



CREATING MARKETS FROM RESEARCH RESULTS

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Looking back: Macedonia and the region of Western Balkanas in the past 15-20 years

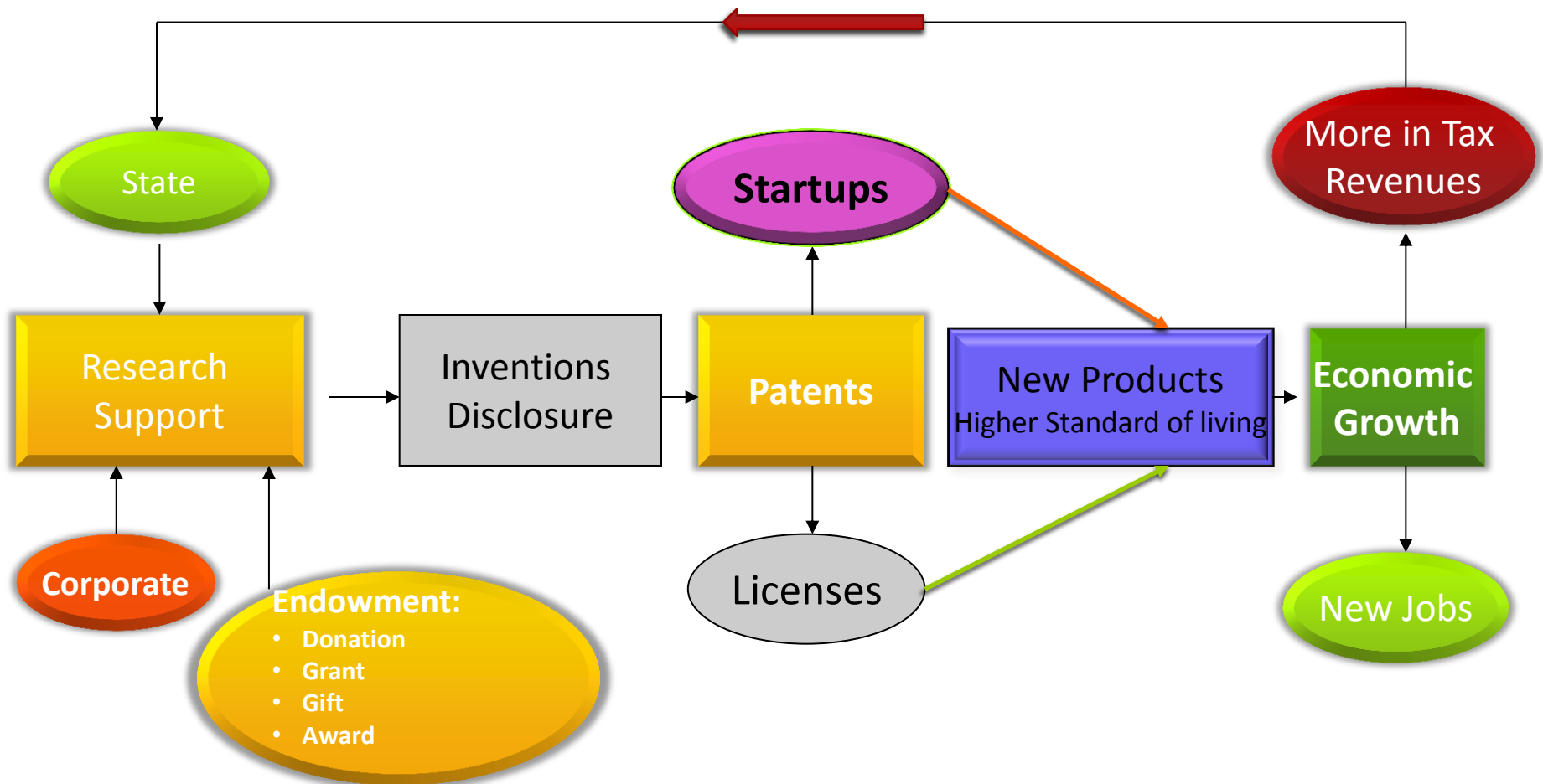
- **Structurally weak**
- **Relying mainly on basic industry**
- **Unemployment**
- **Demotivation – Resignation**
- **Brain Drain**



**5 companies with 200 employees
are **safer** than
1 company with 1000 employees
and
100 businesses with 10 employees
are **more flexible** than
10 businesses with 100 employees**

New business fields and new technologies

Stages of Technology Transfer: From Research Support to Economic Growth



I. Evolution of Academic Philosophy:

From Basic Research to Technology Transfer

Definition:

Technology transfer is the process of taking an invention from its inception in a laboratory to a commercialized product.

