



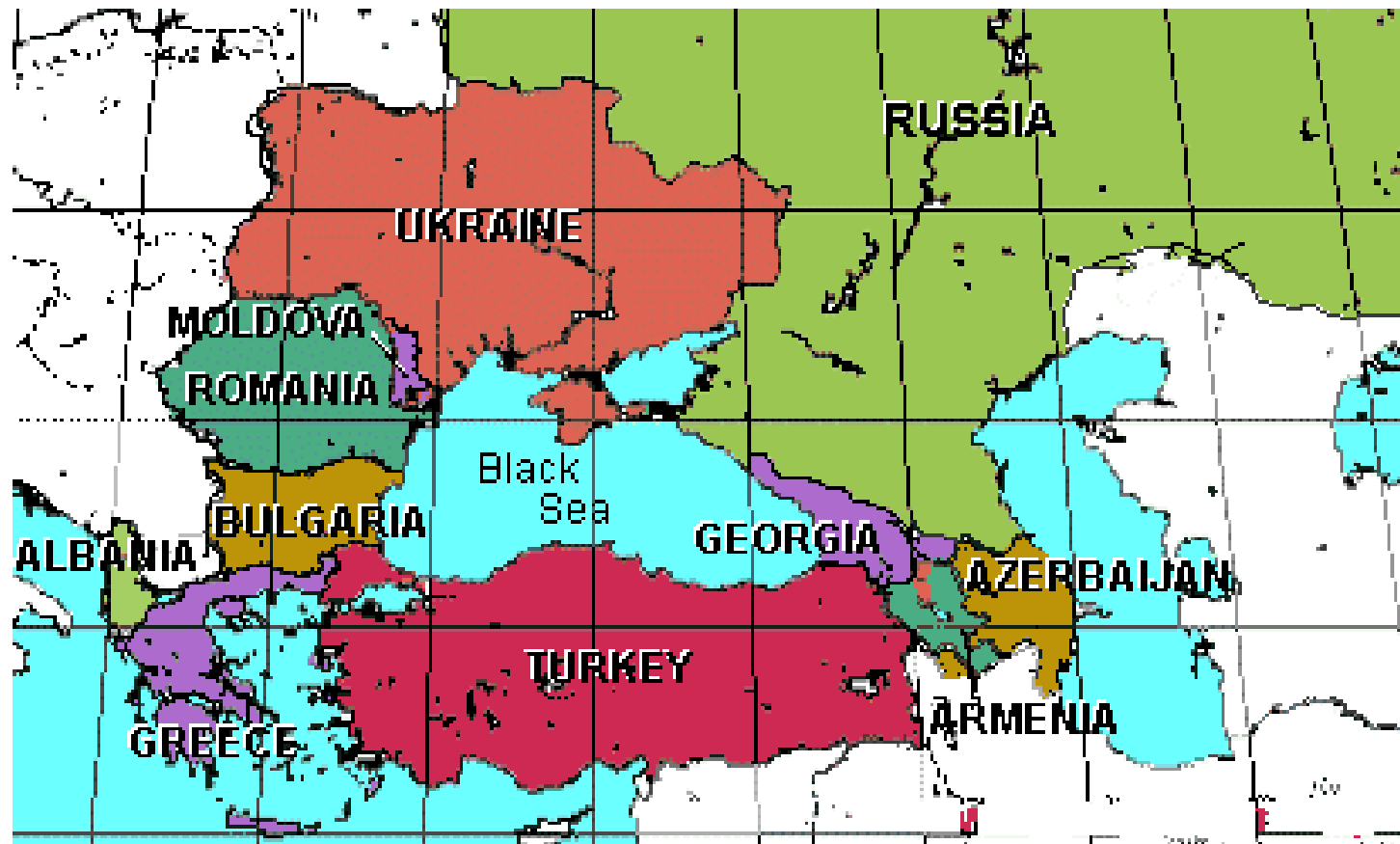
Cooperation on Education & Scientific Research for Promoting Ecoinnovation in Transport & Logistics in the Black Sea Region

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"Ovidius" University of Constanta
Black Sea Universities Network

Outline

- ▶ **The Black Sea Region**
- ▶ **The Black Sea Universities Network**
- ▶ **Priorities in the field Transport, Energy and Environment Protection**
- ▶ **The Concept of Ecoinnovation**
- ▶ **Generic Projects**
- ▶ **Cooperation examples**
- ▶ **Conclusions**

The Black Sea Region



Inherited Problems

- ▶ **Centuries of confrontations**
- ▶ **Inherited non-cooperative mentality**
- ▶ **Long lasting environmental problems**
- ▶ **Major economical imbalances**
- ▶ **Scarcity of investment resources**
- ▶ **Instability and insecurity**
- ▶ **Ethnical segregation**

Black Sea Universities Network

- **Aim:** The Network was founded for the purpose of developing scientific, cultural and educational cooperation and exchanges among the Universities of the Black Sea Economic Cooperation Participating States and other institutions with similar concern for the sustainable development of the BSR
- **Members:** 114 Universities of 12 BSEC member countries
- **Bodies:** Conference of Rectors of BSR, Executive Board, President, IPS
- **Centers:** Center for Advanced Engineering Sciences (Romania), "B. S. Cobanzade" Research Center on Turkology, Baku State University, Center ACADEMICON (Turkey), Center for Coordination of Common Graduate Programs (Greece), Center for Coordination of Summer Schools & Short Term Certificate Courses (Ukraine), Center for Joint Research Projects (Azerbaijan), Center for BSUN Publications (Bulgaria),
- **Consortia:** BSUN Consortium on Economics & Business, Consortium on Oral Health, Consortium on Tourism, Consortium on RES.
- **Web site:** [Http://www.bsun.org](http://www.bsun.org)



KEY

Country names are color-coded based on their Innovation Efficiency Ratio, which measures how much innovation output that country is getting for its inputs.

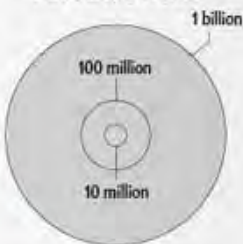
EFFICIENT INNOVATORS

Innovation efficiency ratios above the median

INEFFICIENT INNOVATORS

Innovation ratios below the median

POPULATION SIZE



Gross domestic product per capita is measured in purchasing power parity international dollars, which is based on the amount of local currency necessary to buy the same amount of goods and services in that country as a dollar would buy in the U.S.

Leader of the Rich World

Switzerland, a nation of eight million with a per capita GDP of \$45,285, topped the GII for the second consecutive year. One hint why Switzerland performs so well: it is also number one in university-industry research collaboration.

The 800-Pound Gorilla

China is the world's top exporter of creative goods and a top investor in R&D, but the political and regulatory environments are still weaknesses.

