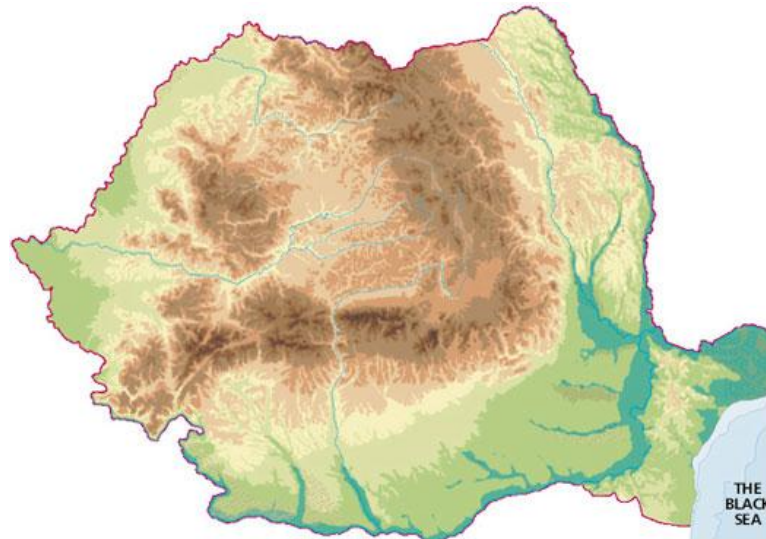


Romania: Towards an RDI strategy with a strong smart specialization component



- Dublin, 3-4 July 2014
- Radu Gheorghiu
- Dana Gheorghe
- Irina Roman

•Governance of RIS3 process



•National Strategy for RDI 2014-2020 *with a strong smart specialization component*

STEP 1. The “Analysis and Evidence Base of the R&D&I Market in Romania” (JASPERS/ARUP 2013) was launched in March 2013.

STEP 2. In the period January-December 2013 a large foresight exercise was carried out as part of the project **“Elaboration of the National Research, Development and Innovation Strategy 2014-2020”** (www.cdi2020.ro)

STEP3. Political dialogue

•Regional level – not a distinct level (Romania does not have either proper legal regions, or a proper regionalisation strategy); rather, considered in terms of local/regional concentrations of RDI activity and skills.

Questions

1. **Critical mass** – How much can the broader economic specialization be stirred by means of public R&I funds?
2. **Activating private sector demand** – Romanian economy is dominated by multinationals, most with R&D activities in other countries, and a young SMEs sector, which is not innovation ready. Which are the main drivers for an increasing innovation orientation of the companies?
3. **Smart specialisation as a process** – The Romanian approach to smart specialisation is to concentrate resources in certain fields and make correction depending on the spillover effect in the private sector. Which would be the proper instruments and time for such an evaluation/correction?
4. **The role of public procurement for innovation** – How important is it? Does it really produce spillover effects?

DOMAINS WITH SMART SPECIALISATION POTENTIAL

PREPARATORY JASPERS / ARUP STUDY



Economic sector	Specialisation area
Main domains	
Agriculture and Food Industry	Agro-Food, Biotechnology
IT&C	Telecommunication and Software / Computer Programming , Mechatronics, New Media, Application Development
Automotive Industry and Other Transport Equipment	Materials, Components and Fabrication, Ship Building, Aerospace, Agricultural machinery
Other domains with potential	
Tourism	Health Tourism, Wellbeing
Wood Industry	Wood Processing, Conversion of Waste
Energy	Renewable Energy, Wind Power, Solar Power, Green construction, Biomass, Ecological Services, Fossil Energy, Gas and Electricity, Maritime Oil Extraction
Machinery and Equipment	Intelligent Agriculture, Automation, Mechatronics
Textiles	Technical Textiles
Scientific domain	Specialisation area
IT&C	Networks of the future, internet and services, software and visualization, networked media and 3d internet, flexible organic and large area electronics, embedded system design, personal health system, ICT for energy efficiency and accessible and assistive ICT, Computer science and artificial intelligence.
Engineering and Technology	Electrical and electronic engineering, nanotechnology, materials (specifically electronic, optical and magnetic materials, materials chemistry, materials science and metals and alloys) and mechanical engineering, motor vehicle transport and other transport
Energy and Environment	Pollution, management and monitoring, environmental engineering, ecology and environmental science, network technologies, renewable energy and biofuels.
Agriculture and Food Industry	Agronomy, crop science, food science and agricultural and biological science, agricultural biotech
Etc.	

•Governance of RIS3 process



Project “**Elaboration of the National Research, Development and Innovation Strategy 2014-2020**” (www.cdi2020.ro)

- Outsourced by the Ministry of National Education to a consortium of 11 partners and 142 supporting organizations.
- Key stakeholders group (60+ persons) validated the results (Vision and priorities)
- Panelists and online respondents were identified through ‘knowledge maps’ (social network analyses of the Romanian RDI ecosystem based on data collected from projects, publications, patents); the list was further extended through nomination and co-nomination.

•Exploration and discovery



The elaboration of the RDI Vision 2020

Panel of 30 experts and stakeholders
(4 meetings, Jan-March 2014)

World café debate with key actors (70 persons)



•Exploration and discovery

RDI Vision 2020

In 2020 Romania is regionally and globally competitive through innovation supported by research and development, thus generating wellbeing and prosperity for its citizens.

The competitiveness is fed by an innovation ecosystem in which research and development supports the advance along global value chains. In this environment excellence and entrepreneurship mobilize a critical mass of actors.