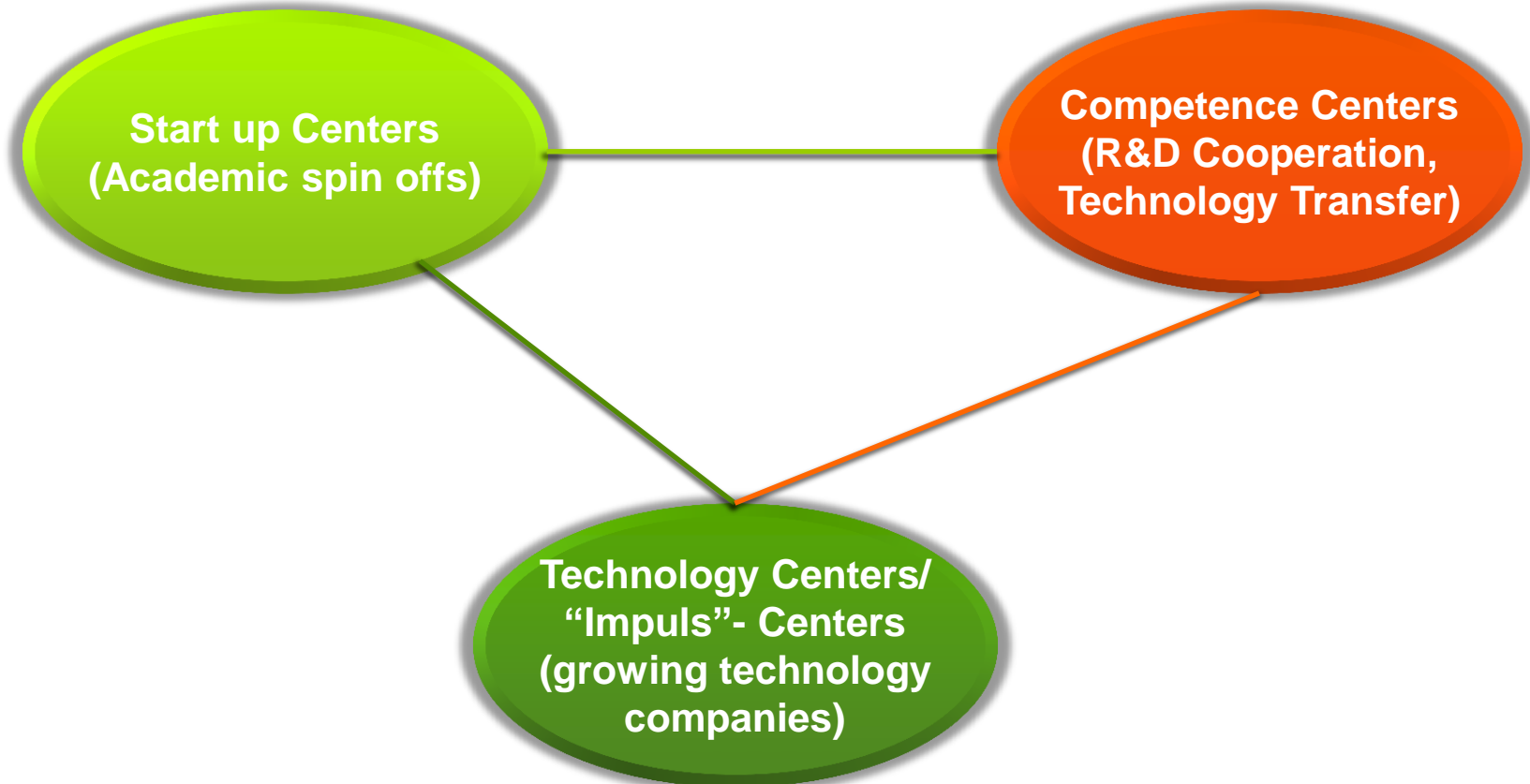
Obstacles to Effective Technology Transfer:

In the traditional view, overt commercialization is in contradiction to the pure goal of scientific enquiry.

