Emilia-Romagna High Technology Network

THE AGRIFOOD PLATFORM

Elisabetta Maini

Emilia – Romagna Region
11 April 2013

Regione Emilia-Romagna

RETE ALTA TECNOLOGIA
EMILIA-ROMAGNA
HIGH TECHNOLOGY NETWORK

Emilia-Romagna Eco-innovation system

Research and Innovation Strategy

Emilia-Romagna has got a clear regional strategy on innovation started on 2002 with the Regional Law no. 7/02 :"Promotion of the Industrial Research, Technology Transfer and Innovation in the productive system of Emilia Romagna"
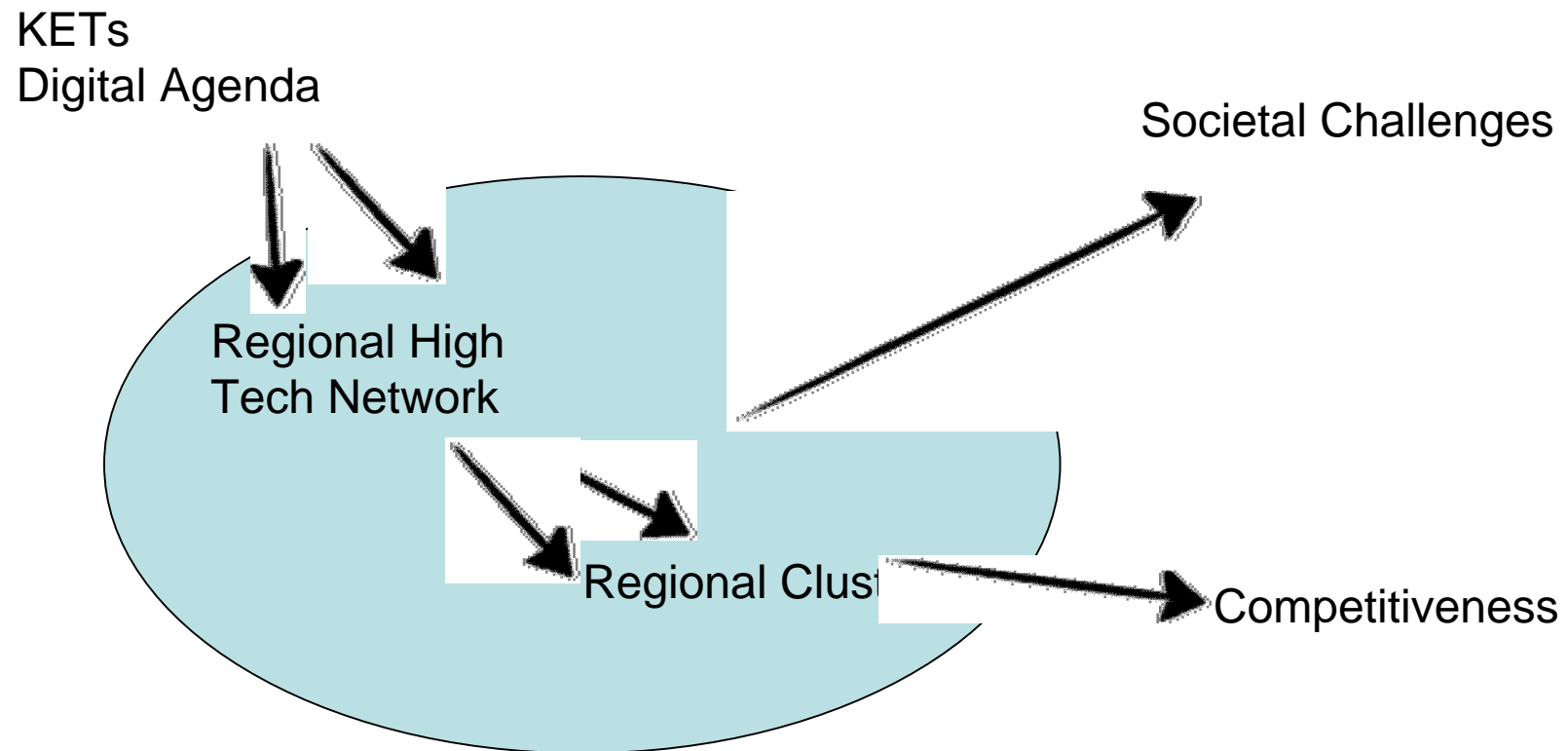
§E-R Strategy can be considered as an example of governance for the implementation of a "knowledge based economy", focusing not only on actions to promote isolated excellence, but a framework of actions in order to create a "Regional Ecosystem of Innovation", an environment for a generalised increase of competitiveness of the region.

