

Policy Learning Platform Peer Review

Policies and activities for knowledge and technology transfer and use of research infrastructure by Centres of Excellence and Centres of Competence, Bulgaria

Sessions 7 & 8
Peer recommendations

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**Interreg
Europe**

European Union | European Regional Development Fund



The Peers

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1) How to increase the capacity to identify technologies of interest to businesses and industry in general?

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Recommendation 1. Target : CoC/CoE

- **What: Finding the intersection between technologies being developed with the business demand**
- How: 1. Map the existing research and technologies within the partners of the Centres. Assess level of 1) innovativeness and 2) technology/solutions readiness/TRL. 2. Map, catalogue and understand local/regional business domains/fields, using business intermediaries/clusters and willingness to try new solutions. Present results on Centre websites, databases ... Provide access/contact details.

Recommendation 2. Target : CoC/CoE

- **What: Strengthen relationships between business community and researchers/centres**
- How: 1. Invite business community to the Centre to present their R&D/technical challenges together with the targeted researchers. 2. Have the centre representative(s) work to develop know-how sharing activities, potentially through joint research, maybe on non competitive fields, first.

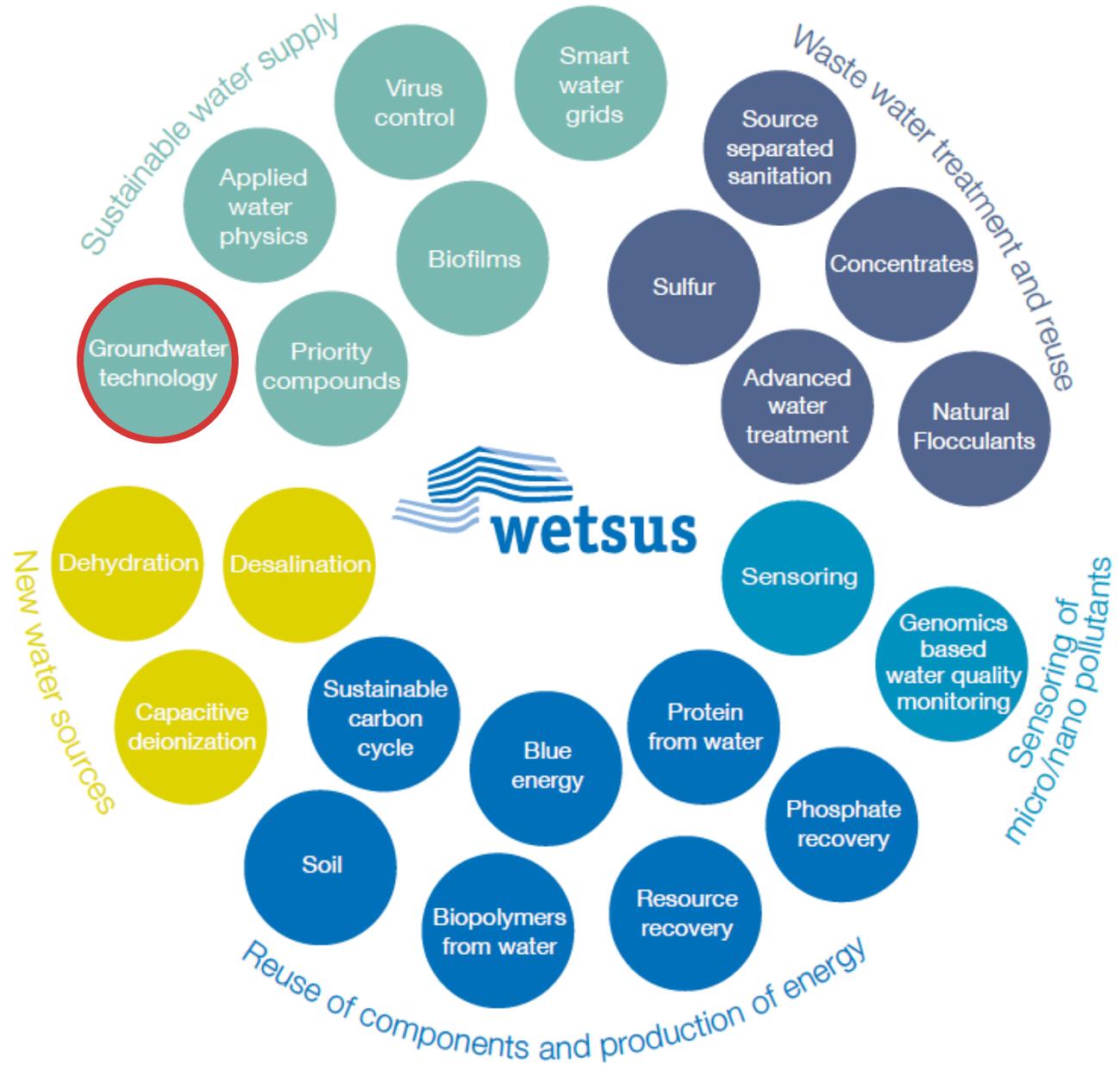
Recommendation 3. Target : CoC/CoE

- **What: Gain experience in connecting technology development with industry demand**
- How: 1. Recruit external researchers who are more application-minded. 2. Initiate short-term exchange of students with industry and/or bring industry representatives and industry scientists for secondments to centres.

1. How to increase the capacity to identify technologies of interest to businesses and industry in general?

Recommendation 4. Target : CoE/CoC

- **What : Make sure to have the science and business skills/competences well-represented in the teams.** They will bring in complementary viewpoints. Make sure to have preferably some PhD graduates within your staff, if possible with technical and business knowledge and skills.
- Management models: consider inviting business and business networks in advisory board roles as opposed to the management board to avoid conflict of interests.
- Consider the approach of the sub-thematic groups deployed by Wetsus (see next slide 21 groups) to facilitate business inclusion in an operational, concrete and collaborative way.



Example of how Wetsus a water related Technology Centre has defined thematic sub themes linked to market opportunities

1. How to increase the capacity to identify technologies of interest to businesses and industry in general?

Recommendation 5. Target : CoC/CoE and future TTOs ...

- **What: Internationalisation actions – extend your ecosystem and “neighbourhood” of potential partners and clients through cross-border networks and platforms**