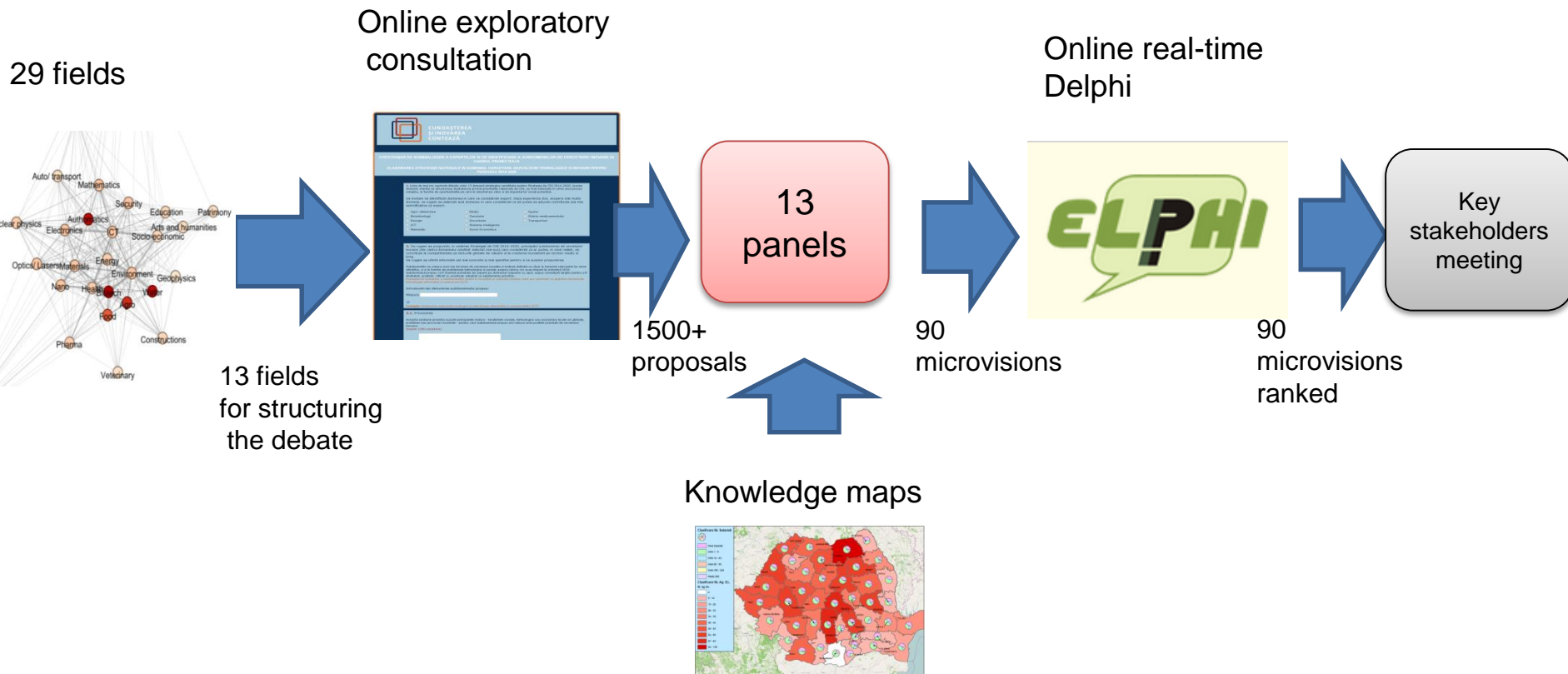
Vision's 3 pillars:

- Companies become key actors of innovation
- The RDI sector is an arena of opportunity for the talented
- Regional leadership at the frontier of science through breakthroughs in strategic fields

•Exploration and discovery



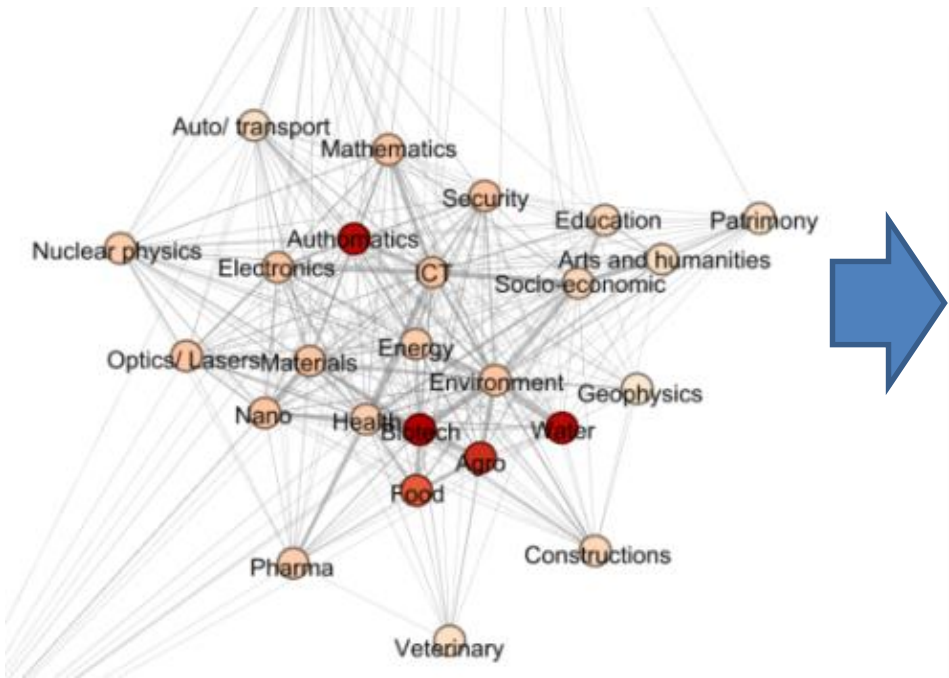
The process for identification of priorities



29 fields have been identified by integrating different inputs

- Aeronautics
- Agro
- Food
- Water
- Arts & humanities
- Auto/ transport
- Automatisation
- Biotech
- Constructions
- Education
- Electronics
- Energy
- Pharma
- Nuclear phys.
- Geophysics
- ICT
- Mathematics
- Materials (new)
- Veterinarian
- Environment
- Nanotech
- Naval
- Optics
- Patrimony
- Health
- Security
- Socio-economic
- Space
- Textiles

Data analytics proposed clustering



13 fields have been validated in a key stakeholders' meeting for structuring the consultations

- Agro-Food
- ICT
- Intelligent systems
- Health
- Energy
- Pharmaceuticals
- Environment
- Security
- Space
- Materials
- Biotechnologies
- Transport
- Socio-economic

•Exploration and discovery

Exploratory online consultation along the 13 fields (June 2013)



CUNOAȘTEREA
ȘI INOVAREA
CONTEAZĂ

CHESTIONAR DE NOMINALIZARE A EXPERTILOR SI DE IDENTIFICARE A SUBDOMENIILOR DE CERCETARE/ INOVARE IN CADRUL PROIECTULUI

ELABORAREA STRATEGIEI NATIONALE IN DOMENIUL CERCETARII, DEZVOLTARII TEHNOLOGICE SI INOVARII PENTRU PERIOADA 2014-2020

1. Lista de mai jos cuprinde titlurile celor 13 domenii strategice candidată pentru Strategia de CDI 2014-2020. Aceste domenii, menite să structureze dezbaterile privind prioritățile naționale de CDI, au fost selectate în urma unui proces complex, în funcție de oportunitățile pe care le deschid pe viitor și de impactul lor social potențial.

Vă invităm să identificați domeniul în care vă considerați expert. Dacă experiența dvs. acoperă mai multe domenii, vă rugăm să selectați acel domeniu în care considerați că ați putea să aduceți contribuția cea mai semnificativă ca expert.

☐ Agro-alimentare
 ☐ Biotehnologii
 ☐ Energie
 ☐ ICT
 ☐ Materiale

☐ Mediu
 ☐ Sănătate
 ☐ Securitate
 ☐ Sisteme inteligente
 ☐ Socio-Economice

☐ Spațiu
 ☐ Știința medicamentului
 ☐ Transporturi

2. Vă rugăm să propuneți, în vederea Strategiei de CDI 2014-2020, principalul subdomeniu de cercetare/ inovare (din cadrul domeniului candidat selectat mai sus) care considerați că ar putea, în mod realist, să contribuie la competitivitatea pe lanțurile globale de valoare și la creșterea bunăstării pe termen mediu și lung.

