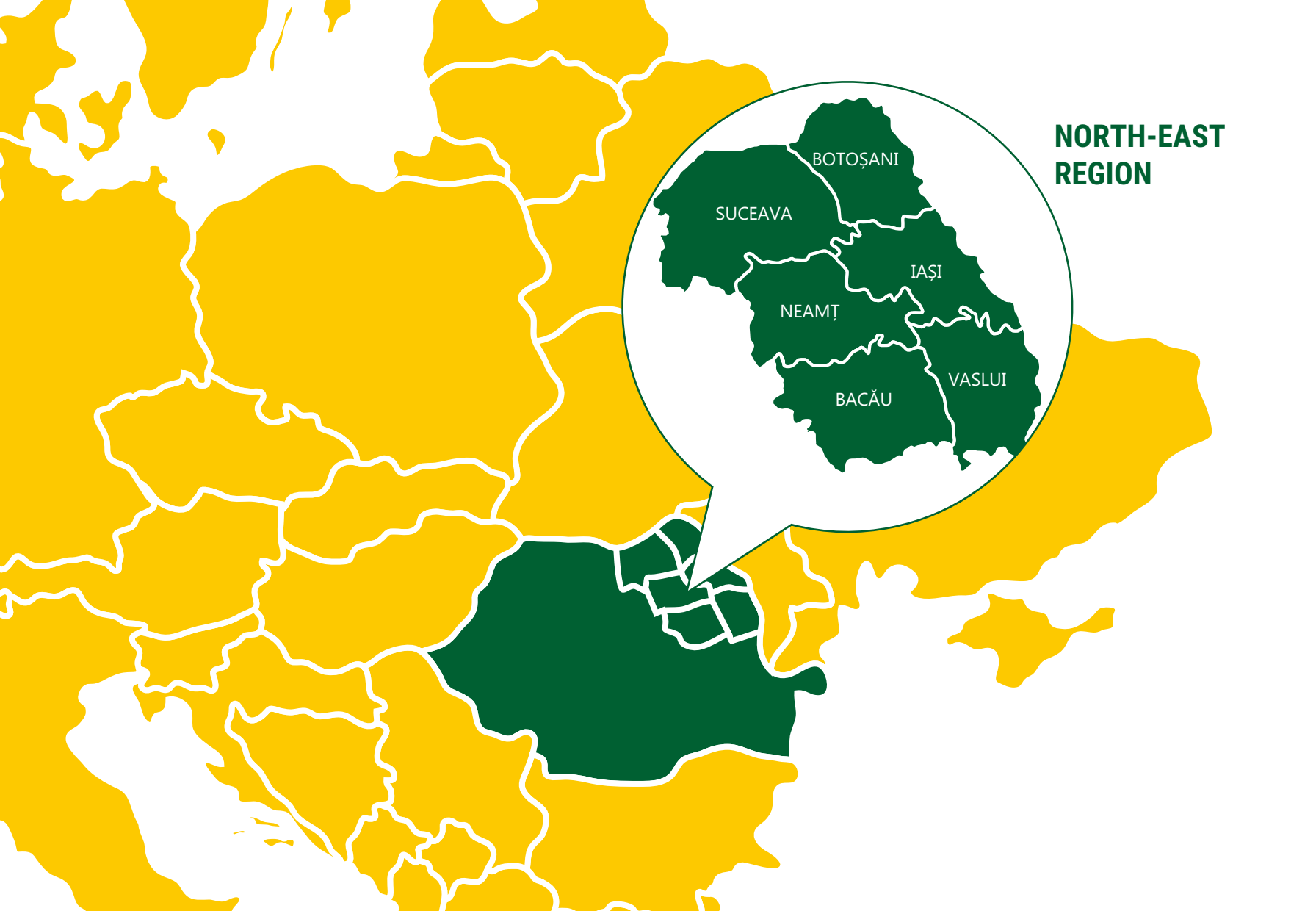


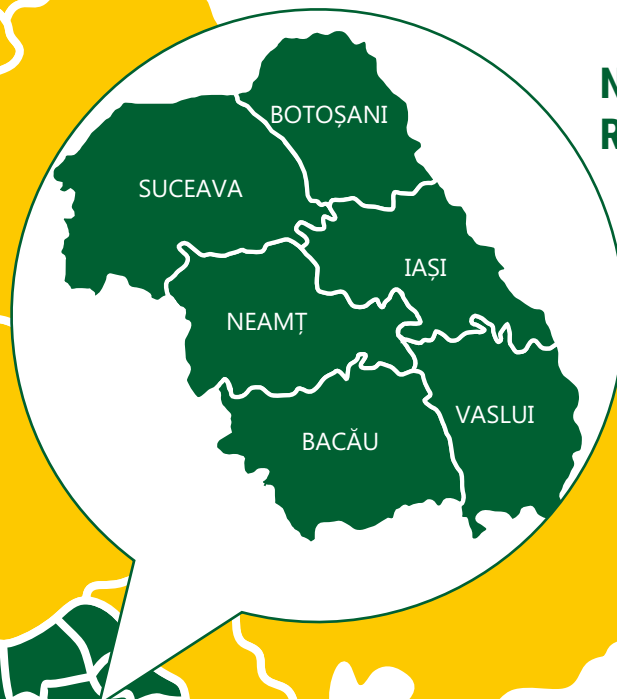
**RIS** **3**  
N O R T H - E A S T

**The Research and Innovation Strategy for Smart  
Specialisation of the North-East Region**

**RDA** ®  
Regional Development Agency  
N O R T H - E A S T



## NORTH-EAST REGION



BOTOȘANI

SUCEAVA

IAȘI

NEAMȚ

BACĂU

VASLUI

# What is Smart Specialisation?

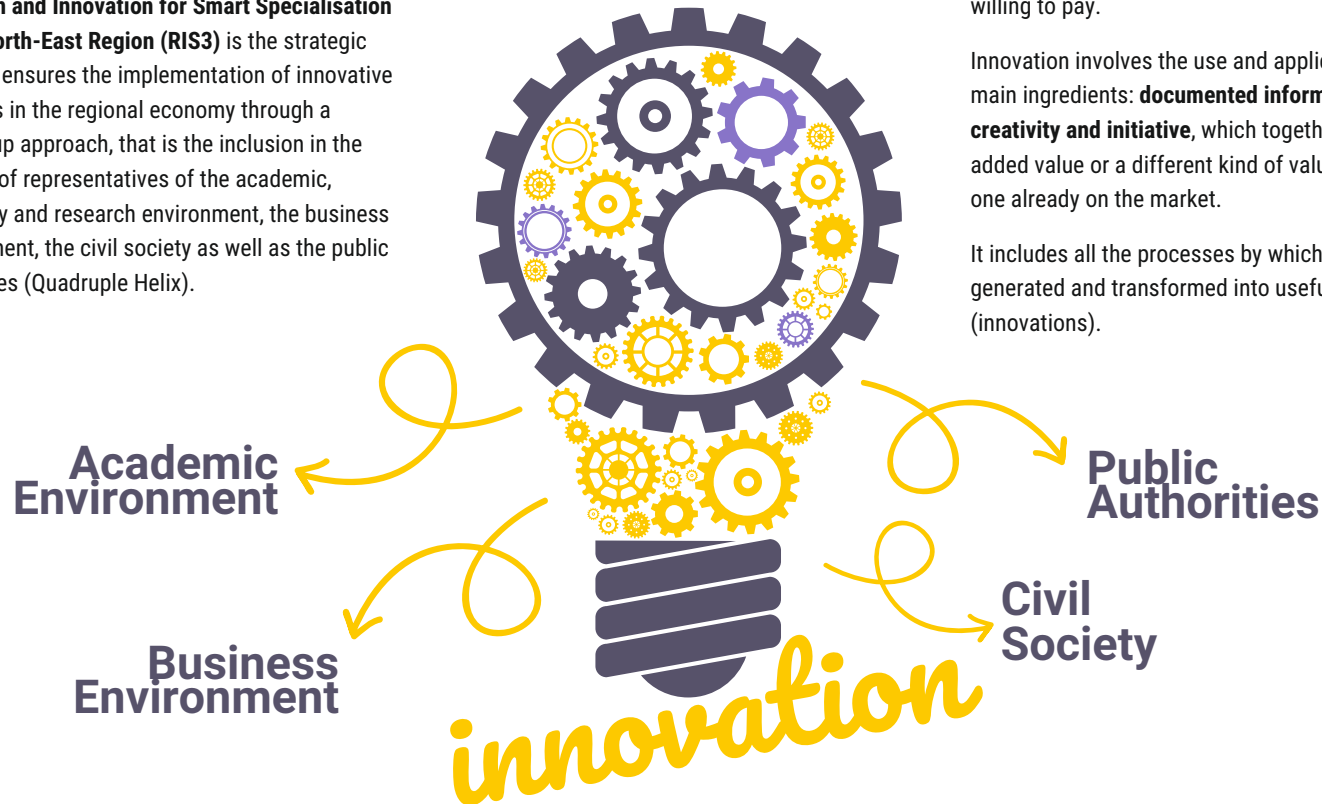
**Smart Specialisation** is a process of economic transformation based on the identification of areas in which a region can excel, and **the Strategy for Research and Innovation for Smart Specialisation of the North-East Region (RIS3)** is the strategic tool that ensures the implementation of innovative concepts in the regional economy through a bottom-up approach, that is the inclusion in the process of representatives of the academic, university and research environment, the business environment, the civil society as well as the public authorities (Quadruple Helix).

To be innovative, an idea must be able to be applied at realistic costs and must meet a specific need.

**Innovation** can be understood by transforming an idea or invention into a good or service that creates value and for which there is an end user who is willing to pay.





Innovation involves the use and application of three main ingredients: **documented information, creativity and initiative**, which together generate added value or a different kind of value than the one already on the market.

It includes all the processes by which new ideas are generated and transformed into useful products (innovations).



# Who is RIS3 for?

RIS3 is addressing the representatives of economic sectors with regional competitive advantages and to those who influence the innovation processes.