Most Improved Low-Income Nations

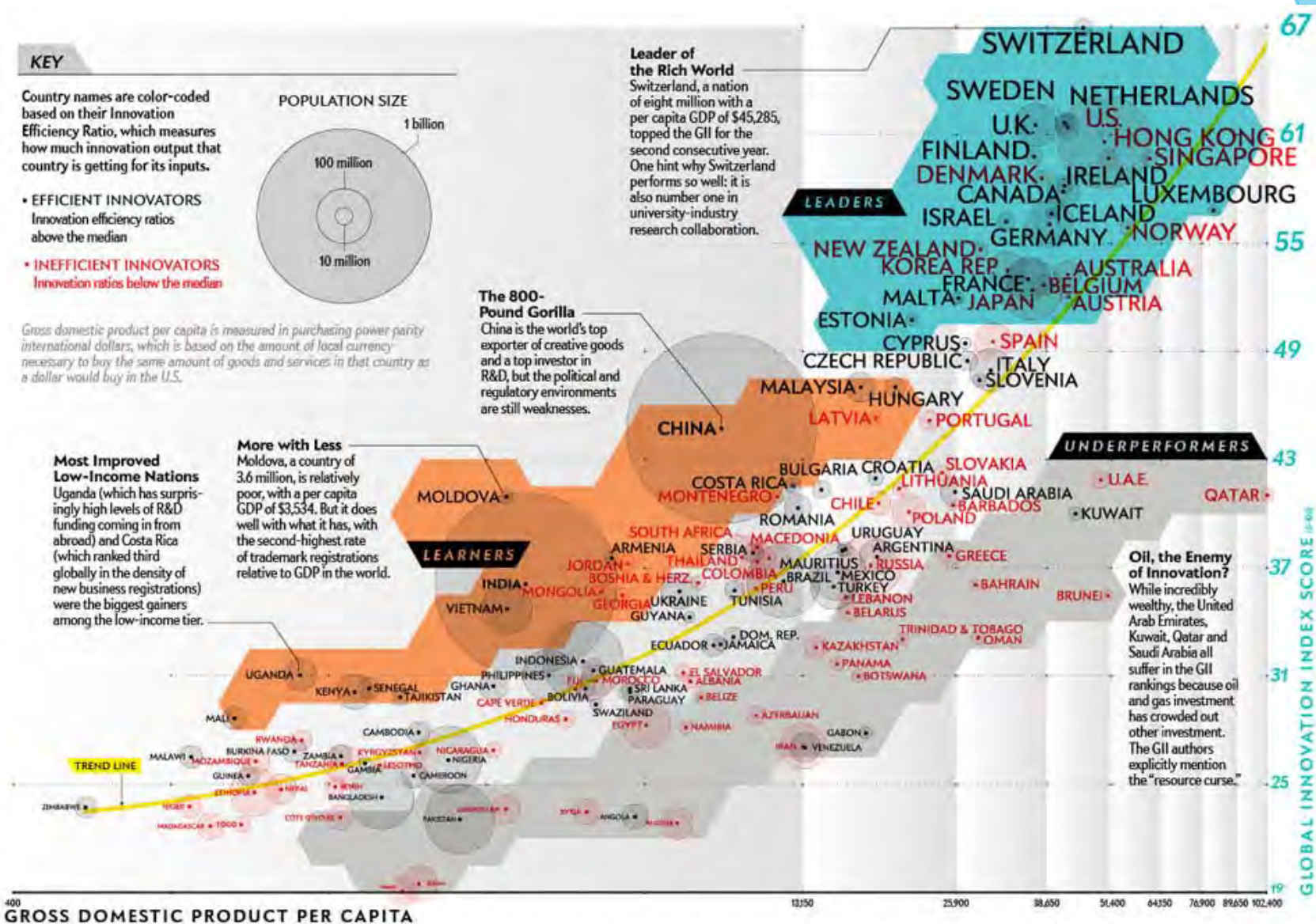
Uganda (which has surprisingly high levels of R&D funding coming in from abroad) and Costa Rica (which ranked third globally in the density of trademark registrations) were the biggest gainers among the low-income tier.

More with Less

Moldova, a country of 3.6 million, is relatively poor, with a per capita GDP of \$3,534. But it does well with what it has, with the second-highest rate of trademark registrations relative to GDP in the world.

Oil, the Enemy of Innovation?

While incredibly wealthy, the United Arab Emirates, Kuwait, Qatar and Saudi Arabia all suffer in the GII rankings because oil and gas investment has crowded out other investment. The GII authors explicitly mention the "resource curse."



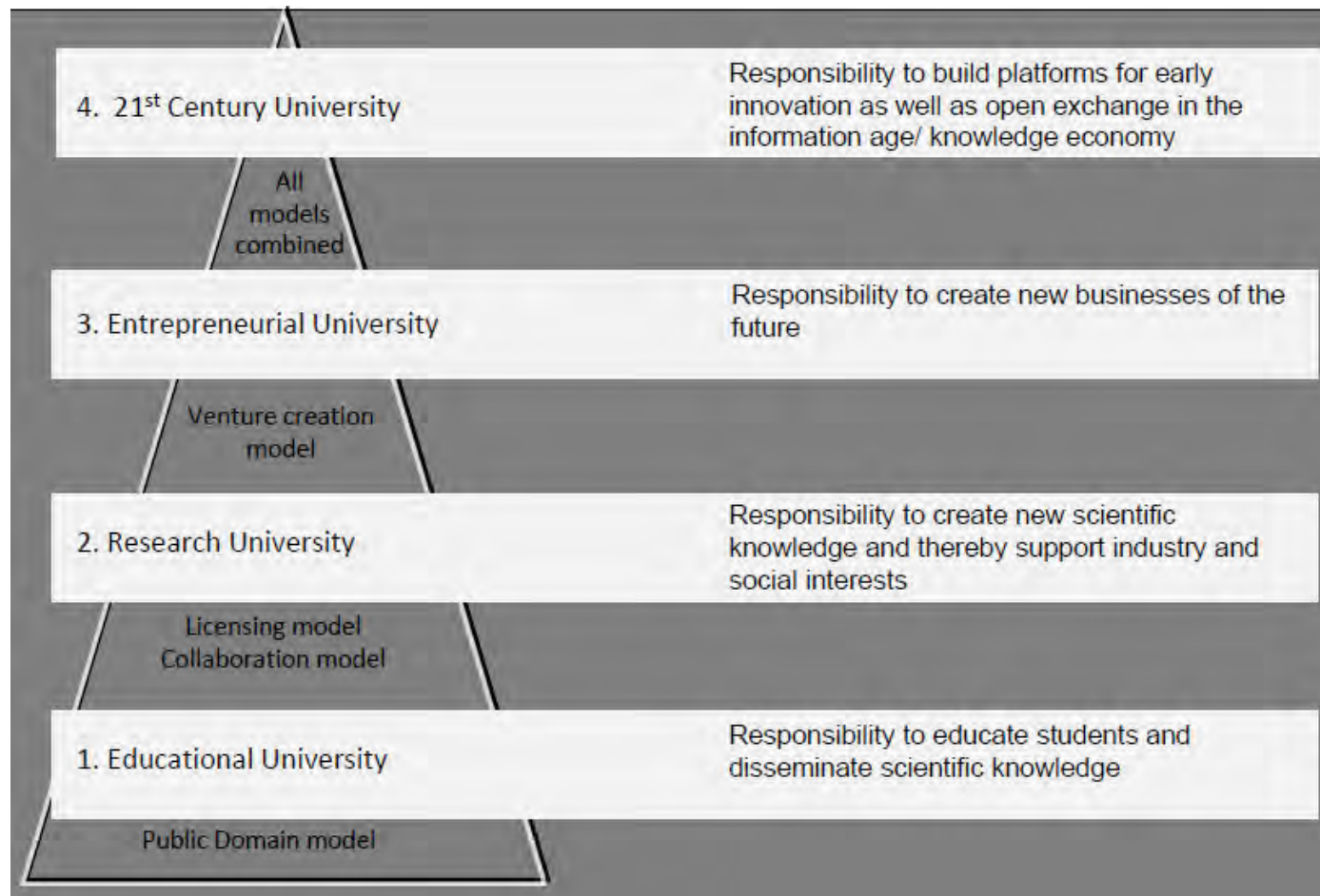
400
13,150 25,900 38,050 51,400 64,150 76,900 89,650 102,400
GROSS DOMESTIC PRODUCT PER CAPITA