Private universities with large endowments have been concerned that engaging in commercialization may subject them to lawsuits.



Types of “Centers and Parks”



FACULTY OF MECHANICAL ENGINEERING

Action plan for the first 5 years 2008-2013

2008 2009 2010 2011 2012

Start-up centre

Training Center

Centre for international relations

Career centre

Tempus IV Grant:
€ 649,153.-

Duration:
January 2009 – January 2012

COMPETENCE – Matching Competences in higher education and economy

Competence centres

CIRKO - TT Center,
established 2005 in cooperation with GTZ and USAID

Technology park





BUSSINES START UP CENTER

OBJECTIVES OF THE BSC

SPECIFIC GOALS

- To establish a business start-up centre in Skopje
- To provide entrepreneurial and small business management training for the students
- TO ENCOURAGE STUDENTS AND UNIVERSITY GRADUATES TO EXAMINE ENTERPRENOURSHI AS A VIABLE CAREER OPTION
- To assist students and recent graduates to start their own small and medium-sized enterprises (SMEs)
- To increase students' and recent graduates' employability
- TO ESTABLISH AND SUPPORT AT LEAST 5 COMPANIES PER YEAR THAT HAVE A TECHNICAL/INNOVATIVE FOCUS, GROWING POTENTIAL AND PERFOR INTERNATIONAL ACTIVITIES

The address of the **UKIM-BSC**:

Faculty of Mechanical Engineering – New
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Tel./Fax: +389 2 3099 481/482;
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TRAINING CENTRE

- In each program year, a group of representatives of technologies (inventors or entrepreneurs), HAS BEEN TRAINED in:
 - international commercialization strategies,
 - venture formation,
 - marketing of technology enterprises
 - financing issues for commercialization, and
 - technology business presentations;or in
 - strategic development for early-stage innovation
 - intellectual property protection,
 - licensing issues and options, and
 - technology presentations to strategic investors.
- Additionally, in each program year, a group of representatives of technologies (inventors or entrepreneurs) has been coached in describing and presenting their innovation and commercialization approach.

