

NER - N-NLs 'RIS4 Joint Cooperation Program': Operationalizing the Cooperation

Introduction

Cooperation between the two regions

The cooperation between the Northern Netherlands' Provinces Alliance (SNN) and the stakeholders in North-East Romania (NER), started early in 2015, benefiting from their published regional smart specialization strategies on RIS3 Platform IPTS Seville and the support from the Royal Dutch Embassy in Bucharest, with the stated interest to explore if there is fertile soil for cooperation, based on potential common needs and challenges, like the prosperity of the people, healthy and accessible food, clean and safe water, reliable, clean and efficient energy, economic development that preserves natural resources and environment in the long run.

The joint effort taken since, to define the common innovation opportunities, the relevant stakeholders and co-financing capacities, necessary to set the scene for a long lasting and successful cooperation, was lead by SNN in Netherlands and the North-East Regional Development Agency (NE RDA) in Romania, who assumed the role of program developers and facilitators.

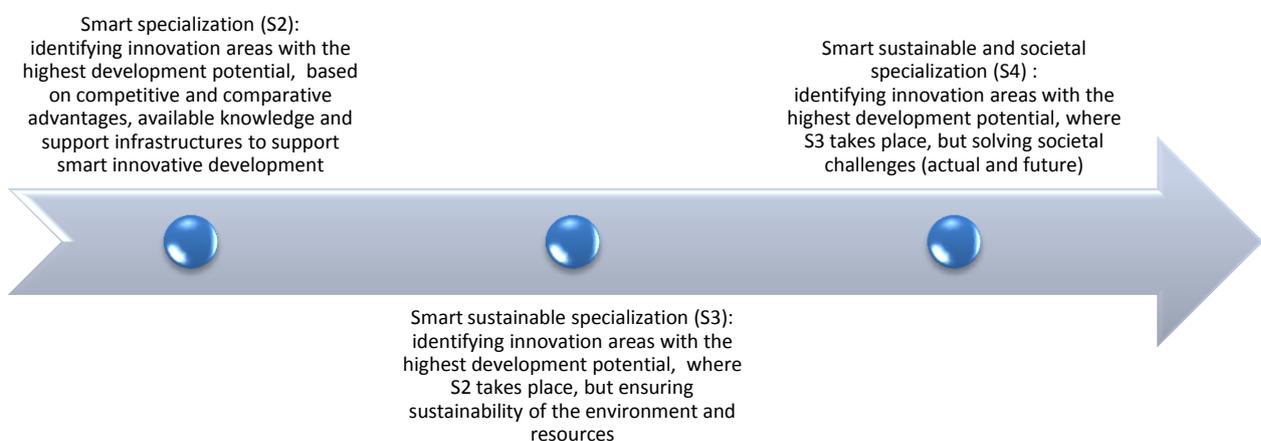
A significant amount of support in this period was received from DG Regio, through its Technical Assistance Program – TAIEX, Regions Peer-to Peer, which facilitated the exchange of experts necessary to get deeper and collect intelligence on the regional context and elaborate the systemic approach for a Joint Cooperation Program.

The initiators agreed, that for long lasting results, an initiative program should be drafted, having Smart Specialization (S3) as the basic philosophy and principles. Moreover, NER and SNN decided to take 'S3' a step further, by defining as the main goal of the program:

to address societal challenges to generate sustainable economic growth and wellbeing in both regions.

The purpose of the cooperation program is to set a bilateral work framework, to develop the innovation infrastructure and networks, that are necessary for Quadruple Helix stakeholders to be attracted and jointly find and develop solutions for specific societal challenges and show off with results that count for the regions involved, and beyond, by multiplying and disseminating the outcomes all over Europe.

Figure 1. The road of development and the goal of the 'RIS 4' Joint Cooperation Program



The purpose of this memo

This memo is intended to give an outline for the operationalization of the program. The memo has a medium term horizon: a period of 1-2 years, for the innovation environments, which are the core of the approach ('the means'), to be operational.

In addition, this memo also serves as a preparatory piece of paper, for a more strategic and inclusive programming document, which NER and SNN intend to deliver in the fall of 2016.