67
61
55
49
43
37
31
25
19
GLOBAL INNOVATION INDEX SCORE (2013)

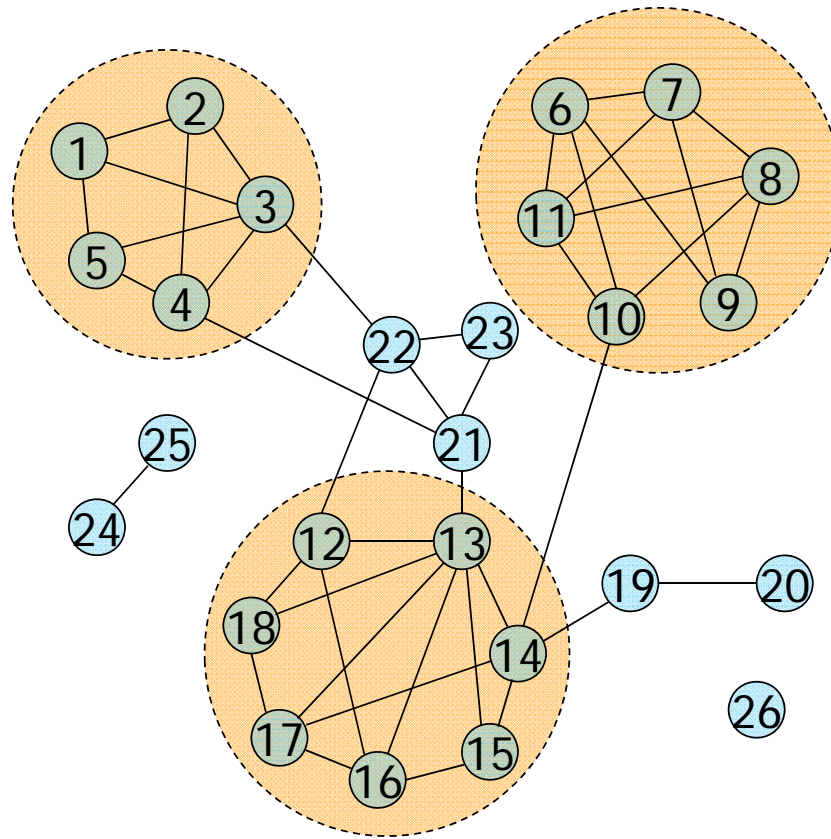
SOURCE: THE GLOBAL INNOVATION INDEX 2013: LOCAL DYNAMICS KEEP INNOVATION STRONG IN THE FACE OF CRISIS, BY SOUMITRA DUTTA, DANIELA BENAVENTE, BRUNO LANVIN, AND SACHA WUNSCH-VINCENT (CHAPTER 1, FIGURE 4, PAGE 24 IN THE GLOBAL INNOVATION INDEX 2013).

