



# **Benchmarking Report on the Centers of Excellence**

Training on Synergies ESIF and Horizon 2020

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# What is Benchmarking Report?

- Analysis of the strengthens and weaknesses, opportunities and threats related to Centers of Excellence;
- Selected success stories of sustainability that may be reused in the Teaming/  
Twinning instrument;

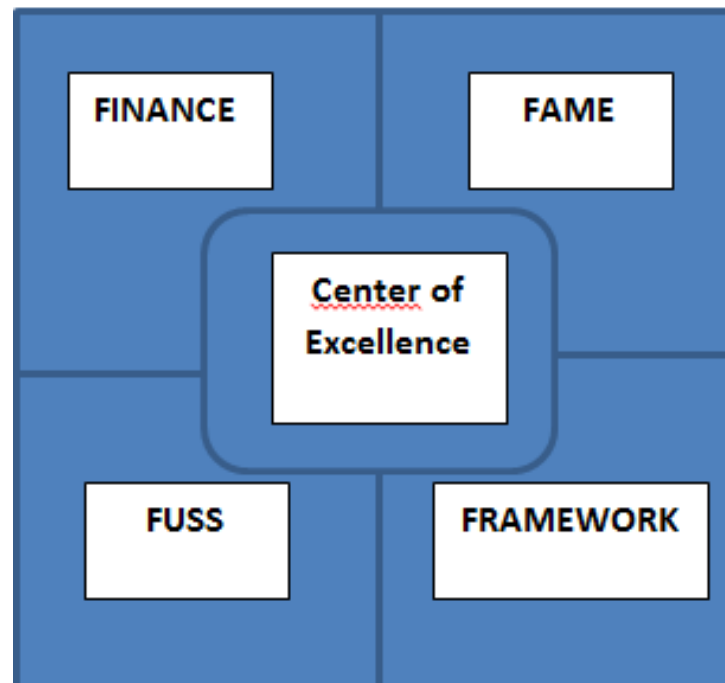
# Centers of Excellence

A Centre of Excellence is a structure where RTD is performed of world standard, in terms of measurable scientific production (including training) and/or technological innovation". Some key features could be the following – EC Definition (26.06.2015 Brussels Teaming's Coordinator Day – Presentation by D. Corpakis):

- a "**critical mass**" of high level scientists and/or technology developers;
- a **well-identified structure** (mostly based on existing structures) having its own research agenda;
- capable of integrating connected fields and to associate **complementary skills**;
- capable of maintaining a **high rate of exchange of qualified human resources**;
- a **dynamic role in the surrounding innovation system** (adding value to knowledge);
- high levels of **international visibility** and scientific and/or industrial connectivity;
- a **reasonable stability of funding** and operating conditions over time (the basis for investing in people and building partnerships);
- **sources of finance** which are not dependent over time only on public funding

# Criteria for the analysis

The report is based on the **4F model** including major criteria reflecting the strengths, weaknesses, opportunities and threatens of the CoE, these are: **Finance, Fame, Fuss and Framework.**



# Finance

## *Stability of Funding, sources of finance, influence on the ecosystem*

<b>FINANCE (in Euros from (d) to current date)</b>	(a) Budget gained within Framework Programmes (b) Budget gained within other financial instruments such as Structural Funds (c) No. of contracts with industry, R&I partners, other	<i>Budget</i>	<i>No of</i>	<i>In Mln</i>
		<i>gained from</i>	<i>grants/</i>	<i>Euros</i>
		<i>external</i>	<i>contracts</i>	
		<i>funding</i>		
		<i>FP5</i>		
		<i>FP6</i>		
		<i>FP7</i>		
		<i>H2020</i>		
		<i>Structural Funds</i>		
		<i>National Funding</i>		
<i>Industry</i>				
<i>R&amp;I partners</i>				
<i>Other</i>				
<b>Total</b>				

# Fame

*International visibility, staff, dynamic role in the ecosystem, structure*

<b>FAME</b>	Increase of patents and patents applications – national, European, CPO	(a) <i>Patents (no.)</i> (b) <i>Patents applications (no.)</i>
	Increase of applications to industry	(a) <i>No. (x)</i> ; (b) <i>Example:</i>
	Increase peer review publications	(a) <i>number of articles published in referred journals</i> ; (b) <i>impact factor</i>
	Increase of staff – young researchers and experienced researchers	(a) <i>Young researchers – no. (x)</i> (b) <i>Experienced researchers – no. (x)</i>
	Increase of recruited researchers from abroad, visits	(a) <i>Recruited researchers from abroad (x)</i> (b) <i>No. of new or deepened cooperation links e.g. Memoranda of understanding signed with foreign institution</i>
	No. of PhD programmes	(a) <i>National Programmes</i> (b) <i>International Programmes</i>
	Success factors	<i>Short description (up to 500 characters):</i>
	Participation in international networks	
Links to industry		

# Fuss

<b>FUSS (Barriers)</b>	Administrative burdens inside the CoE	<i>Short description (up to 500 characters):</i>
	Governance barriers at the regional and national level	
	Shortage of qualified staff	
	Difficulties in access to finance	
	Other (please specify):	