State of play

In the first year of collaboration a large number of steps have been taken. A summary:

- starting from RIS3, a set of common interest areas were identified, considering existing and potential future societal challenges to be solved in both regions, being potential areas of development with a high return on investment towards society: e.g. agro-food, smart factoring, the use of biomaterials and health innovations through big data.
- main opportunities were mapped.

Table 1. List of goals for N-NLs and NER, presenting opportunities

N-NLs	NER
Organization	Fertile Soil (decrease CO ₂ emissions)
Bring relevant stakeholders together	Healthy forest
Waste	Waste
Know-how	Practical skills
- Modern tech/ processes	- To make much with little resources
- Efficient processes	- Source of research (affordable, accusable)
- Logistics	
Entrepreneurship	Minerals
- See business in everything	
Good/living conditions	- Value for family/friends
- Air quality	- Beautiful nature
- Quality of food and water	- Skilled high education
- Accessibility of facilities	- Space
- Energy	
	Wine
	Romanians abroad (exchange)

- key stakeholders were identified according to the Quadruple Helix principle (local public authorities, knowledge institutions, private companies and civil society). These stakeholders were invited to participate in the preliminary consultation process, to design the framework of the program.

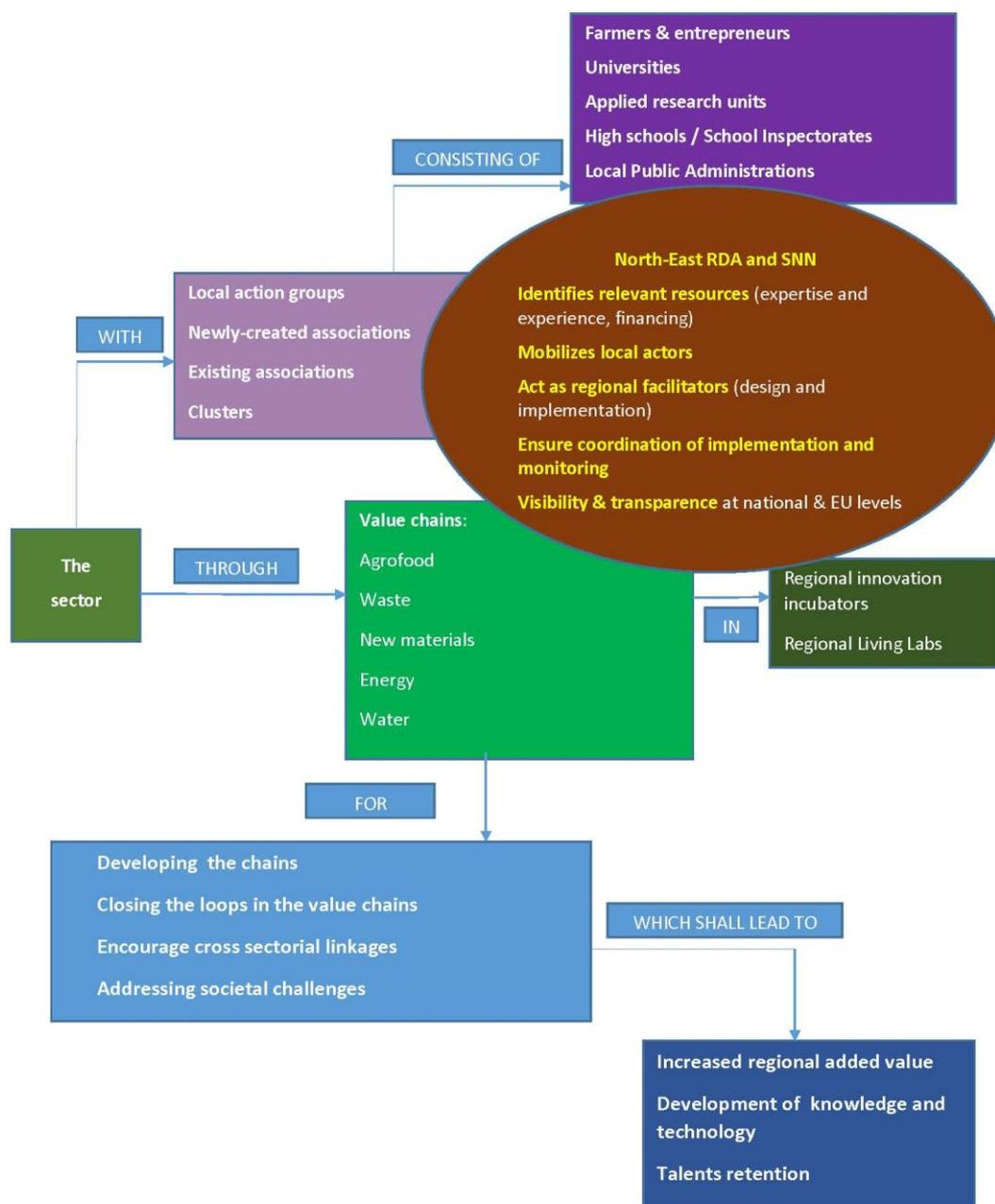
The stakeholder groups were brought into contact with equivalent partners in the other region and stimulated to cooperate (for example, university to university, company to company, administration to administration).