Graphic by Pitch Interactive

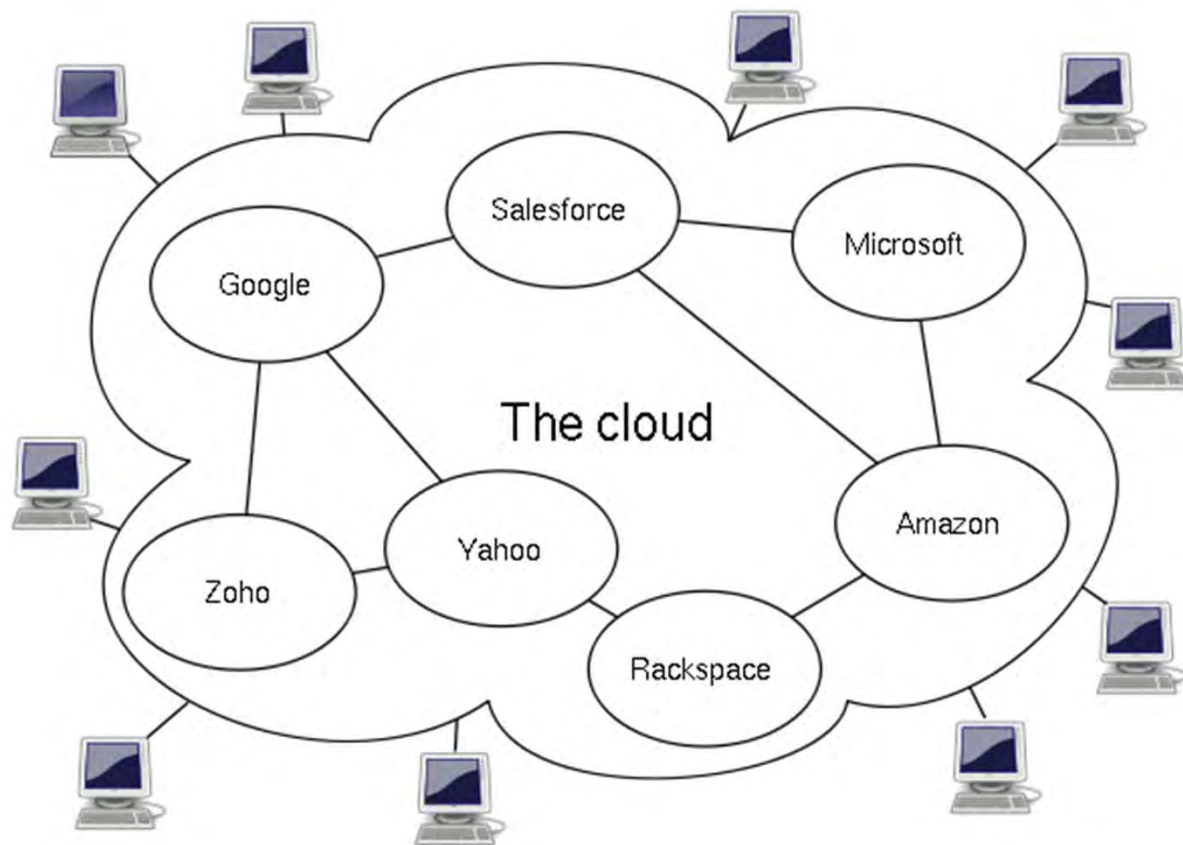
The Role of Universities



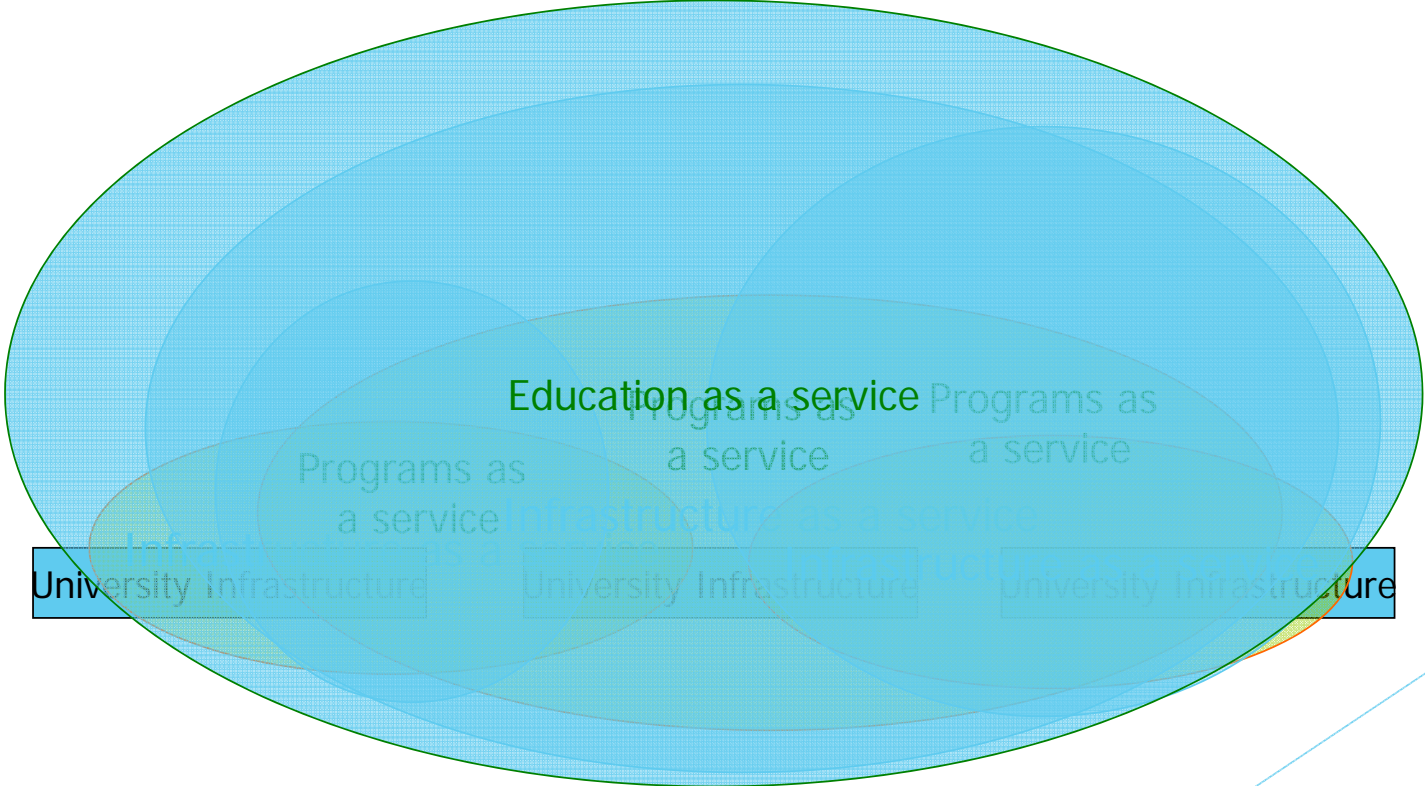
Network of universities / Network university



Cloud computing and



Cloud Universities



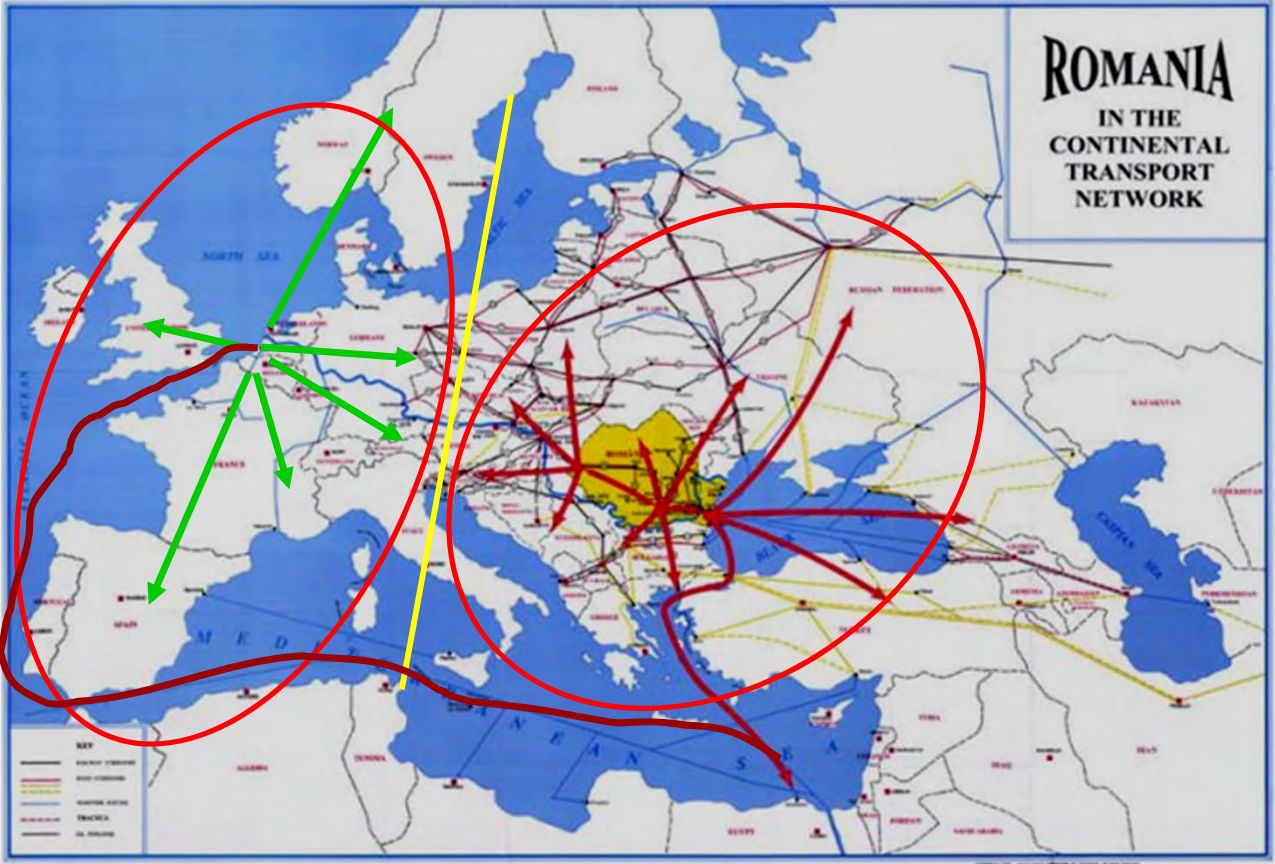
Intellectual Social Responsibility

- ▶ Multivalent logic
- ▶ Synthetic thinking
- ▶ Integrative learning
- ▶ Focus on results
- ▶ Generate Synergies
- ▶ Be part of a team!
- ▶ And Try to **MAKE**a little bit **BETTER** on Earth!

