

Joint Research Centre



Introducing the European Commission's Competence Centre on Technology Transfer

**Rome, Netval Annual Conference
19th September 2019**

Giancarlo Caratti, Head of Unit, JRC, European Commission

MADE IN CHINA 2025 STRATEGY AIMS TO MAKE CHINA A WORLD LEADER IN 10 KEY INDUSTRIAL SECTORS:

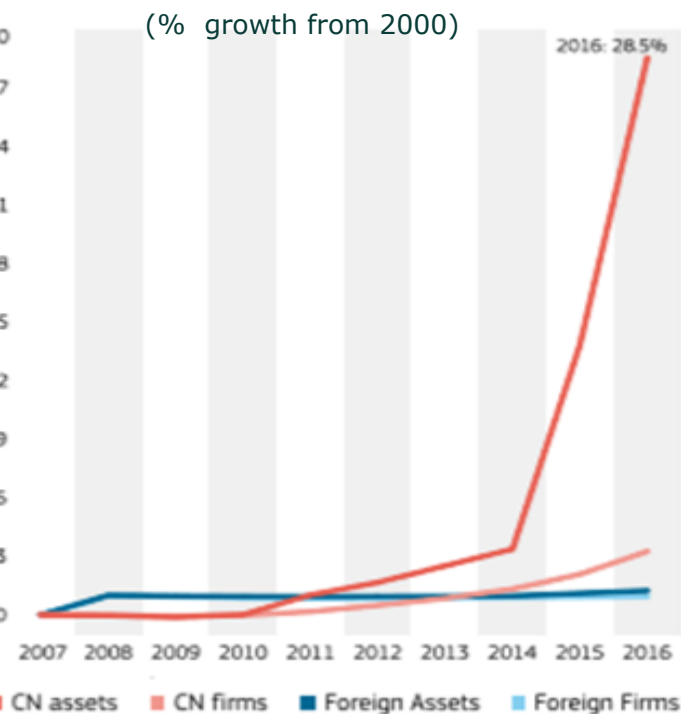
**Next-generation IT
Advanced rail
Aerospace and aviation
Maritime engineering
New vehicles
Electrical equipment
Agricultural machinery
New materials
Numerical control machinery / robotics
Biopharmaceutical & medical devices**



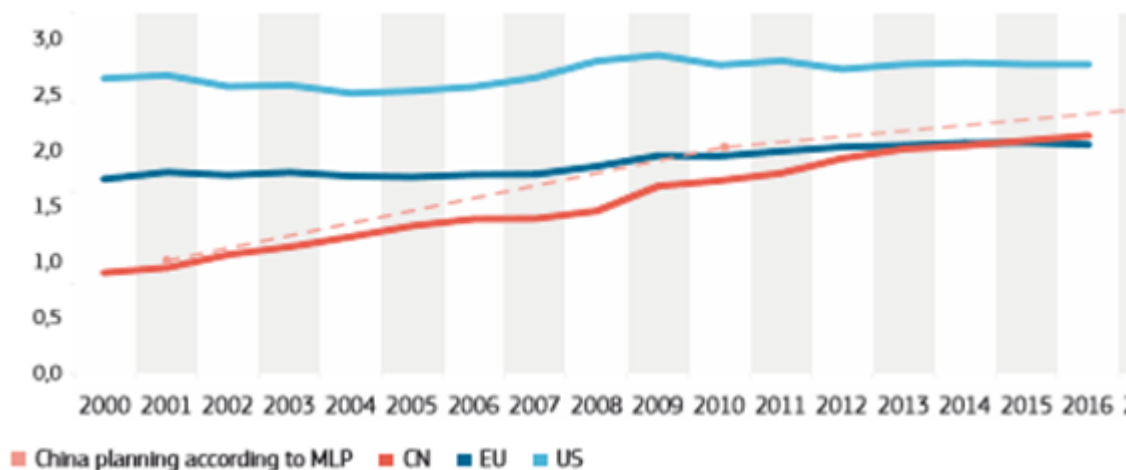
Patent Applications at EPO (2018)

15 (West) 67,884_(1/3 from DE)
 13 (East) 1,246_(1/3 from PL)
 42,300
 8,330_(x2 in 3 years)
 21,712

