
TEADUS- JA INNOVATSIOONI-POLIITIKA SEIRE PROGRAMM

# "Can RDI policies cross borders? The case of Nordic-Baltic region"

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# Methodology

- **Review of academic work** concerning RDI internationalization
- A **meta-analysis** of the available and relevant policy and policy evaluation documents within the region were carried out
- Between November 2014 and February 2015 **in-depth, semi-structured interviews** with both inductive and deductive questions were carried out with 14 executives of innovation agencies and research councils (i.e. key public funding agencies) from Finland, Sweden, Norway, Denmark, Iceland, Estonia, Latvia and Lithuania.
  - Additionally, organizational manager of NordForsk, executive director of BONUS EEIG and the lead partner of the program BSR Stars (both transnational programs) were interviewed
- The **unit of analysis is kept on the country level** and RDI programs etc. are examined as manifestations of the countries broader stance on policies

# Why RDI systems need to internationalize?

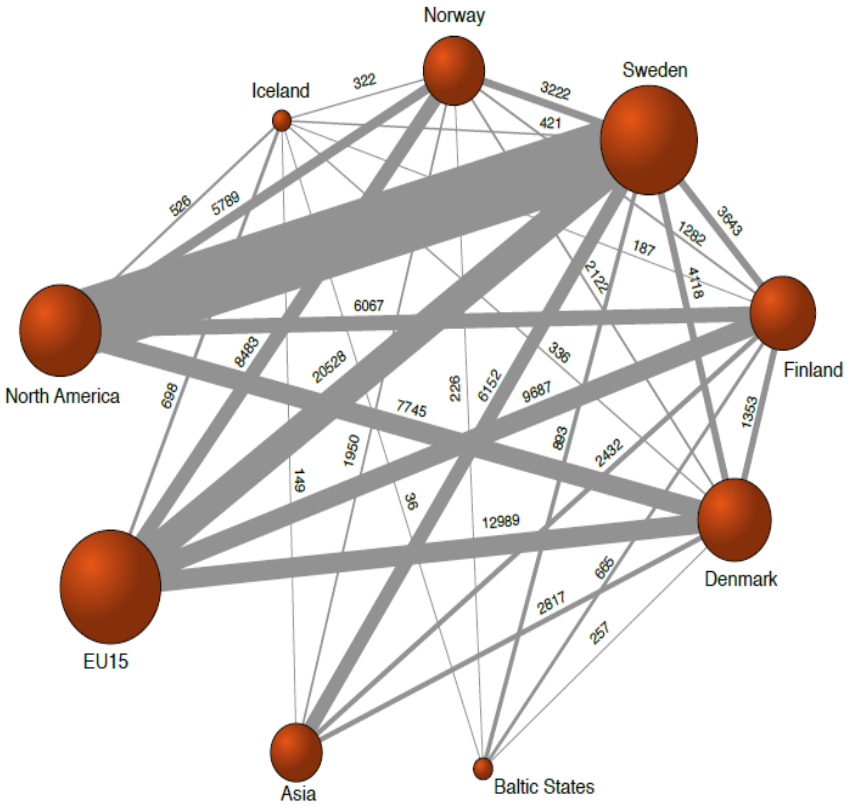
In theory and in practice internationalization is justified by the following reasons:

- Critical mass for scientific excellence and innovation
- R&D networks to participate in global competition and solve grand challenges (e.g., climate change) (Reale et al. 2012; Edler et al. 2003)
- Small states do not have the capacity to participate in all R&D + small states ‘go global’ much faster

# All the following indicators are growing:

- number of joint publications, patents and research projects;
- researcher mobility;
- private global value chains of production and innovation;
- fees from internationally licensing intellectual property;
- FDI

FIGURE 5.1. NORDIC COOPERATION PATTERNS 2003-2007, EXPRESSED AS A NETWORK.




Gunnarsson et al. (2010, 36).