QUADRUPLE HELIX			
 ACADEMIC ENVIRONMENT	 BUSINESS ENVIRONMENT	 PUBLIC AUTHORITIES	 CIVIL SOCIETY
<ul style="list-style-type: none"><li>&gt; Indicates (technological) feasible solutions for market needs</li><li>&gt; Anticipates socio-economic challenges before they get worse</li><li>&gt; Brings knowledge to the regional innovation ecosystem</li><li>&gt; Highlights (cross) sector value chains</li></ul>	<ul style="list-style-type: none"><li>&gt; Highlights the demand for innovation</li><li>&gt; Generates innovation</li><li>&gt; Confirms the innovation absorption capacity</li><li>&gt; Funds and capitalises on research results</li></ul>	<ul style="list-style-type: none"><li>&gt; Indicate development challenges that can be solved through innovation</li><li>&gt; Support the transfer of innovation for local / regional development goals</li><li>&gt; Facilitate public-private partnerships for innovation</li><li>&gt; Develop innovative public services</li></ul>	<ul style="list-style-type: none"><li>&gt; Identifies societal challenges that need to be addressed through innovation</li><li>&gt; Facilitates dialogue; informs and disseminates</li><li>&gt; Mobilises local stakeholders</li></ul>

# The role of RDA

## For operationalising RIS3

**The North-East Regional Development Agency**, as coordinator of the smart specialisation in the region, initiates the process, develops the strategy, facilitates the dialogue between stakeholders, implements and promotes the strategy in the region, monitors and evaluates the whole process, collects information, coordinates the strategy review and its adaptation according to the socio-economic developments and in accordance with national / European policies.



## In relation to stakeholders

- > Acts as facilitator / agent
- > Creates communication channels
- > Supports the setting of shared goals and initiatives
- > Promotes vertical and horizontal partnerships
- > Identifies and attracts financial resources
- > Supplements the sector information with the analysis of challenges and opportunities, along with the representatives of the quadruple helix

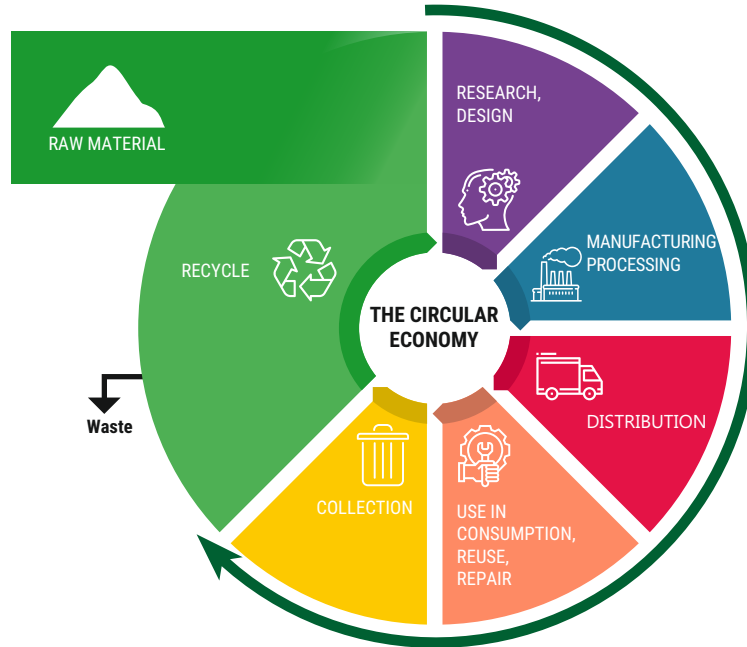


# What is the Value Chain?

**The Value Chain** is the series of actions taken to create a marketable product / service, from conception to beyond its end use. On stages, it involves design, manufacturing, marketing, distribution, support services offered to consumers. These actions can be performed by a single entity or several entities that can collaborate to achieve the entire circuit. The activities undertaken along the value chain create added value and can take place in a well-defined area or over a wide geographical area.

The added value of innovation can appear on any of the links in the chain.

For the sustainable capitalisation of resources, the current trend is to operate closed value chains, a component that characterises the circular economy.



**The Circular Economy** is a concept with the goal to close the life cycles of products through reuse and recycling, in order to create benefits for the environment and the economy.

It is a model of manufacturing and consumption where the value of products, materials and resources is preserved in the economy as much as possible. Innovative methods are used and waste generation is kept to a minimum.

The innovation process includes the following main links at least: **research -> development -> manufacturing -> capitalisation / marketing**. Technologies have development cycle, encouraging cross-disciplinary partnerships between research and technology commercialisation from idea to implementation and application. Thus, nine levels of technological maturity (Technology Readiness Levels or TRL for short) have been defined.