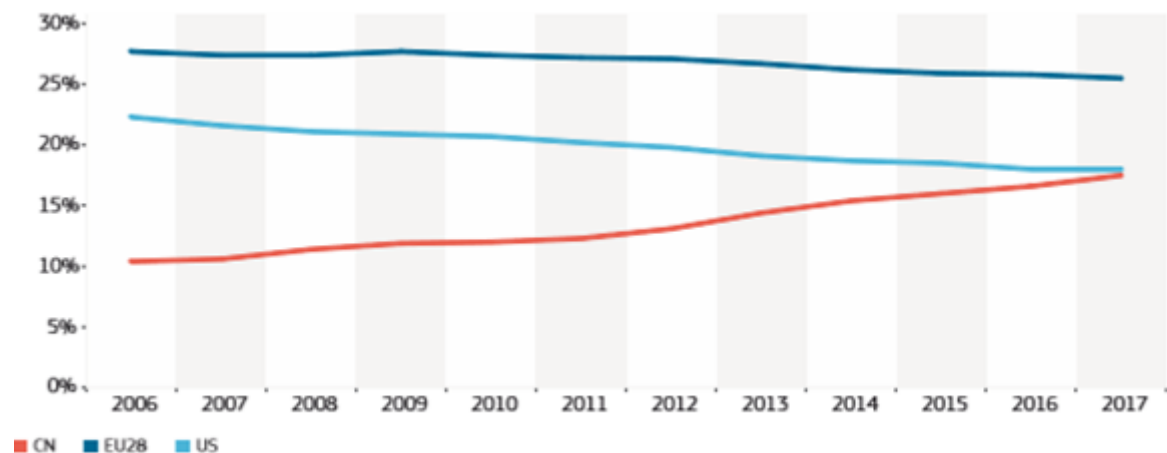
Chinese Shares in European Firms



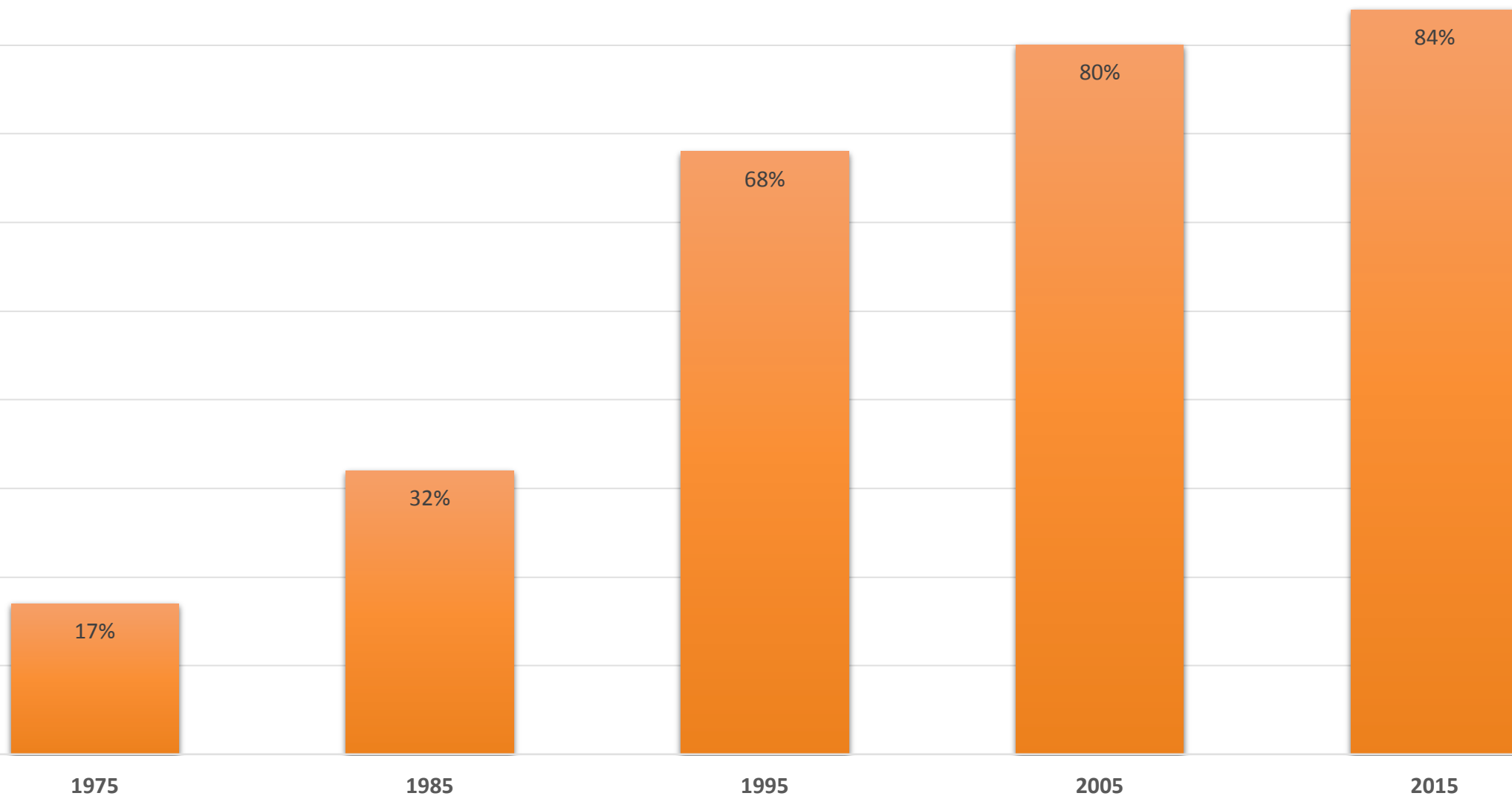
R&D Intensity



World Share of High Impact Publications



Component of S&P 500 market value (from Ocean Tomo)