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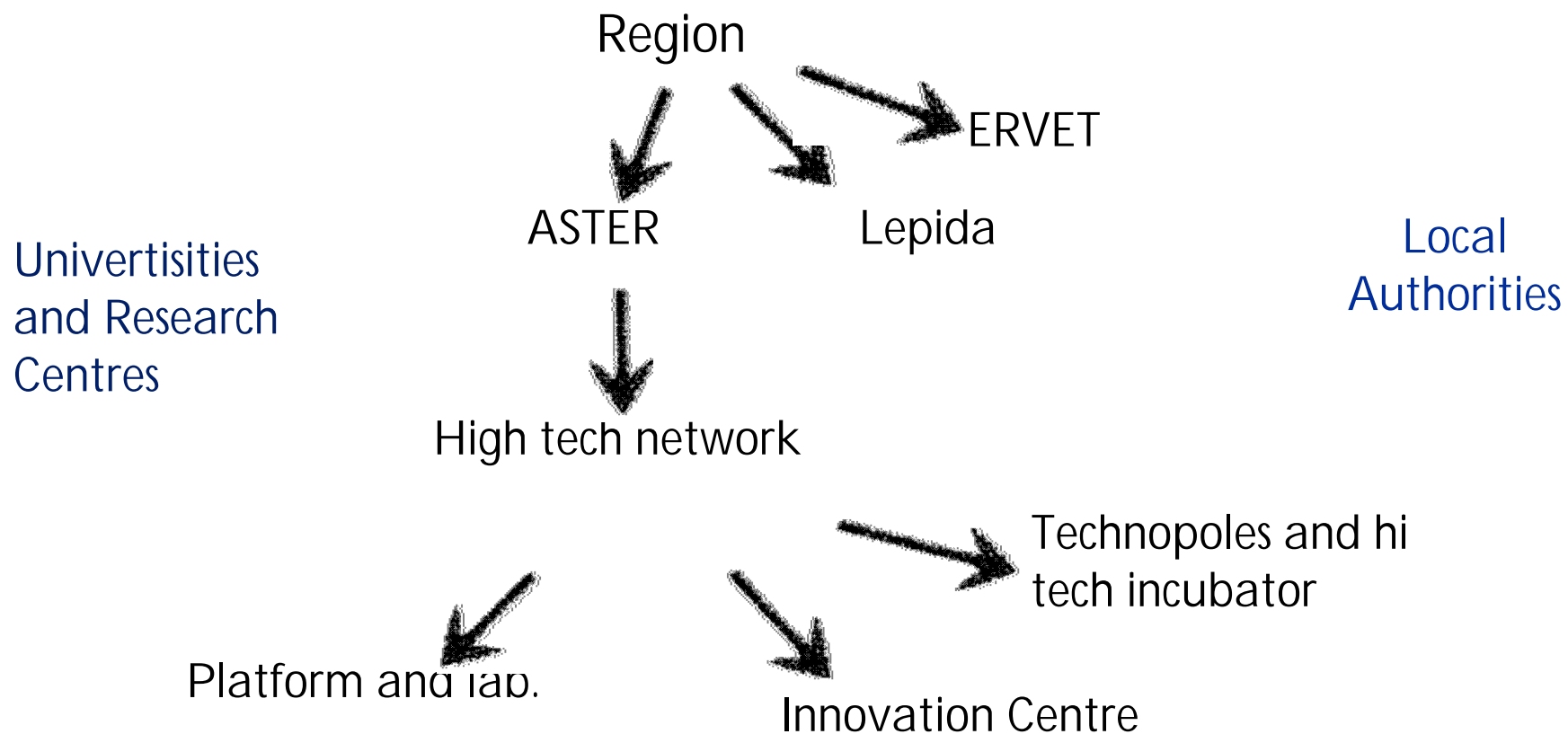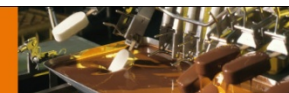SMART SPECIALISATION PLATFORM

Research and Innovation Strategy

The strategy is based on three main pillar:

§ stimulating R&D activity in firms and especially in SMEs, supporting projects involving newly graduates and including collaboration with research centres;

§ promoting industrial research and technology transfer from Universities and public research organisations to firms through a regional network of industrial research laboratories and innovation centres, organized into regional thematic platforms and located into a regional network of technopoles;

§ evolving industrial clusters towards knowledge dimension, through collaborative research and technology transfer, networking firms and promoting start ups.