# Major Societal Challenges in the North-East Region



Healthy aging,  
demographics and  
well-being

Maintaining the active, efficient and safe treatments, capitalising on the therapeutic effects of food and probiotics, development for eco-tourism



Food security,  
sustainable agriculture  
and bioeconomy

The bioeconomy involves the complete and complex capitalisation of renewable natural resources



Clean, effective  
and safe energy

Measures to improve energy efficiency through production methods and rational use of energy



Safe and  
secure water

Resource efficiency and protection of aquatic ecosystems through innovation



## SECTOR CHALLENGES

## SOLUTIONS

Medical and pharmaceutical  
biotechnologies

Population access to a wide  
range of medical information

- Development of  
integrated IT systems

Circular economy

Inefficient and unsustainable  
exploitation of resources (renewable  
or not), sensitive areas and protected  
areas in the North-East Region

- Development of circular economy  
based on short value chains, in micro-regions

Alternative energy  
sources

Inefficient and unsustainable  
exploitation of resources

- Technologies for the production and  
recovery of energy from alternative sources

Reducing pollution

Water treatment

- Wastewater treatment technologies

# RIS3 North-East structure

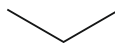
## MAJOR SOCIETAL CHALLENGES

Healthy aging,  
demographics and well-being

Food security, sustainable  
agriculture and bioeconomy

Clean, effective and  
safe energy

Safe and  
secure water



## Sectors and Niches

### AGRI-FOOD & WOOD INDUSTRY Sector

- Smart-farming
- Use of agricultural products for non-food purposes
- Environmental impact of agriculture
- Biosecurity and food safety
- Forestry sector and wood industry

### ENERGY Sector

- Alternative energy sources
- Energy efficiency

### TEXTILES Sector

- High-tech processes and applications in textiles
- Technical and functional textiles
- Digital Fashion

### IT&C Sector

- Industrial modernisation
- Cybersecurity
- Traceability and Big Data
- Smart City and Smart Village
- Development of new IT&C products hardware & software and test solutions

### TOURISM Sector

- IT&C solutions for tourism
- Marketing and creative promotion
- Healthy lifestyle tourism
- Eco-tourism / Business tourism
- Cultural tourism

### ENVIRONMENT Sector

- Water (innovative solutions)
- Air (innovative solutions)
- Circular economy

### HEALTH Sector

- Medical and pharmaceutical biotechnologies
- Precision medicine
- Prevention medicine
- e-Health
- Biosecurity (veterinary medicine - human medicine collaboration)