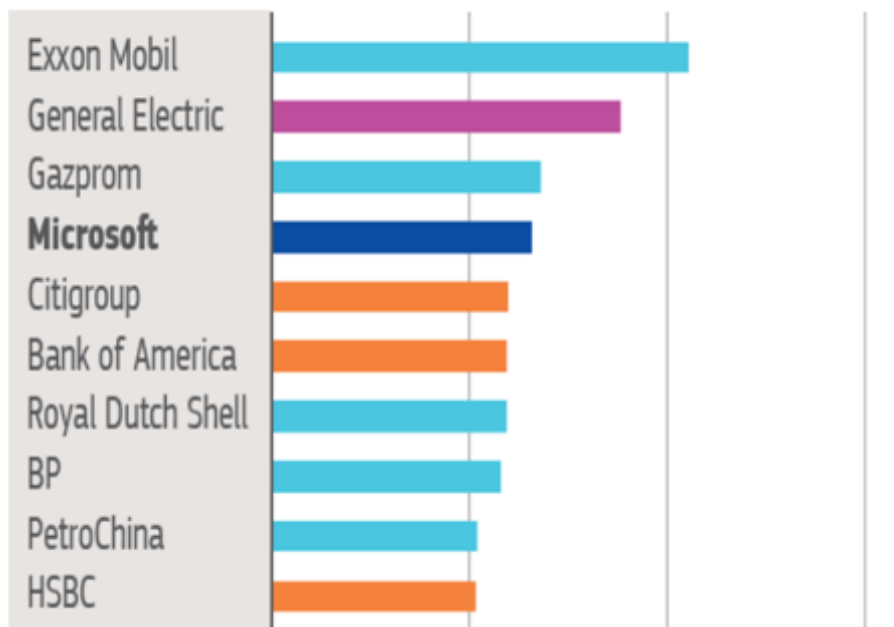


Share of intangible Assets

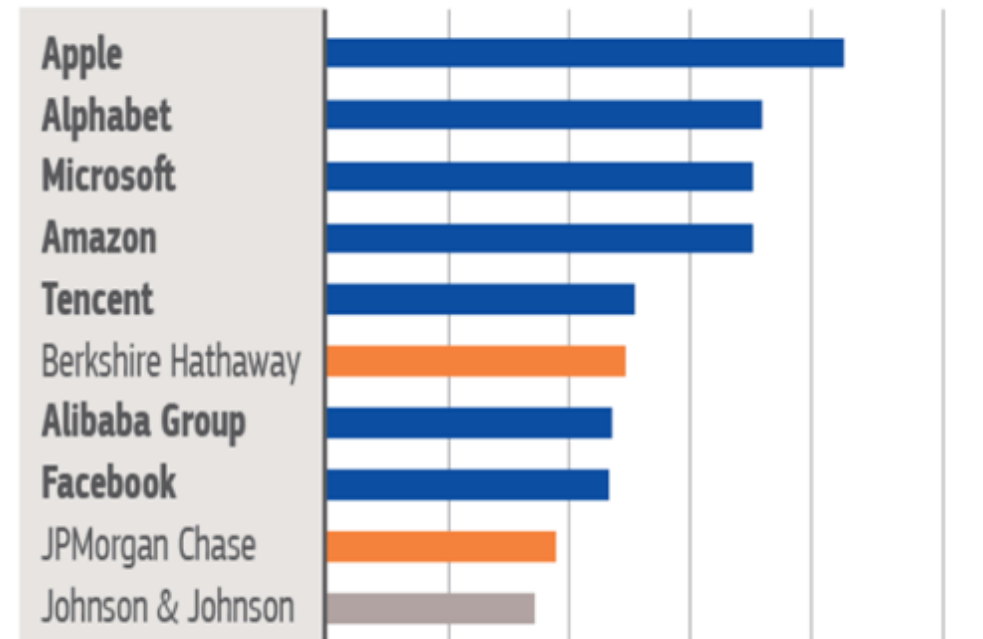
Market valuation in billion US dollars

Energy Financials Health care Industrials IT

End 2006

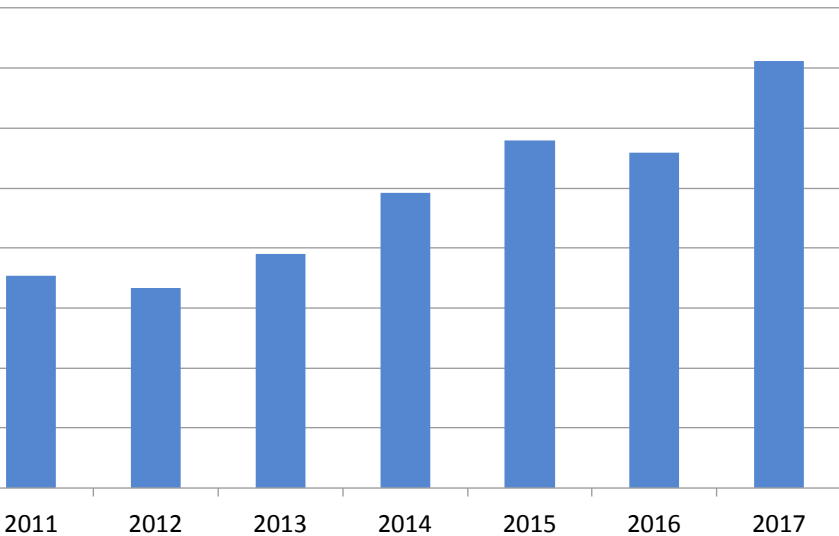


2018 1Q



Source: Bloomberg, ycharts

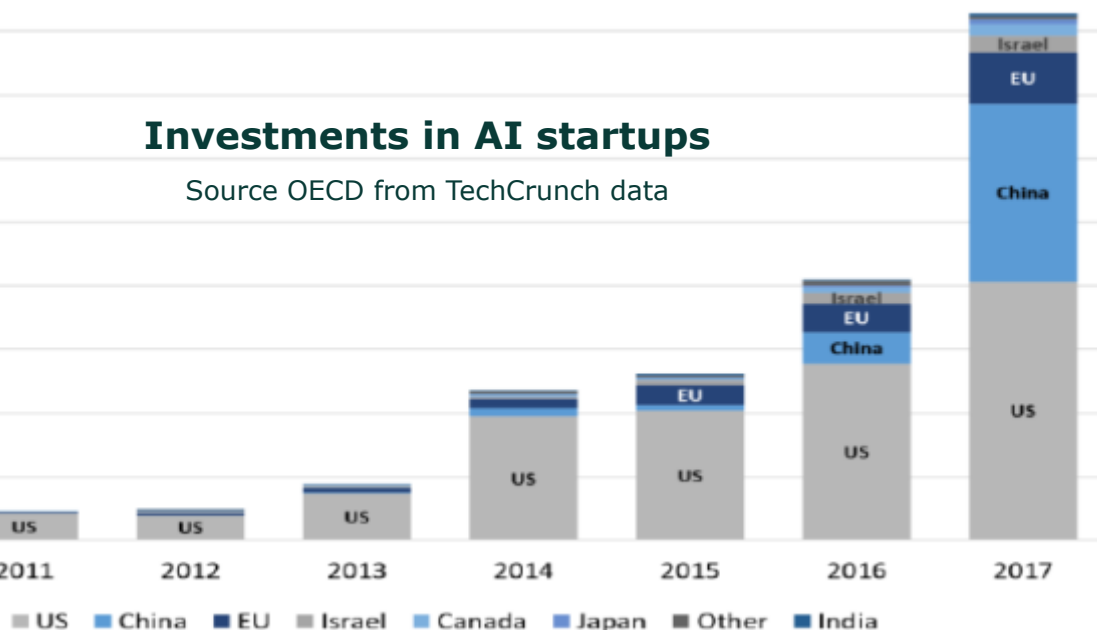
The Advent of Artificial Intelligence



Investments in startups (and early stage) in OECD

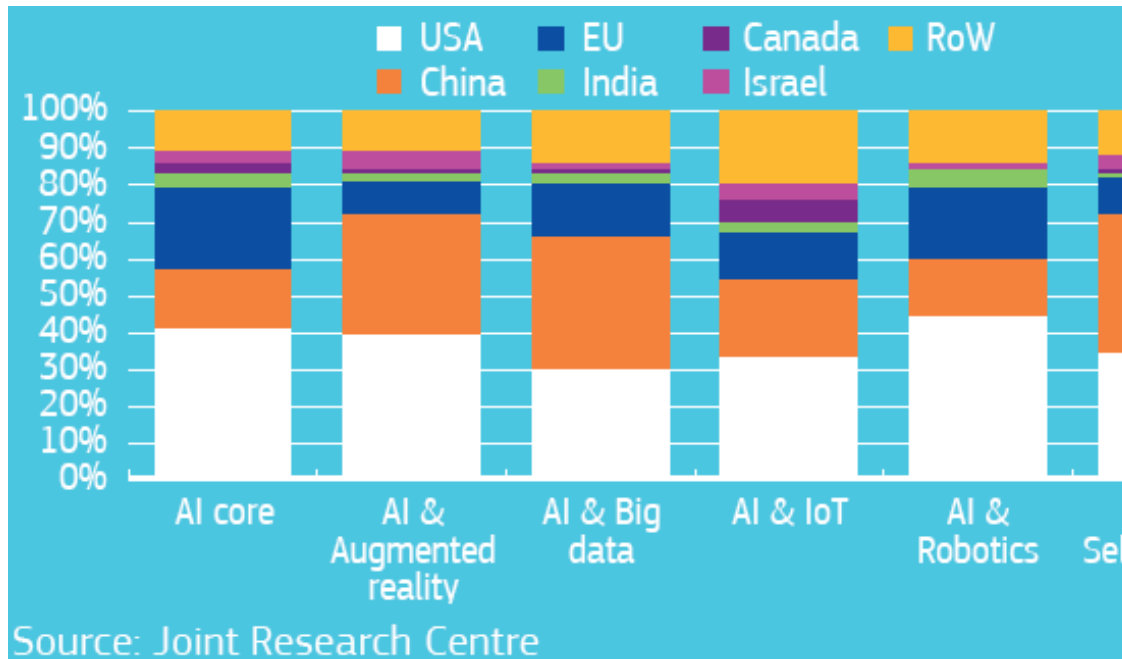
Source JRC elaboration of OECD data

- Exponential growth of AI startups (15b\$ in 2017 from 1b\$ in 2012),
- US leads but China is catching up very fast
- Europe is growing but at slower pace
- Investment in AI startups reached 50% of total investment in start-ups in OECD)
- AI share expected to grow
- Different shares depending on applications