Vă rugăm să oferiți informații cât mai concrete și mai specifice pentru a vă susține propunerea.

Exemplu: În viitorul imediat, un număr urmas de persoane și obiecte vor fi conectate la internet. Vă crește nu doar numărul de produse electronice utilizate constant, ci și traficul de date, care vor trebui stocate și procesate permanent. Amprenta de carbon lăsată de aceste evoluții va fi tot mai importantă. Deja în 2007, amprenta atribuită domeniului ICT era de 2% din toate emisiile de carbon - echivalentă celui asociat industriei aviației la nivel mondial. Este de așteptat ca această să crească la 4% până în 2020 (The Climate Group, *Cești Report, Smart 2020, 2008*).

2.2. Nevoia de cercetare/ inovare

Sectiunea descrie pe scurt modul în care cercetarea/ inovarea românească poate răspunde, în intervalul 2014-2020, tendințelor, provocărilor sau problemelor identificate anterior.

(maxim 1200 caractere)

Răspuns

Exemplu: Cercetarea în domeniul reducerii amprentei ecologice a ICT poate acoperi un spectru larg de teme, de la produsele electronice cu consum redus, arhitecturi și protocoale verzi, sau managementul inteligent și optimizarea serviciilor și rețelelor, până la noi modele de inovare și de afaceri în domeniul ICT care să sporească economia de energie (de ex., prin introducerea unor informații sau optiuni privind amprenta energetică în designul produselor). Cercetarea/ inovarea în domeniul ICT poate beneficia și de analiza socială (de ex., privind comportamentul consumatorilor) sau de studii de planificare urbană (de ex., privind orașele inteligente).

2.3. Precondiții

Sectiunea descrie premisele care pot favoriza succesul subdomeniului de cercetare propus: existența unui mediu de cercetare favorabil (masa critică de cercetători, portofoliu de cercetări și publicații etc.), oportunități de parteneriat cu mediul de afaceri s.a.m.d.

(maxim 1200 caractere)

Răspuns

Exemplu: Sectorul ICT din România este deja unul foarte dezvoltat, cu o forță de muncă bine pregătită și certificată în mod adecvat și, cu toate acestea, încă sub-utilizată. România ocupă o poziție strategică în raport cu piața europeană de produse și servicii ICT și are o tradiție în cercetarea în acest domeniu. Aproape toate multinaționalele din branșă, pentru care tema identificată în această propunere constituie deja o prioritate, sunt actualmente prezente în țară, iar unele dintre ele au și centre de cercetare-dezvoltare. În plus, subtemele amintite au făcut subiectul unui număr considerabil (n) de proiecte de cercetare, iar cercetătorii români au o prezență vizibilă în publicabile relevante. Există deja o colaborare solidă cu un important producător de semiconductori pe această temă.

2.4. Perspective și potențial

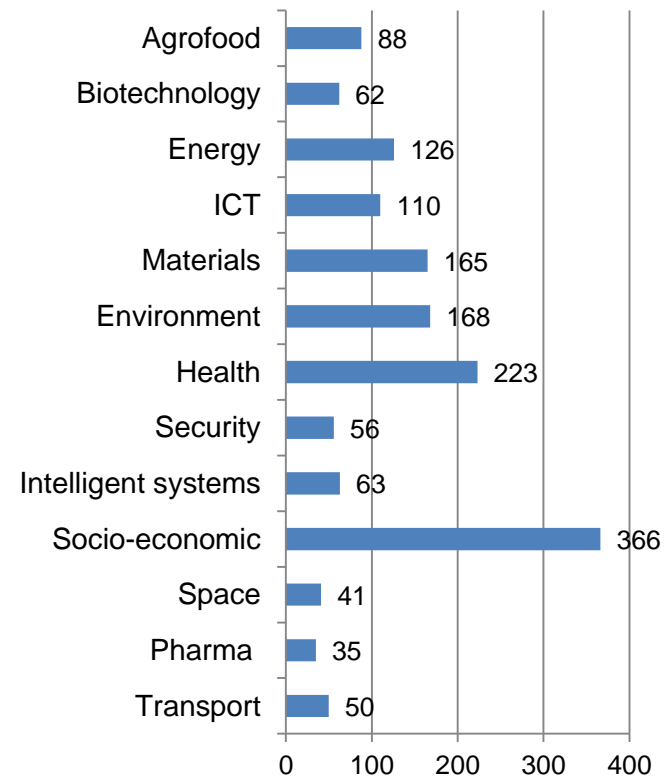
Ce așteptați, în mod concret, în urma prioritizării subdomeniului de cercetare? Care sunt efectele (locale și/sau globale) anticipate de dvs.? Cum arată succesul subdomeniului propus?

(maxim 1200 caractere)

Răspuns

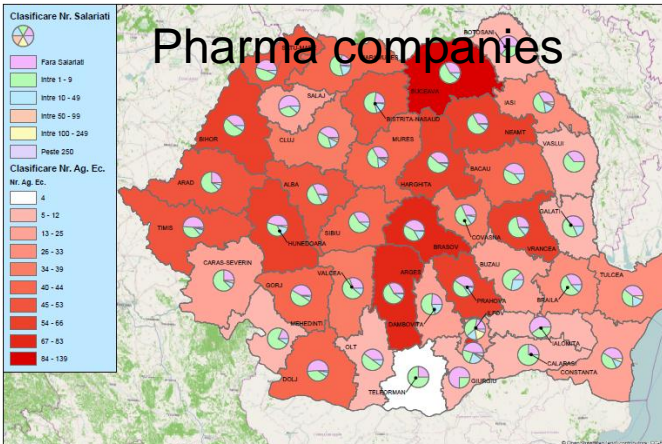
Exemplu: Explorarea de noi tehnologii în domeniul semiconductoarelor pentru energie verde va crește gradul de utilizare a acestora în industria automobilelor; se vor dezvolta noi tehnologii curate, în special în domeniul senzorilor pentru aplicații inteligente și al tehnologiilor pentru reciclarea deșeurilor ICT;