## Horizontal priorities

Development of innovation  
skills

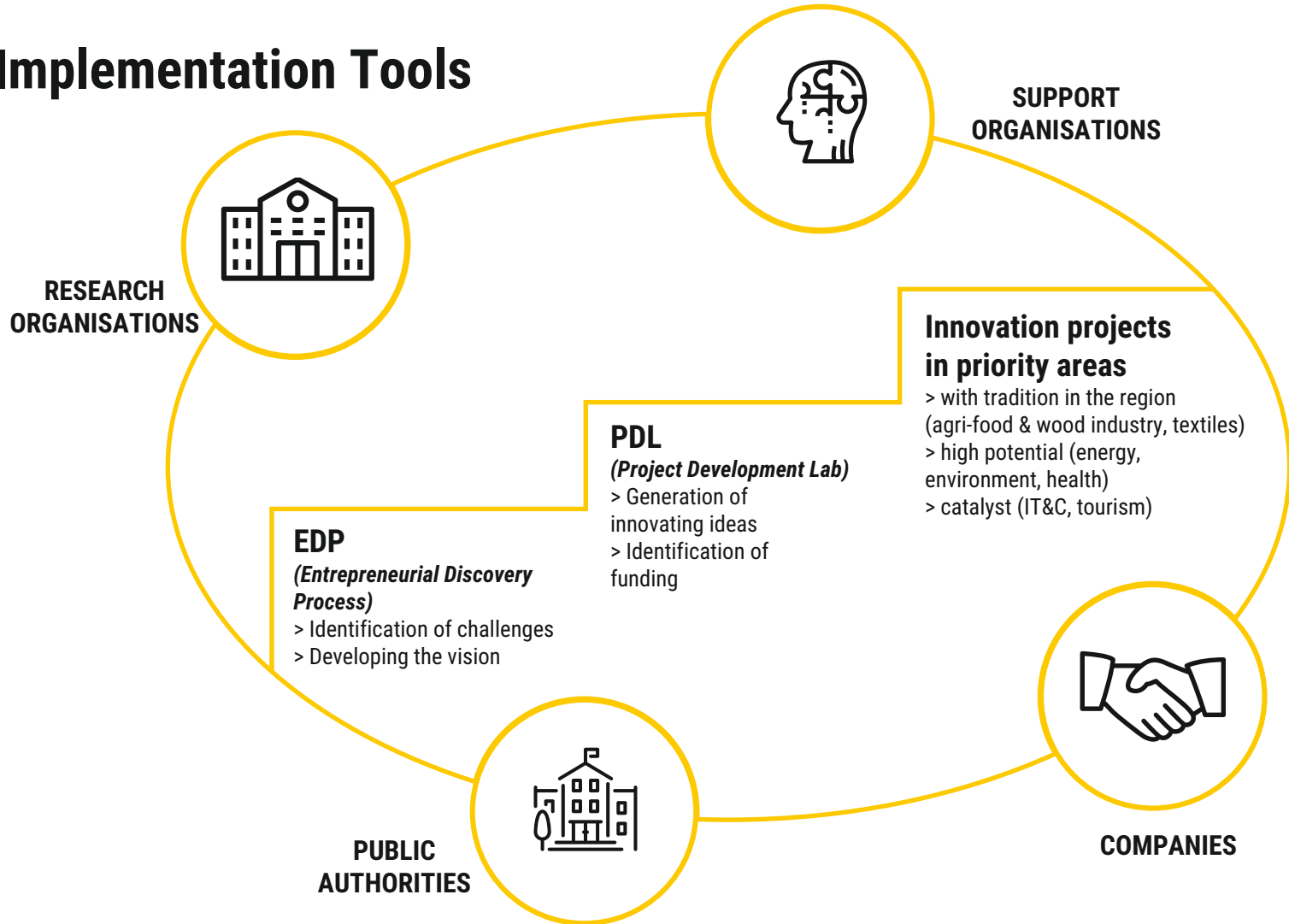
Supporting innovative  
business

Development of regional  
research & development  
capacity

Supporting clustering /  
internationalisation  
initiatives

Administrative capacity  
and technical  
assistance

# Implementation Tools



# RIS3 Operationalisation Activities

## EDP (Entrepreneurial Discovery Process)

**EDPs** are a set of sector-themed activities aimed at identifying challenges and generating innovative ideas through the interaction between business, research, authorities and civil society.

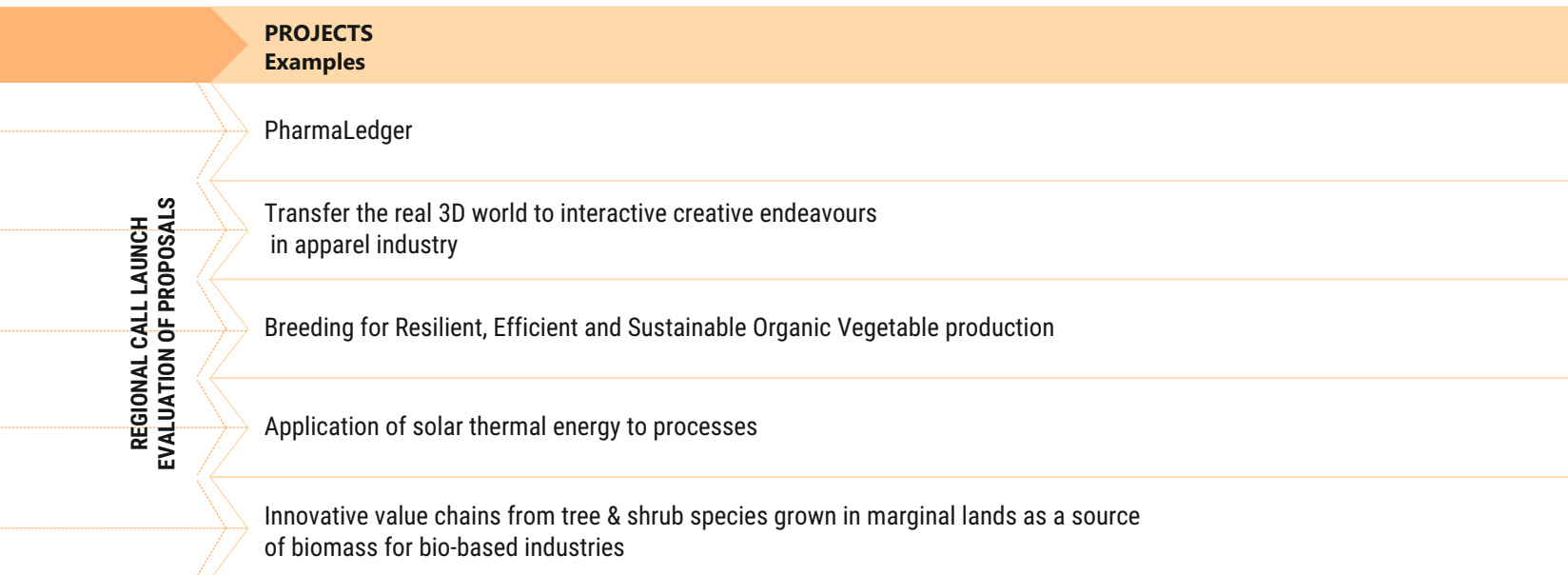
**EDP** is a process of identifying challenges and solutions for areas with smart specialisation potential. It involves a bottom-up, interactive and inclusive approach, with the participation of sector representatives with regional and competitive advantages and of those who influence innovation processes.