Out of the stakeholder groups, a number of individuals was selected: people with curiosity, an open vision and new ideas, to become advocates for the collaboration, it's underlying vision and subsequently, ambassadors or frontrunners;

A list of common principles was agreed: to support only win-win projects, to consider innovative development with societal benefits, to focus on closing the loops in specific value chains, to encourage circular economy, to invite as many as possible stakeholders in each region to take part in the societal transition process and become aware of its benefits.

An intervention process sheet was developed which gives answers to questions as: “Why? How? With whom? For what purpose? By what means?”. This sheet, depicted in figure 2, reflects in a logical and well structured manner the strategy of intervention.

Figure 2. Process intervention sheet



March of 2016 marked the transition to a new phase in the cooperation: a transition towards operationalization. During an expert mission in NER, two major conclusions were drawn:

1. Together with Q4-stakeholders, five value chains were defined and agreed upon as common ground for cooperation and mutual learning between the stakeholders of the two regions.
The operational goal for the collaboration program would be 'closing the loops' in each value chain.
2. For Quadruple Stakeholders to be able to 'close the loops' an approach was set: ('the means'): creating innovative environments consisting of living labs and incubator facilities.

Closing the loops

The five value chains that were identified (see the attached drawings in Annex 1):

1. Agro food (with high regional diversity) - healthy feeding or biomedicine – up cycling rest materials (2nd harvest) and fermentation to high caloric value fuel (3rd harvest) with the purpose to regain nutrients – regional seed production.
2. Waste prevention (behavior + education + smart factoring) – Consumer/company waste collection + harvesting landfills – waste separation – waste up cycling and recycling – Consumer grade production – Use of useless rest materials, all of these with water use reduction objective too
3. Water collection and retention (including disposal) – water use reduction (behavior + education + smart factoring) – Separation of rain, grey, black water (sewage to fuel or biomaterials) – Regain nutrients – Upgrading arable and natural land – Balancing local/regional climate effects
4. New materials (upgrade production of existing plants, ex hemp, resins, oil) – Smart design(modular and recyclable including regional brand perspective too) – Smart factoring (highly flexible, zero waste, low water use, renewable energy, plus ITC) – High quality lifelong, sustainable products (prevention of use once) – Maintenance and repair (use spare parts) – Reuse (second hand goods) – Parts regaining
5. Harvest sustainable energy – Lowering energy consumption (behavior + education + smart factoring) – Smart energy infrastructure (electricity and bio-fuels) – Regain wasted energy (warm, light)

Closing the loop in each value chain means involving appropriate Quadruple Helix partners within bilateral initiatives, by developing specific interventions associated with one or more links in the value chain, which interconnect directly. The interventions can be related to:

research and innovation, technology and knowledge exchange, peer review and mutual learning, common investments, etc.

For example, in agro-food the first link starts with the production of accessible, good quality food, with a wide regional diversity. A newly created or existing business should be considered 'closing the loop' in this value chain, when together with necessary partners, it will access only seeds produced regionally (the previous link in the chain). At the same time it will envisage to reach technological performances or association/networking relations that will enable it to offer directly to the market that products, that shall contribute to the region's healthy feeding (subsequent link in the value chain).