RegioneEmiliaRomagna

S3
SMART
SPECIALISATION
PLATFORM

Research and Innovation Strategy in Emilia-Romagna

KETs
Digital Agenda

Societal Challenges

Regional High
Tech Network

Regional Clust

Competitiveness

Regione Emilia-Romagna

S3 SMART SPECIALISATION PLATFORM

REGIONAL THEMATIC PLATFORMS

AGRIFOOD PLATFORM

CONSTRUCTIONS PLATFORM

ENERGY ENVIRONMENT PLATFORM

ICT AND DESIGN PLATFORM

MECHANICS MATERIALS PLATFORM

LIFE SCIENCE PLATFORM

§The **High Technology Networks** operates within 6 thematic platforms

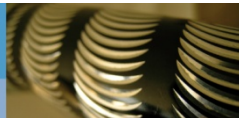§Each platform is conceived in order to gather **regional competences**
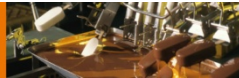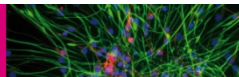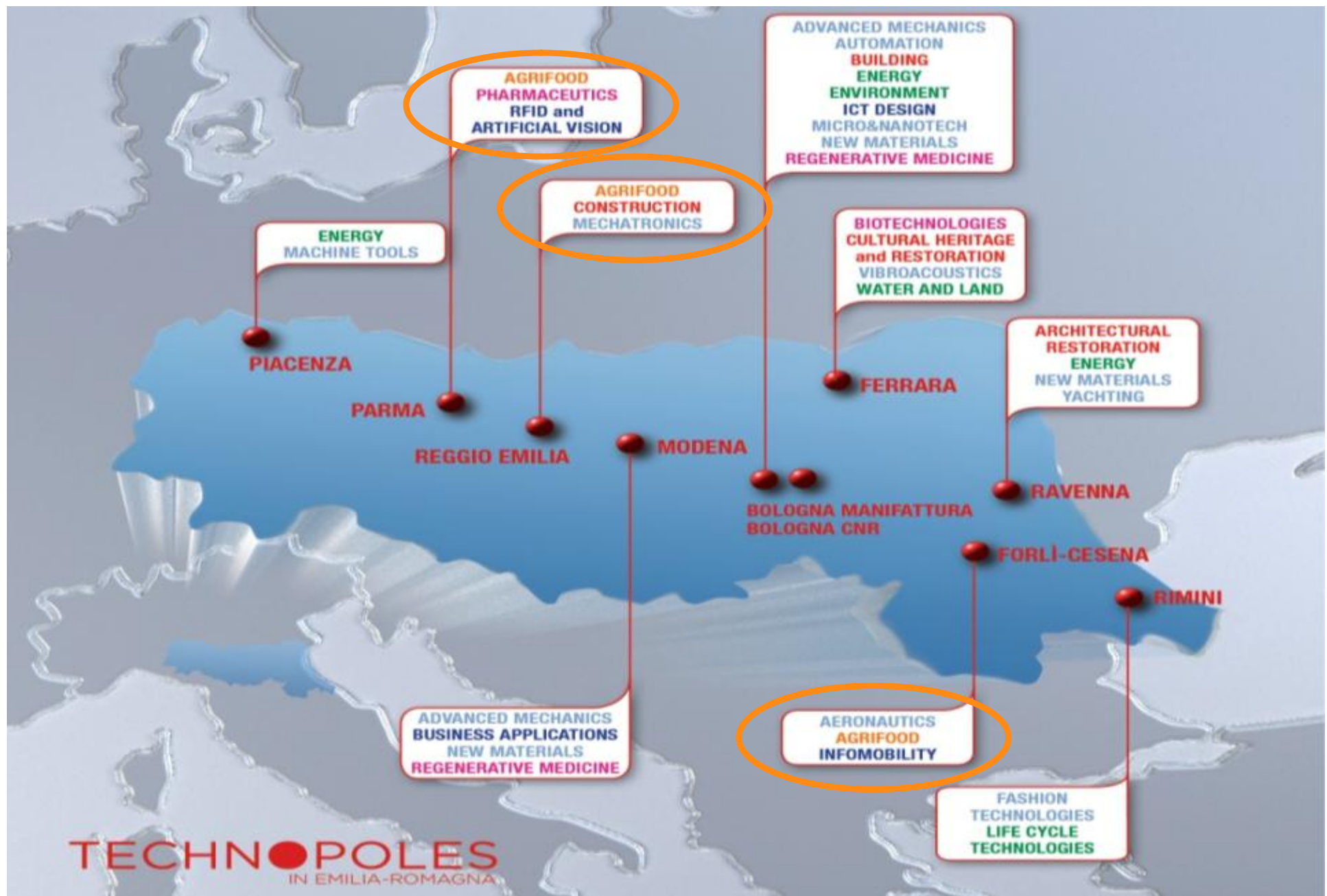
MISSION :