# Analytical matrix

| Level/Modality | Science⇔Science | Science⇔Economy |
|---|---|---|
| **Global level** | University rankings, established excellence-based evaluation (WoS) | FDI, export etc. policies, WTO agreements |
| **EU** | FPs, Centres of Excellence | Technology platforms, internal market |
| **Region inside the EU** | Finance of supra-regional cooperation, ERA-nets | Supra-regional infrastructure projects |
| **State** | Cooperation, support of mobility | MNCs in local research centres |
| **University** | Multi- and bilateral contracts | Support of international IP |
| **Science group** | Participation in joint projects | Subcontracting |
| **Scientist** | Joint articles, research | Subcontracting, sale of IP |

# Mechanism of convergence

| | Multidirectional cooperation | Unidirectional cooperation |
|---|---|---|
| **Horizontal** | **Transnational communication**<br>Premise: existence of a common problem<br>Mechanisms: lesson drawing, transnational problem solving (elite networks with high level of legitimacy)<br>Proximity: not too low or high cognitive proximity that allows learning; physical proximity (tacit knowledge flows); some level of institutional, social and organisational proximity<br>Direction: possible initial convergence of selective parts of policy with an upward spread of convergence; increase in cognitive proximity | **Regulatory competition**<br>Premise: high level of economic integration, strategic dependence<br>Mechanisms: emulation<br>Proximity: high geographic proximity; low levels of institutional and social proximity<br>Direction: policy convergence, but possible downgrading of standards and push for liberalization<br><br>**Independent problem solving**<br>Premise: similar problem acknowledgement (parallel domestic pressure)<br>Mechanisms: domestic learning, no transnational communication<br>Proximity: some degree of cognitive, social, institutional proximity<br>Direction: impossible to predict patters |
| **Vertical** | **International harmonization**<br>Premise: legal norm, union with several member countries, capacity to enforce compliance<br>Mechanisms: international policy promotion<br>Proximity: at least some organisational and institutional proximity<br>Direction: upward movement of minimal standardisation; can create asymmetric, efficiency-driven integration | **Imposition/coercion**<br>Premise: asymmetrical power relations, capacity to impose policy by political or economic means<br>Mechanisms: formal or informal pressure (possibly through resource dependence)<br>Proximity: low levels of social and cognitive proximity<br>Direction: impossible to predict patterns |

# Cross-border RDI policies

The EU has two parallel momentums

-- *gradual 'trickle down' experimentation:* EU's funding mechanisms at different levels (EU, regional etc.) follow scientific excellence; better quality -> higher internationalization

-- *regional self-generated bottom-up collaboration*: similar development level -> higher internationalization

Challenge: RDI collaboration between countries on different development level? -> is it possible?

# Advantages and disadvantages of different funding models

| | Advantages | Disadvantages |
|---|---|---|
| **Money follows cooperation** | Simulates cross-border funding | National legislation may need amendments |
| **Money follows researcher** | Better exploitation of individual expertise | Salary differentials and imbalances |
| **Virtual common pot** | Compatible with national schemes (joint call funded in accordance with national regulations), decentralized decision making, funding only in national boarders – simplifies rules, no 'juste retour' problem | Some approved proposals may be declined funding on the national level<br>Conflict between funding 'excellence' and available national funds<br>Administrative costs high due to variety of national rules, but no adaption costs involved |
| **Post-evaluation common pot (mixed model)** | Funding commitment only after evaluation of projects (increase in the number of projects); decentralized decision making, funding only in national boarders/compatible with national systems, no 'juste retour' problem | Some initially approved proposals may be declined funding on the national level and surpassed by less deserving projects depending on the availability of national funds<br>Conflict between funding 'excellence' and available national funds |
| **Real common pot** | Funding of excellence (selection follows ranking), centralized decision making, simple selection procedure | Difficult to set up, requires common rules (contribution, eligibility, overhead etc.)<br>Funding my clash with national interests and need for contextualization<br>Possible exclusion of participants based on national legislation |
| **Balanced common pot** | Proposed selection may follow ranking, topping-up possible from the EU Era-Net Plus experience | Requires long-term commitment<br>Model may allow distorted exploitation of the system |

# Regional tendencies I

Based on the measures towards the support of joint research agendas **Iceland, Norway, Sweden and Denmark and Finland are above EU-averages**, while the **Baltic States were implementing measures below EU-average in 2013**.

With a closer look at the R&D budgets of EU countries, **Denmark contributed the most to jointly defined research agendas proportionally from its budget followed distantly by Finland and Sweden**, while the Baltic States have almost no contribution to the former (ERA Progress Report, 2014).

