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North-East Region Smart Specialization Strategy

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Declaration of vision and mission

Actual status in 2013 (to moment, no intervention scenario)
At present Nprth-East Region holds competitive advantages at European level, mainly through low added value products, which main argument is the price (lower due to cost advantages). Inovation remains restrained in some excellence areas, without a disseminated impact at the level of all companies in the economy. The development is slowed by the quality of education and the availability of work force, as well as by the insufficient development of the business support networks and clusters. As a consequence a non intervention scenario, the present economic profile of the region is not sustainable on a long term, blocking the region on the last position at national level in terms of GDP/inhabitant.

The development vision for 2020 (t1 moment, intervention scenario)
The North-East Region creates, transfers and implements innovation in a systemic manner, mainly in 4 key sectors – agro food, textiles and clothes, IT&C and biotechnologies. These fields of smart specialization:

- transform local resources in products with high added value,
- have cathalist and multiplication effects towards the other branches of the regional economy,
- are highly competitive at global level,
- ensure regional economy' sustainable effect.

Target at t1 moment (2020): allocation of 2% from regional GDP for research and development activities.

The arguments of the region valorised for the implementation of this vision

- Existent resources (human, material, financial);
- Existing support infrastructures;
- Accumulated tradition and expertize, reflected in a brand for the region's products.

The mission of the main organizations in the region for the implementation of the vision (by specific interventions in the period t1-t0)

- The innovative enterprises, business networks and regional clusters – generate innovation and disseminate it at the level of all the companies in the sector;
- The education system – delivers work force connected with the newest technologies and promotes innovation and entrepreneurial culture among the young generations;
- Public administration – supports through infrastructures, lobby and animation the function of the innovation system and contributes to the monitoring of S3.

Key values that will animate regional stakeholders in delivering their missions:

- partnership
- creativity
- labour

- responsibility

Slogan „North-East Region – smart specialization through people and local products"

Smart Secialization Strategy Structure

Vertical priorities

The North-East Smart Specialization Strategy 2014-2020 has four vertical priorities – or four sectors for smart specialization: agrofood, biotechnologies, textiles&clothes and IT&C.

Vertical priority 1 – Agrofood sector

The agro food sector has the biggest share in occupation at regional level (42%), agriculture being a traditional occupation of the region's inhabitants. In the agricultural sector, in 2011 there were 2060 companies active at regional level, most of them working in cereal crops and auxiliary activities for vegetable production. In the field of food industry in 2011, 1040 companies were active, most of them concentrated in Suceava, Bacău and Iaşi Counties. The region's commercial balance with agrofood products is positive, the main comparative advantages being registered in the case of fruits, cereals, oils and vegetable fats, vegetables&fruits and meat products. From territorial perspective, the diary and cheese subsector is focused in Suceava and Botoşani Counties, and the meat products sector is focused in Botoşani and Iaşi Counties. In 2011 the Ind-Agro-Pol Cluster was established, with the following membership structure: 14 companies, 4 universities, 12 research institutes, 2 public athorities, 8 cathalist organizations, 2 associations and 1 entreprenurial association.

The academic and research composition in the agrofood field is well represented at regional level, by the existence of PHD schools in the fields of Horticulture, Agronomy and Zootechny at University of Agricultural Sciences and Veterinary Medicine, The Zootechnical Research Center, The Research Platform for Aquaculture and Ecology, Vegetable Genetic Resources Banck, etc.

According to a study performed by ARUP in 2013, the region has specialization potential in sub sectors like: biotechnology, functional foods, wine, bio appiculture, zootechny, fischery, as well as in agronomy, crops science, food and agriculture sciences, biological sciences, agricultural biotechnology, soil research, nano-materials for proteins separation. The regional fields of competences in agro food sector are: agriculture mechanization (machines mechanization machines), organic agriculture, agrofood products processing technologies, vinification technologies, plants' genetics, fichery technologies, aquaculture, food biotechnologies.

Vetical prioritiy 2 – Biotechnologies Sector

In North-East Region in 2011, 11 companies were operating in the field of biotechnologies, most of them being registered in Iaşi and Neamţ Counties, concentrated in subsector of

farmaceutical products, while in Iaşi Municipality operates the biggest Romanian producer of generic medicines. The medicine exports volume increased significantly during the last few years, overcoming 20 mil. lei and generating a positive commercial balance for such products at regional level. Although in this field a cluster was not established yet, there is a critical mass of entities with activities in this field and common interest projects.

In the academia and research area in the field of biotechnologies, the North-East Region has Biologic Research Institute, Antibiotics Research Institute, Medicine and Farmacy University (UMF „Gr. T. Popa"), which has a fiziofarmcology and clinic research platform related to the nononcological and oncological pains, a Biology Faculty inside the University „Alexandru Ioan Cuza", a Regional Oncology Research Institute and a County Clinic and Emergency Hospital with RD activities.