§ **give support** to industrial enterprises upgrading its R&D labs with the most suitable instrumental equipment and tooling

§ Define **international scenarios** relevant to the regional development patterns

§ **Foster** company **innovation attitude**

§ Disseminate **information** among the regional enterprises

§ Keep a close contact with the **European Technological Platforms**

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SMART SPECIALISATION PLATFORM

TECHNOPOLES

§ The Laboratories are located in 10 TECHNOPOLES

§ Technopoles are facilities dedicated to industrial research **located** and spread on the regional territory

   § Facilities

   § Equipment

   § Human Resources

§ Multi-Thematic Competences

§ Meeting place for research offer and demand on behalf of enterprises

§ Complete geographical coverage for all the 9 provinces of Emilia-Romagna region

AGRIFOOD
PHARMACEUTICS
RFID and
ARTIFICIAL VISION

AGRIFOOD
CONSTRUCTION
MECHATRONICS

ENERGY
MACHINE TOOLS

ADVANCED MECHANICS
AUTOMATION
BUILDING
ENERGY
ENVIRONMENT
ICT DESIGN
MICRO&NANOTECH
NEW MATERIALS
REGENERATIVE MEDICINE

BIOTECHNOLOGIES
CULTURAL HERITAGE
and RESTORATION
VIBROACOUSTICS
WATER AND LAND

ARCHITECTURAL
RESTORATION
ENERGY
NEW MATERIALS
YACHTING

PIACENZA

PARMA

REGGIO EMILIA

MODENA

FERRARA

BOLOGNA MANIFATTURA
BOLOGNA CNR

RAVENNA

FORLÌ-CESENA

RIMINI

ADVANCED MECHANICS
BUSINESS APPLICATIONS
NEW MATERIALS
REGENERATIVE MEDICINE

AERONAUTICS
AGRIFOOD
INFOMOBILITY

FASHION
TECHNOLOGIES
LIFE CYCLE
TECHNOLOGIES

TECHNOPOLES
IN EMILIA-ROMAGNA

Regione Emilia-Romagna

S3
SMART
SPECIALISATION
PLATFORM

TECHNOPOLES

PIACENZA — ENERGY, MACHINE TOOLS

PARMA — AGRIFOOD, PHARMACEUTICS, RFID and ARTIFICIAL VISION

REGGIO EMILIA — AGRIFOOD, CONSTRUCTION, MECHATRONICS

MODENA — ADVANCED MECHANICS, BUSINESS APPLICATIONS, NEW MATERIALS, REGENERATIVE MEDICINE

BOLOGNA MANIFATTURA / BOLOGNA CNR — ADVANCED MECHANICS, AUTOMATION, BUILDING, ENERGY, ENVIRONMENT, ICT DESIGN, MICRO&NANOTECH, NEW MATERIALS, REGENERATIVE MEDICINE

FERRARA — BIOTECHNOLOGIES, CULTURAL HERITAGE and RESTORATION, VIBROACOUSTICS, WATER AND LAND

RAVENNA — ARCHITECTURAL RESTORATION, ENERGY, NEW MATERIALS, YACHTING

FORLÌ-CESENA — AERONAUTICS, AGRIFOOD, INFOMOBILITY

RIMINI — FASHION TECHNOLOGIES, LIFE CYCLE TECHNOLOGIES

TECHNOPOLES IN EMILIA-ROMAGNA

HTN PERSONNEL

HIGH TECHNOLOGY PLATFORMS	Full time reserchers	University structured PT researchers	Total
	N° /A	N°/A	N°/A
AGRIFOOD	70	131	201
CONSTRUCTIONS	62	146	208
ENERGY & ENVIRONMENT	87	168	255
ICT & DESIGN	33	81	114
MECHANICS & MATERIALS	182	263	445
LIFE SCIENCE	127	265	392
TOTAL	559	1.054	1.613