Such business models should consider implementing with partners support solutions that ensure valorization of the rest materials through up-cycling (2nd harvest) and regaining nutrients for the soil. The fermentation to high caloric value fuel (3rd harvest) will be considered only after 2nd harvest, but with the same need for regaining nutrients for the soil as well.

One link in one value chain has many possibilities to link with the other value chains between actions proponents, the methodology of approach or the envisaged results. For example consumer behavior awareness campaign could refer to healthy feeding, to waste prevention, water and energy use reduction or prevention of use once materials.

The means: 'innovative environments'

'Innovative environments'. Description of the concept

The operational essence of the approach, to 'close the loops', is to create innovative environments, facilities, where business, knowledge institutes and civil society representatives can jointly 'work on' value chains.

Working on value chains means to get into detail on each chain, and create links between the chains, discovering promising new business models and solutions. In practice this means valorizing the identified opportunities.

The environments can take the shape of an business incubator or/and a living lab. What do these concepts mean?

Living lab

The living lab is the broader structure. It is a predefined target area, for instance a part of the region, a city, a village, a community, or all schools in a community, which provides a real life setting, where the projected new developments are initially settled, tested, adjusted, monitored and implemented.

The essence of the living lab environment is the continuous interaction with society within this predefined area, in addition to the interaction between and among knowledge partners and businesses. This interaction will stimulate the iterative process, from the initial stage until the delivery of the new developments (new products, services, concepts, processes).

Incubator

The incubator is the facility where innovations are developed and valorized.

The incubator allows research and development to take place, by providing a flexible pre-production setting. It is a conditioned environment, a place with a threshold low enough for the participants to easily take up innovations.

In addition to providing a space where research and innovation actually take place, the

incubator also serves as an access-point for research and innovation elsewhere. It is a common space, an open innovation environment, where stakeholders meet, cooperate, share knowledge and exchange ideas. It can be seen as a *pinpoint* within the broader living lab environment.

The incubator structure is created around a defined value chain. It creates an innovation environment for those actors that are or place themselves in that value chain (actors can act in multiple value chains!). Development of an innovation in such an incubator starts with an identified societal challenge. The societal challenge constitutes the 'problem which is to be solved' and at the same time the opportunity for development. 'The problem' typically isn't just 'one problem', but an array of issues and challenges. The desired outcome of innovation in the incubator are 'fitting' solutions, that are part of a coherent set of solutions for the challenges in the value chain. Solutions are defined in terms of new or improved products, services and processes. Actors can be existing businesses, entrepreneurs, startups, PHD's, universities, government agencies, NGO's, civil action groups, as for instance nature preservation organizations, etc.

Be aware that an incubator can be fed with more challenges at the same time, but its capacity to solve and generate societal benefits depends on its ability to bring on board all necessary links of a full value chain. That can be done best by including the actors in the incubator, or by linking them with the missing links in the society outside the incubator, regional and abroad.

The incubator is a truly physical place, situated at a location, where the impact is expected to be highest. This location may be an university, a place in or around an existing business-building, a farm or a science park, or likewise.

The incubator provides a full time working area for knowledge institutes and businesses, outside of their regular working space. It is an office as well as a laboratory.

It cannot be stressed enough that an incubator, as it is presented here, encompasses much more than an incubator in the traditional sense does, which basically is a place where would-be entrepreneurs and the existing SMEs find a suitable area, in terms of facilities and expertise, to develop their business ideas into realities. In their cooperation NER and N-NLs take the concept much further, from 'Q1 or Q2' to 'Q4'-helix, by connecting the incubator setup and activities to a societal challenge and a living lab environment.

Growth model of innovative environments

Innovative environments drastically increase the innovation and solving capacity of a region. If located smart and connected to real life value chains, they can become engines for the regional transition process. The chances for success will however depend largely on the number and the scale of these environments.

Referring to the number, it can be said that the environments should generate 'change mass' and reduce 'change friction'. In general this condition will be fulfilled when the number of innovative environments is high enough to cover all major regional value chains; that have direct impact on the daily lives of a majority of citizens.

