### THE HUNGARIAN S3 STRATEGY

## Lessons Learnt; Possible Synergies Between Funding Opportunities

**S3 DESIGN LEARNING WORKSHOP** 

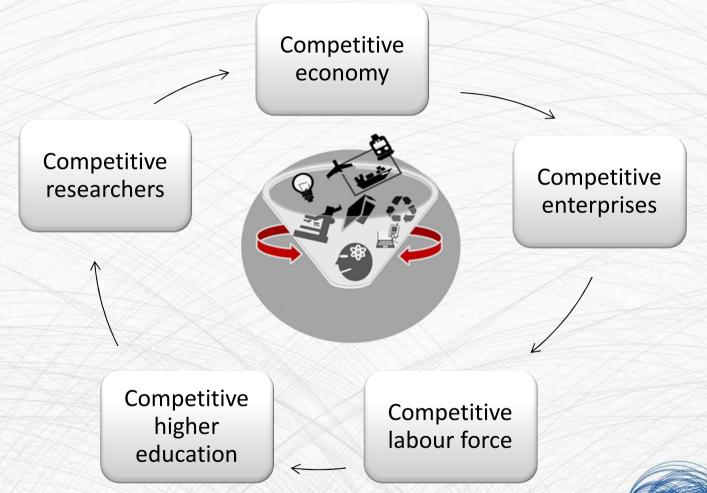
19 February 2016; Chisinau, Moldova

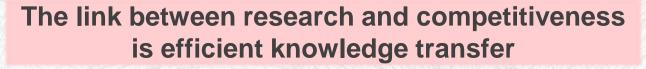
Béla KARDON PhD





## **R&D** – Key to Competitiveness

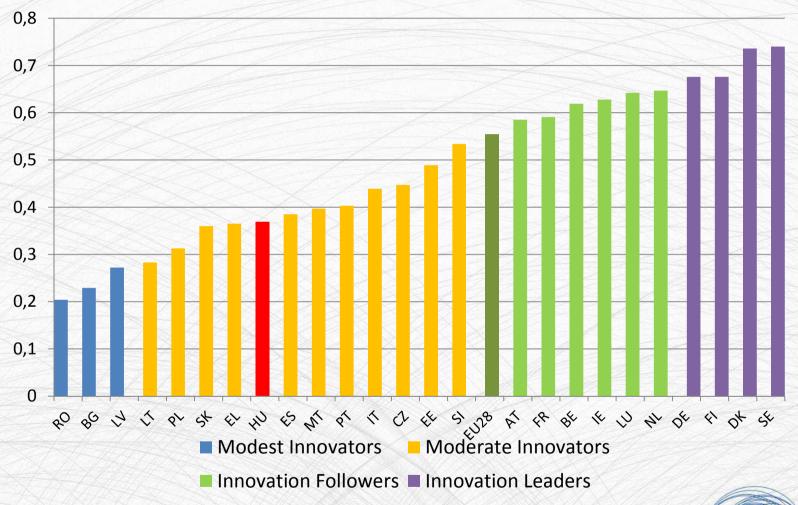








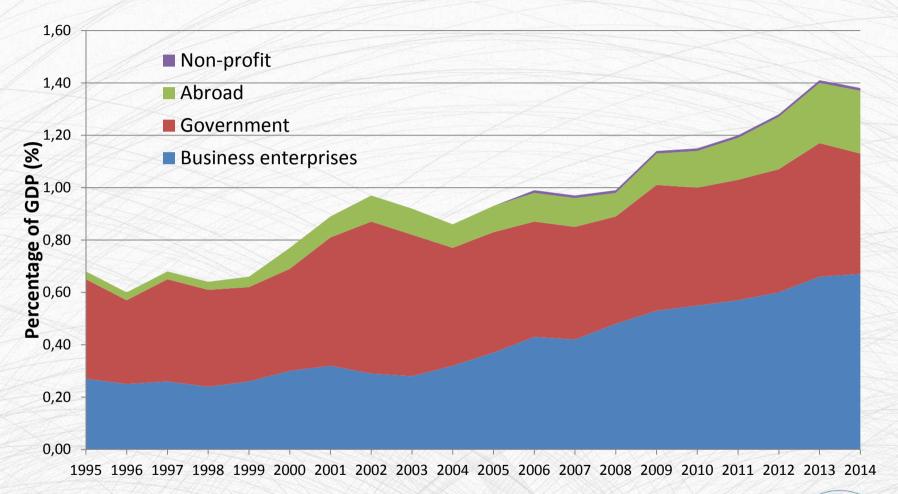
## **Innovation Union Scoreboard, 2015**