REGION THEMATIC PLATFORM GOVERNANCE

CIMSI

Monitoring & Guideline Industrial Board

STEERING COMMITTEE

AGRIFOOD PLATFORM
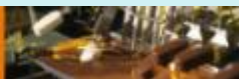
CONSTRUCTIONS PLATFORM

ENERGY ENVIRONMENT PLATFORM

ICT AND DESIGN PLATFORM
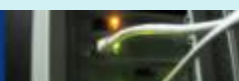
MECHANICS MATERIALS PLATFORM

LIFE SCIENCE PLATFORM

PLATFORM SCIENTIFIC REFEREE

Research members

Labs director or scientific referee

Industry member

Chosen by the industrial associations

ASTER STAFF

Regione Emilia-Romagna

S3 SMART SPECIALISATION PLATFORM

Emilia Romagna region has defined 14 relevant INDUSTRIAL PRODUCTION DISTRICTS

- Food industry (food & production machinery)
- Fashion System
- Ceramic materials and technology
- Construction materials e technologies
- Pharmaceutics e biotechnologies;
- Biomedical
- materials for mechanics
- Agricultural Mechanics
- Automation / Mechatronic
- Packaging
- Car and vehicle engines
- Nautical sector
- Energy and informatics networks
- ICT/multimedia.

Most Relevant Sector
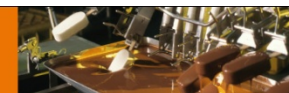
Emilia-Romagna Agrifood platform
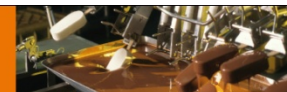
AGRIFOOD PLATFORM STEERING COMMITTEE

LABORATORIES	UNIVERSITY
CIRI Agroalimentare	UNIBO (Forlì-Cesena)
BIOGEST. SITEIA	UNIMORE
SITEIA. PARMA	UNIPR
CIPACK	UNIPR
C.I.M.	UNIPR
CRPA LAB	CRPA

INDUSTRY	M€	PROVINCE
REGARD di Mignani Silvano & C	0,5 - 1	RA
GRANAROLO SPA	> 200	BO
OROGEL Soc. Coop.	50-200	FC
CONSERVE ITALIA Soc. Coop.	> 200	BO
BARILLA SPA	> 200	PR
PARMALAT SPA	> 200	PR

Scientific Referee: Prof. Roberto Massini

Technology, Platforms and Project Referent - Leda Bologni ASTER
Agrifood Platform Coordinator: Enzo Bertoldi ASTER

DASHBOARD
GLOBAL CONTRACT PORTFOLIO   (February 2013)

Platforms	ALL		Public co-financed Contracts		Contracts without co-financing (only industry financing)		
	[N°]	[k€]	[N°]	[k€]	[N°]	[k€]	[%]
Agrifood	182	8.290	66	5.122	116	3.168	38,2%
Constructions	115	10.169	44	6.779	71	3.390	33,3%
Energy & Environment	133	22.761	41	17.602	92	5.159	22.7%
ICT / Design	165	18.726	59	10.958	106	7.768	41,5%
Mechanics & Materials	375	19.529	124	11.501	251	8.028	41.1%
Life Science	208	16.433	20	4.836	188	11.597	70.6%
TOTAL	1.178	95.908	354	56.798	824	39.110	40,8%

ASTER

The Agri-food Platform represents a reference point for the innovation needs expressed by enterprises belonging to the food and agri-mechanical sectors, by offering qualified support for:

- the development of new products and processes
- the characterization and selection of new raw materials
- The design and validation of equipment and plants for food processing and packaging

The Platform in particular operates in the following areas:

§ raw materials quality and safety

§ final products and processes

§ industrial equipment and plants

§ health

§ functional foods

§ the valorization of typical productions
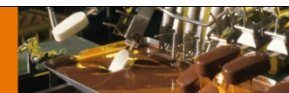
Main fields of action of research groups

PROCESSES & PRODUCTS	QUALITY & SAFETY	RAW MATERIALS	WASTE BY-PRODUCTS & NO FOOD
Planning, development and improvement of food products	Analytical methods for chemical, physical, microbial and sensory	Improvement of nutritional and organoleptic characteristics	Use of enzymes to the development of industrial interest products
Planning, development and improvement of industrial machinery and plants	Technologies for food decontamination	Methods of raw material selection for a suitable process/product	Methods for extraction and separation of useful components from by-products
Planning, development and optimization of chemical component with nutraceutical activity and functional foods	Improvement of the hygiene and sanitary of food machines and plants	Analysis for quality, defects and suitability evaluation to processing of raw material	Transformation / fermentation processes for production of ingredients, supplements and feed
Exploiting the potential of micro-organisms of industrial interest	Analysis of traceability of food products	Analysis for contaminants, phytopharma resistent and phatogenics identification	
Characterization and improvement of typical products	Analysis of environmental chemical contaminants and additives fraudulent	Development and management of germplasm bank of cereal species	
Packaging and environmental **compatibility**	Material and product interaction		
Shelf-life			
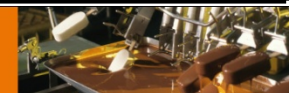
AGRIFOOD PLATFORM
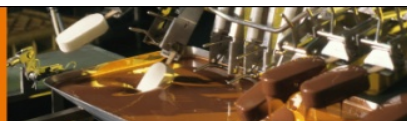
PARMA