- How: Make use of cross-border and transnational Interreg programmes to allow the CoC/CoE and TTO to extend their networks with potential business and research partners across the border.
- Example: [HYPEREGIO EarlyTech project](#) funded by the Interreg Programme “Euregio Meuse-Rhine” (Belgium, Germany, the Netherlands), supporting cooperation between TT managers, cross-border technology events as well as vouchers for cross-border S2B cooperation.
- Equally, consider Interreg B (transnational programmes) for the development and testing of innovative voucher schemes.

1. How to increase the capacity to identify technologies of interest to businesses and industry in general?

Recommendation 6. Target : Policy makers, i.e. Bulgarian S3/ISSS implementation groups

- **What : Consider launching groups, one in each thematic area, to coordinate and implement the Bulgarian Innovation Strategy for Smart Specialisation (ISSS) – in consultation with relevant (new) Ministries**
 - Goals:
 - Define the science and technology areas of interest. Discuss about the needs of the local business sector, the international future trends of the sector and the capabilities of the CoE and the CoC.
 - Identify needs to develop the identified areas (training, new infrastructures, etc.).
 - Promote collaboration projects in the identified areas between the business sector, the CoE/CoC.
 - Communication and dissemination activities to stimulate local businesses about the opportunities behind the identified science and technology areas, projects and results.
 - Members:
 - Ministry of Innovation and Growth
 - Main companies and business associations, including clusters
 - CoE and CoC
 - Example: [Implementing RIS3: The Case of the Basque Country](#)

1. How to increase the capacity to identify technologies of interest to businesses and industry in general?

Recommendation 7. Target : Policy makers and CoC/CoE

- What : Increase horizontal collaboration and joint foresight activities between different thematics and also policy domains.
- Analyse the interlinkages between technology domains to enhance cross sectoral collaboration and innovation opportunities. Engaging with key EU initiatives such as the EU Industry Strategy (Industrial Forum, ERA Forum for Transition / Technology Roadmaps, Recovery and Resilience Plans) can provide interesting elements to enhance knowledge.

Recommendation 8. Target : Policy makers

- What : Offer a “carrot” for collaboration across research and industry.
- Consider how a special-purpose funding authority/agency could be used to provide incentives to encourage and “push” for collaboration between research and industry practitioners.
- The Ministry/Agency could offer a mix of direct and competitive R&I funding, with international evaluation panels and appropriate KPIs to drive such collaboration. Funding could reflect other policy objectives such as being prioritised for cross-disciplinary and industry-relevant activities.
- Exchange/join TAFTIE (National Innovation Agency network: peer activities in other Member States).