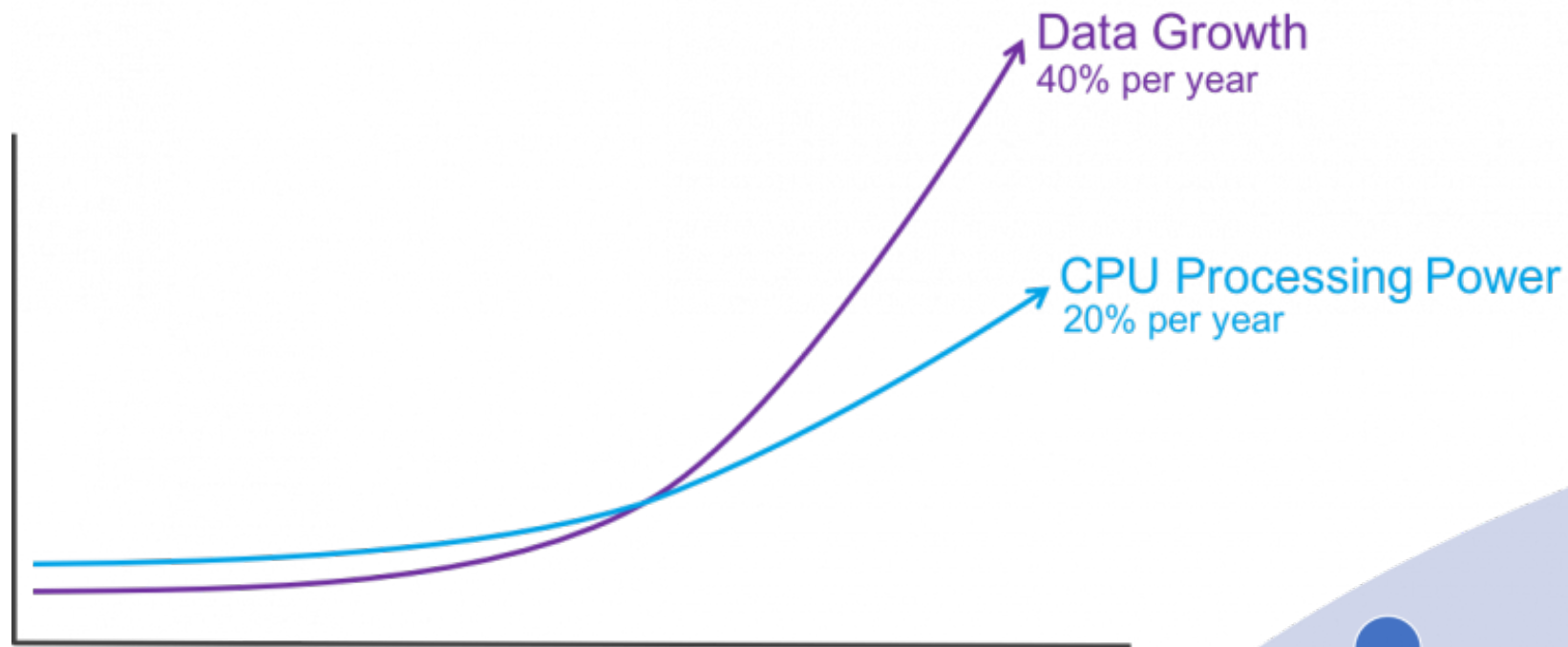
Investments in AI startups

Source OECD from TechCrunch data



Source: Joint Research Centre

Data Vs Computing Power



Technological solutions emerge
New powerful chips
Edge and Fog computing
Quantum computing ...



General Purpose
Microcontrollers
+ sensors

Dedicated AI
accelerators +
smart sensors

Silicon-Based
AI on single
Chip



Deep-Tech Start Ups



How to Exploit the Untapped Potential of RTOs' Deep-Tech Start-Ups in Europe

12 April 2017

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Deep-Tech Start-Ups Are Europe Distinctive Strength	3
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Access to Liquidity after the Start-Up Foundation to Keep Start-Ups in Europe	11

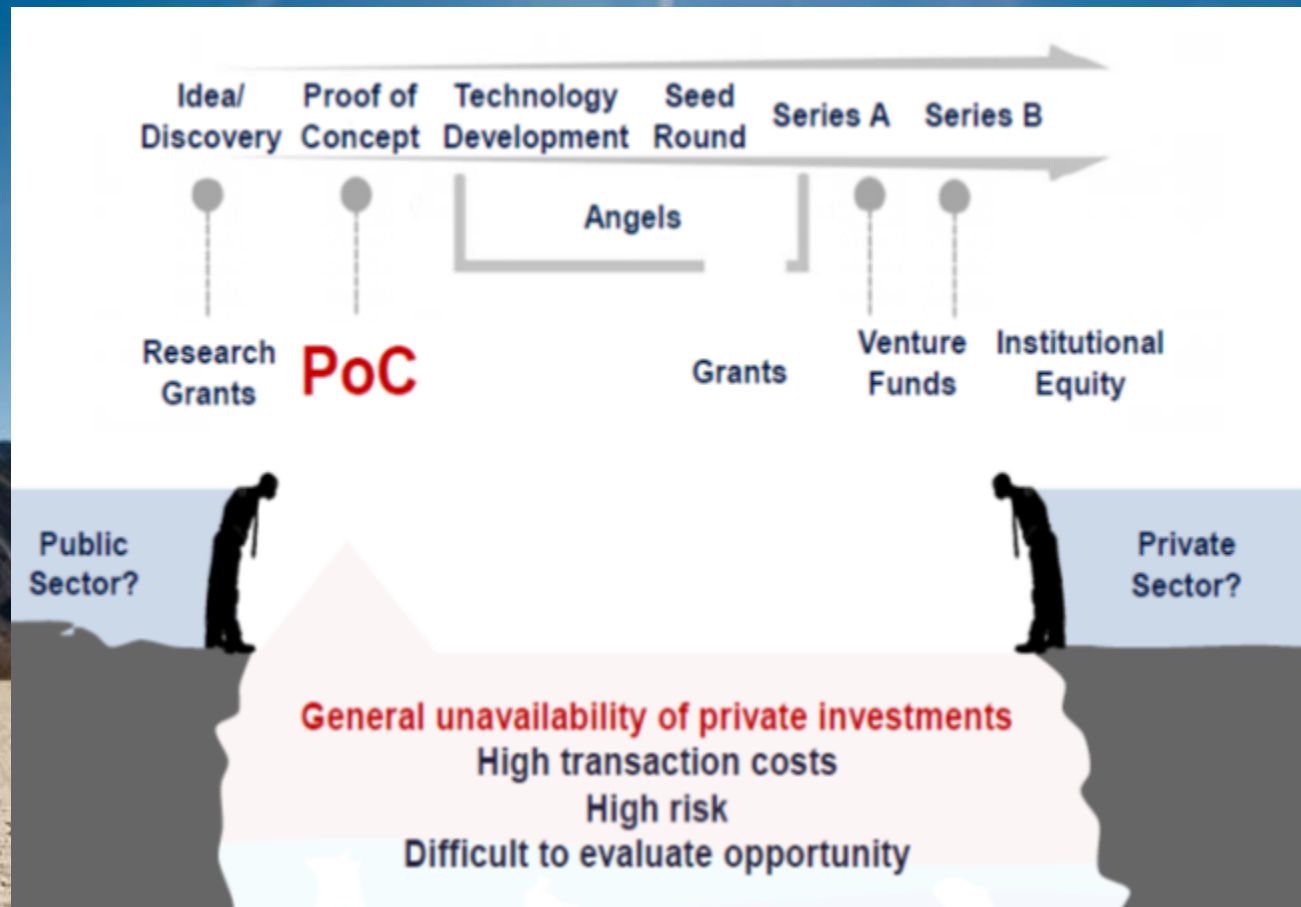
- **Deep-tech start-ups** are key to Europe's competitiveness and industrial renewal, delivering high socio-economic impact
- **Contrary to US-type digital companies**, EU-type deep-tech start-ups have great life expectancy and low rate of failure
- Need **higher financial support** early on, even though they tend to balance out at a later development stage
- They heavily rely on **patent protection**