SITEIA.PARMA *(UNIPR)*
Food Safety, Technologies and Innovation for Agri-food
Scientific representative: Prof. Roberto Massini

CIPACK *(UNIPR)*
Packaging Interdepartmental centre
Scientific representative: Prof. Angelo Montenero

CIM *(UNIPR)*
Measurement Interdepartmental centre
Scientific representative: Prof. Arnaldo Dossena

REGGIO EMILIA

CRPA LAB *(CRPA)*
Animal Production Research Centre
Scientific representative: Dott.ssa Paola Vecchia

BIOGEST-SITEIA *(UNIMORE)*
Interdepartmental Research Centre for Agri-food Biological
Resources Improvement and Valorisation
Scientific representative: Prof. Andrea Antonelli

CESENA

CIRI AGROALIMENTARE *(UNIBO)*
Interdepartmental Centre for Industrial
Research in Agri-food
Scientific representative: Prof. Marco Dalla Rosa
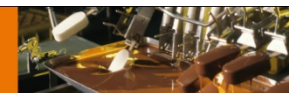
AGRIFOOD PLATFORM
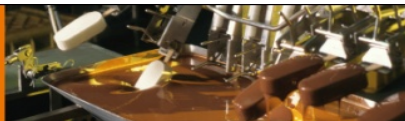
PARMA

The Experimental Station for the Food Preserving Industry (SSICA)

Institute for applied research and promotion of the technical and technological progress in the food preserving industry.

MODENA

Neotron

Analytical and Technical Services for food industry

RIMINI

CSA Group

Research institute for Environmental and Food fields

CESENA

CRPV - Plant Production Research Center

Company set up to promote and provide research, field testing and services for crop production.
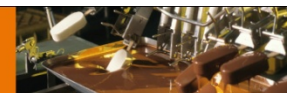
CIRI AGROALIMENTARE (*University of Bologna*)
Interdepartmental Centre for Industry Research in Agrifood sector

§ Development of New Products
§ Optimization of processes
§ Studies of shelf-life
§ Molecular marker/fingerprint systems
§ Development of the potential application
a rich heritage of microbial cultures already available
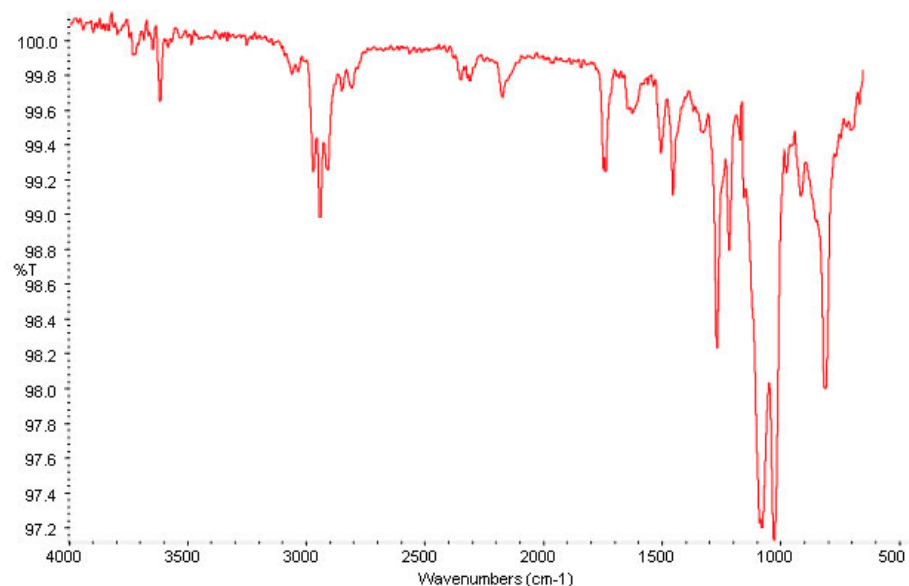Development of fermentation processes
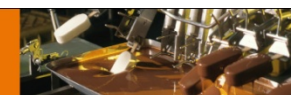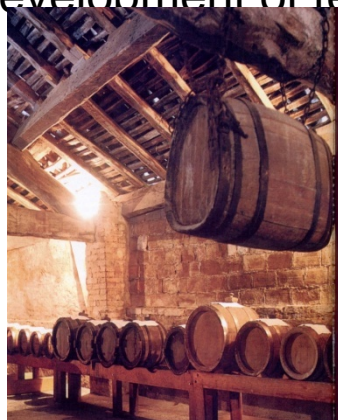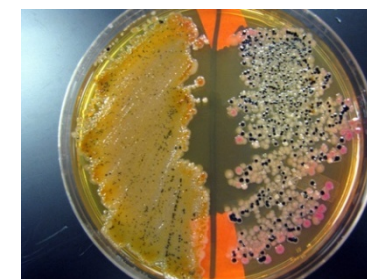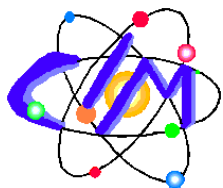
CIM (*University of Parma*)
## Measures Interdepartmental Centre"Giuseppe Casnati"

