



# Internal Market, Industry, Entrepreneurship and SMEs Directorate General

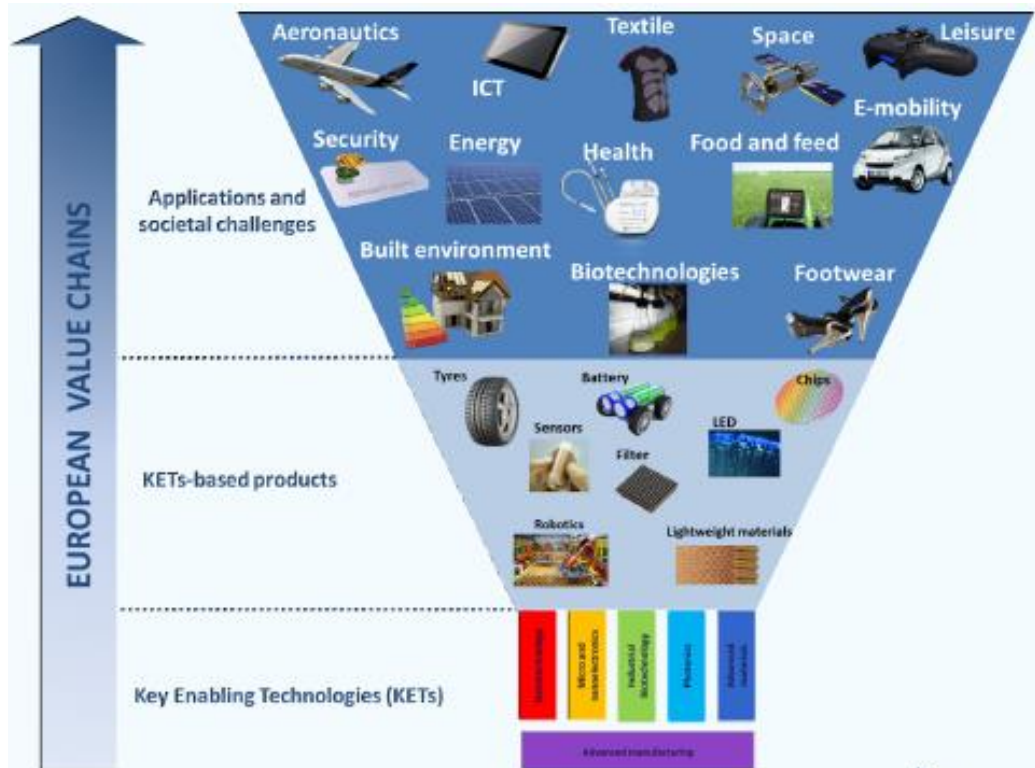
**Facilitating access to KETs  
technology centres:**  
mapping, networking and awareness  
raising activities

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**KETs, Digital Manufacturing &  
Interoperability Unit**

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## Key Enabling Technologies (KETs)



19% of EU28 production  
 3,3 million EU jobs  
 10.000 EU companies  
 Positive impact on GDP growth  
 KETs specialisation increases regional innovation performance

- ✓ "Technology building blocks" of advanced products and solutions
- ✓ Driving competitiveness and growth opportunities

- **Advanced Materials**
- **Industrial biotechnology**
- **Nanotechnologies**
- **Photonics**
- **Micro-/nanoelectronics**
- **Advanced Manufacturing**

**KETs HAVE APPLICATIONS IN MULTIPLE INDUSTRIES IN BOTH EMERGING AND TRADITIONAL SECTORS**

## KETs High-Level Group

Recommendation #1:

### Boost European technology infrastructures to support industry



Ensure a European framework for technology infrastructures by **supporting technology infrastructure networks which provide access to industry** to share their expertise, cooperation and business practices, develop common projects, build up shared vision and common roadmaps in strategic areas