### Sources of RDI expenditure in Hungary (% of GDP)









Science

### **Obstacles to efficient technology transfer in Hungary (1)**

Market

# Market Pull Innovation based on market needs

Contracts between higher education institutions and the entrepreneurial sphere

Spin-enterprises, issuing patents

Technology push
Innovation based on
research results

Research Development Innovation

### **Obstacles to efficient technology transfer in Hungary (2)**

## Inherent historical obstacles

Technology transfer within institutions is not centrally organized, not functioning on an institutional level

Successful researchers are not willing to share their business partners with other researchers

No real acknowledgement of the third mission of higher education insitutions (a general characteristics of Humboldtian institutions)

# Attitude of the entrepreneurial sphere to the R&D activity of universities

As techtransfer activity on universities are fragmented (organised not on an institutional but on an individual level), the R&D potential of universities is not visible enough

There is no real need for sophisticated R&D activity of universities, requests of companies are below the dignity of researchers

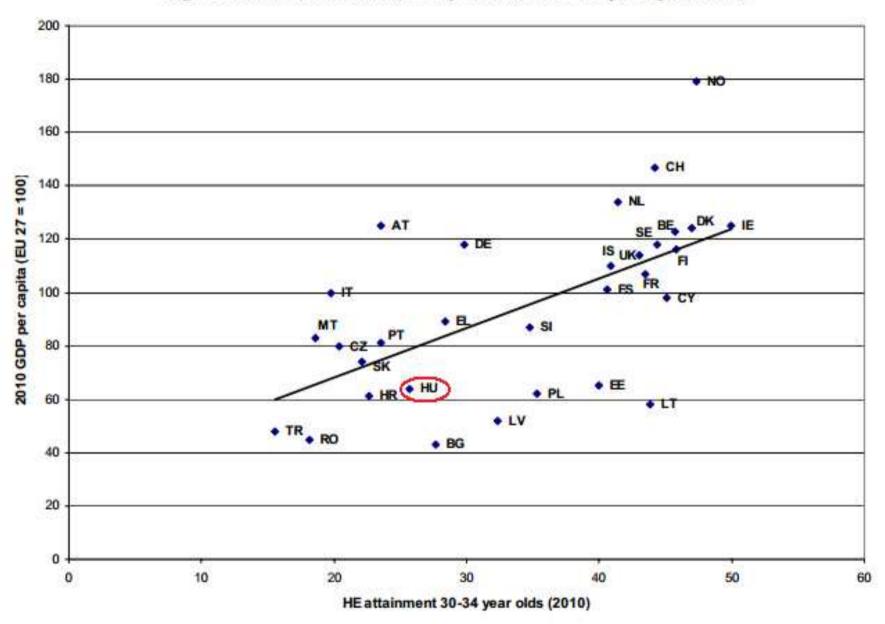
# Regulatory framework, market environment

Entrepreneurial schemes and good practices are imported from the United States without adjusting them to national characteristics

Entrepreneurial culture is underdeveloped, researchers do not have the necessary transversal, and entrepreneurial skills to make themselves visible.

Insufficient continuous funding of technology transfer activity

Higher education attainment (30-34 year olds) and GDP per capita in 2010



Source: Eurostat (Data for EU-27 + Norway, Switzerland, Croatia and Turkey)

# Main issue: bridging the resource gap in research Funding

Interim evaluation of the Seventh Framework Programme

performance of most of the new Member States falls short of that of the old Member States.

