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

Chinese Shares in European Firms
(% growth from 2000)

World Share of High Impact Publications

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

- 1975: 17%
- 1985: 32%
- 1995: 68%
- 2005: 80%
- 2015: 84%

Share of intangible Assets
Chart showing market valuation in billion US dollars for the years End 2006 and 2018 1Q. Companies compared include Apple, Alphabet, Microsoft, Amazon, Tencent, Berkshire Hathaway, Alibaba Group, Facebook, JPMorgan Chase, and Johnson & Johnson. Source: Bloomberg, ycharts.
The Advent of Artificial Intelligence

- 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 if AI startups reached 50% of total investment in start-ups in OECD)
- AI share expected to grow
- Different shares depending on applications

Investments in startups (and early stage) in OECD
Source JRC elaboration of OECD data

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...

Data Growth
40% per year

CPU Processing Power
20% per year

Dedicated AI accelerators + smart sensors

General Purpose Microcontrollers + sensors

Silicon-Bonded AI on single Chip
• **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 Nicholson, 3M, father of Post-It
General unavailability of private investments
High transaction costs
High risk
Difficult to evaluate opportunity
The Technology Transfer Ingredients

People
- Policies
- Protected IP
- Promotion

Finance
- Proof of Concept
- Prototyping
- Private Equity (VC)

Places
- Plan
- Partnerships
- Parks and Clusters
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

Spin-off Policies
Material Transfer Agreements Policies
Disclosure policies

ND/NCAs

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

Lisbon - Criativo do Beato (gradual opening)
35,000 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)
6,300 m² incubator in Queen Elisabeth Olympic Park (250ha). 800 desks, several acceleration programs.

Milan – 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

ACTIVITY AREAS

- TECHNOLOGY TRANSFER CAPACITY BUILDING
- FINANCIAL INSTITUTIONS CONCEPTION AND DESIGN
- SUPPORT TO INNOVATION ECOSYSTEMS AND CLUSTERS

OPERATIONAL AND POLICY SUPPORT

- JRC DIRECTORATES
- OTHER DGs (RTD, GROW, Etc.)
- EU PROGRAMMES (H2020, COSME, Etc.)

COMMUNITY OF PRACTICE
- TTO CIRCLE
- EXPERTS
Public Research Organizations
300 staff
300 patents
30 startups
5 software
TT Community of Practice

European Commission - JRC Hosted Repository

Community Generated Outputs/Best Practices

JRC Generated Research

Output of EU projects/Programmes

E-learning courses
Research
Model contracts
Policies and procedures
Indicators

https://ec.europa.eu/knowledge4policy/technology-transfer_en
Current TT metrics statistics in Europe are inhomogeneous and inconsistently collected. There is no possibility to carry our 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 Members: A. Campbell (Chair), J. Erselius, A. Piccaluga, P. Karanikic, Ch. Haunold. Secretariat: ASTP: C. Cavalade (VP ASTP), M. Dinnetz (JRC)
Knowledge Flow

RESEARCH OUTPUTS
- Publications
- Processes
- Materials
- Technology
- Know-how
- Innovation
- Skills

KT CHANNELS
- Teaching
- Networking/Events
- Consultancy
- Professional Development
- Collaborative Research
- Contract Services
- Licensing

USERS
- Start-up
- Spin-out
- Society
- Government
- Policy-makers
- Entrepreneurs
- Small Co's
- Big Co's

IMPACT
- Jobs
- New Products
- New Services
- Turnover
- Profit
- R&D expenditure
- % turnover from new products/services

OTHER FACTORS
- Start-up
- Spin-out
- Society
- Government
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- Big Co's

OTHER FACTORS
- Jobs
- New Products
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K Cullen

European Commission
## What outputs do they cover?

<table>
<thead>
<tr>
<th>AUTM USA/Canada</th>
<th>ASTP EU-wide</th>
<th>Australian Gov't NSRC</th>
<th>KTI AKTS Ireland</th>
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<tbody>
<tr>
<td>Patents</td>
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<tr>
<td>Licensing</td>
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<td>Start-ups/spin-outs</td>
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<td>Industry collaboration</td>
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<tr>
<td>Other</td>
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- **Products, active start-ups**
- **Consultancy, contracts**
- **Consultancy, contracts, commercialisation staff, training**
- **Consultancy, contracts, products, active start-ups, jobs, facilities access, incubation**

| Country | USA 193 | Canada 34 | 474 Countries  
474 Countries  
(5 national data sets = 79% of data) | 63 |
|---------|---------|-----------|------------------------------------------------------|----|
|         | 25 Countries  
25 Countries  
(5 national data sets = 79% of data) | 26 |

From A. Campbell, first meeting of experts group on metrics
Thank you for your attention!