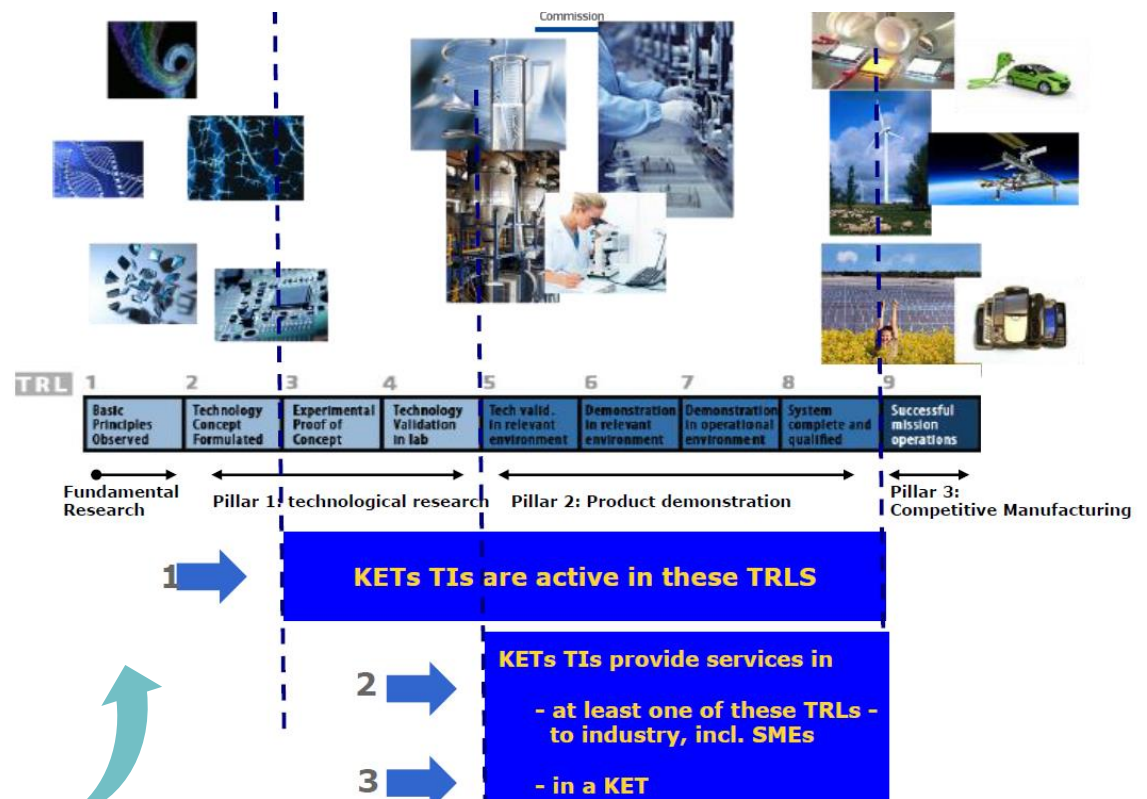
- **Ensure pan-European access of industry to a set of KETs technology infrastructures:** support cooperation and access of industry to state-of-the-art technology infrastructures
- **Workable funding mechanism** supporting capital-intensive expenditures as initial investment for cooperation activities between KETs technology infrastructures and industry
- Develop an **EU strategy on European technology infrastructures** which anticipates industrial needs, gaps and related opportunities for market uptake in cooperation with industry

# Helping companies to innovate: Ensure SMEs have easy access to state-of-the art facilities

*Shared facilities help companies to*

- 👍 *reduce the costs of innovation projects (equipment)*
- 👍 *increase probability of success (expertise)*
- 👍 *reduce market uncertainty (clients)*

## Mapping of technology centres providing close-to-market services to companies in KETs



SMEs have difficulties to access (limited human resources, financial capacities or lack of awareness)