The overall share of EU12 (12+1) participants in all projects is low Funding of successful projects per participant to EU12 countries is lower than for EU15 countries

### **Solution:**

Finding synergies between funding opportunities and increasing international integration of Hungarian higher education and higher education research



### Polarization – the most prominent challenge the European Research Area is facing

Lack of available funds

Perceived lack of excellence

Skills deficit—
lack of
transversal and
entrepreneurial
skills, mismatch
of acquired skills
with labour
market needs

Higher
education
unresponsive of
societal and
labour market
needs

Lacking internationalisati -on



Building scientific partnerships – expanding the inventory of internationalisa tion instruments

Promoting mobility of students and staff, and cross-border cooperation

Clearing profiles, identification of excellence, promoting excellence

Aligning higher education supplies with labour market needs







## Sources of R&D Funding

### **National Sources**

 National Research, Development and Innovation Fund

### Cohesion Policy Instruments

- Structural Funds
  - EuropeanSocial Fund
  - European Regional Development Fund
- Cohesion Fund

Direct EU funding, other international funds

- Framework
   Programmes (FP7,
   Horizon 2020)
- EEA Grants, Norway Grants



Main goal: bridging the resource gap



## Strategic goals of higher education development - relevant measures (2007-2013)

## EU2020 headline objectives

Increasing the share of those having completed tertiary level education

Increasing employment rate

Increasing expenditures on R&D

Reducing the share of people living in poverty

Increasing the share of renewable energy resources

#### **NRP** priorities

Reducing study time overhang and drop out rates

Improving foreign language skills

Raising the number of engineering and IT graduates

Developing the vocational training system and strengthening its labour market relevance

Raise R&D expenditure to 1.8% of GDP

### (SR)OP measures

Supporting regional cooperation

Special Roma Colleges

**Teacher Training** 

Foreign language trainings

Improvement of higher education services

Supporting basic research in higher education institutions

Supporting ICT research & training

Popularizing science and dissemination of scientific results

National Excellence Programme

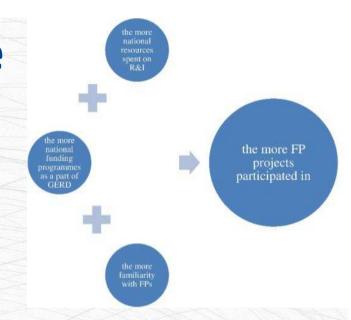
Providing digital contents in higher education

Developing the system of digital content providing in higher education

#### **Digital Agenda**



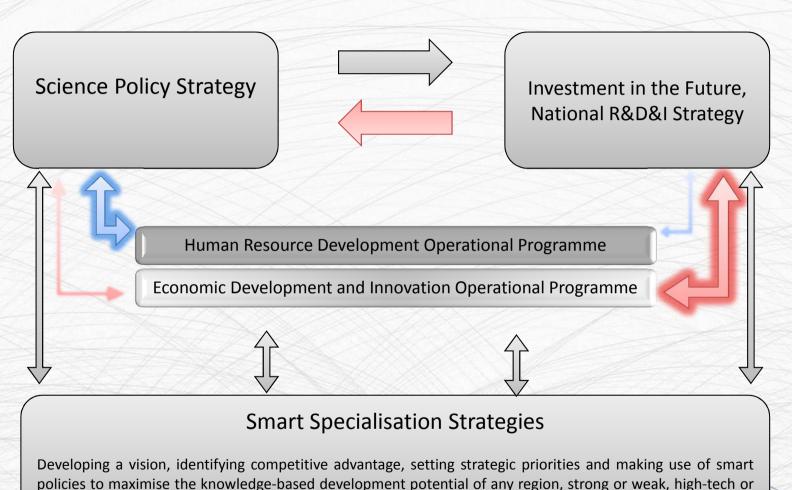
## How to Come Closer to the Framework Programme



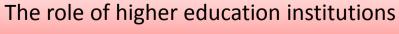
- + The more national Recources spending on R&I
- + The more higher GERD / GDP
- + The more familiarity with teh European Programmes
- => The more FP projects participated in