2) How to properly manage the innovations that arise as a result of project research activities?

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Recommendation 1. Target : CoE/CoC and policy makers

- **What : A centralized office or NGO or similar structure with dedicated team is set up to specifically charged with handling technology transfers for each of the CoC/CoE (consider scope for some thematic regrouping)**
- **How :** 1) Find/hire skilled personnel with experience from abroad, but can relate and will be accepted in the local context and facilitate exchange between partners. They will handle the core activities (legal/business development) centrally. 2) The centres could then have “scouts” connecting with the researchers within the centres, and acting to encourage and develop entrepreneurial mindsets.

Recommendation 2. Target : CoE/CoC

- **What: Consider establishing a functioning office for technology transfer within each of the CoE/CoC**
- **How: Develop:** 1) templates for the series of standardized agreement forms, 2) a digital database of technology developments and business contacts with their areas of specialized interest, 3) people skills to stay engaged with stakeholders through skills training events, business round-tables, student pitch events, etc., and 4) a go/no-go scheme for deal decision-making (e.g. file IP, contracted fee-for-service, know-how sharing agreements).

2. How to properly manage the innovations that arise as a result of project research activities?

Recommendation 3. Target : ALL

- **What : Benchmark against other similar offices in Bulgaria and abroad**
- **How :** 1) Develop a network or association of similar offices (additional advantage: could write joint grant calls together). 2) Categorize the functions of the office (e.g. personnel, financing, deal-flow, out-reach, data-base development, etc.) based on efficiency and professionalism. 3) Exchange experience with peer network. 4) Receive feed-back (informally), through a user committee composed of scientists and companies. 5) Periodically, conduct a formal review with external advisors.

Recommendation 4. Target : CoE/CoC

- **What : Invest in skills and capacities of your TTOs**
- **How :** Offer staff exchanges for your TTO experts in TTOs abroad (you may use the peer network mentioned in the recommendation above).
- **Example:** [Practical guidance document](#) for the practical implementation of different staff exchange models (from the Interreg context) published by Interact.

2. How to properly manage the innovations that arise as a result of project research activities?

Recommendation 4. Target : CoE/CoC

- **What : Make sure to have an agreed and “centralised IP policy” for each Centre**
- How : Preferably ensure this is in place BEFORE you start a research project. Make sure all partners have agreed to the policy before spending money or sharing IP or company knowledge.

Recommendation 5. Target : Both CoE/CoC

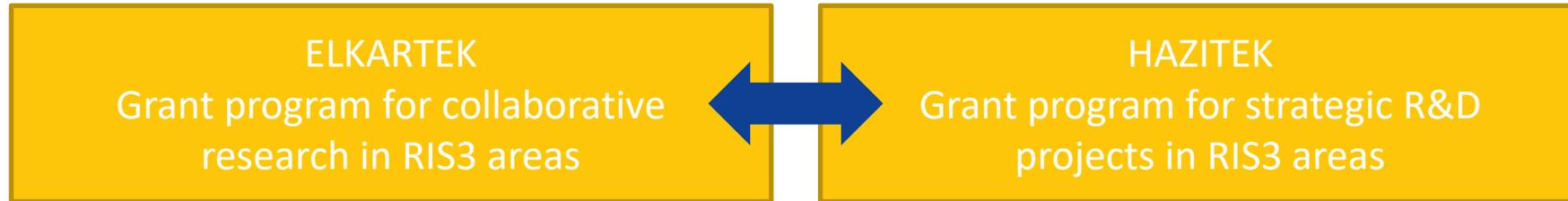
- **What : Financing Mix**
- How : Bridge the Valley of Death by ensuring a balanced mix of public funding for scientific research (TRL 0-1/2), applied research (TRL 2-5/6) and close-market development (TRL 6-8). Encourage private/VC/accelerator funding vehicles for higher TRL funding. Target scale-up funding, for example Pillar 3 of Horizon Europe – European Innovation Ecosystems – competitive funding models.

2. How to properly manage the innovations that arise as a result of project research activities?

Recommendation 6. Target : Policy makers and CoE/CoC

- **What : Increase the absorption capacity of the business sector**
- There are different type or technology transfer activities. From the easiest to the hardest:
 1. Dissemination and training
 2. Research contract
 3. Licencing and patenting
 4. Spin-off
- **Funding** : Bulgarian Government can promote research contract activities between the business sector and the CoC and CoEs, implementing a grant programme for R&D projects in ISSS thematic areas for businesses.
- **Incentives** : Look at non-competitive research and innovation activities with clusters/business networks: use of vouchers (*for the development/testing of potential voucher schemes, see slide 7*)
- **Collaboration criteria** : The programme could have as a condition the hiring of CoC and CoE (example: 20% of the budget).
- Example: [Hazitek – Grant program for Business R&D](#) example from the Basque Country (see following slide)

How to properly manage the innovations that arise as a result of project research activities?