# European KETs technology centres providing services to SMEs

<https://ec.europa.eu/growth/tools-databases/kets-tools/kets-tc/map>

*Promotion via Enterprise Europe Network*

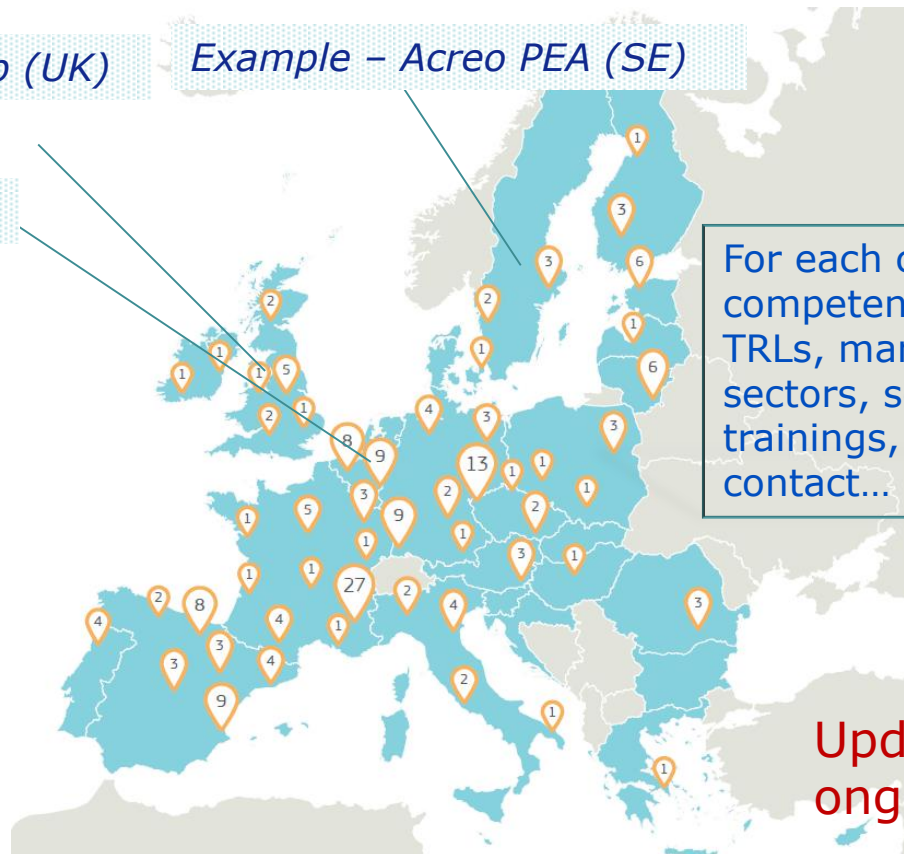
*Example - Warwick Manufacturing Group (UK)*

*Example - Acreo PEA (SE)*

*Example - Holst Centre (NL)*

## **Criteria**

- Turnover stemming from technological services
- Number of Full Time Equivalentents (FTEs) providing technological services
- Total investment in equipment
- Internal expenditure on R&D&I
- Turnover stemming from technological services provided ONLY to SMEs
- Number of FTEs providing technological services ONLY to SMEs
- Number of contracts delivered to SMEs in terms of technological services



For each centre:  
competences,  
TRLs, market  
sectors, services,  
trainings, SME  
contact...

**Update  
ongoing!**



## *Warwick Manufacturing Group: good practice of how universities and business can successfully work together to develop new products & processes*

### Case Study 1: Barton Coldform Ltd

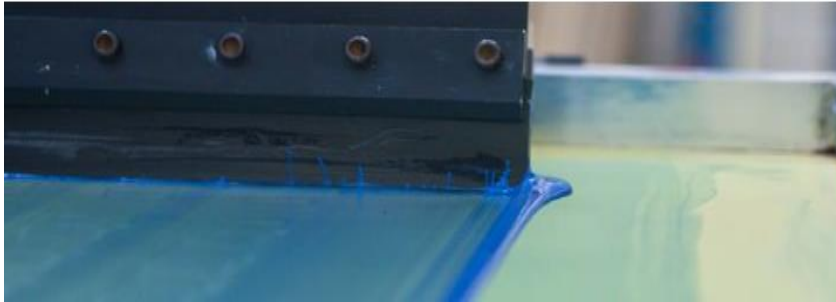


- Manufacturer of critical fastenings and special cold forgings
- Worked with WMG to introduce Additive Manufacturing to prototyping process
- Reduced lead time of proof of concept parts by 12 weeks
- **Led to contract win with Ford Motor Company worth £300k**