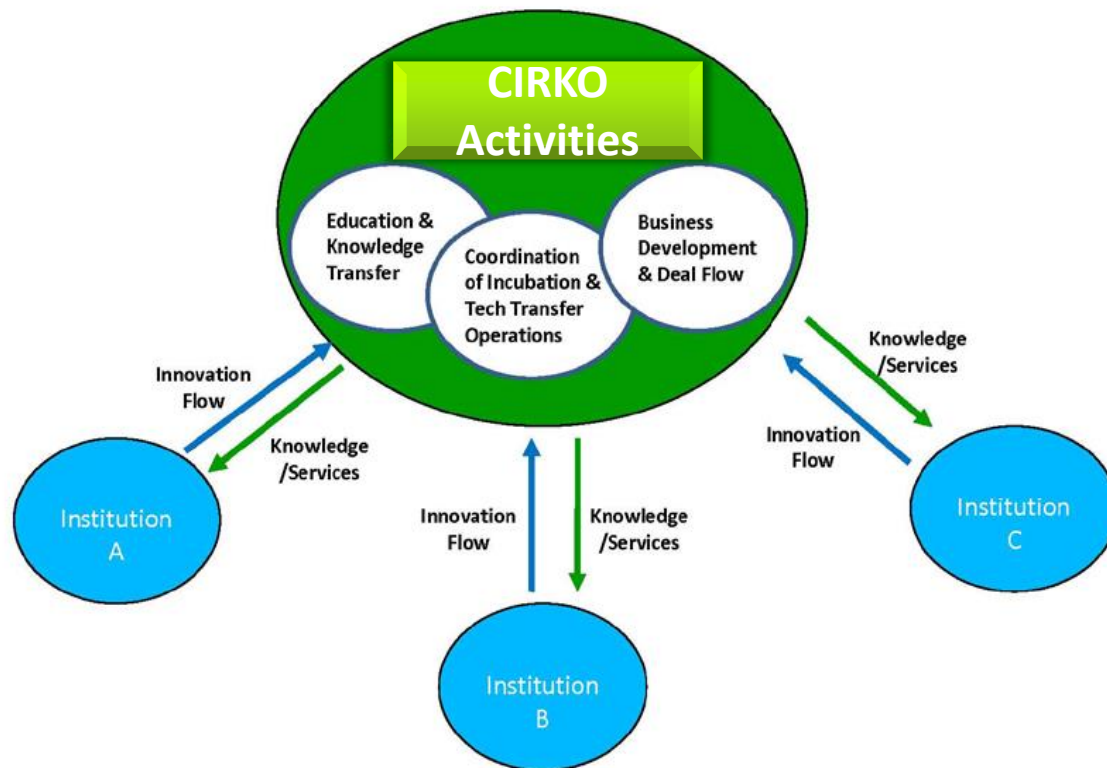



➤ Led by the motto

Research + Industry = Business Opportunity

➤ The Technology Transfer Office (TTO) –

➤ **CIRKO – Center for Research, Development and Continuing Education** enables faculty members at the **Faculty of Mechanical Engineering in Skopje**, to begin start-up companies based on their research and development, and to seek entrepreneurial partners in the private sector.



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- Aiming to improve the overall efficiency of the research and innovation engineering system in the area covered
 - Smart specialization to support the designing and implementation of research and innovation strategies from smart specialization
 - TTO CIRKO proposes to gather stakeholders in the innovation value chain of the Macedonian industry and region into a partnership that will design and implement actions to accelerate innovation and technology transfer
 - TTO Is essential for strengthening the country scientific base and capacity building in key areas (according the country strategy)

Technology Transfer / Incubation Center

- Provide training for the managers of international technology transfer offices of each of the partner institutions,
- Coordinate activities of international technology transfer offices of each of the partner institutions, among the offices, and with incubators and other entities,
- Provide training for the managers of international incubators of each of the partner institutions,
- Provide on-site foreign experts for assistance in implementation of best practices for international tech transfer and international incubator management,
- Coordinate events to showcase and support the enterprises of the international incubators of each of the three partner institutions,
- Provide virtual incubation services and tech transfer office management to participating partner institutions that do not operate their own incubators or tech transfer offices,
- Optimize the value of the intellectual property from each institution for global markets, and
- Facilitate the formation of patent suites for convergent technologies from multiple institutions (i.e., IP protection for the convergence of techs in two or more industries from different partner institutions).



Customer

*Part drawing,
tool's design*

Products

**Product
drawing**

**MACEDONIAN
TOOL FACTORY**



Technology definition*



**CIRKO MES Center of
Excellence**

- ♦ **Tool Design**
- ♦ **Production Design**
- ♦ **NC Programing**
- ♦ **CAD/CAM/CAE**
- ♦ **Reverse engineering**
- ♦ **3D Modelling**
- ♦ **3D Modelling training**
- ♦ **SCM Solutions**
- ♦ **BPA and Reengineering**