Beneficiaries:

- **Knowledge infrastructures**

Objective

- Knowledge generation around RIS3 areas

Characteristics:

- Level of support:
 - 100% fundamental research
- Length: 2 years
- RIS3 areas
- Maximum of 8 participants

Beneficiaries:

- Local companies

Objective

- Improve Basque companies' competitiveness through R&D (market-pull).

Characteristics:

- Level of support:
 - 50% industrial research
 - 25% experimental development
- Length: 3 years
- RIS3 areas
- Minimum:
 - 3 companies
 - 4 M€ budget
 - **1 Basque knowledge infrastructure (University, RTO, etc.), subcontracted, at least, 20% of the budget.**

3) What is the best and most efficient way to settle ownership of the research results and benefits of the projects between all partners, including intellectual property rights?

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Recommendation 1. Target : MAs and CoE/CoC together

- **What : Strengthen the professional management practices overall in the Centers**
- Internal management practices are linked with public status/mission, levels of basic/competitive funding, and autonomy/accountability/governance of the institution.
- Make a clear contract for all private sector participants and one for research institutes. Then the agreement is transparent and everyone is treated equally.

Recommendation 2. Target : MAs and CoE/CoC together

- **What : Analyse and adopt EU policies and practices to avoid the “reinventing the wheel” syndrome**
- Examples of some relevant examples/sources : Training for collaborative project plans, Model Grant Agreements and IPR rules in HEU Pillar 2, RDI State Aid Framework adapted to Green Deal objectives...

4) What are the most appropriate contemporary forms and models of technology transfer for the needs of the Bulgarian centres?

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Recommendation 1. Target : CoC/CoE

- **What : Strengthen the market-driven approach of CoCs**
- Suggest this is by including relevant Bulgarian industry networks and/or clusters in the governance and decision-making structures of CoCs.

Recommendation 2. Target : MAs and CoC/CoE together

- **What : Connect COC with relevant research networks, technology roadmaps and industrial value chains at EU level**
- By ensuring adequate matching funds for participation in HEU Partnerships and engaging the Bulgarian Programme Committee Members and NCPs in Horizon Europe (Pillar 2) for mapping the opportunities. Also consider connecting with/participate in EARTO (peer activities in European RTOs).
- Below a web page where you can find statistics on a yearly basis:
<http://www.researchranking.org/?year=2020&action=country&country=BG>

4. What are the most appropriate contemporary forms and models of technology transfer for the needs of the Bulgarian centres?

Recommendation 3. Target : All

- **What: Consider a sector specific approach for technology transfers (eg. Biotech, engineering, ICT)**
- How: Understand which sectors in the region can benefit most from patent protection, as not all do.

Recommendation 4. Target : All

- **What : Support the development of innovative service-based businesses**
- How : Mini-grants from the region to help establish such entities. Advantages are: revenues early on; creates jobs for the region; know-how is gained with every contract; revenues can be used to build up capacities.

Recommendation 5. Target : CoC/CoE and TTOs

- **What : Develop the students as the future leaders of new R&D intensive businesses**
- How : 1) Establish soft skills training programmes and seeding grants to encourage students to establish businesses. 2) Encourage the further potential to work together with the Centre from where the ideas came from (support preparing the ground for future public-private engagement); if successful the companies will hire alumni from Centre.

4. What are the most appropriate contemporary forms and models of technology transfer for the needs of the Bulgarian centres?

Recommendation 6. Target : CoC/CoE

- **What : To whom should the patent rights belong to, the CoE/CoC? Several practices and examples where they are transferred to company partners and policy makers support and showcase outstanding innovations with prizes and awards.**
- Award scheme : The involved researchers, especially PhDs can automatically participate in an annual competition which rewards the PhD student with the most outstanding innovation achievement.
- Example: The Wetsus PhD Prize (for projects with a patent) : Marcel Mulder Prize :
<https://www.wetsus.nl/news/emad-al-dhubhani-wins-marcel-mulder-prize/#:~:text=Emad%20al%2DDhubhani%20has%20won,at%20the%20Wetsus%20congress%202021.>
- Youtube: <https://www.youtube.com/watch?v=bHZNDEAEGCE>

4. What are the most appropriate contemporary forms and models of technology transfer for the needs of the Bulgarian centres?