**Case Study 2:  
Austin factory**  
Watch the Euronews  
Business Planet:  
<http://www.euronews.com/2016/01/08/the-importance-of-key-enabling-technologies-for-smes/>

*WMG is co-funded  
via ERDF*

## *Swedish Acreo PEA (Printed Electronics and Sensor Systems Pilot Line)*



Printed Electronics Arena Manufacturing (PEA Manufacturing) is a test environment, operated by the research institute Acreo, for development of small scale production of Printed Electronics.

- ☞ **Test environment** with complete manufacturing processes offering wide range of equipment and materials (e.g. flat screen printing, inkjet printers, UV, IR dryers,...)
- ☞ All types of organizations and companies are welcome to use the test environment to see if they can incorporate Printed Electronics into their products or processes (can work **independently or in consultation with the trained scientists and operators** working in the test environment).
- ☞ **Expertise** is available in areas such as graphic design, physics, chemistry, machine operation and project management.
- ☞ Act as **start-up facilitator for the region**

*Acreo is co-  
funded by region*



European  
Commission

## Filters to find the right centre

### Filters

- ▶ Countries —
- ▶ KETs Activity —
- ▶ Technology Readiness Levels —
- ▶ Market sectors —

▼ Training

- No
- Yes

▼ Technology Readiness Levels

[Select All](#)

- TRL 3: Experimental proof of concept
- TRL 4: Technology validated in lab
- TRL 5: Technology validated in relevant industrial environment
- TRL 6: Technology demonstrated in relevant industrial environment
- TRL 7: System prototype demonstration in operational environment
- TRL 8: System complete and qualified
- TRL 9: Actual system proven in operational environment

▼ Market sectors

[Select All](#)

- Aeronautics & space
- Automotive / transportation
- Chemical industry
- Construction & building sector
- Consumer goods/products
- Energy
- Environment
- Food
- ICT industry (including electronics, computer and communication related products)
- Measurement
- Medical & Healthcare
- Production technology (machinery / equipment / automation)
- Textile



# Example

## Fraunhofer Institute for Process Engineering and Packaging IVV

### General

#### Upper Organisation

Fraunhofer Gesellschaft

#### Type

Research Center

#### Main Competences

- Biogenic Raw Materials
- Functional Ingredients
- Food Processes and Products
- Food Quality and Sensory Acceptance
- Compliance of Packaging Materials
- Functional Materials
- Processing and Packaging Machinery
- Recycled Plastics

#### Technology Readiness Levels



#### Market Sectors

Food  
Production technology (machinery / equipment / automation)

### KETs

#### Key Enabling Technologies

Advanced materials (AM)  
Advanced manufacturing technologies (AMT)

### Location

#### Address

Giggenhauser Str. 35  
85354  
Freising  
Germany



#### Web site

<http://www.ivv.fraunhofer.de>

### Services

#### Weblink of Services

<http://www.ivv.fraunhofer.de/en/leistungsangebot.html>

#### Description of Services

Scientific & technological  
Study / initial design / Simulation  
Proof of concept / Lab testing of basic experimental set-up/ Characterisation  
Component/ breadboard / process development & tasting  
Prototyping (integrated system/ sub-system) development & testing  
Pilot line / demonstration line / preseries  
Product validation / certification

### Infrastructure

#### Weblink of Infrastructure

<http://www.ivv.fraunhofer.de/en/technische-anlagen>

#### Description of Infrastructure

Pilot plant (Manufacture, processing and modification)  
Food pilot plant  
Analytical facilities  
Materials testing

### Trainings

#### Trainings available

Yes

#### Description of Training

e.g. Sensory training workshops for customers (mailto:[horst-christian.langowski@ivv.fraunhofer.de](mailto:horst-christian.langowski@ivv.fraunhofer.de))