28000+ persons invited
1500+ responses
2000 new persons have been nominated

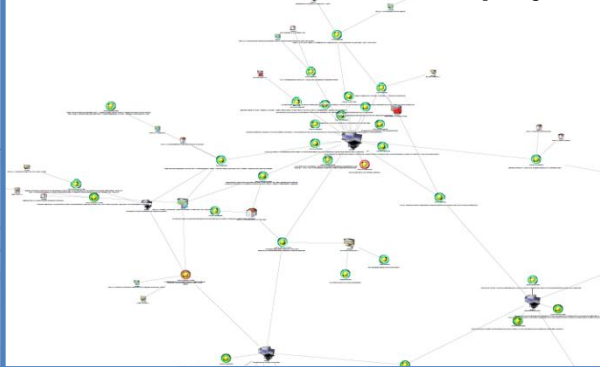


• Exploration and discovery

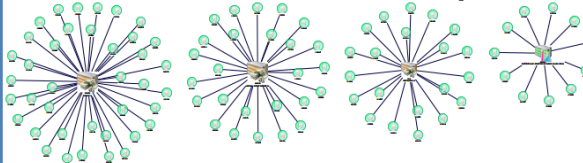
“Knowledge maps” for each of the 13 fields



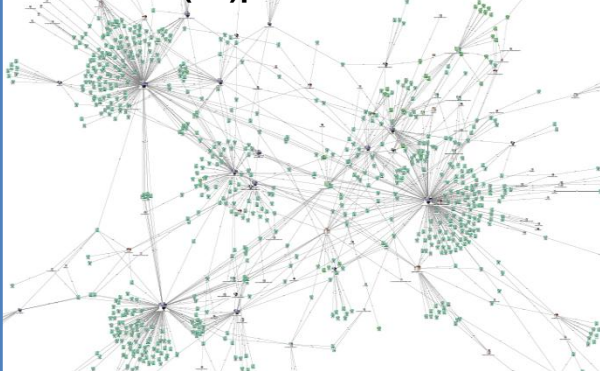
Institutions with Pharma R&D projects



Institutions with Pharma patents

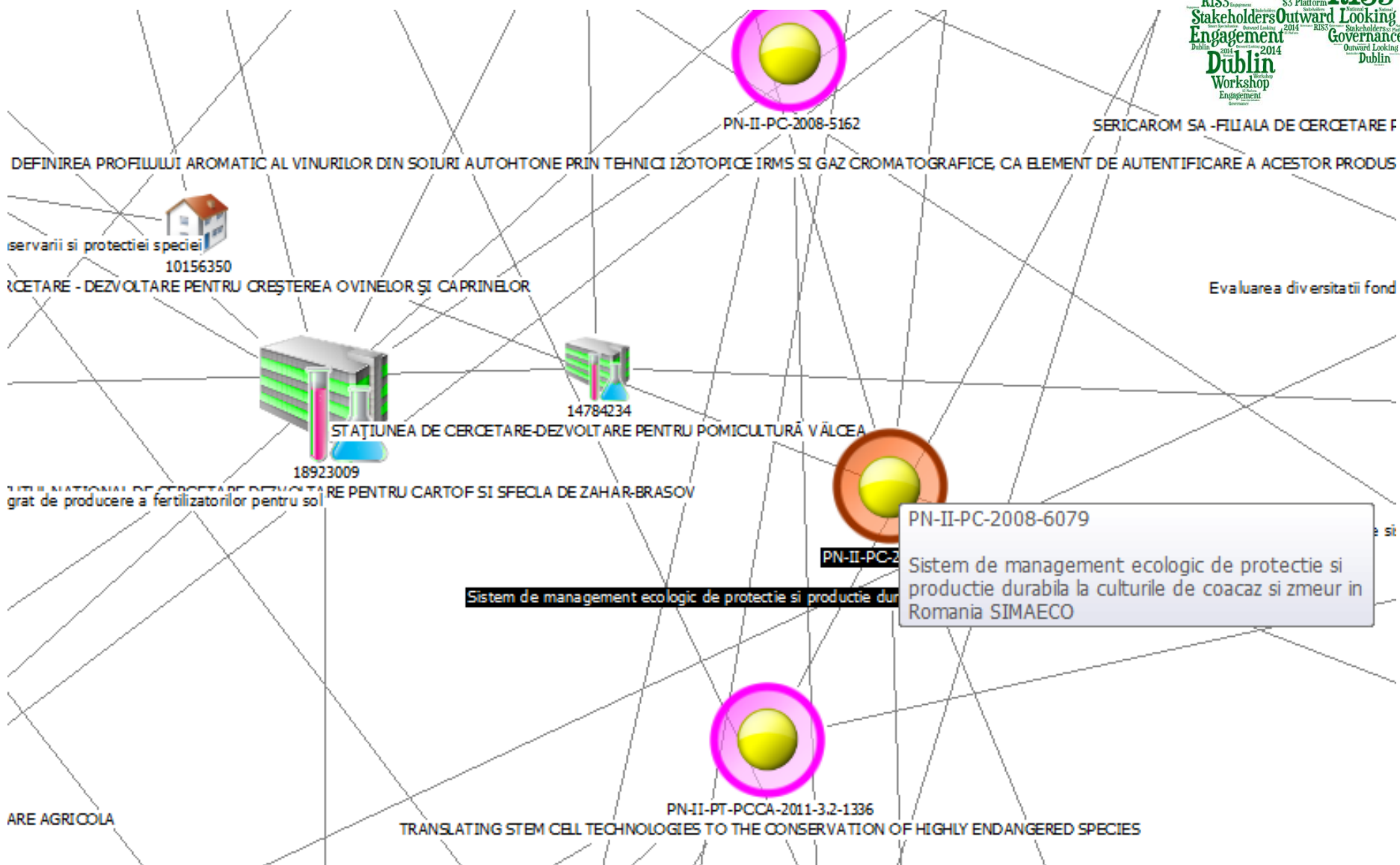


Pharma (co)publications



Data analytics of

- National RTDI projects (5000+)
- Projects FP7 (600+)
- RTDI Structural funds projects (500+)
- Patents (7000+)
- ISI Thomson articles (100.000+)
- Companies track record (600.000+)
- Top export companies



• Entrepreneurial discovery



The 13 panels

➤ Formation

- Each coordinated by a triplet **Business –Institute-University**
- Participants (20 per panel) selected based on a co-nomination process

➤ Input

- Results of the exploratory questionnaire
- Knowledge maps
- A repository of statistics and studies

➤ Procedure (4 days face to-face)

- Foresight oriented (e.g. exploring drivers of change)

➤ Output

- 6-8 **microvisions** for subfields, each following a template of arguments
 - 2020 microvision statement
 - The opportunity (→ [Looking beyond the boundaries](#))
 - The possible contribution the R&I for benefiting the opportunity (e.g. promising RDI lines)
 - The current RDI capacity at national level
 - Economic relevance
 - Required R&D investments for reaching critical mass

•Exploration and discovery



The microvisions elaborated by the panels entered an online consultation for selection, using an argumentative real-time Delphi *Aug-Sept 2013*