BSR as a Transportation Platform



Addressing a challenge on T&L



Connectivity



Figure above shows position of auto industries and their potential multimodal hubs in the Danube region that could be relevant for the development of an intermodal transport on the Danube.

Green Economy

- Emphasis on renewable sources but not limited to this topic;
- Minimal use of resources;
- Minimal release of emissions on a Life Cycle approach;
- Generation of new business opportunities;
- Generation of sustainable new jobs.

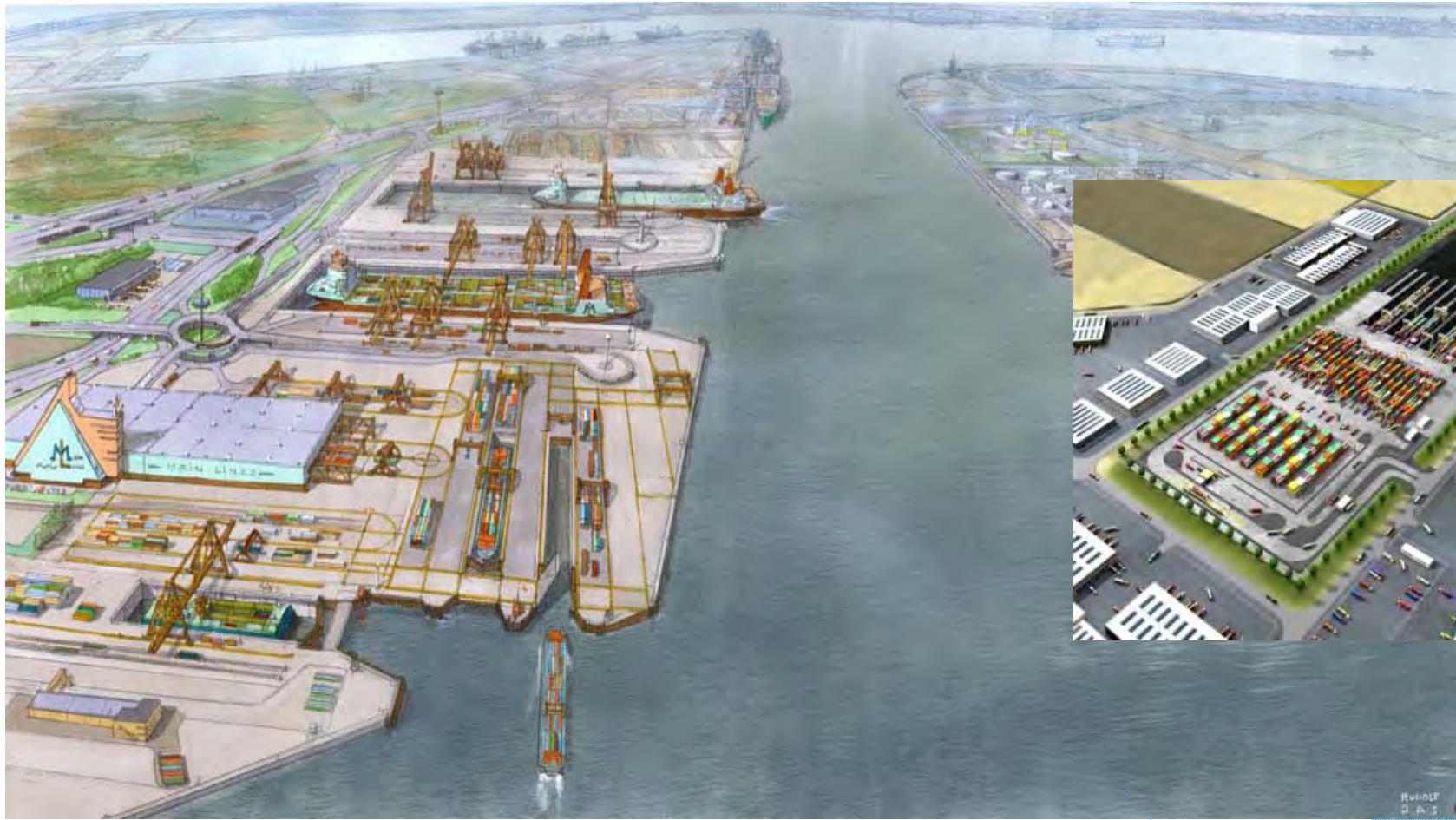
The Ecosystem Centered Approach



New wings



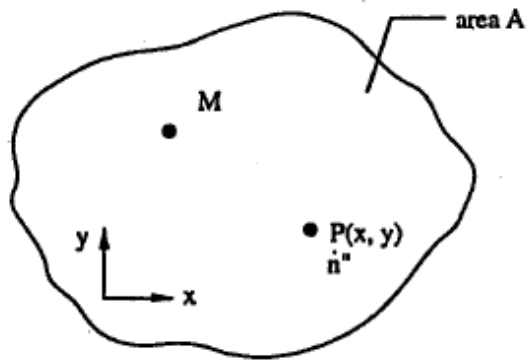
New Concepts for Terminals



New options for distribution



Constructal Theory



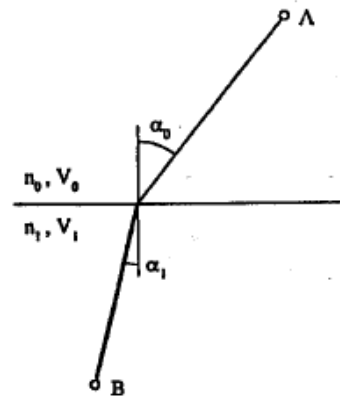
$$t_0 = \frac{H_0}{2V_0} + \frac{L_0}{V_1}$$

$$(t_0)_{\min} \propto \frac{H_0}{L_0}$$

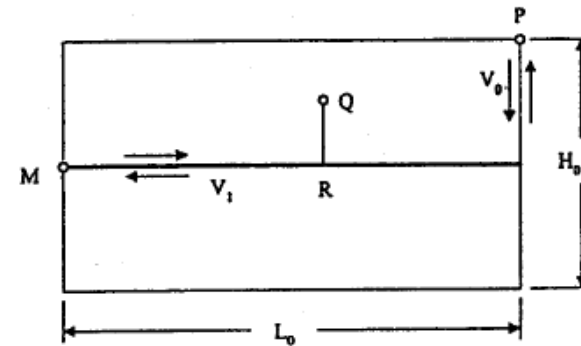
$$A_0 = H_0 L_0$$

$$\left(\frac{H_0}{L_0} \right)_{opt} = \frac{2V_0}{V_1}$$

Fermat law
point-point flow



Constructal law
volume-point flow



Minimum Time Problem

(A. Bejan, 2000)