### Contact

#### Weblink of SME Contact

<http://www.ivv.fraunhofer.de/en/kontakt.html>

#### Contact Persons

Prof. Dr. Horst-Christian Langowski  
Leiter  
+49-891-2052713  
[horst-christian.langowski@ivv.fraunhofer.de](mailto:horst-christian.langowski@ivv.fraunhofer.de)

This is the SME contact person

## Mapping of European KETs Technology centres providing services to SMEs

Current KETs technology centres mapped:

In 60% of Member States, SMEs are not likely to find the services they need

Need for networking and pan-European access for SMEs



# Entering the second phase of the KETs technology centres' project

*1- Update of the current mapping of KETs technology centres*

*2- Identify how **collaboration networks of technology centres** with one-stop shop access should effectively function*

*3- Awareness raising activities*



# 1- Complete and up-to-date inventory

- ✓ **Additional centers** on basis more inclusive criteria
- ✓ **Relevant (H2020) pilots & networks**
- ✓ **Centres can apply & update data via entry tool**
- ✓ **Additional filters** (e.g. dual-use activities) & description of **services**
- ✓ **Refinement of** (e.g. ADMA) and **additional technologies** (e.g. quantum tech)

## Assessment criteria

- Share of industrial funding in % of total annual funding (> 15%)
- Share of turnover generated through projects with SMEs (> 7%)
- Common projects (financed by SME or not) with SMEs (> 10 over last 2 years)
- Number of relevant investments in equipment necessary for innovation services (> 2 since 2013)

### Advanced Manufacturing Technologies

- Smart Manufacturing / Industry 4.0
- Robotics / Human machine interaction
- Process industry (processing of novel materials, structures, etc.)
- Monitoring and control
- High performance computing / cloud-based simulation services
- Additive manufacturing
- High-performance production (flexibility, productivity, precision and zero defect)
- High-performance, high precision processing
- Intelligent/ sensor-based equipment

### MNE

- Quantum technology
- Optoelectronics (optical networks, optical sensors)
- Outsidest system connectivity (communication, data transfer, wifi)
- Power electronics
- Printed/flexible electronics
- Memory and storage
- Equipment technology
- Analogue and mixed signal devices ( $\mu$ -wave, RF, THz)
- Computing (low power computing, high performance computing, new computing (non von Neumann, beyond CMOS, beyond Moore))
- Heterogeneous components & more than Moore (MEMS, NEMS, sensors, transducers)
- Heterogeneous integration/embedded systems

### Photonics

- Displays (LCD, plasma)
- Photodetectors (solar cells, photo-diodes, photo-transistors)
- Optical fibres
- Laser based applications
- Intelligent/ sensor-based equipment
- Lighting (LED, OLED)
- Optical communication and networks
- Optical components & systems

## State of play inventory update

- Additional **centres pre-identified** based on
  - ✓ Expert feedback from public research agencies, intermediary associations, clusters, national inventories, technology organisations
  - ✓ Input KETs Member States Group
- +/- 1.000 centres will receive e-mail (Dec 2016) from contractor with link to **on-line tool** where they can register their profile and activities
- **Assessment** of the data collected will be performed: check of definition and criteria
- **Validation** of centres and criteria (end 2017)