### Relevant Strategies and the Operational Programmes in **Research & Development and Innovation**



R&D in the entrepreneurial sector



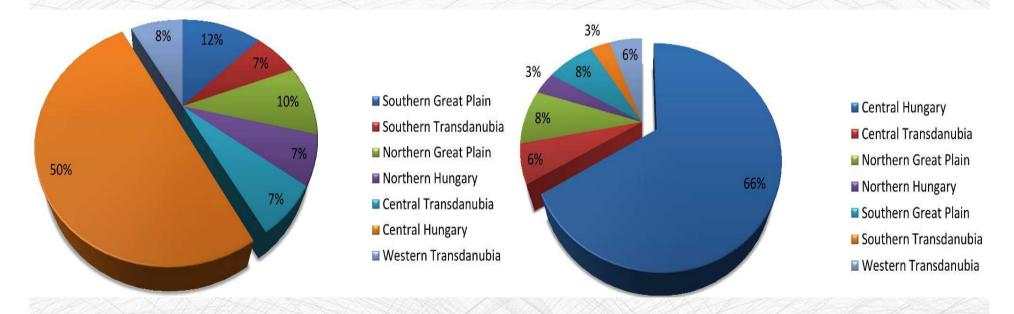


low-tech.

## **Regional Disparities**

**R&I** units

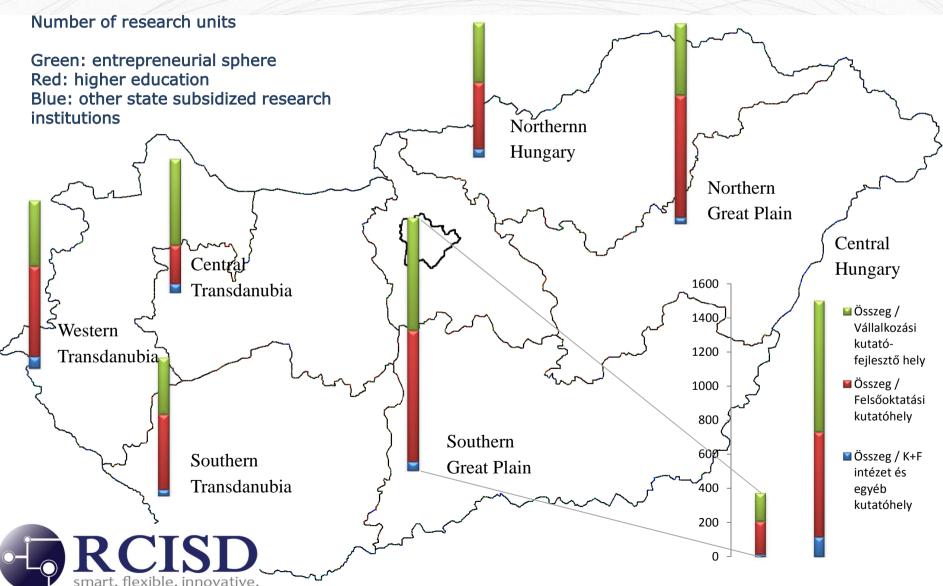
**R&I** expenditure



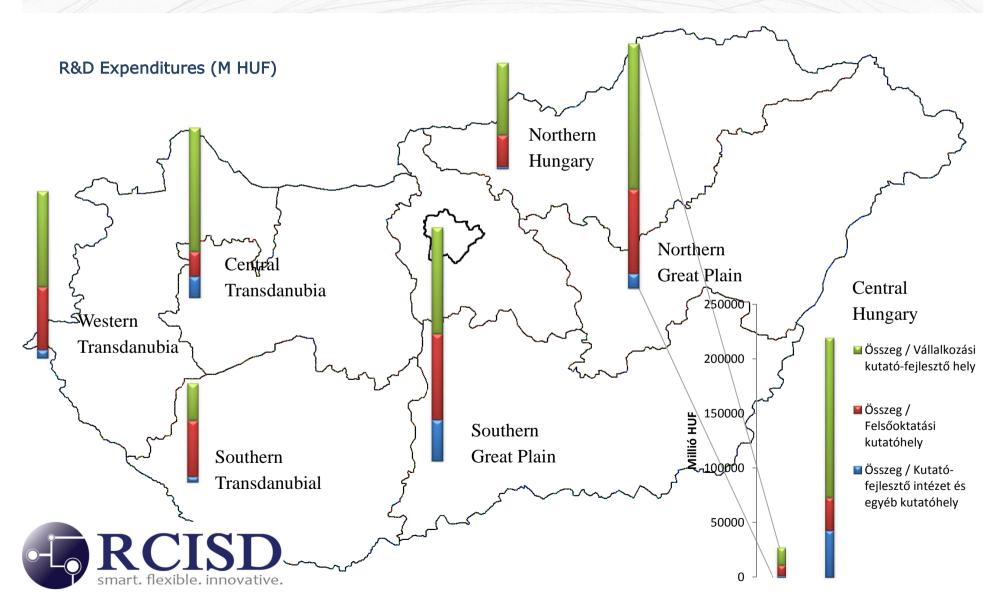




# Why is Smart Specialisation Important from the Perspective of Higher Education (1)



# Why is Smart Specialisation Important from the Perspective of Higher Education (2)



# STRATECIG PRINCIPLE: MOMENTUM OF INNOVATION



Effective participation with high-value added activities in the international division of labour.



Prerequisite:

high-value added RDI activities and programmes



### Prerequisite:

- a) world-class, excellent scientific background
- b) talented researchers and other professionals
- c) competitive infrastructures
- d) calculable and transparent financing scheme





# The National Research, Development and Innovation Office responsible for S3

Strategy & Program Planning