§ Application of Nuclear Magnetic Resonance (NMR) for the Quality and Safety of processed foods

§ Optimization and innovation of process/product

§ Development of new methods for the determination of typicity and geographical origins of food
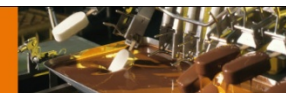
CRPA Lab
Animal Production Research Centre

§ Sensorial charactarization
§ Dairy processes
§ Validation of prototype
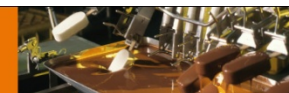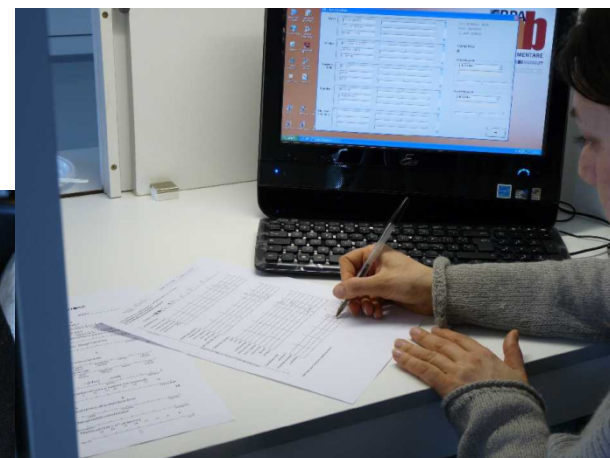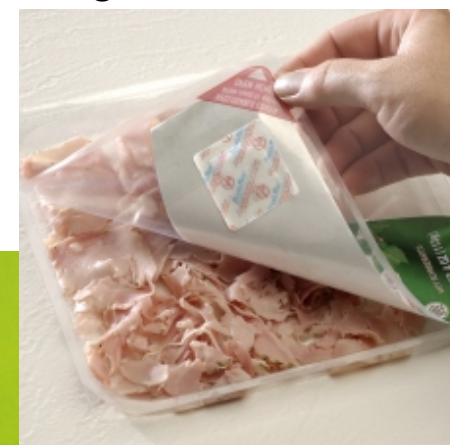

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PLATFORM

BIOGEST-SITEIA (*University of Reggio Emilia*)
Interdepartmental Research Centre for Agri-food Biological Resources
Improvement and Valorisation

§ Food microbiology techniques for improving the shelf-life of food products
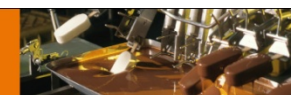§ Development of new food products
§ Active packaging
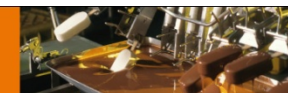
CIPACK (*University of Parma*)
nterdepartmental Centre for Packaging

§ Innovative materials for packaging
§ Packaging quality and hygiene
§ Advanced plants for food and
  pharmaceutical packaging
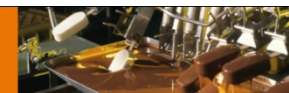§ Environment impact of packaging

SITEIA.PARMA (*University of Parma*)
Food Safety, Technologies and Innovation for Agri-food

§ Food safety and quality
§ Optimization and innovation of food machines and plants
§ Optimization and innovation of food products and process

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§ The Demand Analysis highlights the following considerations:

  § A very high number of enterprises are potentially interested, **most of them are SME (nano and micro enterprises)**

  § SME show several specific needs but - often- related to a multi-thematic approach

§ **As a consequence**

  § A smart and user friendly tool is necessary to facilitate the SME match with the right research counterpart

  § Several mechanisms are necessary to activate an high number of industrial research collaborations with SME

HOW WE CAN DO THIS?