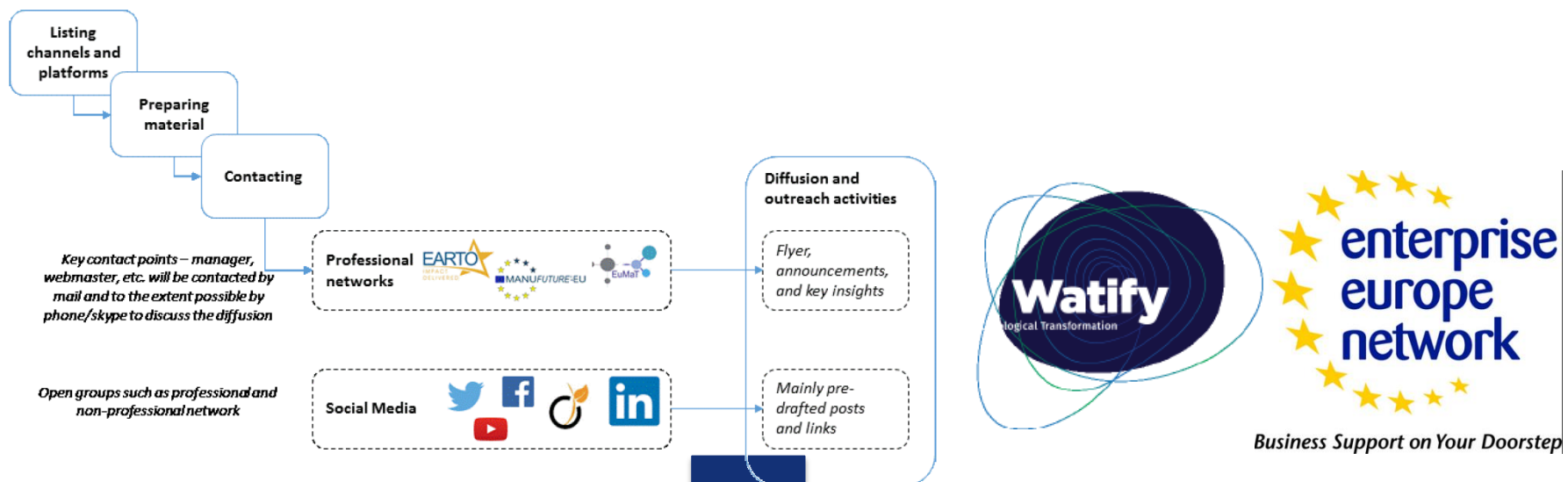


## 2- Collaboration networks of technology centres

- Identification of **existing networks** / initiatives, e.g.
  - ✓ EU level (e.g. Actphast, I4MS, ECHORD)
  - ✓ National (e.g. RISE) and regional level
- Identification of **best practices** in terms of e.g.
  - ✓ How network selects projects, confidentiality and IPR issues, openness to other centres, monitoring customer satisfaction, follow-up of project impact, business plan support, outreach strategy, trainings offered
  - ✓ Governance rules, business model, sources of funding, long-term sustainability & financial viability (after end of public support)
- Recommendation on **how networks can effectively function** (interviews & workshops)
- **Proposals for networks** in specific areas (possible technology gaps)

## 3- Awareness raising activities

- Promotion of **webtool**, **access to technology centres** as well as **networking** between centres (e.g. workshops)
- Specific communication activities towards **public authorities**, **technology stakeholders** and **business stakeholders**
- Specific events, outreach through **social media**, bilateral contacts, publications in relevant **newsletters**, promotional material
- Additional promotion through **Watify** campaign and **EEN**



# Facilitate the uptake of advanced manufacturing solutions

**EU network of technology centres providing services to SMEs** (advanced manufacturing for clean production)  
(4,9 M€, H2020 INNOSUP-3-2017)



**Advanced manufacturing support centre** helping SMEs to make informed investment decisions  
(2,4 M€, COSME, 2017-2020)

- ✓ **help SMEs assessing** the possibility of adopting advanced manufacturing solutions and transform towards a 'factory of the future'
- ✓ set up **learning networks** of next-generation factories, also to become **inspiring examples** for other manufacturing companies



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***KETs :***

*[http://ec.europa.eu/growth/industry/key-enabling-technologies/index\\_en.htm](http://ec.europa.eu/growth/industry/key-enabling-technologies/index_en.htm)*

***Digital transformation :***

*[http://ec.europa.eu/growth/sectors/digital-economy/entrepreneurship/index\\_en.htm](http://ec.europa.eu/growth/sectors/digital-economy/entrepreneurship/index_en.htm)*

***Interoperability :***

*[http://ec.europa.eu/growth/sectors/digital-economy/ict-standardisation/index\\_en.htm](http://ec.europa.eu/growth/sectors/digital-economy/ict-standardisation/index_en.htm)*