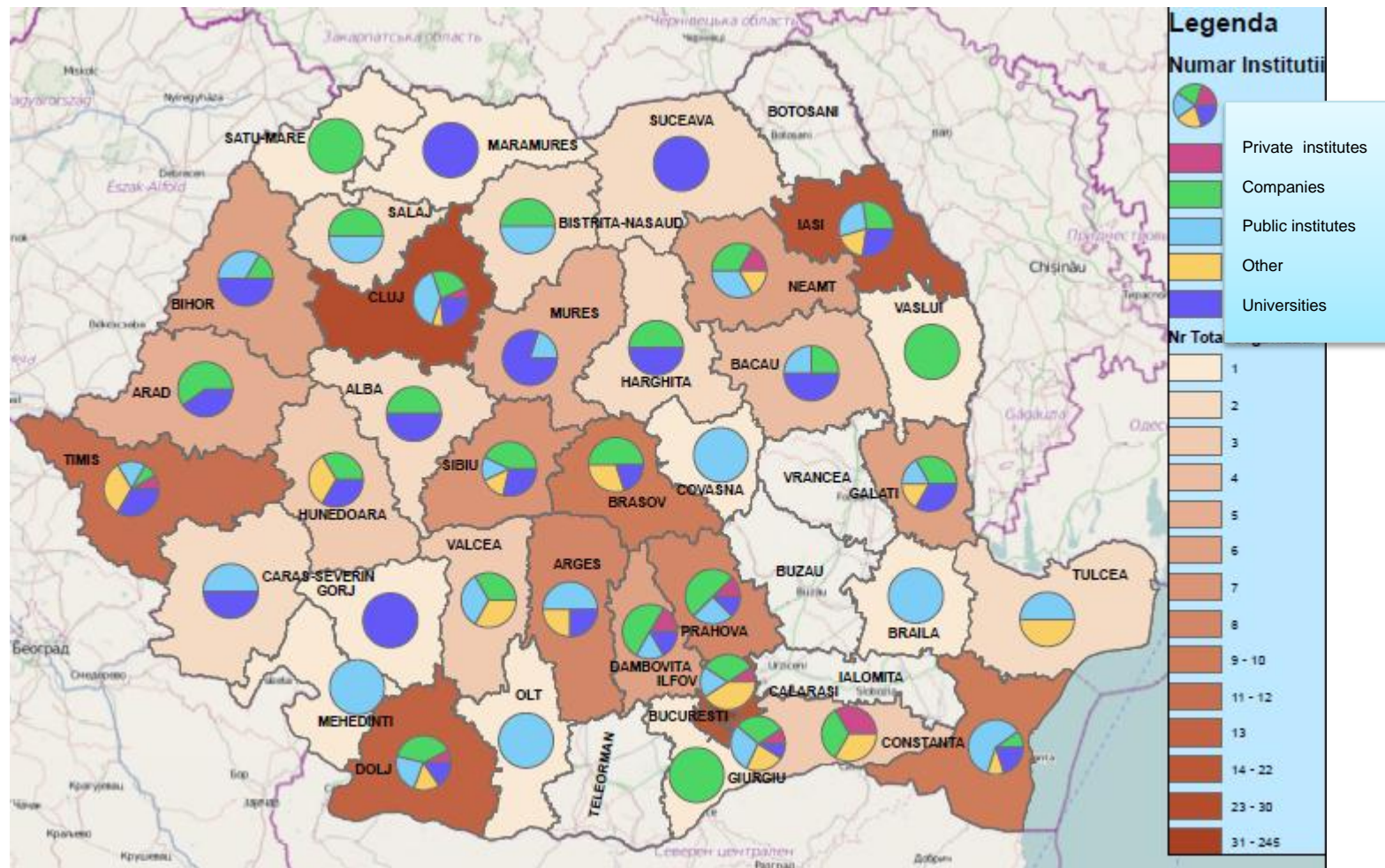
Criteriul 5. Economia relevanta pe plan national	5th criterion: capacity of the national economy to absorb the results of the R&I program														
<p>In ce masura considerati ca exista, la nivel national, un potential real de absorbtie si valorificare economica a rezultatelor cercetarii din subdomeniul propus?</p>	<p>Mai jos gasiti o serie de afirmatii prin care alti experti si-au sustinut raspunsul la intrebarea din partea stanga.</p>														
<p>Va rugam sa justificati raspunsul dvs. selectand cel mult 3 afirmatii dintre cele de mai jos si/sau introducand o afirmatie noua.</p>	<p><i>Nota: Cifra din paranteza care apare dupa fiecare afirmatie indica numarul de experti participanti la consultare care au selectat deja afirmatia respectiva</i></p>														
<p>Va rugam evaluati</p> <p>Quantitative estimate of the economic potential of the R&I program.</p>	<table border="1"> <tbody> <tr> <td data-bbox="550 664 1816 699">Telefonia mobilă, rețelele sociale, tranzacțiile online, activitățile de marketing și promovare, rețelele de senzori, industria de petrol și gaze, energetica (smart grid), etc. au o dinamica pozitivă, ceea ce generează un potențial uriaș de dezvoltare și valorificare a beneficiilor Big Data. (121)</td> <td data-bbox="1816 664 1883 699"><input type="checkbox"/></td> </tr> <tr> <td data-bbox="550 699 1816 806">Sectorul asigurarilor publice de sanatate din Romania, odata cu implementarea dosarului electronic al pacientului (proiect in curs de implementare), poate aplica conceptele Big Data pentru optimizarea cheltuielilor, politici proactive de prevenire a maladiilor, monitorizarea de la distanta a pacientilor, etc. In linie cu activitatile similare mentionate pe plan mondial. (86) Backing up the estimate with pro/con arguments.</td> <td data-bbox="1816 699 1883 806"><input checked="" type="checkbox"/></td> </tr> <tr> <td data-bbox="550 806 1816 856">Monitorizarea proceselor si fenomenelor cu impact economic si social (proces de fabricatie, procese de poluare a mediului, retele hidrografice, evolutia starii de sanatate a pacientilor, trafic de transport auto sau aerian etc.) beneficiaza de capacitatile de filtrare, stocare si analiza oferite de Big Data. (75)</td> <td data-bbox="1816 806 1883 856"><input type="checkbox"/></td> </tr> <tr> <td data-bbox="550 856 1816 892">Serviciile si (open) datele din domeniul public (e-administrare, e-guvernare etc) (31)</td> <td data-bbox="1816 856 1883 892"><input type="checkbox"/></td> </tr> <tr> <td data-bbox="550 892 1816 942">Securitatea cibernetica reprezintă o preocupare prioritara la nivelul statului si metodele moderne bazate pe Big Data încep sa fie considerate ca soluții viabile pentru implementare. (24)</td> <td data-bbox="1816 892 1883 942"><input type="checkbox"/></td> </tr> <tr> <td data-bbox="550 942 1816 992">doar in zona solutiilor autohtone de securizare a datelor. Banuiesc ca orice privind Big Data va fi de import. Povestile Cloud/HPC sunt la alt domeniu, nu aici. (13)</td> <td data-bbox="1816 942 1883 992"><input type="checkbox"/></td> </tr> <tr> <td data-bbox="550 992 1816 1042">marile aplicatii ce trebuie implementate in viitor opereaza eficient numai in conditii de maxima securitate a bazelor foarte mari de date, costurile trebuind controlate strict. (6)</td> <td data-bbox="1816 992 1883 1042"><input type="checkbox"/></td> </tr> </tbody> </table>	Telefonia mobilă, rețelele sociale, tranzacțiile online, activitățile de marketing și promovare, rețelele de senzori, industria de petrol și gaze, energetica (smart grid), etc. au o dinamica pozitivă, ceea ce generează un potențial uriaș de dezvoltare și valorificare a beneficiilor Big Data. (121)	<input type="checkbox"/>	Sectorul asigurarilor publice de sanatate din Romania, odata cu implementarea dosarului electronic al pacientului (proiect in curs de implementare), poate aplica conceptele Big Data pentru optimizarea cheltuielilor, politici proactive de prevenire a maladiilor, monitorizarea de la distanta a pacientilor, etc. In linie cu activitatile similare mentionate pe plan mondial. (86) Backing up the estimate with pro/con arguments.	<input checked="" type="checkbox"/>	Monitorizarea proceselor si fenomenelor cu impact economic si social (proces de fabricatie, procese de poluare a mediului, retele hidrografice, evolutia starii de sanatate a pacientilor, trafic de transport auto sau aerian etc.) beneficiaza de capacitatile de filtrare, stocare si analiza oferite de Big Data. (75)	<input type="checkbox"/>	Serviciile si (open) datele din domeniul public (e-administrare, e-guvernare etc) (31)	<input type="checkbox"/>	Securitatea cibernetica reprezintă o preocupare prioritara la nivelul statului si metodele moderne bazate pe Big Data încep sa fie considerate ca soluții viabile pentru implementare. (24)	<input type="checkbox"/>	doar in zona solutiilor autohtone de securizare a datelor. Banuiesc ca orice privind Big Data va fi de import. Povestile Cloud/HPC sunt la alt domeniu, nu aici. (13)	<input type="checkbox"/>	marile aplicatii ce trebuie implementate in viitor opereaza eficient numai in conditii de maxima securitate a bazelor foarte mari de date, costurile trebuind controlate strict. (6)	<input type="checkbox"/>
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• Exploration and discovery