- Strategic planning
- Application portfolio & management

Innovation Services

- > RDI
  Consultation
- RDI database for investors



Funding Agency

- > Basic research
- Applied research
- > Innovation

Coordination of international R&D programmes & cooperations

- ➤ H2020 support services
- Bilateral agreements





## Characteristics of S3 planning in Hungary

Current status of S3 document

Planning process ended in 2014.

The S3 was officially submitted to the EC at the beginning of 2015. The EC approved the document along with the Operational Programmes that contained RDI priority axes.

Stakeholders involved in the planning phase

Academic sphere: universities, research institutions, knowledge centres

Governmental sphere

Business sphere

Civil organisations

Organisational structure to S3

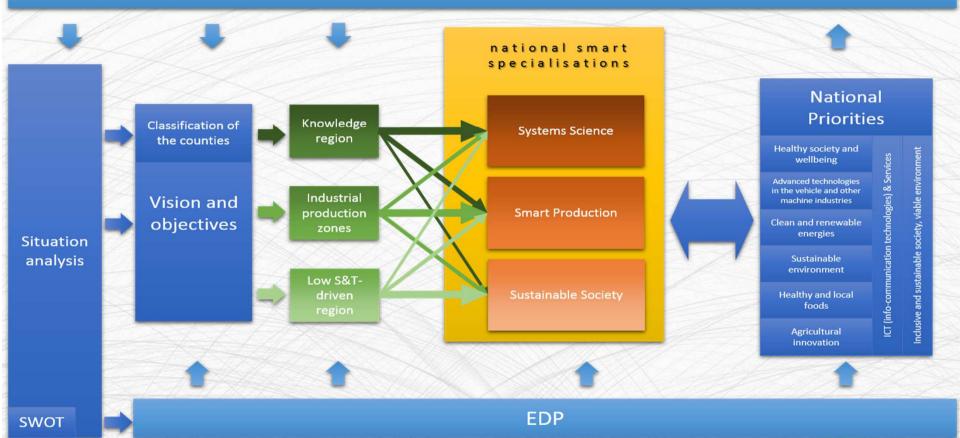
The NRDI office is responsible for the implementation and the evaluation of smart specialisation strategies