*Research transforms
money into Knowledge...*

*....Technology Transfer
transforms knowledge
into money"*



*Geoffrey Nicholas
3M, father of Pos*



The Technology Transfer Ingredients

People

Policies

Protected IP

Promotion

Finance

Proof of Concept

Prototyping

Private Equity (VC)

Places

Plan

Partnerships

Parks and Cluster

The smart specialisation

THE SMART SPECIALISATION PLATFORM



**Technology Transfer is an
implementation tool of
Smart Specialisations**

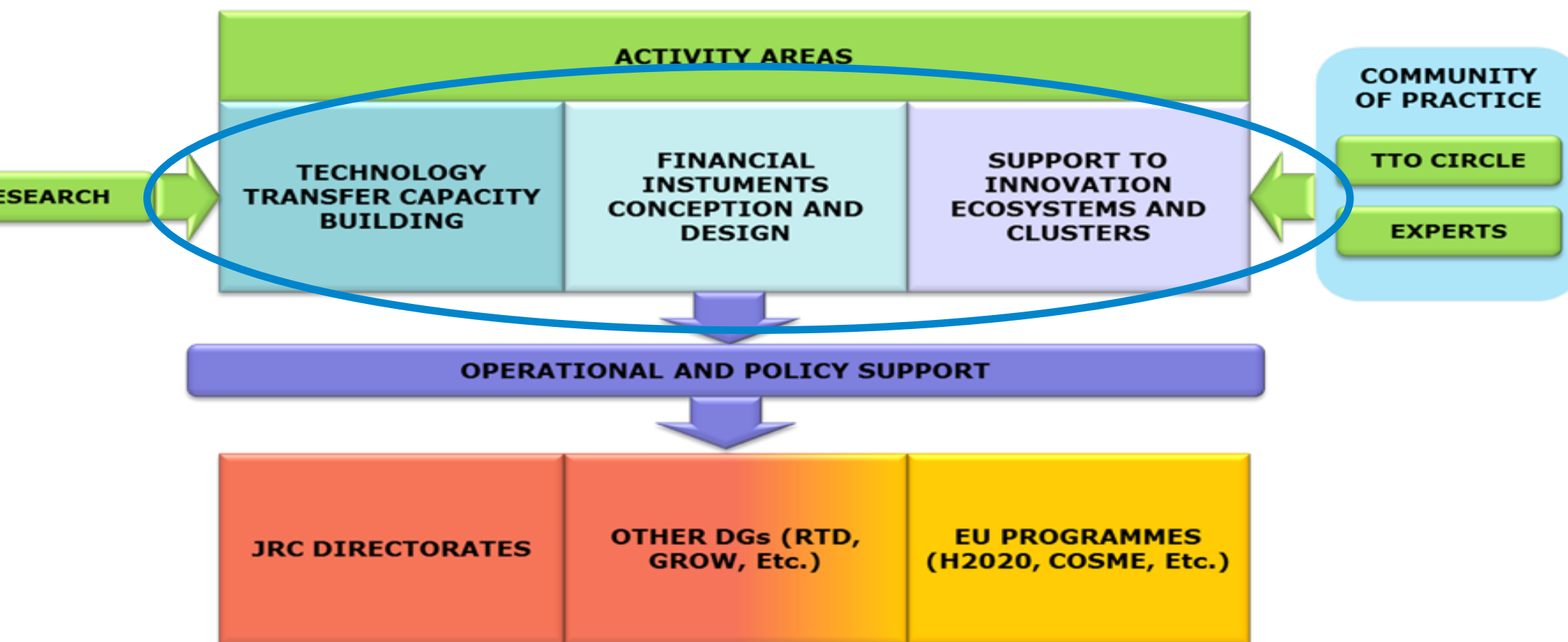
Competence Centre for Technology Transfer