# Regional tendencies II

When looking at the levels of participation in Era-Nets, **some countries try to cover a maximum number of frameworks** (e.g. Finland, Sweden), while others try to be more present **in specific networks and take on coordinating roles in the former** (e.g. Denmark). The first strategy can be described as '**observing and learning**' (Pérez, 2010) in which small countries try to be at minimum present for possible future need to translate frontier scientific knowledge to the society (Ukrainski *et al*., 2014).

# Regional tendencies III

Seeing the levels of openness it is not surprising that the ‘core’ Nordic countries research has **strongly internationalized since the 1980s onward** to the degree that on average half the articles produced are co-authored by someone abroad (Gunnarsson et al. 2010).

# Some examples from interviews:

"*A lot of the cooperation is **bottom-up** and it has probably much higher numbers – we just don't see it nor how much money goes outside. Norway expects that **money is taken outside of the country, but it still in the end benefits** Norwegian research*."

„*Norwegian international innovation connections have been built up based* ***on strong historical industrial ties****: for example with the UK and the Netherlands in oil and gas, in fisheries with Denmark and new collaboration between Norwegian-Danish regions in biotech*."

"*I think that the cooperation in innovation starts with the* ***industrial structure*** *– when industrial structures have big similarities then it is more easy to reach topical, thematic projects that build on common synergies as for example in the forest industry in Sweden and Finland*."

„*Depending on the **needs of the technology**, RDI networks can differ and in some cases (e.g., ICT); they can start on the international level and surpass the Nordic dimension entirely and collaboration has been directly established with the US.*"

"*I guess with collaboration with the Baltic States it **shouldn't be forced**. If there is interests in doing something and actors who are also willing to participate and invest then we can do something. But **geography cannot be the only catalyst** for collaboration*."

"*Our philosophy is that the **best idea will get funded** and the knowledge will benefit all the countries. It is about knowledge investment*."

"*We shouldn't be looking for Nordic partners just because they are geographically the closest. **We fund research excellence** and the partners should be chosen based on the former – wherever and whichever field they come from*."

"*We have discussed this before and probably we'll raise this issue in Nordhorcs again**: the common pot is a hindrance**. There is no top-down pressure at the moment*."

"*A move towards the virtual common pot, **more flexible funding mechanism** would allow the schemes to be opened in all countries*."

# The Nordic Paradox

- Economic structures have an immense effect on real cross-border collaboration and also RDI policy coordination
- At the same time the excellence based science funding prevails – maximization of EU-based funding
- Cross-border RDI policy has a ‘symbolic’ meaning

| | Nordic collaboration | Baltic collaboration | Nordic-Baltic collaboration |
|---|---|---|---|
| **Research (e.g. joint publications)** | Strong | Weak | Weak (with the exception of Estonia-Finland) |
| **Industry (e.g. levels of trade)** | Strong | Strong | Strong |
| **RDI policy** | Some, although mostly symbolic value | Very weak | Very weak |

# The Baltic dilemma

- Problems are different
- Relatively weak RDI ties, although, RDI structures and economic structures are similar
- Bottom-up science networks with Nordic scientists
- Although, there are tight economic ties between Nordic and Baltic countries, RDI executives found that **capabilities of Estonian, Latvian and Lithuanian companies is not high enough** to participate in Nordic RDI collaboration networks without being absorbed by specific Nordic RDI systems

# Nordic-Baltic collaboration

- In the trickle-down EU RDI financing countries amplify investments in EU instruments rather than building up regional financing schemes
- Baltic countries lack informal contacts and are left balancing financing between EU-Nordic schemes
- Symbolic nature of existing RDI networks

# Estonian case

- Excellence-based, competitive RDI financing
- EU funding dictates the logic internationalization financing
- The entrepreneurial dimension is still generally missing in bringing International RDI funding to Estonia
- Strategies for the future:

1. Continue on the same path: internationalization research superstars
2. Change the role of universities in internationalization: not only International teaching
3. Change policy mechanisms significantly: universities + entrepreneurs and FDI (regional dimension of economic policy)

# Thank you for your attention!

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