# Framework

## *Dynamic role in the ecosystem*

<b>FRAMEWORK (Networking and governance model)</b>	Institutional arrangements for modernisation and structural change	<i>Short description (up to 500 characters):</i>
	Synergy / coherence / embeddedness of the institutional strategy with / in	<i>(a) regional smart specialization strategy,</i> <i>(b) National Research Strategy</i> <i>(c) EU priorities under Horizon 2020 and ERA</i>
	Changes in the business model	<i>e.g.</i> <i>(a) rules governing institutional funding allocation,</i> <i>(b) external evaluations of the Centre,</i> <i>(c) introduction of peer-review projects,</i> <i>(d) IP management strategy,</i> <i>(e) Recruitment strategy,</i> <i>(f) Researcher education</i> <i>(g) Third party funding strategy</i> <i>(h) Marketing / outreach / networking strategy</i>



# Analysis

*21 case studies delivered, 8 selected for publication*

- 01 Foreword by Dymitris Corpakis, DG RTD
- 02 Introduction to the Report – aims, summary
- 03 Definition of the CoE. Short relation to Teaming, Twinning, Presentation of the criteria and analysis results.
- 07 Case studies



HR



CZ



DE



HU



ES



PL



PT



SR

- 25 Conclusive summary: lessons to be learnt for future Teaming and Twinning actions
- 26 Presentation of the NCP\_WIDE.NET project

NAME OF THE CENTRE OF EXCELLENCE:

# MTA SZTAKI -HUNGARIAN ACADEMY OF SCIENCES

INSTITUTE FOR COMPUTER SCIENCE AND CONTROL



## RESEARCH & INNOVATION:

cyber-physical systems (CPS), autonomous land and aerial vehicles, robot-assisted surgery, intelligent buildings, intelligent power grids and intelligent manufacturing.

### DESCRIPTION:

The Institute for Computer Science and Control operates since 1964 and is a research institute, governed by the Hungarian Academy of Sciences. Its staff consists of 226 full-time employees, more than 200 with university diploma and more than 90 with scientific degrees.

### FINANCE:

The MTA SZTAKI has gained 119 grants with **Framework Programs**, 5 from **Structural Funds**, 56 from **National Funding** and 3 from **Industry**.

### FAME:



### FUSS:

Short deadlines in applying for funding, delays in payments and preferences for high budget proposals.

### FRAMEWORK:

The MTA SZTAKI further extends the CPS **infrastructure** (3D-internet, control, SmartFactory, cloud computations) to establish the cooperative cyber physical systems research laboratory to reach the target of International Center of Excellence in the field of CPS.

The institutional strategy of SZTAKI is in **synergy** with the **National Szechenyi 2020 Pro-**

**gramme** giving **priority** to the fields of mobility, vehicle industry, informatics and developments of energy and environment protection, the S3 (Strategies for Smart Specialization) of Hungary in synergy with the EU priorities under Horizon 2020 and ERA.

The SZTAKI Institute **business model** components: EN ISO 9001:2000 certification, PhD programmes' support, close cooperation with media - 40 press releases and had around 130 media appearances in 2014.



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# First results – Strenghts

- Embedding of the research and innovation agenda in regional smart specialization strategies, national and EU strategies;
- Modern infrastructure;
- Ability to obtain regional/ national and FPs funding (e.g. REGPOT, ERA Chairs);
- Multidisciplinary research and innovation activities (e.g. integrating ICT technologies in SC1, SC2; nanomaterials for SCs);
- Internationalisation: multinational staff, FPs projects, inetrantional PhD Programmes, MoU, participation in international networks;
- Implementing of external evaluation model;
- Evolutionary changes in the business model;
- General increase in interactions with external entities;
- In general improving research potential: no. of patents/ patents applications; recruitment of international staff; interactions with industry, improvement of impact factor;

# First results – Weaknesses

- Insufficient changes in business model: lack/ weak IP strategy, lack/ weak recruitment strategy;
- Insufficient technology transfer (lack of professional TTOs, in many cases lack of collaboration with industry);
- Strong dependancy on regional/ national funding (on avarage: more funding obtained due to grants than through collaboration with industry/ 3rd parties);
- Lack of critical mass in regard to research agenda and staff;
- Administrative burdens (in particular in regard to the entities being a part of large structures);
- Weak branding;

# First results –Threats

- Lack of finance for R&D activities at the regional/ national level;
- Ambiguous/ weak legislation on R&D (e.g. difficulties in hiring researchers from abroad);
- Weak governance on R&D at the national level (e.g. lack of transparency in regional/ national funding programmes);
- Brain drain of scientists resulting in lack of young and experienced researchers in the region (lack of PhD students as well);
- Lower success rate in H2020 than FP7;

# First results – Opportunities

- EU environment and strategies giving priorities to innovation;
- Internationalisation of science and innovation (e.g. increased interactions, funds supporting international collaboration – Widening activities, MSCA etc.).
- Priority to interdisciplinary research;

This project has received funding from the European Union's Horizon 2020 research and innovation programme