Concerning the scale of these environments, a rule of thumb is that in average all links of the value chains should be present and/or actively connected, most of the time. In addition, a certain mass should be realized, to be able to attract more actors/investments.

The growth model for these innovative environments is as follows:

- actors who enter, link with the environment;
- by linking to the environment, they connect to its direct surroundings;

- the direct surroundings benefit from this linkage, by experiencing a higher demand in facilities and by receiving the innovators as new customers;
- once they have completed their valorization process, innovating actors will leave the innovative environment. But, as these actors have experienced the benefits of staying in contact with the innovative environment, they will stay close and settle around the environment;
- multiplication of these individual processes will foster a clustering process around the innovative environment, with possible coaches and sponsors. And in a sense the surrounding clusters become an extended innovative environment, which creates more growth.
- this new settlement and growth will organically deliver new facilities, which are for the benefit of more than the innovative environment. The surrounding society will get access and use these facilities as well, like clean water, good food, better accessible healthcare, waste collection and waste processing, better educational facilities and better infrastructure. A societal transition takes place.

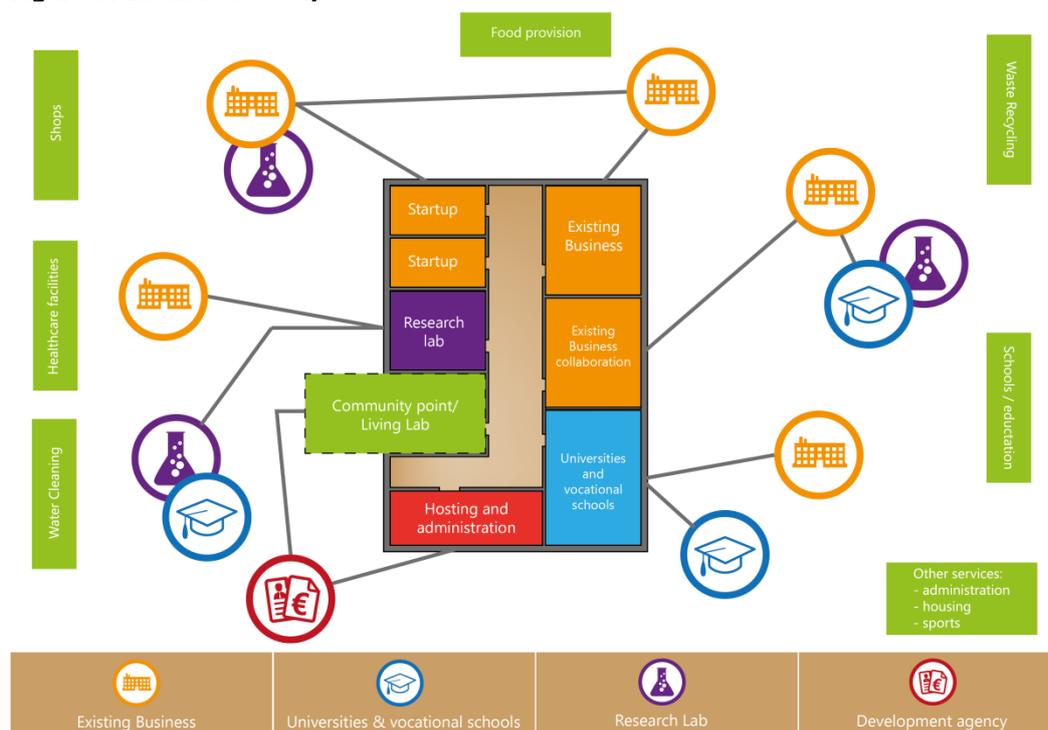
The innovative environments the partners intend to create, open the way for a variety of businesses to take a smaller or bigger share and for universities to encounter lots of opportunities to do society/business relevant applied research and valorization and to access funds for a stronger research position in Europe, attracting more scholars, PHD's and students. If implemented well, they provide a 'proposition to stay that you cannot refuse' for young people, and allow talent and career development in the region. The Dutch knowledge centers, universities, innovation clusters and businesses find the same as their Romanian counterparts and colleagues.