Recommendation 7. Target : Policy makers and CoC/CoE

- **What : Result-oriented structural funding with clear indicator scheme can be relevant in supporting the Centers' focus on technology transfers**
- To maximize the results of the CoCs and CoEs, it is proposed to periodically evaluate their performance and condition their structural funding based on it.
- The starting point would be the definition of the mission and characteristics of CoCs and CoEs and a common indicator scorecard for all of them.
- Then it will be necessary to define the weight and target for each indicator. There would be two models, one for CoE and another one for CoCs.
- Benefits and Results:
 - Monitoring of the evolution of the centers
 - Transparency of the evaluation criteria of the centers for future decision making
 - Benchmarking between centers
- Example: [Decree regulating the Basque science, technology and innovation network](#)

(What are the most appropriate contemporary forms and models of technology transfer for the needs of the Bulgarian centres?)



EXAMPLE: CRC BALANCED SCORECARD

| ELEMENT | | INDICATOR | Weigh | Unit | Goal 2021 |
|----------------|-----------------------------|--|-------|--------|-----------|
| R&D mix | | f1 % Fundamental Research revenues | 3% | % | 60,00% |
| | | f2 % Industrial Research revenues | 3% | % | 30,00% |
| | | f3 % Technological Development revenues | 3% | % | 10,00% |
| Specialization | | g1 % Industry 4.0 revenues | | % | |
| | | g2 % Energy revenues | 10% | % | 100,00% |
| | | g3 % Health revenues | | % | |
| Excellence | Fundamental research | h1 Scientific publications | 12% | Nº | 65,00 |
| | | h2 Scientific publications in Q1 | 12% | Nº | 60,00 |
| | Industrial research | h3 Patent requests to EPO and PCT | 6% | Nº | 2,00 |
| | | h4 IP revenues | 6% | '000 € | 200,00 |
| | Technological Development | h5 Revenues from start-ups | 1% | '000 € | 30,00 |
| | | h6 Impact on local companies' revenues | 3% | '000 € | 700,00 |
| Relation Model | Technology transfer | i1 % private revenues from local companies | 5% | % | 20,00% |
| | | i2 % total private revenues | 5% | % | 30,00% |
| | | i3 Researchers transfered to local companies | 5% | Nº | 7,00 |
| | Local collaboration | i4 Co-direction of doctoral thesis | 5% | Nº | 15,00 |
| | | i5 Co-authorship of scientific publications | 5% | Nº | 35,00 |
| | | i6 Patent co-inventions | 5% | Nº | 1,00 |
| | International collaboration | i7 % EU funding | 5% | % | 15,00% |
| | | i8 EU projects with local companies | 5% | Nº | 5,00 |

5) How to continue and/or deepen the launched cooperation?

5. Collaboration proposals

proposals to continue and/or deepen the launched cooperation

Proposal 1 – Make use of European funding and networking opportunities

- **Identify** how CoE/CoC has a relevant legal structure for the participation in EU programmes, for instance via the lead partner (University, Institute ...).
- **Network** at EU level. Try to join sessions organised by the ERRIN organisation (www.errin.eu). Join info days regarding your topic. Have a broad look at other collaboration opportunities such as interregional collaboration through RIS3. Connect with the Science department of your Permanent Representative in Brussels (EU Embassy of Bulgaria) and connect with your regional EU representative.
- **Consider** to establish a robust pre-award grant office to engage more with the European funding schemes.

Proposal 2 – Team up with other RTOs

- **Utilise** peers to access RTO's VTT, Tecnalia and Wetsus: focus on thematic linkages and EU funding opportunities, participation in advisory boards, technology roadmaps, etc.

5. Collaboration proposals

proposals to continue and/or deepen the launched cooperation (optional)

Proposal 3 – Establish international consortia with other EU institutes

- Bulgarian institutes should establish international consortia as a long-term proposition, together with other EU institutes in similar areas of investigation. This would be a foundation for future collaborations, grants, and exchange of personnel.

Proposal 4 – Establish an external advisory board and use the support offered by the peers

- Establish an external/international advisory board, not only for technology transfer, but broadly addressing institutional development. The peers would be very willing to help in this effort!



Thank You
and let us
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