Constructal Theory

$$t_1 = \frac{L_1}{V_1} + \frac{f_1 H_1}{2 V_0}$$

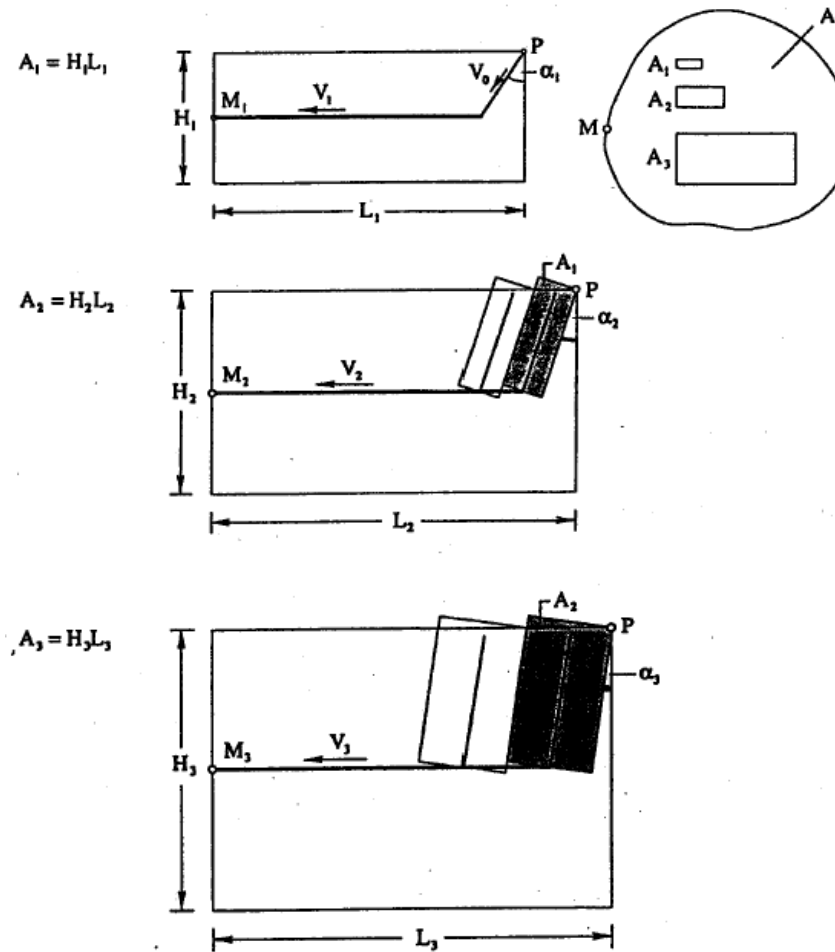
$$f_1 = \frac{1}{\cos \alpha_1} - \frac{V_0}{V_1} \tan \alpha_1$$

$$H_{1,opt} = \left(\frac{2 A_1 V_0}{f_1 V_1} \right)^{1/2}$$

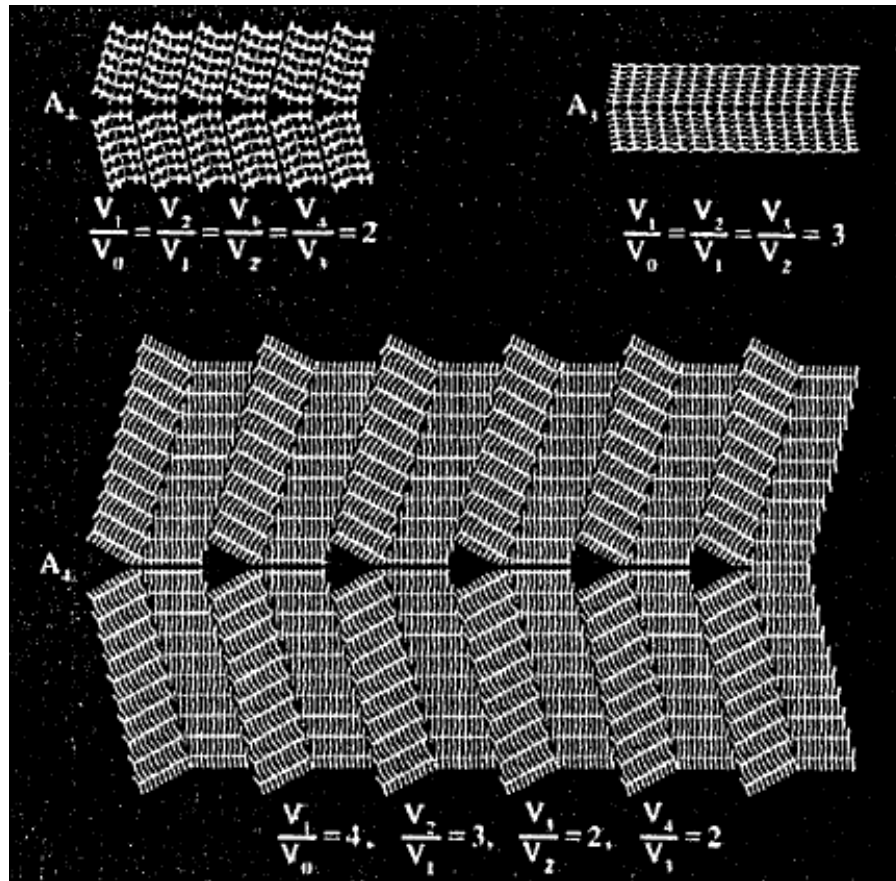
$$\left(\frac{H_1}{L_1} \right)_{opt} = \frac{2 V_0}{f_1 V_1}$$

$$t_{1,min} = \left(\frac{2 f_1 A_1}{V_0 V_1} \right)^{1/2}$$

$$\alpha_{1,opt} = \sin^{-1} \left(\frac{V_0}{V_1} \right), \quad f_{1,min} = \cos \alpha_{1,opt}$$