Real-time Delphi

- 44.111 persons invited
- 4091 respondents
- Average 161 respondents per microvision



•Exploration and discovery

Selection mechanism

Rank	Micro-vision	Required investment for reaching critical mass
1		
2		
3		
Σ 5 billion Euro		
90		
24 billion Euro		

The fiches has been ranked based on three criteria (each estimated on a 1-5 equivalent scale) :

- (1) the opportunity, in terms of the **future dynamics of the field** (25% in the composite index);
- (2) the possible **contribution the RDI** (25% in the composite index).
- (3) the estimated **economic impact** (50% in the composite index).



Smart specialisations identified in the foresight exercise include:

A1. BIOECONOMY

- Safe, accessible, nutritionally optimized food
- Sustainable development in forestry
- Zootechnics, veterinary medicine, fishing and aquaculture
- New products, practices, processes and technologies in horticulture
- Sustainable development of fields crops
- Bioenergy – biogas, biomass, biofuels
- Biotechnologies for agro-food
- Nanobiotechnology
- Environmental biotechnologies
- Industrial biotechnologies
- Bioanalysis
- Medical and pharmaceutical biotechnologies
- In vitro/ in vivo assessment for generic drugs
- Systemic, local and targeted drug delivery and technologies to optimize the biopharmaceutical and pharmacokinetic profile
- Molecular design, (bio)synthesis, semisynthesis, high-performance screening

A2. ICT

- Analysis, management and security of big data
- Future internet
- Software development technologies, instruments, and methods
- High performance computing and new computational models

A3. ENERGY AND ENVIRONMENT

- Increasing end-use energy efficiency
- Optimizing the use of conventional and non-conventional water resources
- Substitution of critical materials and functional covering
- The intelligent city

A4. ECO-TECHNOLOGIES

- New-generation vehicles and ecological and energy-efficient technologies
- Innovative technologies, equipment and technical systems for the generation of bioresources
- Depolluting and waste reuse technologies

In addition to the four smart specialisations, the foresight exercise identified three national priorities: **Health, Space and Security**, and **Heritage and cultural identity**.

•KET-related Priorities

A1. BIOECONOMY

- Safe, accessible, nutritionally optimized food
- Sustainable development in forestry
- Zootechnics, veterinary medicine, fishing and aquaculture
- New products, practices, processes and technologies in horticulture
- Sustainable development of fields crops
- Bioenergy – biogas, biomass, biofuels
- **Biotechnologies for agro-food**
- **Nanobiotechnology**
- **Environmental biotechnologies**
- **Industrial biotechnologies**
- Bioanalysis
- **Medical and pharmaceutical biotechnologies**
- In vitro/ in vivo assessment for generic drugs
- Systemic, local and targeted drug delivery and technologies to optimize the biopharmaceutical and pharmacokinetic profile
- Molecular design, (bio)synthesis, semisynthesis, high-performance screening

A2. ICT

- **Analysis, management and security of big data**
- **Future internet**
- **Software development technologies, instruments, and methods**
- **High performance computing and new computational models**

A3. ENERGY AND ENVIRONMENT

- Increasing end-use energy efficiency
- Optimizing the use of conventional and non-conventional water resources
- Substitution of **critical materials** and functional covering
- The intelligent city

A4. ECO-TECHNOLOGIES

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In addition to the four smart specialisations, the foresight exercise identified three national priorities: **Health, Space and Security**, and **Heritage and cultural identity**.