Vertical Priority 3 – Textile&clothes Sector

In this field 887 companies are operating, most of them concentrated in Iaşi (26,2%) and Neamţ (25,3%) Counties, being positioned as the second place as hierarchy, from the perspective of the total turnover, irespectively on the first place as hierarchy, from the perspective of the total number of employees from all the processing industries in the region. A concentration of companies at regional level canbe noticed in this sector in the field of wearing articles, where there is a long tradition for this activity in this part of the country. Although its products have a reduced added value, the region's exports of textile materials and clothes reached 306 mil. lei in 2011, this having significant comparative advantage for the group of products that regards articles and clothing accessories, as well as other textile made articles. In 2010, the textile cluster ASTRICO Nord-Est was established, which joints 19 companies, 2 research institutes, one public authority and a cathalist organization, which holds already a development strategy and a project portfolio prepared for 2014-2020.

From the perspective of academia and research dimension, the region holds a Research and Technological Engineering Institute – FIBRESIN, a Textile Research Center, a Textile, Leather and Industrial Management Faculty with a PHD school.

According to the ARUP study, the North-East Region has solid perspectives for smart specialization and of enlarging the research in the field of technical textiles (multifunctional textiles for protecting clothes). The fields of competence (specialization niches) of the region in the textile and clothing sector, which are at the convergence of the industry and research in this area are: advanced biomaterials, functional textiles, medical textiles, intelligent textiles for communicant clothing, technical textiles, composite textile structures, knitted structures with termal proprieties, knittings for mechanical protection, synergic wearings.

Vertical Priority 4 - IT&C sector

In the IT&C field 2147 companies were operating in 2011 (software, telecommunications, hardware), which positions the region on the 4th place among the eight development regions in the country for IT activities, irrespectively on the 2nd place for telecommunication subsector, being evident a concentration of these activities in the area of producing personalized softwares, especially in municipalities of Iaşi, Suceava, Botoşani and Piatra-

Neamț. In 2013, the regional inovatic cluster EURONEST IT&C Hub was established, which joints 14 companies, 4 universities and research institutes, as well as cathalist organizations.

From the perspective of the academia and research composition, the region has a PHD school inside the Authomatics and Computer Faculty of the „Gheorghe Asachi" University, another one inside the Electronics, Telecommunications and Information Technology Faculty, a Research and Tecvhnology Transfer Center – POLYTECH, a National Research and Development Institute for Technical Fizics, a Research center for Fuzzy Systems, Inteligent Systems and Biomedical Engineering, research units in the field at the University for medicine and Pharmacy „GR.T.Popa" and the Clinic County and Emergency Hospita „Sf. Spiridon".

According to the ARUP study, the region has perspectives for specialization of the economic and research activitiesin subsectors like: telecommunications and software, computer programming, mecatronics, security, e-health, ITC for transport, new media, irrespectively networks of the future, internet services, software and visualization, media network and 3D internet, integrated systems design, personal health systems, ITC for energy efficience and accessibility, informatics and artificial inteligence. The region's specialization niches in the ITC sector, which represents directirons for reconfiguring the industry concern: artificial intelligence, WEB technologies (web mining), robotics, integrated systems, producing systems and planning production systems, calculation systems, voice recognition, images' processing, graphics processing, telemonitoring, medical education, analises for sets of medical data, telemedicine, nano-electronics, opto-electronics, industrial software, Big Data, GPS, ERP data systems, cloud computing, intelligent wireless networks, cybernetic security, safe software systems, mobile applications design, etc.

Horizontal priorities

The North-east regional Smart Specialization Strategy is designed to operate at 4 levels:

Horizontal Priority 1 – Development of young generations' innovation competences

This level is a basic one, foundamental, absolutly necesary for the success on a long term of all the other measures of the strategy. The reason is that they address the problem of *menthalities* – the ones that generate the context in which the equipments, the buildings or the innovation services will be used, as well as the problem of innovation competences, especially at the level of the future generations – the ones that will benefit from the present investments in innovation and will be reswponsible for their ma nagement in the future.

Horizontal Priority 2 – Support for the inovative companies from the North-East Region

It is not enough to prepare, young people with special innovation competences at high level – but they must be encouraged to start new busineses, capable to valorize the results of research in priority fields of activity. Also, the existing innovating companies must be supported and encouraged to become vectors for development in sectors with smart specialization potential.

Horizontal Priority 3 – Support for the clusterization initiatives (existent or emergent), as a support for the development of the regional innovation system

In order not to remain a hazard result of a happy conjucture (of the type "the men is blessing the place") innovation must be supported in a systemic manner. From this point of view, in the North-East Region the optimal solution to be considered is the creation, the consolidation and the support provided to the business networks and clusters in order to start new research-development-inovation activities.