Constructal Theory



The Danube Green Corridor



The Vision - Eco-innovation for Green Economy

Improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

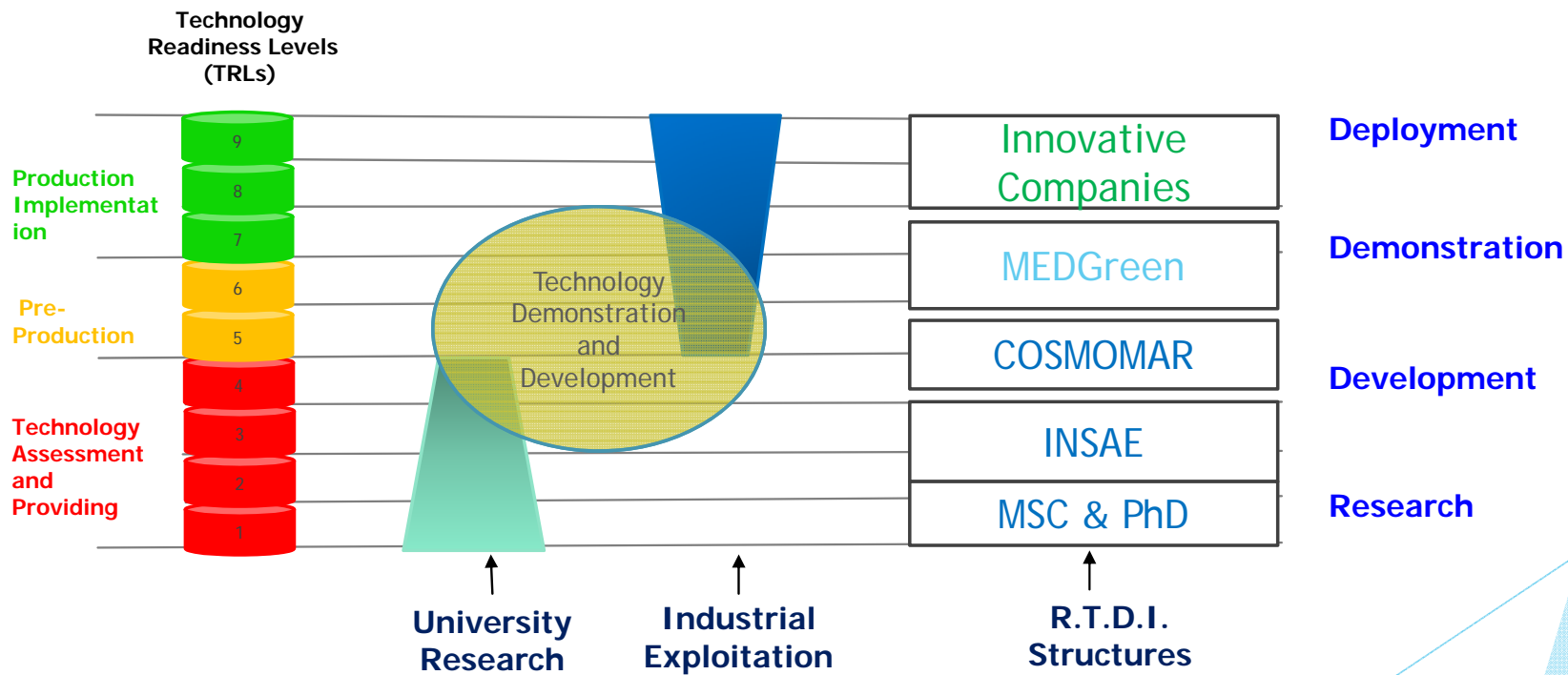
Eco-innovation is “the creation of novel and competitively priced goods, processes, systems, services, and procedures designed to satisfy human needs and provide a better quality of life for everyone with a life-cycle minimal use of natural resources (materials including energy and surface area) per unit output, and a minimal release of toxic substances”.

In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive.

Practically speaking, a green economy is one whose growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.

UNEP, 2012

Implementing an Ecoinnovation Culture



The MEDGreen Cluster

The MEDGreen Cluster is a cluster of innovative companies and stakeholders for promotion of eco-technologies and alternative sources of energy.

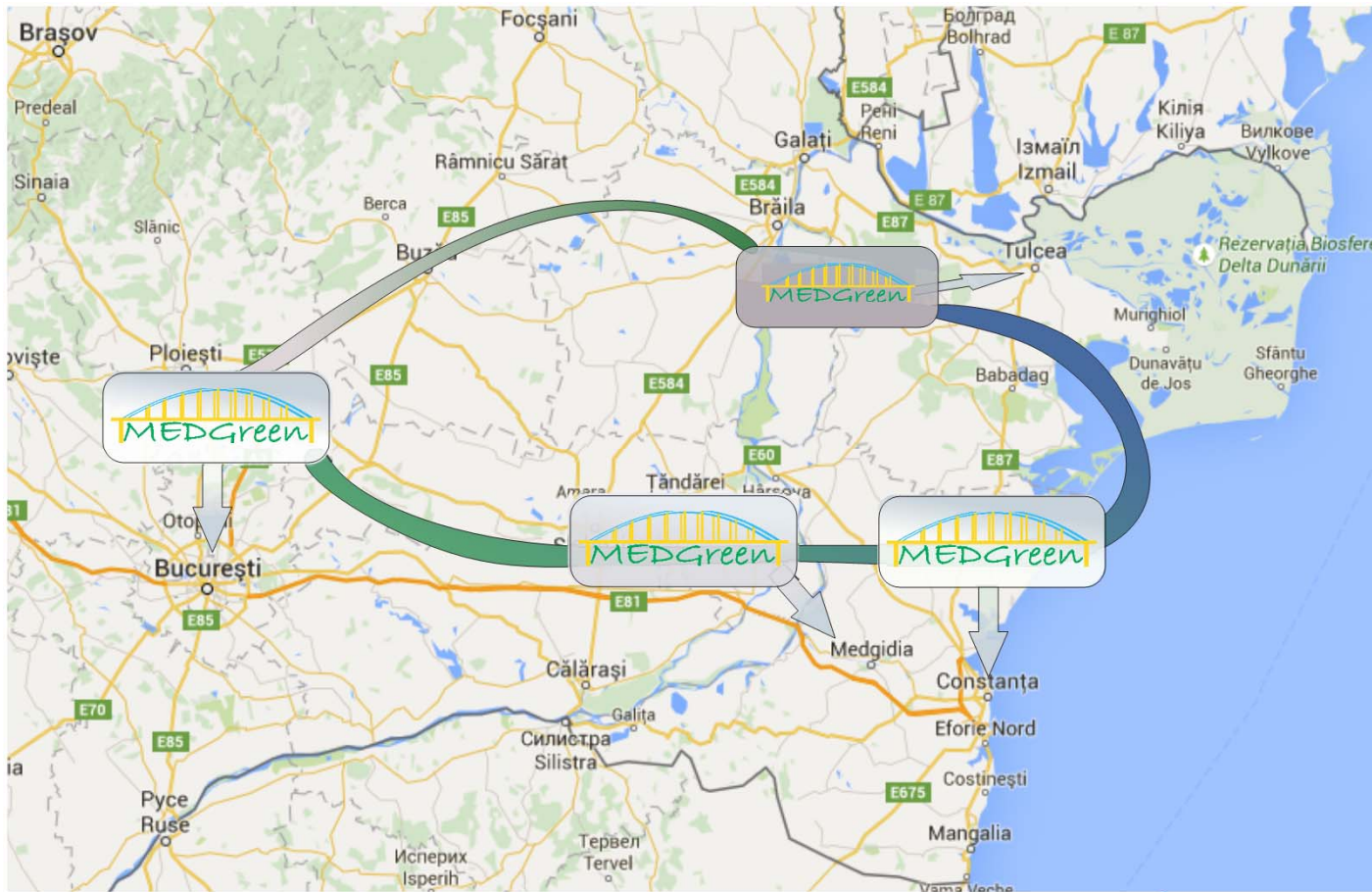
In 2012, it has been established a National Pole of Competitiveness on Green Economy involving the most relevant partners as companies, research organizations, universities and local authorities.

The grouping has been registered in 2013 as the Association MEDGreen-Innovative Cluster of companies specialized on ecotechnologies and alternative sources of energy.