Translating the concept to the NER – N-NLs cooperation

In the context of the NER – N-NLs cooperation, the living lab is considered to be the 'center of growth' for the regional transition, which is the main objective of the cooperation program. The incubator can be seen as the engine of the innovation process.

The envisaged set up for the incubator in the NER - N-NLs case is projected in the picture below.

Figure 3. Incubator set up



The hosting institution provides administrative and infrastructural services, including access to supportive funding. This institution can be hosted by a Quadruple Helix Board)

Essential for the incubator to function is the presence of a knowledge institute desk: the representative(s) which occupy the desk, fulfills two roles: a liaison role, to connect the incubator to experts 'back home', as well as an expert role, by having specific expertise in a field relevant to the societal challenge.

The other spaces in the incubator facility can be occupied in various ways: by other knowledge institutes, post docs, businesses, start-ups, joint ventures of businesses and so forth. Each participant has connections to the 'outside': the main institute, the head office or cooperating businesses and institutes.

If relevant, a shared lab facility may be created. This shared lab can itself function as a small scale living lab, with connections to the broader living lab environment, and therefore the community.

Besides the mentioned working places and lab facilities, a shared space is envisaged. This shared space, is the place where the 'inhabitants' of the incubator meet, share and cooperate.

Operationalizing the concept

The NER and N-NLs partners believe that creating an innovative environment, with living labs and incubators, and creating a network of connections between the innovative environments in both regions, constitute the primary operational goals in the cooperation.

The obvious question then is: "how to operationalize these goals?". This question can be divided into three 'sub-questions': "how to create the environments, how to make them work and how to keep them 'running' ?"

In this respect, basically two types of activities are needed:

- activities aimed at the physical realization and retention of the facilities, and
- activities aimed at the targeted value chains and those actors in society that can be part of them. This concerns primarily with creating awareness, fostering change capacity and increasing strategic reasoning of all relevant actors.

Create the environments: concrete steps to be taken

As mentioned in the previous paragraph, one of the main results of the previous expert missions, has been the identification of the societal challenges to be addressed and the potential value chains 'to be closed and further developed'. The next step is to translate this picture into a configuration for the innovative environments.

1. Configure the environment

This step deals with drawing the picture (map) for the living lab and incubator lay out in each region.

Questions to be answered: Where to locate the innovative environments? What shape and concrete forms will the living labs and incubators take? At which specific locations? What are the existing structures? Who going to host the environments?

Choices will depend upon the value chain involved, the characteristics of the (sub-) region and Quadruple Helix - players to be involved.

Every incubator needs to be concerned with a specific value chain. But, five value chains to be closed, doesn't necessarily mean five living labs and five incubators to create. It could be enough to install only one living lab in a specific area and

deliberately create interaction between the incubators elsewhere and that living lab. Create doesn't necessarily mean 'build'. 'Creating' can take the form of 'connecting and improving'.

Drawing the picture is a joint task for the current partners involved.

2. Define the functional specifications for each innovative environment

This step is about defining the architecture for each environment (living lab or incubator). Questions to be answered include: "What should it look like? What is the organizational structure? Who are target groups and the essential players to be involved? What role is envisaged for which participant?"

Defining the characteristics is a joint effort for the partners, including a group of frontrunners, people who embrace the strategy and who are related to a specific chain.

In general, involving frontrunners is an essential requirement for the approach to be successful, as is explicated below.

From this phase on, additional expertise, from incubator-/living lab creating specialists, is likely to be needed.

3. Define the 'business model' for each innovative environment

This step deals, among other things, with defining the governance, investment dimension and operating budgets for the living lab and incubator facilities.

Mapping the funding options are tasks likely to be performed by NE RDA and SNN, particularly where Structural Funds support is involved.

4. Detailing the necessary steps and fixing a time schedule towards implementation.

How to make it work: critical factors to take into account

For the current partners involved, it is obvious that the task of creating the innovative environments can only be fulfilled successfully, if 'the necessary seeds are planted in fertile soil'. Likewise they consider it to be crucial that the environments will be tempting themselves: they should become real playgrounds, facilities and surroundings with easy entry and low operating costs. It should be obvious, especially for businesses, but for knowledge institutes as well, that the benefits of getting in, will be greater than the pay offs of staying outside.