Horizontal Priority 4 – Technical assitance

Because this is the first S2 strategy of the region, it is obvious that a capacity building support is necessary in order to ensure the establishment of a good implementation system capable to document the lessons learned during 2014-2020, for a better fundamenting of the future planning exercises.

The 2 types of priorities – vertical and horizontal, creates a matrix type structure of the strategy, which can be represented as following:

Priority	**Vertical Priority 1:** agrofood sector	**Vertical Priority 2:** biotehnologies sector	**Vertical Priority 3:** IT&C sector	**Vertical Priority 4:** textile&clothes sector
Horizontal Priority 1: Development of the young generations' innovation competences				
Horizontal Priority 2: Support for the inovative companies in the North-East Region				
Horizontal Priority 3: Support for the clusterization initiatives(existent and emergent), as support for the development of the regional innovation system		→ **Project portfolio**		
Horizontal Priority 4: Technical Assistance				

Smart Specialization Strategy - priorities, measures

Horizontal Priority 1: Development of the young generations' inovation competences

Measure 1.1: Sincronizing the regional training offer with the actual level of innovation in priority areas of activity

To this purpose, the following types of projects are considered of priority:

- development of „curricula partnerships" between educators and enterprises in the fields with regional smart specialization potential, in the view to actualize the education offer (specialties and thematics of the courses introduced in schools and universities);
- support for educators in familiarizing with new trends and technologies in priority sectors of activity.

Project ideea: Training competent mechanists for agriculture

An example of relevant project comes from agrofood priority sector, where companies in the field complain of difficulties on finding qualified mechanists on the labor market. The ones that are emploeed on these jobs are not familiar with the latest technologies and as a consequence they can not exploit it at maximum potential (for example they operate intelligent tractors like the old '80 machines). Therefore it is necessary to analyse the education offer level by level (both at specialization and at curricula levels) in the profesional and technical education regional system, to ensure well trained work force offer, capable to contribute to agriculture development.

Measure 1.2. Establihing contacts among pupils, students, and masterands persons and innovating companies in priority fields of activity

This measure proposes to familiarize pupils and students with the actual technological level from innovative companies, trhough workplaced activities. To this purpose the following types of projects are considerred:

- Revitalization of the study visits organized by the classrooms of pupils and students in enterprises and coupling them with training coursed (for example „how its made..." or new technologies presentations);
- The support of pupils, students, and masterands that take part to practical stages / internships i innovative enterprises from priority sectors (through bourses or other facilities).

Project ideea: Paied internships in the ITC sector

An example of relevant project comes from the IT&C priority sector, whereenterprises in the field complains of difficulties in finding personal – among other due to a deficitary training level of potential candidates. They are not familiarized with programming languages requestedand do not have the primary competences necessary to join an IT peoject team. A solution used today to solve this problem is to organize internships; but they are not functioning properly because they are not paied – moreover, sometimes they impose to

students supplementary costs (for example accommodation in student campuses during summer holiday is higher than along the year). From this reason, many students prefer to invst their time rather in working as free-lancers in paid projects – which does not allow them unfortunately to systematize the accumulated knowedges, neither to develop their team work ksills. In this context, a internship financing is imposed as necesarry to increase their attractivity and impact.

Measure 1.3. Increasing the role of extracurricula activities in promoting creativyt and innovative atitudes

To this purpose, the following types of projects are considered of priority:

- Supportin the Kids Club activities or other types of afterschool activitiesas well as students associations activities (through procurement of equipment, rehabilitation of buildings and spaces), to attract pupils and students in extracurricula technical type activities;
- Organizaiton for pupils, students and masterands of contests of ideas and innovative projects, in partnership with regional companies – example „Olimpic contest/Night of small inventors";
- Support of pupils, students and masterands to participate in competitions of ideasand innovative projects organized at national and international level (through financial stimulents).

Project ideea: Knitting Club

An example of relevant project comes from priority sector textile&clothing, where enterprises in the field are complaining of being difficult to find employable persons – among other reasons this is also caused by the *deficitar image of the sector*. To this purpose, it was exemplified the case of a professor at a faculty in the field who when presenting to XII degree pupils the possibilities for study, was completed by the teacher with the following message: „So, if you don't enter in any other faculty, you can still orientate your carier toward the textile industry"... It is obvious in this context, that there is necessary an integrated type of thinking of a compain order to improve the perception of the sectorat the level of potential work force - and this can be achieved successfully only if the efforts starts very early at school. One project idea to this purpose is to organize after-school workshops, where pupils can make themselves from textile materials diferent accesoires – from little pources to toys, etc. In this time, th ctivity in this workshops can become more complex, engaging pupils to discover, through play, the beauty of the field.