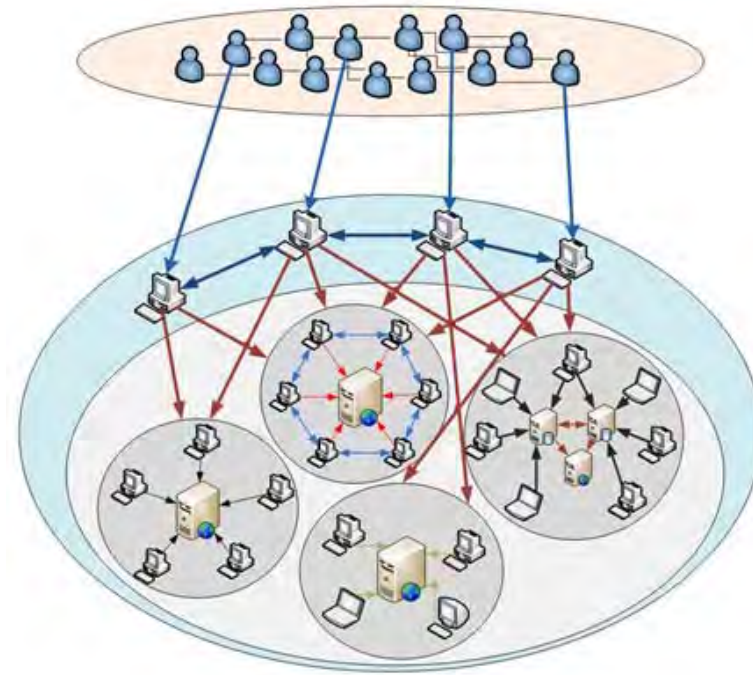
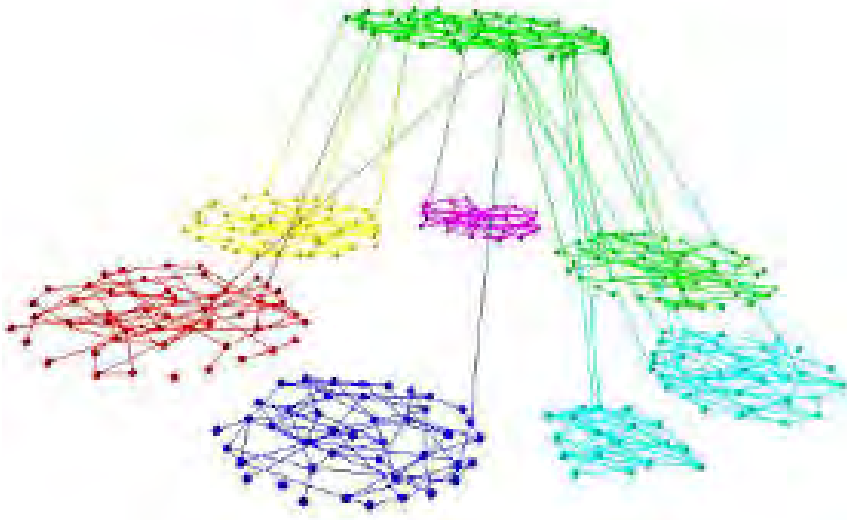
The association has been granted with the financial support for the implementation of the project “The development of solutions innovative products and services that will enhance the competitive advantages of companies associated in the cluster MEDGreen”.

MEDGreen Cluster is collaborating with the other national and European associations specialized on the promotion of bio-energy on the Romanian and European market.

The MEDGreen Cluster



Clustering



ARGOS Project



The screenshot shows a web browser window displaying the ARGOS Project website. The browser's address bar shows the URL <http://www.bsun.org/argos/>. The website features a logo of a sailboat with 'ARGOS' written on it, the text 'ARGOS Project', and the European Union flag. It also mentions the 'Joint Operational Programme "BLACK SEA BASIN 2007-2013"' and is 'financed by the Romanian Ministry of Regional Development and Tourism'. The main content area lists the title of the action and the acronym, followed by a list of locations and their respective partners. The taskbar at the bottom shows various applications like Skype, Firefox, and Microsoft PowerPoint, along with the system clock showing 23:49 on 04.10.2012.

ARGOS Project

Joint Operational Programme "BLACK SEA BASIN 2007-2013"
financed by
Romanian Ministry of Regional Development and Tourism

Title of the Action and acronym: BSUN JOINT MASTER DEGREE STUDY PROGRAM ON THE MANAGEMENT OF RENEWABLE ENERGY SOURCES – ARGOS

Locations of the Action:

- Romania - Constantza** - "Ovidius" University of Constantza;
- Republic of Moldova – Chisinau** - Technical University of Moldova;
- Bulgaria - Varna** - Technical University of Varna;
- Ukraine - Republic of Crimea – Simferopol** - Taurida National University;
- Turkey - Istanbul** - Istanbul Technical University - IPA Partner;
- Italy – Rome** - Italian National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA.

ISS on PEMFC



European Commission
Institute for Energy and Transport (IET)

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17 - 22 JUNE 2013

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Involving Students in Joint Research



United Nations Academic Impact

In recognition of the demonstrated global vision, insights and academic rigor in their paper presented at the First UNAI Collegian Research Paper Competition and Global Development Conference, and in light of our special priority for global engagement and transformation in pursuit of peace, development and human rights, United Nations Academic Impact and Korean Association in Support of UNAI hereby grant this award to

DAN IOACHIM, OLESEA CARABINOVICI, NYKYTA SHUMSKYKH
OF BLACK SEA UNIVERSITY NETWORK

First Prize

The First UNAI

Collegian Research Paper Competition & Global Development Conference 2013

Dated: August 23, 2013



Young Gil Kim, Co-President
Korean Association in Support of UN Academic Impact



Hack-a-thons



PTC®



**International Summer School on:
Virtual Engineering Software Solutions for Space Applications
as Nano-Labs & Nano-Sats using the PTC ThingWorx Platform -
VESPER**

- A Hack-a-Thon Event -

September 5th – 16th 2016, Constantza, Romania

Chairmanship:

Dumitru Dorin Prunariu, Romanian Cosmonaut
Acad. Michaylo Zgurovski, Rector of National Technical University of Ukraine

Aim & Objectives:

The aim of the summer school is the evaluation of the state of the art in the field of Virtual Engineering Software Solutions for Nano-Labs and Nano-Sats and to focus the efforts of very talented and experienced students in software engineering to develop reference frameworks for such applications using PTC ThingWorx Platform.

Conclusions

- ▶ **The competitiveness of the Black Sea Region is depending fundamentally on the understanding, learning and implementing ecoinnovation as a fundamental principle of corporate culture and in such a way to be able to cope with the complexity of the factors connected to sustainable transport & logistics and green economy.**
- ▶ **The Universities could be partners with high potential to contribute to the development and consolidation of the innovation capacity of the highly competitive suppliers of T&L services from the region.**
- ▶ **For the promotion of clustering there is a fundamental need for a framework based on principles, transparency, trust and a functional market economy.**

An aerial photograph of a large, dark blue lake. In the upper left, there is a small, green island. To the right, a sandy beach curves along the shore. The surrounding land is covered in dense green vegetation. The text "Thank you for your attention!" is overlaid in the upper left quadrant.

Thank you for your attention!

and pleased, send your comments at:
emamut@univ-ovidius.ro