Creating such a successful innovative environment has to do, among others, with the quality of the facilities and the supporting structure, the presence of key players, the synergies which follow out of the networking lay out, as well as the access to high level knowledge and low threshold funding.

This funding can take the form of a set of grant schemes facilitating valorization. Similar to mapping the funding options, the design of this supportive structure is a task suited for NE RDA and SNN.

It is important to notice that although being 'key players', these players don't join to dictate the environment. On the contrary, they enter because they want to 'open themselves up' to others.

Creating tempting innovative environments also has to do with the mindset and capacities of the future players. For these players to be able and willing to make the transition, a set of preparatory measures is considered to be essential. These measures center around:

- creating awareness → to show which game is being played
- creating change capacity → to enable players to change their situation
- providing strategic competences → to have a coherent story, and to grow up players that make maximum use of the opportunities to develop and change.

In this respect the following type of activities are envisaged:

1. Designing and implementing an awareness increasing program for regional communities (e.g. schools, companies, clubs) on the societal challenges identified, in order to increase their consciousness about the need to change.
 - a. The program should identify communication champions in each region, who will set up the messages and tailor the communication strategy;
 - b. Formulate and implement regional awareness campaigns;
2. Training and support engagement of the quadruple stakeholders with fine tuned change management, self starting and learning capacities.
 - a. Organize a training session in each region (train the trainers);
 - b. Identify relevant trainers and participants (frontrunners);
 - c. Implement a training program;
3. Establishing/developing strategic capacities of the Quadruple Helix - stakeholders to formulate objectives, select tactics (to address different friction levels) and self-monitor.
 - a. Train frontrunners, and other interested actors, the art of strategic approaches and strategic programming;
 - b. Transfer knowledge about the 'Noorden Duurzaam' thematic tables methodology to NER;
 - c. Organize a thematic table pilot meeting in NER, under supervision of N-NLs experts;

Management, coordination and programming

So far, a significant number of stakeholders, in both regions have been involved and have committed themselves to the cooperation: policy makers (regional and local public authorities), knowledge institutions (universities, research centers, high schools), business support structures (incubators, technology transfer centers, chambers of commerce), private companies, local action groups, clusters, nongovernmental organizations, public operators for waste and water, and so on.

The transition to a new phase in the cooperation, towards the operationalization as it has been outlined above, marks a transition as well in the role and added value of founding fathers NE RDA and SNN.

From initiators and conductors, a transformation will take place which will go through 'direction indicators', to facilitators, monitoring agents and supporters.

The priority for both NE RDA and SNN for the coming period will lie with the operationalization of the innovative environments, to realize the playgrounds for all Q4 stakeholders involved.

Besides enabling the creation of the facilities, this will also mean organizing the supportive structure and the activities, to make the environments work and keep them running, as outlined above.

In addition NE RDA and SNN consider it is vital to create a comprehensive monitoring system, in order to keep track and initiate improvements. In addition to the vital role monitoring serves with respect to the implementation of the program itself, it also plays and

important role with respect to the full development of the cooperation methodology: the model NE RDA and SNN intend to build for 'S4'-cooperation with or in other parts of Europe.

This monitoring function could be performed under the 'wings' of a joint technical secretariat.

This secretariat, to be installed by NE RDA-SNN, will firstly serve an administrative role. But it seems self-evident that the programming, management and coordination functions will find a seat there as well.

In addition NE RDA and SNN observed the need for an 'share point' (access point / hub) in each region, for collecting contacts, leads and information. A desk, which each individual or organization, with an interest in participating or contributing, can contact. This share point can be realized at NE RDA and SNN, but is thinkable as well to create it somewhere else.

Programming deals with laying out the strategy, creating the conditions and facilities, as well as securing a constant 'supply line' for the cooperation.

This supply line can only be guaranteed if sufficient funding is secured: funding for the facilities, funding for the grant schemes, funding for other activities and projects, as well as funding for the management and coordination of the program itself ('the technical assistance').