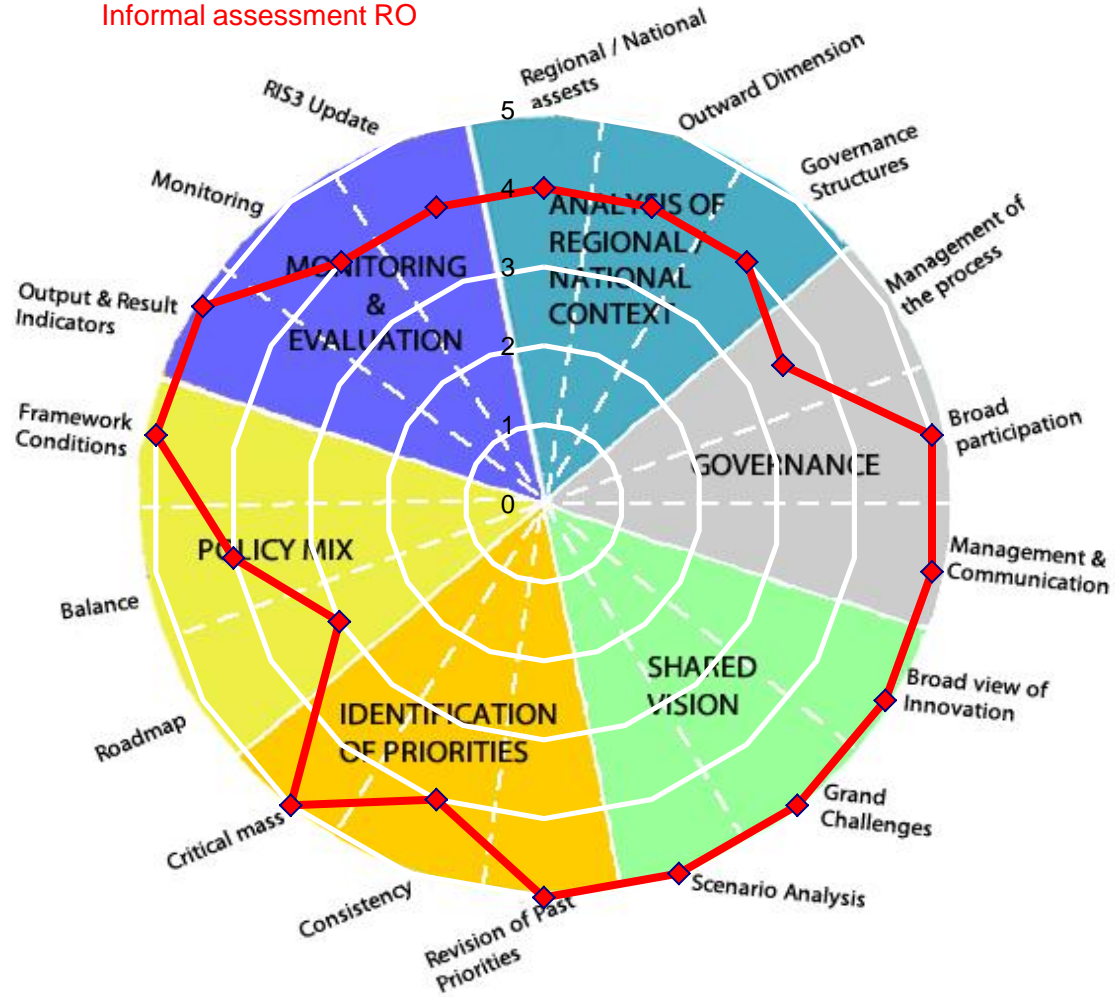
•Measuring the progress



	Last value (year)	Target 2017	Target 2020
Premises			
Public expenditures for research and development, as a share of GDP	0.31 (2011)	0.61	1.0
Number of doctorate graduates (ISCED 6) per 1000 inhabitants, 25-34 y.o.	1.4	1.5	1.5
Number of researchers in the public sector (full-time equivalent)	12409 (2011)	15000	17000
Scientific publications in the top 10% of the most quoted publications worldwide, as % of the total scientific publications in the country	3.8 (2011)	5	7
International scientific co-publications for 1 mil. inhabitants	148	200	300
Venture capital as % of GDP	0.033	0.06	0.09
Spill-over in the private sector			
Research and development spending of the business sector as a share of GDP	0.17 (2011)	0.6	1.0
Number of researchers in the private sector (full-time equivalent)	3518 (2011)	7000	14500
Public-private co-publication for 1 mil. Inhabitants	8.3	12	16
Innovative SMEs cooperating with others (%)	2.93	3.5	6
EPO patent applications / year	40	80	120
USTPO patent applications / year	17	30	60
Community trade mark applications / EUR 1 billion GDP adjusted to the purchasing power parity	2.14	3	4
Economic impact			
Innovative companies with rapid growth	-	50	150
SMEs introducing innovative products and services (%)	13.7 (2011)	16	20
Revenue from licences and patents from abroad as % of GDP	0.13 (2011)	0.15	0.17

Driving economic change through smart specialisation/RIS3

Informal assessment RO



- **Next steps**



- Adopting the smart specialization-aware RDI strategy (together with the implementation plan – PN3 – and the sectoral program).

•RIS3 Priorities

Process: <http://www.poscce.research.ro/ro/node/node/nid/2438>



- Project ➡ version Dec. 2013

Smart specialization fields

- Bioeconomy
- ICT
- Energy & Environment
- Eco-technologies

Public interest priorities

- Health
- Security & Space
- National heritage & identity, cohesion and cross-cultural linkages

- Public debate (mandatory according to the law of transparency) ➡ version Apr. 2014

Smart specialization fields

- Bioeconomy
- ICT, Security & Space
- Energy, Environment & Climate changes
- Eco-nano-technologies & Advanced Materials

Public interest priorities

- Health
- National heritage & identity
- Emerging technologies

- Feedback from relevant stakeholders and political decision ➡ version July (?) 2014

•RIS3 Priorities



Focus on changes related to [Smart Specialization](#) so far

Micro-vision fiches after refining (see the Annex for the full process): [Agro-food](#);

[Bio-technology](#); [Energy](#); [ICT](#); [Materials](#); [Environment](#); [Health](#); [Security](#); [Intelligent Systems](#); [Socio-economics](#); [Space](#); [Medicine Science](#); [Transport](#)

ICT —————> ICT, [Security & Space](#)

Rationale: ICT prioritized for [information security & space security](#) because of new info regarding the sectoral strategies (not available at the time of the first version); RO is external border of UE.

Energy & Environment —————> Energy, Environment & [Climate change](#)

Rationale: Environment focus on Climate Change; the *Danubius* Center will be operational by 2018.

Eco-technologies —————> Eco-[nano-technologies](#) & [Advanced Materials](#)

Rationale: specific request of Renault Romania Group, the Romanian Academy, and of several elite National institutes – given the opportunities in the automotive industry, textiles, and KET development (subject to further debate).

•A brief overview of transnational/transregional cooperation activities



- As far as transnational/transregional collaboration on RDI is concerned, Romania sees itself as a hub in such projects as ELI-NP and the Danube Institute.
- As far as RDI is concerned, Romania participates in 6 JPIs (“Healthy and Productive Seas and Oceans”, “Cultural Heritage”, “Agriculture, Food Security and Climate Change”, “A Healthy Diet for a Healthy Life”, “Antimicrobial Resistance”, “Water Challenges for a Changing World”) and 5 JTIs (“Clean Sky”, ENIAC, “Fuel Cells”, ARTEMIS, IMI).
- Other transnational programs: the Danube Innovation Partnership (launched at the end of 2013); the Switzerland-Romania Cooperation Programme, 2011-2016; the Romania-Norway, Iceland, Liechtenstein Cooperation Programme, under the SEE Financial Mechanism 2009-2014; the Romania-France framework for research collaboration (joint research in Physics, Environment, Chemistry, Mathematics). Also, ERA.Nets (such as ERA.Net RUS).

