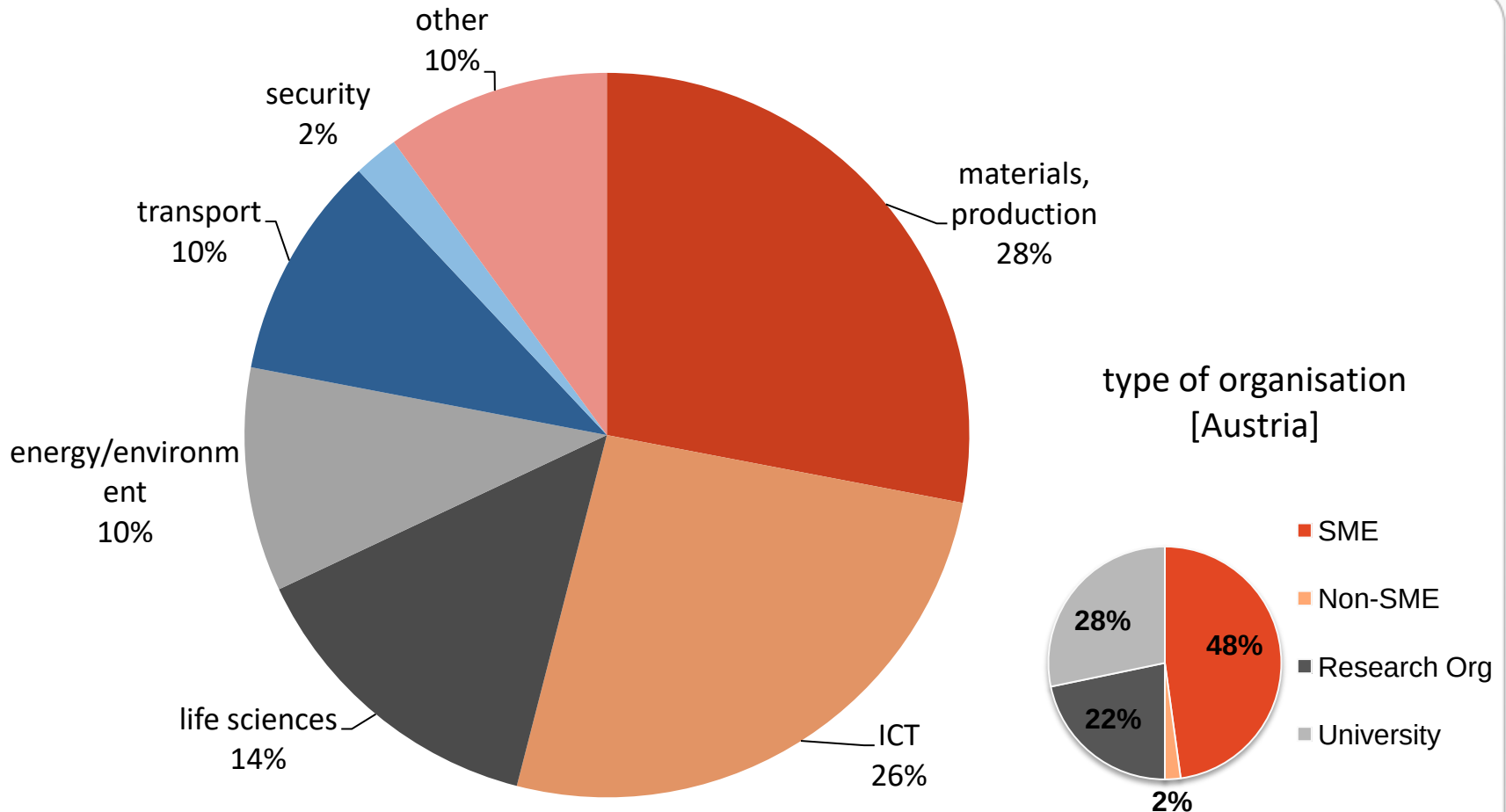


RTD cooperation interest
[% of respondents]



RTD COOPERATION INTEREST:

>> target country: Taiwan

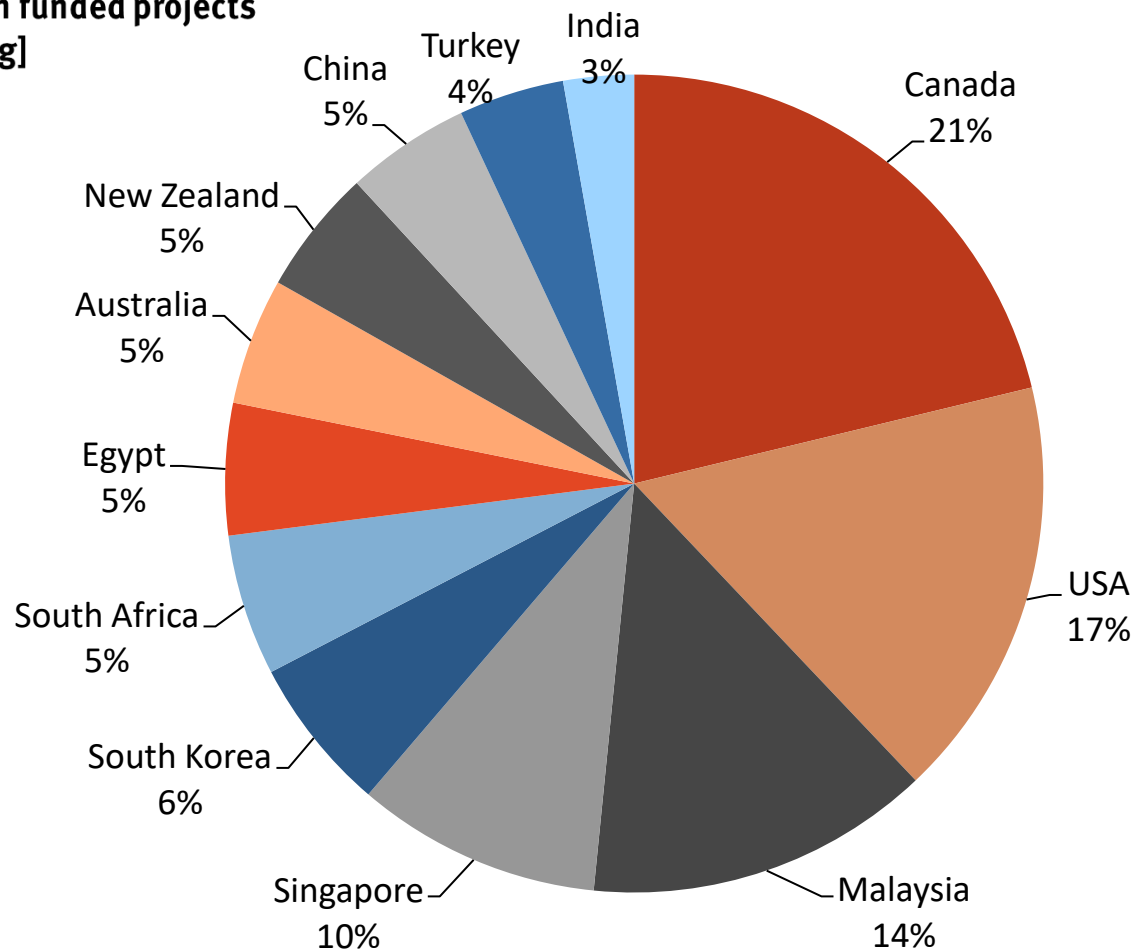


- Funding programme to facilitate international RTD activities of Austrian companies and research institutions with partners outside Europe.
- established 2015: www.ffg.at/beyond-europe
- 1. Call 2016 results available
- 2. Call 2017 closed
- 3. Call 2018 (tbc)
- open thematic scope
 - minimum 1 Austrian company, cooperative projects with min.1 partner outside Europe
 - no preference for any specific country

BEYOND EUROPE: RESULTS OF 1ST CALL

>> FUNDED PROJECTS BY PARTNER COUNTRY

origin of international partners in funded projects
[% of total funding]



SERVICE & CONTACT

- **FFG programmes:**

Production of the Future:

https://www.ffg.at/sites/default/files/downloads/page/ffg_produktion_der_zukunft_englisch_low_res.pdf

ICT of the Future:

https://www.ffg.at/sites/default/files/allgemeine_downloads/thematische%20programme/IKT/iktdz_e.pdf

Beyond Europe: <https://www.ffg.at/en/beyond-europe>

- **M-ERA.NET:** www.m-era.net

- **Association Industry 4.0 Austria:** www.plattformindustrie40.at

- **Contact:**

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Thank you for your attention!