Faculty of Mechanical Engineering

Material data**

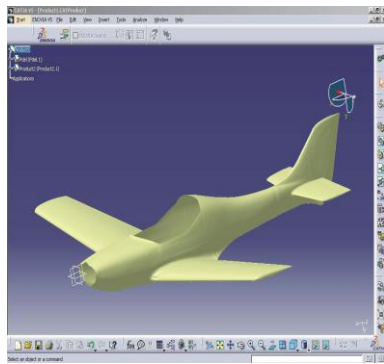
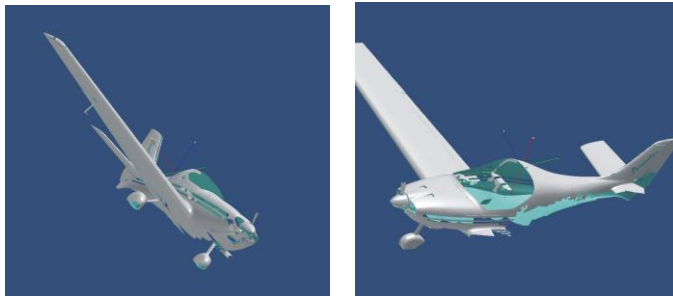
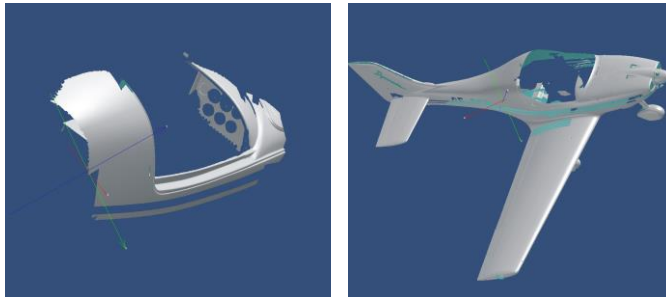
**Q 4 COMPANIES
If you want:**

- High production quality
- Higher productivity
- Lower production costs
- Higher profits
- Faster reaction to the global market
- Better connections to your global supply chain and customers


- Die design
- CAD, CAM, CAE
- Industrial design
- Reverse Engineering
- Training (C++, JAVA, SolidWorks)
- Supply Chain Management solutions

CREATING MARKETS FROM RESEARCH

example: CIRKO involved in 3D digitalization




AIRNET RITC Incubator company
TECOS Celje, Slovenia

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- Technology transfer is a particular challenge in the Western Balkans, and collaboration between public research organizations and industry tends to happen on an ad hoc basis, driven by occasional opportunities and short-term objectives.
 - Robust industry-science interactions are essentially missing.

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- The Legal Framework for Technology Transfer: Recent Developments in Macedonia
 - The 2013 **Law on Innovation Activity** in Republic of Macedonia created the **Fund for Innovation and Technological Development, (FITD)** which finances the government's interventions in technology transfer and commercialization, thus connecting research and the market.

- Western Balkan Regional **RESEARCH & DEVELOPMENT Strategy for INNOVATION**
- Signed October 24-25, 2013 in Zagreb, Croatia
- Jan Braathu – Norwegian Ambassador for Kosovo and Albania said:
 - “... the Balkans are not what used to be. Changes very rapidly!”
 - “....need to network to access markets abroad..”
 - “... today is the ability to innovate which will create jobs on the market and will contribute to the economic life people can benefit from!”

<http://www.worldbank.org/en/news/video/2013/10/22/western-balkans-research-and-development-for-innovation>



This Overview of the research sector in the Western Balkans is a companion piece to the Western Balkans Regional R&D Strategy for Innovation .

The strategy aims to strengthen the region's research capacity, enhance intraregional cooperation, promote collaboration with business sectors, explore possibilities for financing R&D from EU funding schemes and other external sources, and help integrate the region into the European Research Area (ERA) and Innovation Union