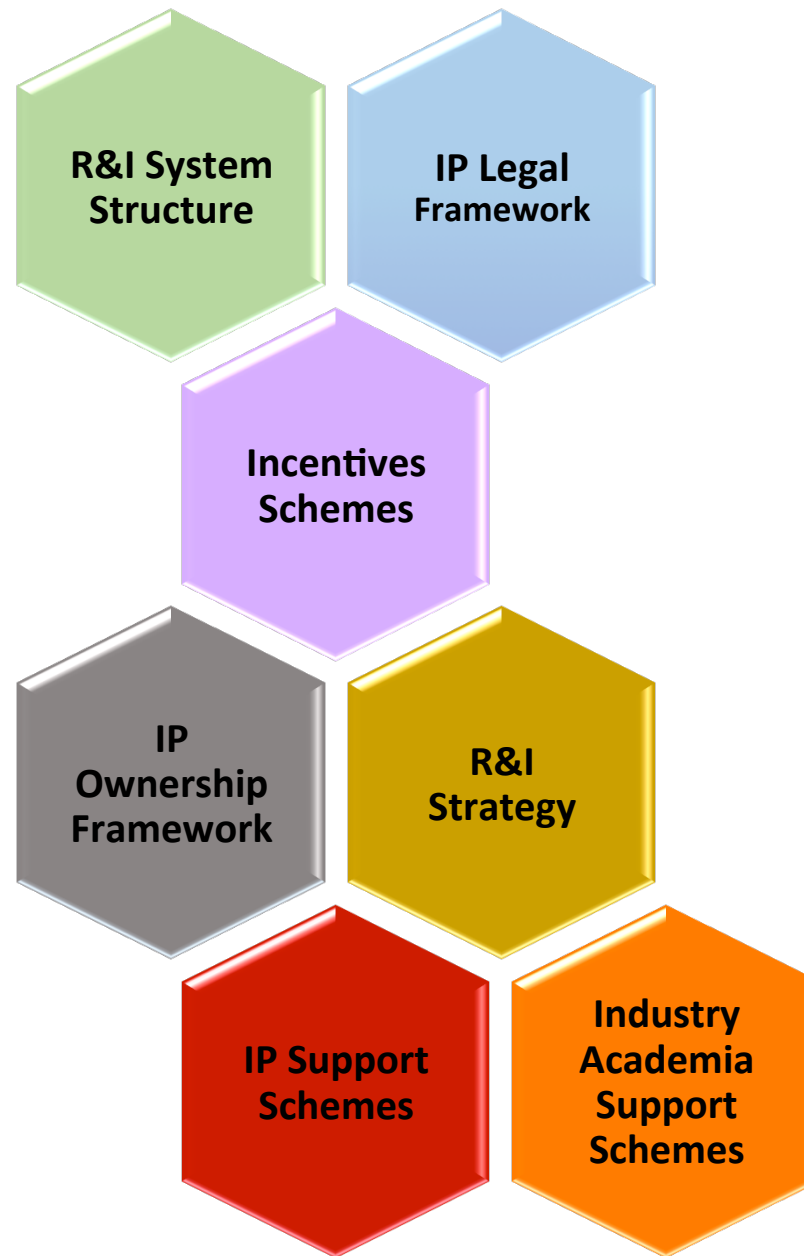
Single reference point for expertise on technology transfer at the EC

To support EU policy development, from upstream concept stage to the downstream implementation phase

To deepen understanding and knowledge of technology transfer through research and aggregation of results and best practices

Competence Centre for Technology Transfer





TT Offices Procedures

Licensing Policies

ND/
NCAs

IP policies

Spin-off
Policies

Material
Transfer
Agreements
Policies

Disclosure
policies

ETC
ETC

PoC Support

Contract
Research
policies



- Technology Scouting
- IP Identification
- IP Generation (patentability, freedom to operate, etc.)
- IP Management (valuation, evaluation)
- IP Licensing
- IP Assignment
- Dispute Resolution (arbitration and mediation)
- Spin-off Creation and Management
- Investor Relations
- Entrepreneurship



Urban Innovation Hubs on the rise in Europe

Paris - Station F (opened on 29/6/17)

space for up to 1000 start ups (3000 desks), 38,000 m², 310m x 58m, coworking spaces, accelerator programs, dismissed freight station, hotel (800 rooms) + restaurant (1000 seats)



Lyon - Criativo do Beato (gradual opening)

100,000 m² in 20 buildings in former army food factory, 200m€ VC fund + tax incentives, plans for 100,000 m² extension to 3000 start ups



London - Plexal (opened on 12/6/2017)

100,000 m² incubator in Queen Elisabeth Olympic Park (250ha). 800 start ups, several acceleration programs.



Amsterdam - Arexpo (masterplan in development)

New S&T park in Expo 2015 area of 100ha, focus on health, big data, agrifood and biotech. Includes university, hospital and large research centre.



Studies

IP collateralisation and securitisation (2016)
PPPs in Science and Technology Parks (2019)
Corporate Venturing (2019)

Supporting EC DGs with Expertise and Competence

RTD – Conception and ex-ante evaluation of InnovFin TT

DG NEAR – Coordination of TT related capacity building measure in the Western Balkans

DG NEAR – Regional proof of concept support scheme for the Western Balkans

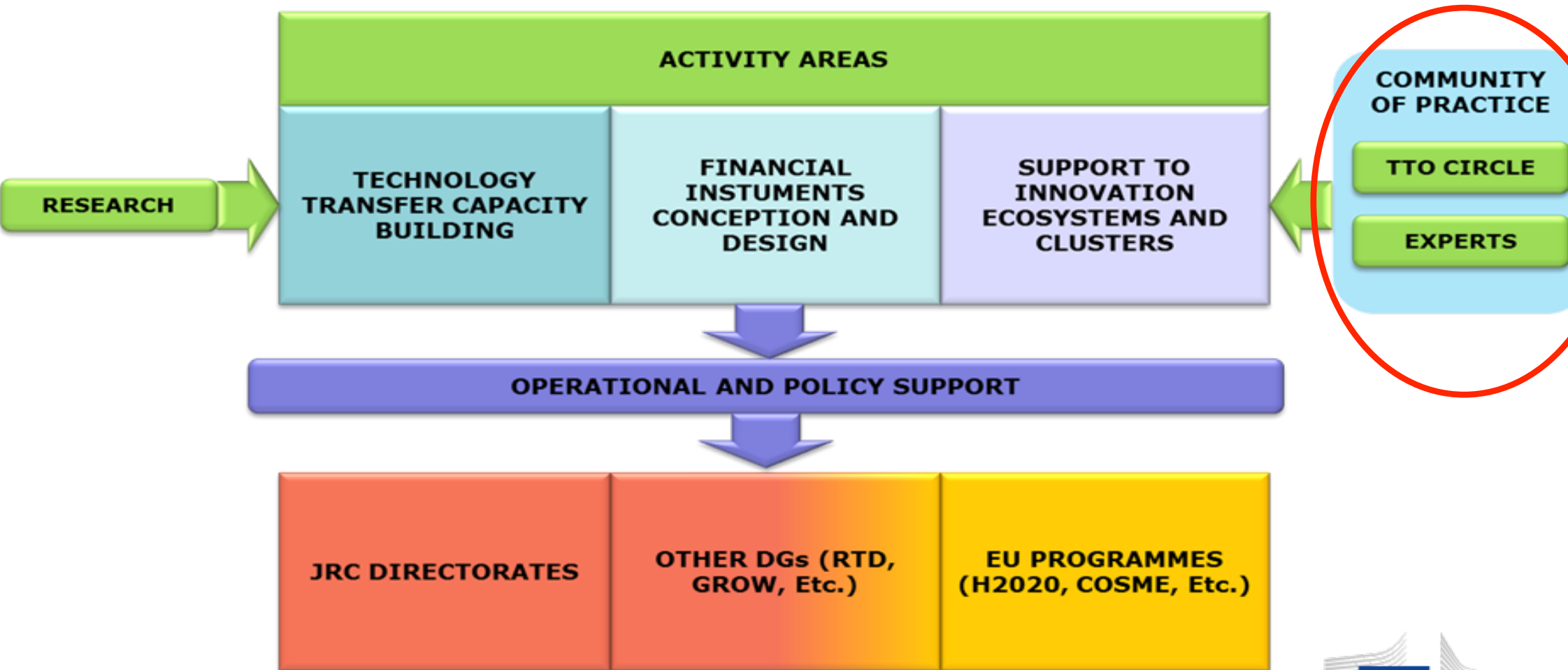
DG REGIO – Assessment and recommendations on improving operational performance of Sofia Tech Park