Horizontal Priority 2: Support for the inovtive enterprises in North-East Region

Measure 2.1: Assisatnce servicesfor transfroming inovative ideas in business ideas

To this purpose the following project ideas are considered of priority:

- Esyablishment of new business support structures and encouraging the development of the existing ones (for example business incubatora, business hubs, technological parks etc.), in order to attract new companies;

- Implementation of programs for „simulated enterprises" to facilitate translation into practice of inovative ideas of puils and students;
- Develop of "shared resources" initiatives;
- Consultancy activities for innovative start-ups and spin-offs.

Measure 2.2: Implementation of financial instruments for encouraging the establishment and development of new inovative companies in the region

To this purpose the following type of projects will be considered of priority:

- Development of business-angels networks;
- Atracting in the region new risk capital funds;
- Microcredit schemes for inovative busines ideas.

Project ideea: Development of the smrt phones games sector

An example of relevant project comes from priority sector IT&C, which assista at presents at a explosion of games for smart phones, stimulated by the success of applications like Angry Birds or Plants vs. Zombies. These are not becoming only more divers but they are more easy to use existing already some preinstalled solutions (for example *game developer tools*), which requires only a smart concept and and innovative maner of promotion to become successfull games. To this purpose, the new generation of gamers has at its disposal all kind facilities to get access on this market, they need only advice and financial assistance to register in short period of time milioans of sellings.

Horizontal priority 3: Support for the clusterization initiatives (existent or emergent), as support to the development of the regional innovation system

Measure 3.1: Creation and consolidation of business networks and clusters

To this purpose the following projects will be considered of priority:

- Establishment of regional horizontal business newtorks (for example associations or groups of producers) or horizontal business networks (value chains), as well as new clusters;
- Support for existing business networks and clusters to increase their economic performances and to attract new members;
- Support for inter-clusters and inter-networks cooperation, including through joining international networks.

Project idea: Groups of producers

An example of relevant project comes from the agrofood priority sector, where several producers agglomeration exists at small scale, especially in the agriculture sector. Despite the existence during the actual programming period of specific support measures for creating producers groups, there is still great potential for rural association. In this way a critical mass can be created and implicitely asuplementary negotiation force can be generated, agricultors can obtain better prices for their goods, can have access to new

cathegories of clients and can support projects for creation of collecting centers, as first step toward a better valorisation of the own production.

Measure 3.2: Increasing the capacity of integrated action of existing business support networks and clusters

To this purpose the following projects will be considered as of priority:

- Support for the management of the existing business networks and clusters;
- Support for the development of services offered bu business support networks and custers to their members.

Project ideeas: Service centers

Relevant project ideas we can find in several priority sectors as following: in the textile-clothing sector the service center proposed is a sampling center, which can increase efficiency of the sampling activity for potential clients interested to verify the quality of the products offered by the cluster members. In the IT&C sector this center take the shape of a „corporatist university" – an integrated training program, susutained with trainers from companies who are members in the two regional clusters, with the purpose to ensure adequate trained work force and to facilitate the inclusion of graduates in „shared resources type initiatives". Finally in the biotechnologies field, this center takes the shape of a clinic studies center, ment to bring on the market an integrated service, resulted from the cooperation of cluster members, dedicated both internally as well as with commercial potential for companies outside the cluster and the region.

Measure 3.3: Support to the consolidated business networks and clusters to develop as inovation systems

To this purpose the following projects are considered to be of priority:

- Implementation of aplied research projects in the regional clusters, developed in partnership by companies and research units;
- Extension and modenrization of research-development-inovation regional infrastructure regionale, through interventions at the level of existing clusters;
- Ensuring technology, know-how and best practices transfer at the level of business support network and regional existing clusters.

Project ideas: Aplied research projects, implemented in partnership

Relevant project ideas come from several priority sectors as following: in the agrofood sector, the most promissihng research theme identified, with potential to animate all the organizations in the cluster, both during the project, but mostly after the project end (results exploitation phase) is agromecatronics. In the field of biotechnologies, biofertilizers were mentioned, as innovative products with special potential for stimulating the ecological agriculture and to improve the safty of the food staff. Finally, in the field of clothing and textiles, an interesting research theme is represented by intelligent materials, which incorporates elements related to nano-technologies, software, special fibres and yarns.

Horizontal priority 4: Technical assistance

Measure 4.1: Development of the S3 implementation, monitoring and evaluation systems

To this purpose the following projects will be considerred of priority:

- Creation of a regional consortium for smart specialization at the level of North-East Region;
- Develop monitoring studies to analyze the implementation results obtain by S3 in the region.