•Digital Growth Priorities

- National level
- Romania has a distinct strategy for digital growth.
- In the context of this RDI Strategy, ICT was identified as a smart specialisation field.



QUESTIONS



Critical mass

Each of the smart specialisations has been evaluated in terms of **expenditures necessary for reaching the R&I critical mass**.

However, this is different from the critical mass for creating **structural change in the economy**.

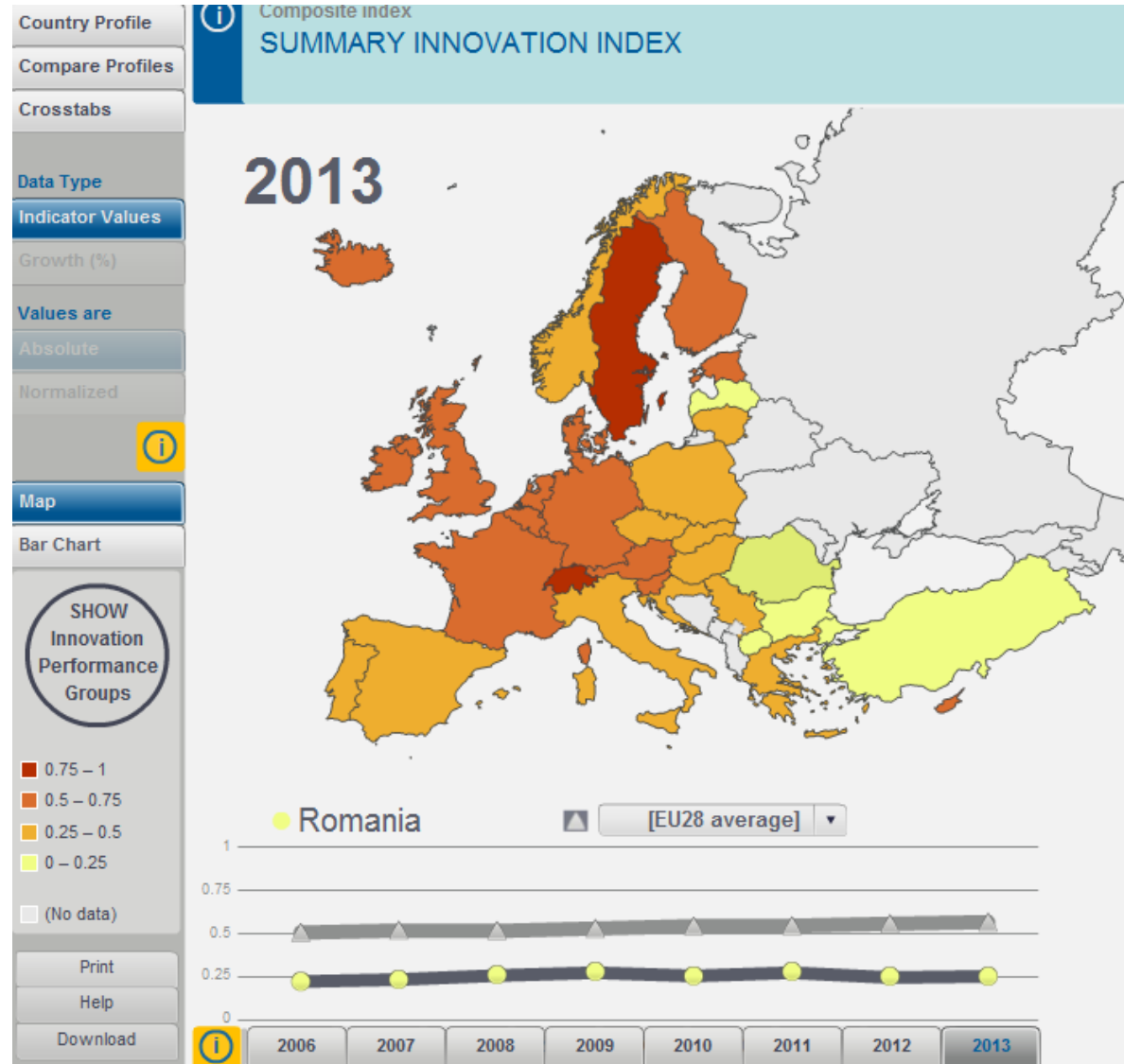
Can €150m/year SF (i.e. 7euro/capita/year) be expected to produce a structural change?

QUESTIONS

Activating private sector demand

Romanian economy is dominated by multinationals, most with R&D activities in other countries, and a young SMEs sector, which is not innovation ready.

Which are the main drivers for an increasing innovation orientation of the companies?





[illegible]

A strategic orientation mechanism has been embedded into the Strategy, with three components:

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Researcher Profile

 - Publications
 - Patents
 - Projects
 - Courses

Peer-to-peer

QUESTIONS



The role of public procurement for innovation

Although more than 18% from GDP is annually spent in Romania for public procurement, public procurement of innovative products and services is very low.

Low expertise and competencies within public administration to design and monitor innovation-oriented procurement, lack of clear guidance/instructions from PPI, lack of strategic approach for PPI at governmental level among the problems

How important is it?

Does it really produce spillover effects?

Thank you!

Annex – procedure description



Assistance to identifying national priorities as regards the Smart Specialisation in the next national strategy for research and innovation 2014-2020

- Jaspers Report (<http://www.poscce.research.ro/uploads/programare-2014-2020/final-report-12-aprilie.pdf>)
- Recommendations report (<http://www.poscce.research.ro/uploads/programare-2014-2020/jaspersrecommendations.pdf>)
- Knowledge maps (<http://www.cdi2020.ro/pachete-de-lucru/panel-prioritati/>)

Foresight

- Expert pannels (<http://www.cdi2020.ro/wp-content/uploads/2013/09/Componenta-paneluri-prioritati.pdf>)
- Methodology (<http://www.cdi2020.ro/pachete-de-lucru/panel-prioritati/>)
- “Online” questionnaire (<http://www.cdi2020.ro/wp-content/uploads/2014/02/Raportul-chestionarului-identificare-expertilor-si-prioritatilor-candidate.pdf>)
- Refining (fiches on: [Agro-food](#); [Bio-technology](#); [Energy](#); [ICT](#); [Materials](#); [Environment](#); [Health](#); [Security](#); [Intelligent Systems](#); [Socio-economics](#); [Space](#); [Medicine Science](#); [Transport](#))
- Prioritization and version Dec. 2013.

Public debate

- National R&D institutes
- Romanian Academy
- Private companies
- Changes as for version Apr. 2014.



Feedback & political decision

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- Version July 2014