DG REGIO – Strategic Evaluation of Bulgarian Centres of Competence and Centres of Excellence

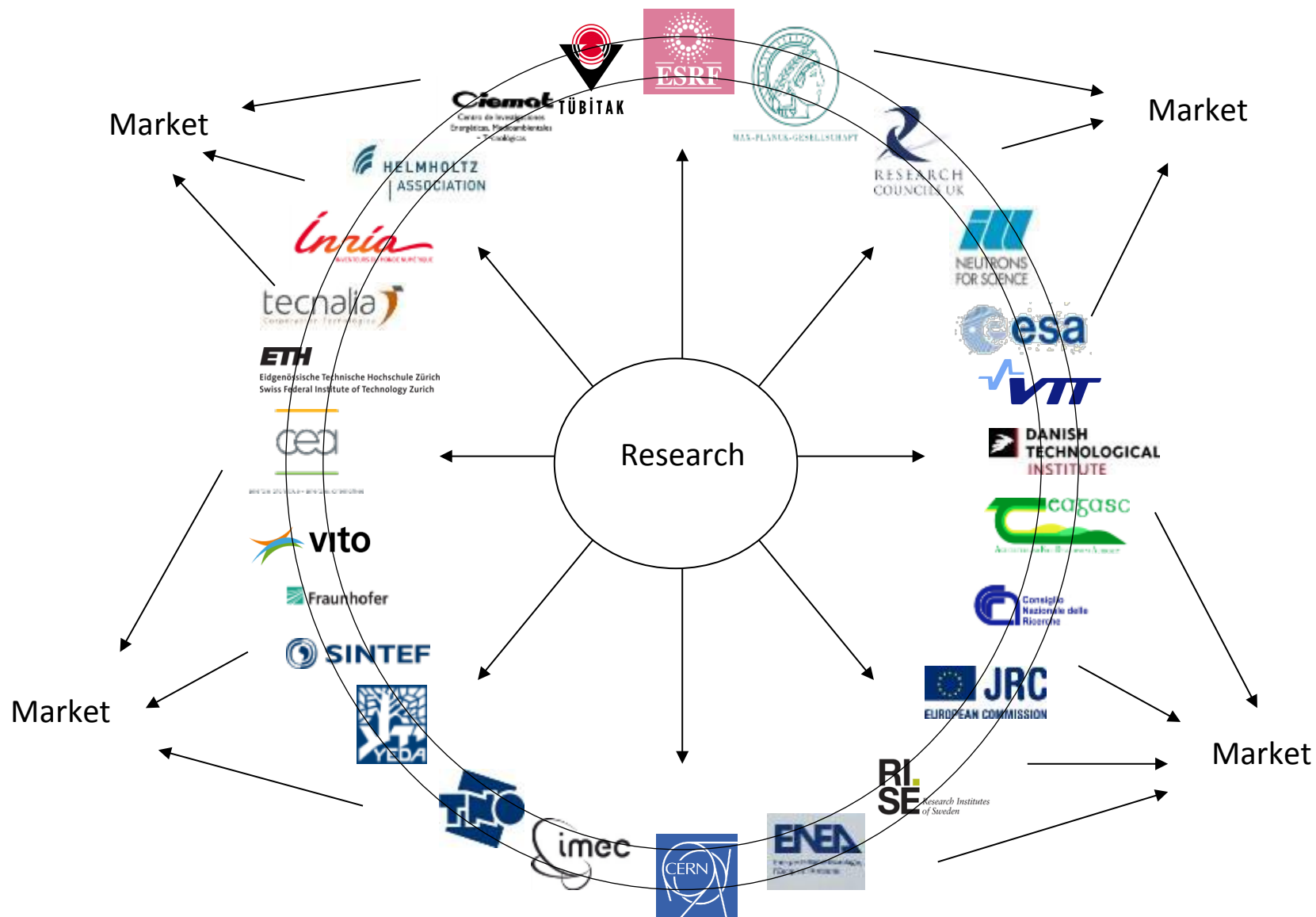
DGs RTD/NEAR – Benchmarking study of TT ecosystems in 12 neighbourhood countries

DG COMP – Study on the application of the state-aid regulation to RDI organisations

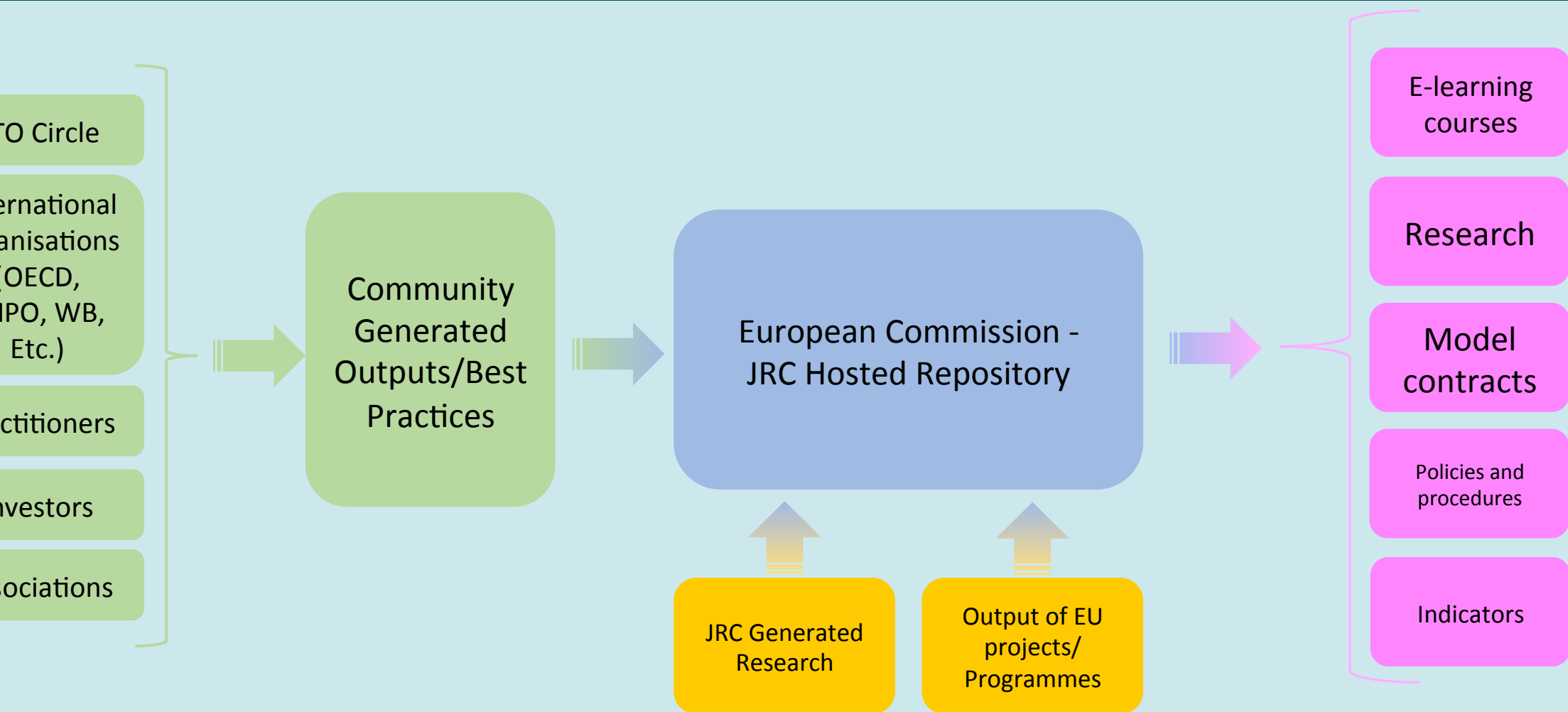
Competence Centre for Technology Transfer