For the 'non-technical assistance' part Structural Funds are an obvious source to look at, particularly the ERDF Regional Operational Programs for Romania (Transfer of technology and innovation) and for the Northern-Netherlands (Research and innovation). Initial assessments have already taken place, but further research is necessary. Other sources require further assessment as well.

For both NE RDA and SNN to play (their) future role, their functions need to be organized and funded solidly as well. The assistance from TAIEX was very instrumental in the initial stages, but it will not be suitable for (all) future activities.

Alternative sources have been listed and possibilities to program (transition from grant based to no grants) have been discussed. A stocktaking exercise has been performed of correlations with interventions of the ongoing EU projects in which SNN and NE RDA participate, like Enterprise Europe Network, Beyond EDP, Clusterix 2.0 and Retrace Interreg Europe 2014-2020 Projects and the JRC Lagging Regions – Pilot Region North-East. In the short run, further action is needed.

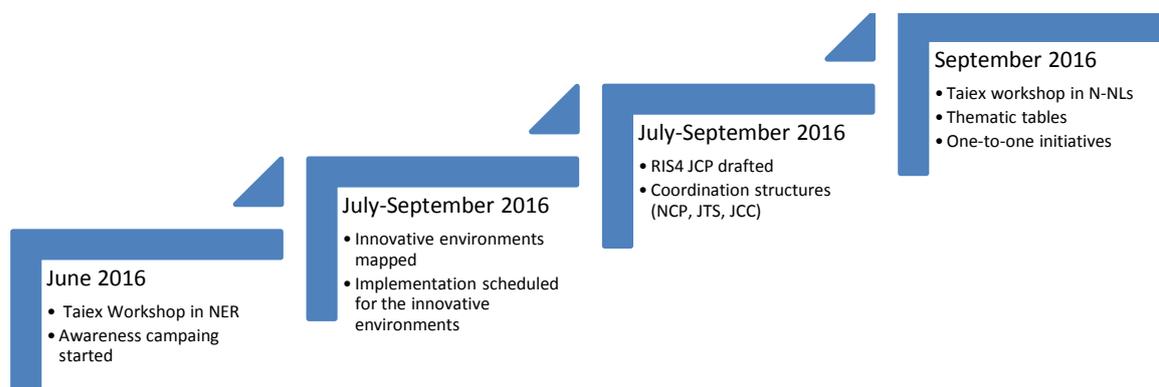
NE RDA and SNN intend to address all the management, coordination and programming aspects in the strategic programming document which, as said in the introduction, they plan to deliver in the fall of 2016.

This program shall be frameworked and coordinated in such manner that one participant should feel like "home" when visiting the other region no matter if it is about doing business, education or just visiting.

Time frame

A tentative timetable for activities to be underpinned during 2016 is presented in the picture below.

Figure 4. Timetable June - September 2016



The first thematic workshop in NER shall focus mainly on the definition, modelling, planning of the innovative environments and the 'training of trainers'. NE RDA team and a selected, rather limited group of ambassadors/frontrunners (max. 10 participants), being the program core team counterparts, shall be exposed to knowledge and expertise of N-NLs experts, related to the establishment and implementation of the innovative environment business model, change management and formulation of strategic choices, all issues related to the critical factors needed for a program successful implementation. In addition the homework should be set, for the summer, until the next workshop in the N-NLs, in September 2016.

To conclude

The RIS4 Joint Program is bringing many benefits for the regional participants: creation of regional hubs for applied innovation and societal development in specific areas of activities, stimulate association and networking, internationalization of the research and innovation activities, development of new business modeling and implementation of knowledge institutions programs.

In the long run, the RIS4 Joint Program for NER and N-NLs will contribute to the internationalization of regional value chains, will expand the implementation of specific best practices (e.g. regional innovation incubators and living labs in Northern Netherlands), improve the content and governance of RIS3, considering significant added value to innovative specialized economic development from societal challenges perspective, create a knowledge bridge between local public authorities, universities, enterprises and civil society (Quadruple Helix partners) and introduce a new and innovative model for cooperation within Europe. The Program will contribute to the successful implementation of the Growth and Jobs Operational Programs 2014-2020 in the beneficiary regions, correlating all available financing resources and offers a pilot model for RIS3 regional development capable to be replicated in EU beyond 2020.