CHALLENGES Examples	SOLUTIONS Examples
Access to healthcare	Blockchain Enabled Healthcare
Digitalisation of private and public sector	Supporting the apparel industry
Food biosecurity	Organic breeding – Increasing the competitiveness of the organic breeding and farming sectors
Energy efficiency	Solar Energy in Industrial Processes
Sustainable agriculture and forestry	Diversification of bio-based value chains

## PDL (Projects Development Lab)

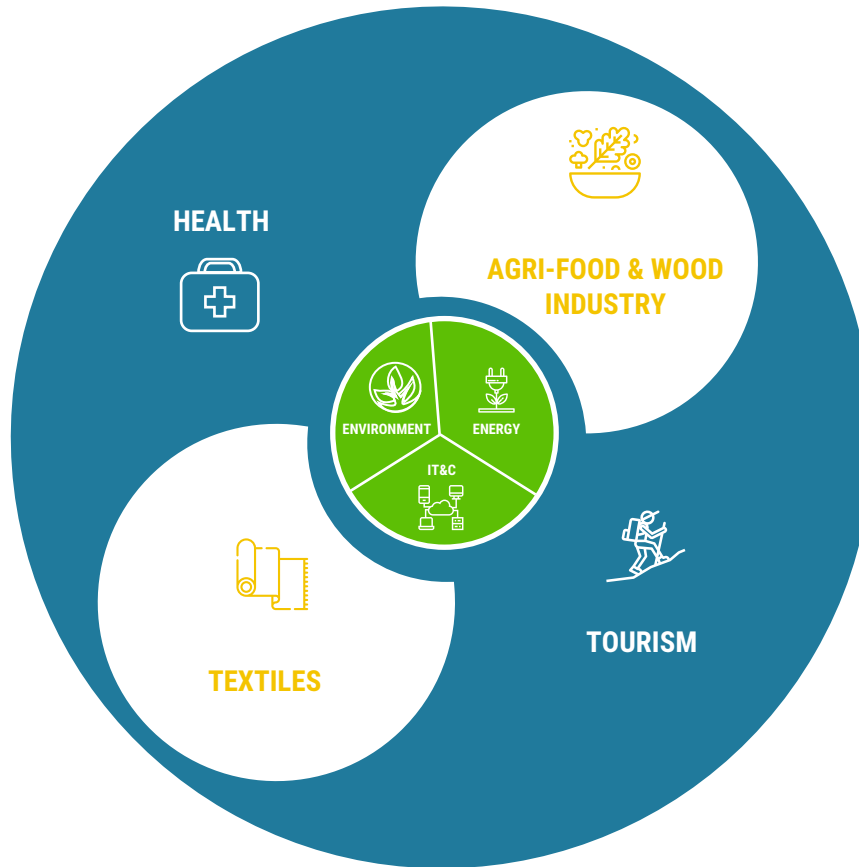
**PDLs** represent the stage that follows the entrepreneurial discovery process. During these events, the project ideas mature and the preliminary dialogue between the project promoters and representatives of potential funders is facilitated.



The **EDP** and **PDL** substantiate the opportunities in existing and emerging economic sectors. Thus, the proposed solutions can be materialised through projects. Multiple solutions can be the subject of a single project just as a single solution can materialise through several projects.

**The Entrepreneurial Discovery Process is an ongoing process, providing information at all stages of RIS3 operationalisation (strategy creation, implementation, monitoring, review).**

# Areas of smart specialisation



## Areas with specialisation potential were identified according to:

1. the existence of industrial agglomerations;
2. the existence of natural factors that increase the development of the sector;
3. the existence of associative structures (clusters, networks, etc.);
4. the analysis of regional industrial and innovation value chains for the specific area;
5. the innovative character of the analysed area;
6. the region's performance in the area;
7. competitive and comparative advantages of the area;
8. the existence of a regional base of competences in the concerned area;
9. the existence of RDI and TT infrastructure;
10. correlation with major challenges (including societal challenges).

HIGH POTENTIAL AREAS	TRADITIONAL AREAS	CATALYST AREAS
Energy Environment IT&C	Agri-food & wood industry Textiles	Tourism Health

# In the North-East Region Smart Specialisation intervenes through 5 Horizontal Priorities (HP)



## HP1

### **Development of innovation competences**

Priority that is addressing to competence. Future generations, beneficiaries of present investments in research, innovation technology transfer, will be responsible for future management.

## HP2

### **Support the creation of innovative companies and growth of active companies in the North-East Region**

Starting new businesses capable of capitalising on research results of priority areas is encouraged. Active companies need support to modernise technologically, to digitise, to internationalise, to increase the capacity to apply circular economy solutions and to attract resources to finance investments.

## HP3

### **Developing regional R&D capacity and promoting collaboration with industry**

RDI organisations need support in preparing marketing strategies, connecting with markets and suppliers, preparing and obtaining patents. It is necessary to promote research projects in public-private partnership.

## HP4

### **Supporting clustering and internationalisation initiatives**

Providing the framework for the creation, strengthen and support of business networks and clusters for members integration in impact value chains.

## HP5

### **Administrative capacity and technical assistance**

As RIS3 North-East coordinator, North-East RDA will provide the necessary support services for implementation of this strategy and development of regional capacities for RIS3 (training, help-desk, information).