# The alignment of national smart specialisations with the S3 strategy

RIS3 methodology and EU experts







# Assignment of policy instruments to the national S3 directions (1)

#### SYSTEM SCIENCE

- Enhancing research and innovation (R&I) infrastructure and capacities to develop R&I excellence, and promoting centres of competence, in particular those of European interest;
- **Creating relationships** and synergies between businesses, research and development centres and the higher education sector
- Open innovation
- increasing the international integration of basic research in the Horizon 2020 projects and the **European research networks** by reaching a high level of participation in the programs and strengthening the relationships between the national and European research centres
- Improving the system of conditions of discovery research along the smart specialization; supports the strengthening of the interfaces be education-research-industry (knowledge triangle) and the (public) services and higher education institutions, the basic research related to the domestic key technologies and main economic sectors as well as the expansion of young researchers, further the harmonization of the university-academic and corporate capacities.
- Supporting discovery research



# Assignment of policy instruments to the national S3 directions (2)

#### **SMART PRODUCTION**

- Supporting technological and **applied research**, pilot programmes, early product validation actions, and the advanced production capacities and test production of basic technologies
- Promoting the **R&I** investments of businesses
- Creating relationships and synergies between businesses, research and development centres and the higher education sector
- Product and service development
- Networking and clusters
- Open innovation
- Building the knowledge triangle, namely supporting the interfaces of education-research-industry and supporting the collaboration of the companies and the academic and higher education institutions
- Increasing the R&D activity and adaptation, and innovation performance
- Purchase of instruments and devices related to smart specialisation and supporting the interventions ensuring a new research generation in higher education



# Assignment of policy instruments to the national S3 directions (3)

### SUSTAINABLE SOCIETY

- Product and service development
- Technology transfer
- Social innovation and eco-innovation
- Spreading of general-purpose technologies
- Building the knowledge triangle, namely supporting the interfaces of education-research-industry and supporting the collaboration of the companies and the academic and higher education institutions
- Purchase of instruments and devices related to smart specialisation and supporting the interventions ensuring a new research generation in higher education
- Increasing the R&D activity and adaptation, and innovation performance
- Discovery research in social sciences





# The alignment of national smart specialisations with the S3 strategy



- machine industry RDI, advanced production technology systems,
- advanced materials and technologies (technical materials science,
- materials technology, nanotechnology, mechatronics and electronics))
- natural resource management, advanced environmental technologies



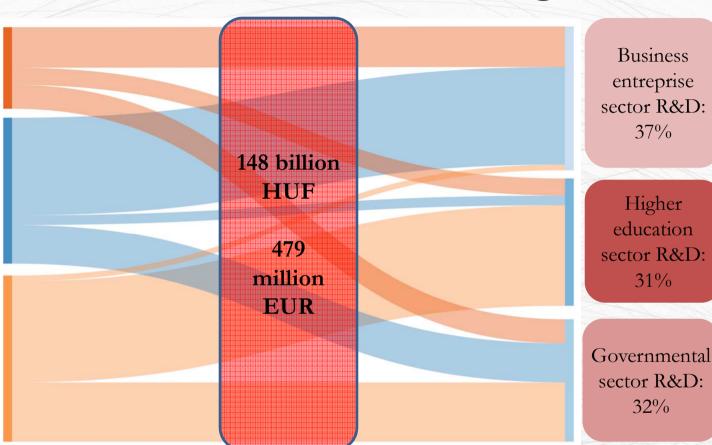


### Governmental RDI Financing

Research Technology and Innovation Fund + National Scientific Research Fund (since 2015: National Research, Development and Innovation Fund): 20%

Operative Programmes: 36%

Other governmetal sources (e.g.: institutional funding): 44%

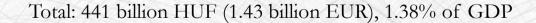


Total: 148 billion HUF (479 million EUR)



Source: HCSO, 2015

#### **RDI** Financing Source **TARGET** Governmental Govern-Sector R&D (14%) mental (35%)Higher Education Sector R&D (14%) Non-profit 441 billion (1%)HUF Business 1.43 enterpris billion Business **EUR** Enterprise (35%)Sector R&D (72%)Foreign





(17%)



## Thank you for your attention!

### Béla Kardon

Regional Centre for Information and Scientific Development <a href="mailto:bkardon@rcisd.eu">bkardon@rcisd.eu</a>
<a href="mailto:www.rcisd.eu">www.rcisd.eu</a>