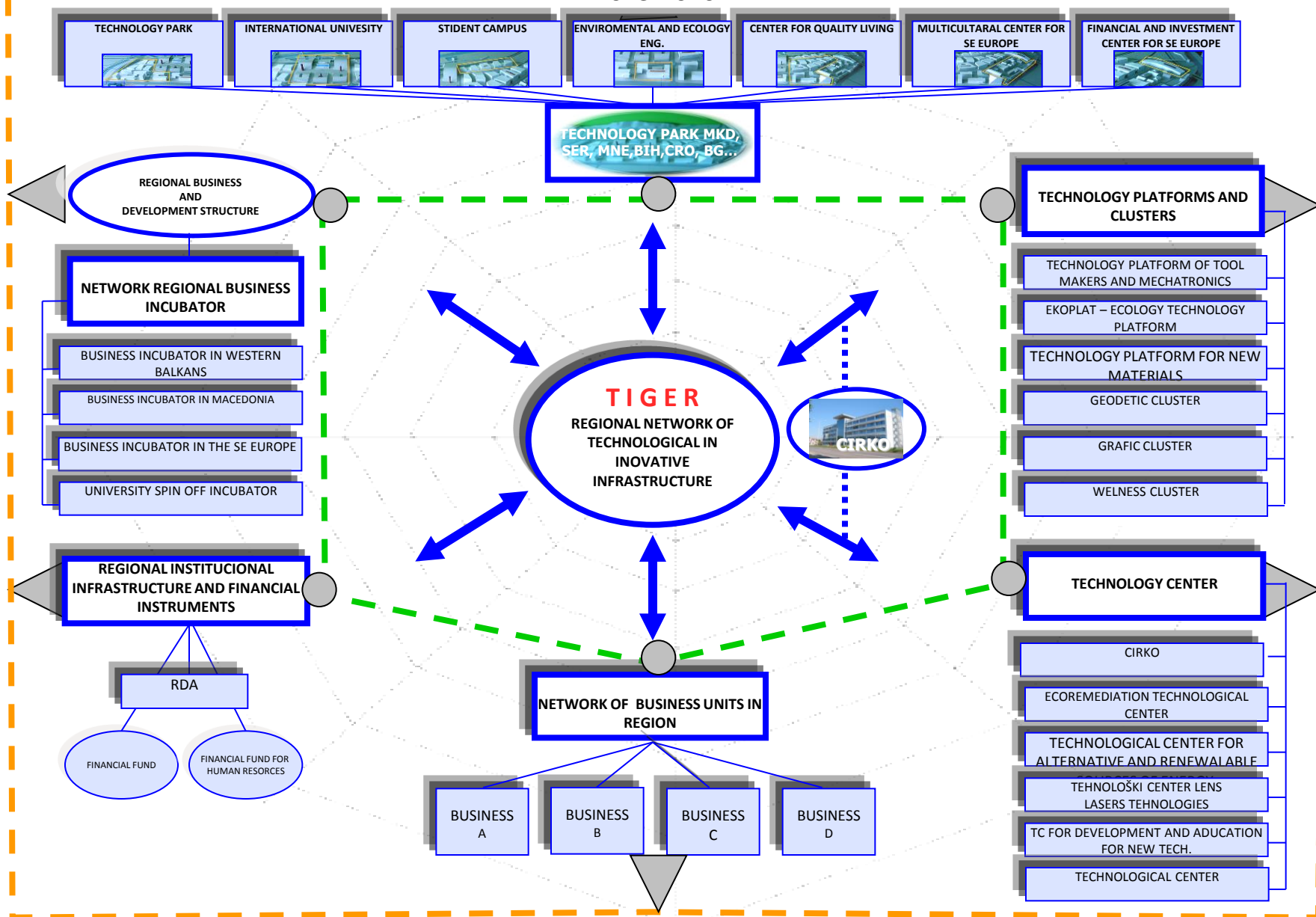
That regional R&D strategy was prepared between December 2011 and October 2013 under the joint auspices of the Regional Cooperation Council, the European Commission, and government officials from Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, and Serbia (the Project Steering Committee)

Aim of the project – NETWORK OF THE WESTERN BALKAN IN ONE R&D STRATEGY

- to build »technological cities«, which will create longterm conditions for development of creative class
- to develop conditions for global entrance of the region in the field of technologies and competitiveness
- prepare background for inflow of technological companies in the region
- to create knowledge (international university) and co-operative network based on strong development, research and educational clusters as well as international activities in the region and abroad

THE NETWORK SYSTEM OF TECHNOLOGY AND INNOVATIVE INFRASTRUCTURE IMPORTANT FOR DEVELOPMENT OF RECONSTRUCTION OF WESTERN BALKAN REGION

2013-2010



TECHNOLOGICAL CENTRE FOR RENEWABLE AND ALTERNATIVE SOURCES OF ENERGY – INTEGRATION INTO REGIONAL NETWORK OF TECHNOLOGICAL CENTRES