# Sectors and Niches of Smart Specialisation



## AGRI-FOOD & WOOD INDUSTRY

- > Smart-farming
- > Use of agricultural products for non-food purposes
- > Impact of agriculture on environment
- > Biosecurity and food safety
- > Forestry and wood industry



## IT&C

- > Industrial Modernisation
- > Cybersecurity
- > Traceability and Big Data
- > Smart City & Smart Village
- > Development of new IT&C hardware & software products and testing solutions



## HEALTH

- > Medical and pharmaceutical biotechnologies
- > Precision medicine
- > Preventive medicine
- > e-Health
- > Biosecurity ( collaboration between veterinary medicine and human medicine)

### North-East Region competitiveness: sectors with competitive advantages

#### AGRI-FOOD & WOOD INDUSTRY SECTOR

- >45 Local Action Groups
- >3.882 local active units in the agri-food sector and 2.376 in the wood industry in 2018
- >73 certified traditional products (25,62% of the national level)
- >14.52% of Romania's agricultural area (3rd place at national level).
- >18.26% of Romania's forest area (2nd place at national level)
- >3 universities with profile faculties, a significant number of research stations with agri-food and forestry applications

#### IT&C SECTOR

- 4th place at national level, graduates with a diploma in university education, 2018
- EURONEST IT&C Hub Regional Innovative Cluster
- 4 universities with study programs in the area and Institute of Computer Science Iasi (Romanian Academy)

#### HEALTH SECTOR

- Second place, at national level, regarding number of health units
- Educational programs and research centers in the health area
- ANTIBIOTICE SA, with the Research Center for Antibiotics





## TEXTILES

- > High-tech processes & applications in textiles
- > Technical and functional textiles
- > Digital Fashion



## TOURISM

- > IT&C solutions for tourism
- > Marketing and creative promotion
- > Tourism for healthy lifestyle
- > Ecotourism
- > Business tourism
- > Cultural tourism



## ENERGY

- > Alternative Energy Sources
- > Energy efficiency



## ENVIRONMENT

- > Water (innovative solutions)
- > Air (innovative solutions)
- > Circular economy

### North-East Region competitiveness: sectors with competitive advantages

#### TEXTILES SECTOR

- 1.228 active local units in the textiles area (3rd place at national level), in 2018
- Astrico Nord-Est textile cluster
- Faculty of Industrial Design and Business Management and Faculty of Visual Arts and Design

#### TOURISM SECTOR

- 3 of the 13 national parks in Romania, 129 Natura 2000 sites and 8 UNESCO cultural sites
- 3rd place nationally in terms of number of agritourism and tourist pensions
- Educational programs in the areas of tourism, balneo-physio-kinetotherapy and medical recovery

#### ENERGY SECTOR

- 63 local active units in 2018
- Renewable sources: water, wind, solar, biomass
- RENEW Cluster

#### ENVIRONMENT SECTOR

- 330 local active units in 2018
- university study programs in the area

# New Attributes in the North-East Region Economy

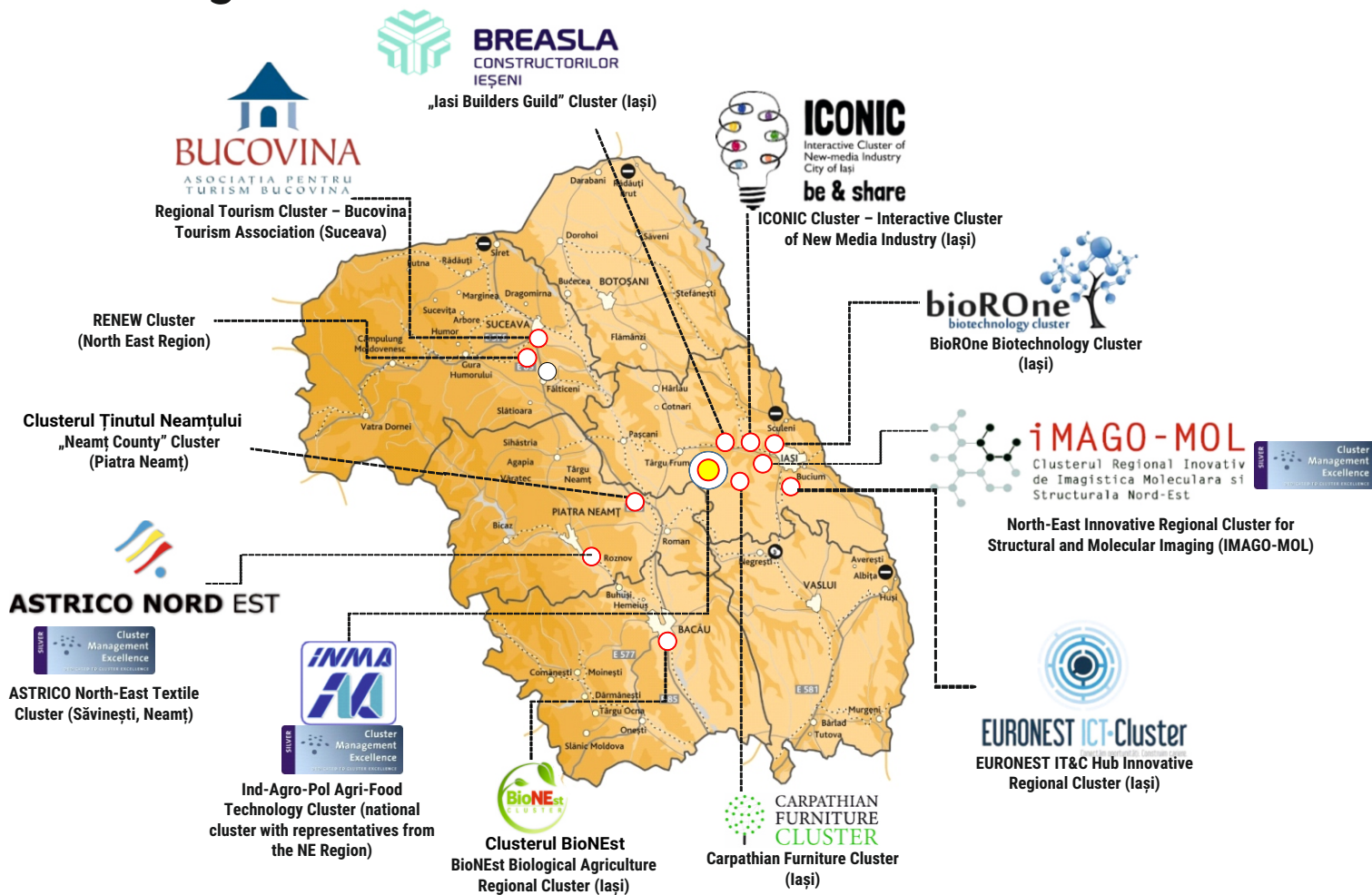
The global economy operates with a number of concepts insufficiently used today in the North-East Region, but absolutely necessary to strengthen a sustainable economy. The notions of **value chain**, **circular economy**, **level of technological readiness** are the prerogative of developing a sustainable, efficient and competitive economy, and the cluster approach incorporates these concepts with the purpose of capitalisation.