Public Research
 Organizations
 1000 staff
 1000 patents
 1000 Startups
 1000 software

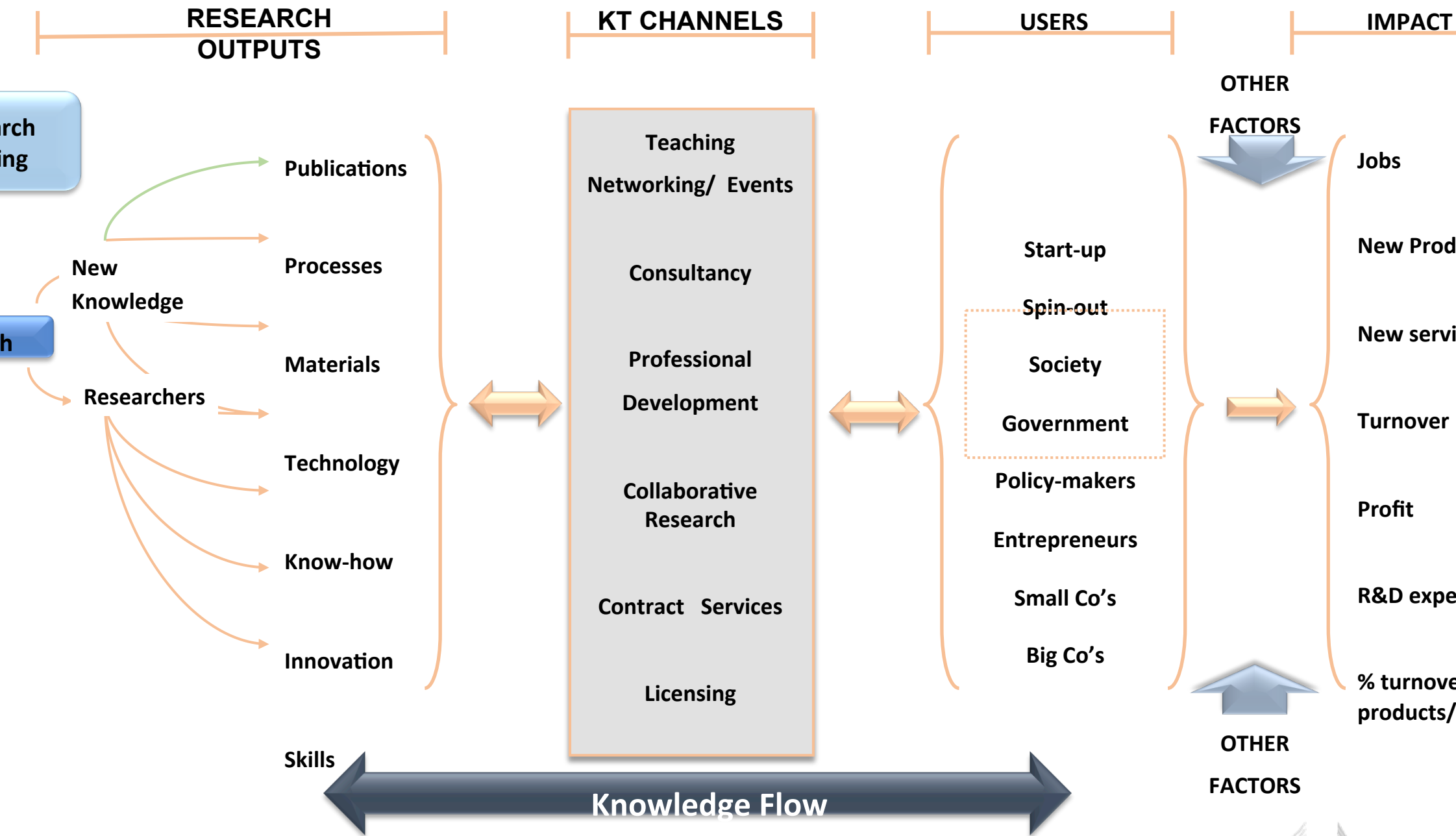


TT Community of Practice



New EU Study on TT metrics

- Current TT metrics statistics in Europe are inhomogeneous and inconsistently collected. There is no possibility to carry out robust comparisons and benchmarks
- JRC and ASTP jointly launched a new expert study to define a new format in particular for its National Association Members to implement.
- This should be sufficiently easy and flexible to cater for most organisations
- Expert group started in September 2019 with literature review. Final reports expected in February/March 2020
- Expert Group Members: A. Campbell (Chair), J. Erselius, A. Piccaluga, P. Karanikic, Ch. Haunold. Secretariat ASTP: C. Cavalade (VP ASTP), M. Dinnetz (JRC)



What outputs do they cover?

	AUTM USA/Canada	ASTP EU-wide	Australian Gov't NSRC	KTI AKTS Ireland
Closures	✓	✓	✓	✓
Patenting	✓	✓	✓	✓
Licensing	✓	✓	✓	✓
Start-ups/spin-outs	✓	✓	✓	✓
Industry collaboration	x	✓	✓	✓
Research expenditure	✓	✓	✓	✓
Revenue	✓	✓	x	✓
Other	Products, active start-ups	Consultancy, contracts	Consultancy, contracts, commercialisation staff, training	Consultancy, contracts, products, active start-ups, jobs, facilities access, incubation
	USA 193 Canada 34	474 25 Countries (5 national data sets = 79% of data)	63	26

from A. Campbell, first meeting of experts group on metrics

Thank you for your attention!