**A Cluster** is a network of manufacturers, suppliers, research institutes (universities), service providers and other stakeholders whose activity focuses the same sector, that may be located in the same territory. Cluster members cooperate along a value chain, such as the manufacturing of clothing or furniture, and have the same interests.



Additional information on  
<http://www.adrnordest.ro/>, Section "Smart  
Specialisation"

# Cluster organizations



# About the future and the role of RIS3

## SMART SPECIALISATION

facilitates the access to global opportunities for innovative ideas in Europe's regions. Between 2021-2027, five main objectives will stimulate European Union investments, the first of which is dedicated to smart specialisation topics.



### A SMARTER

#### Europe

through innovation, digitalisation, economic transformation and small and medium business support.



### A GREENER

#### Europe

without carbon emissions, through the application of Paris Agreement and through investments in the energy transition, energy from renewable sources and climate change fighting.



### A MORE CONNECTED

#### Europe

with strategic transport and digital networks.



### A MORE SOCIAL

#### Europe

for the application of the European pillar of social rights and to support quality jobs, education, skills, inclusion and equal access to health system.



### A CLOSER TO CITIZENS

#### Europe

by supporting locally-led development strategies and sustainable urban development across the EU.



*"The Strategy for Research and Innovation for Smart Specialisation of the North-East Region is important for the present, but also for the future. The programme documents for the financial year 2021-2027 indicate a first investment priority of the European Union: A Smarter Europe. By creating this strategy at the level of the North-East Region, since 2013, we have taken a step that today proves to be extremely useful."*

**Vasile Asandei, General Director, North-East RDA**

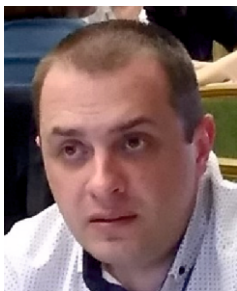
*Additional information on smart specialisation, as well as the Strategy for Research and Innovation for Smart Specialisation of the North-East Region, can be consulted on the website of the North-East Regional Development Agency, at <http://www.adrnordest.ro> Section "Smart Specialisation"*





***Gabriela Macoveiu, Director for Communication,  
Innovation and External Cooperation,  
North-East Regional Development Agency***

*"The Smart Specialisation Strategy of a region offers the possibility of focusing the development resources on a small number of sectors, in which the region has economic advantages and skills in education and research, to achieve a sustainable economic transformation based on technologies and innovation with high added value."*



***Lucian Sandu, Head of RIS3  
Management Office, North-East  
Regional Development Agency***



***Agatha Filimon, Head of Sectoral  
Specialisation Office, North-East  
Regional Development Agency***

*The aim of the Research and Innovation Strategy for Smart Specialisation of the North-East Region (RIS3) for 2021-2027 is to encourage entrepreneurship, develop innovative companies, capitalize on research infrastructures and stimulate partnerships between universities, research institutions and companies, in the following sectors: Agri-Food and Wood Industry (1), Textiles (2), Energy (3), Environment (4), IT&C (5), Tourism (6) and Health (7).*



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