HTN CATALOGUE OF RESEARCH

www.aster.it

- Innovative methods for food quality and safety
- Functional food
- Food quality and typical food products
- Agrifood relevant micro organism
- Agrifood mechanical production plants
- Process and product optimization and innovation techniques
- Valorisation of agrifood industry byproducts
- Raw material quality
- Packaging
- Molecular traceability and traceability systems

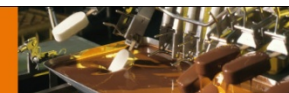# Emilia-Romagna S3
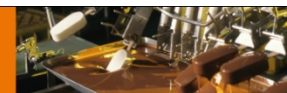
PLACE-BASED DIMENSION OF THE RIS3

MAIN STEPS OF THE REGIONAL ANALYSIS:

1. Identification of clusters with the highest employment potential and competitive impact to the regional economy

2. Matching selected clusters with the supply of industrial research platforms included in the Regional Network High Technology

3. Identify mechanisms to steer the system towards innovation pathways aimed at strengthening competition, to product diversification and to tackle major societal challenges and scenarios for medium-long term.

4. Develop specific strategies and the various measures to be implemented.

PLACE-BASED DIMENSION OF THE RIS3

Key challenges:

1. Upgrading the technology level and competitiveness of clusters playing a crucial role for the regional specialization model

2. Reinforcing emerging clusters with a high innovative potential and employment for the future
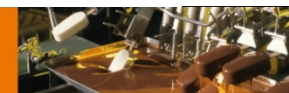
PLACE-BASED DIMENSION OF THE RIS3

Criteria for the selection of clusters:

1. Indices of regional specialization and competitiveness

2. Strategic role at the national level

3. High level of employment

4. Intersectoral complexity

5. Pervasiveness in the region

6. Relevance of technology challenges

PLACE-BASED DIMENSION OF THE RIS3

The analysis has started from an overview of the existing clusters in order to find out the pillars on which building the strategy.

Three clusters has been identified as strategic for future competitiveness and development:
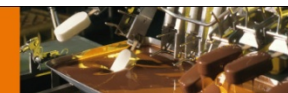
-Agrifood
-Construction
-Mechatronics

AGROFOOD CLUSTER

|	
Degree of specialization	Very high
Occupation	Primary sectors 205.000 Manufacturing 96.000 Services 83.000 TOTAL 384.000
Sectors of production involved	Agriculture, breeding, fishing, food industry. Organic and Inorganic Chemistry for treatment and packaging, other material for packaging. Agricultural Mechanics, process technology and packaging machinery. Conservation, storage and transport, commercial brokerage. Services of analysis, inspection, certification, research, marketing. Food and farm.
Territorial rooting	Throughout the region, with strategic poles in Parma and Cesena
Possible Technology challenges	Precision Agriculture and Livestock Quality, food safety, traceability Functional food NGM production of high performance
National role	Typical Products, large native enterprises, export leadership Logistics hubs, institutions of national and European level.
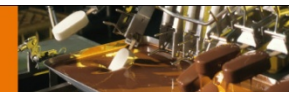
The regional High technology network in the european policies

Platform KETs e Digital agenda	Advanced mechanics	Agrofood	Building	Health sciences	Energy and environment	ICT
Nanotechnology	XX	X	X	X	X	
Advanced Materials	XX	X	XX	XX	XX	
Micro and nano electronics	XX	X	X	XX	X	XX
Photonics	X	X		XX	XX	
Industrial Biotechnology	X	XX		XX	XX	
Technologies for production	XX	XX	X	X	XX	XX
Digital Technologies	X	X	X	XX	X	XX
Wireless	X		X	X	X	XX

Clusters \ Platform	Advanced mechanics	Agrofood	Building and construction	Health Sciences	Energy & environment	ICT
Agrifood	X	XXX		X	X	X
Constructions	X		XXX		XX	X
Mechatronics	XXX	X	X	X	XX	X
Health Industry	X	X		XXX		X
Creativity & Culture		X	X			XXX
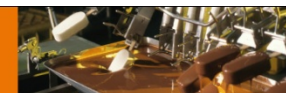
§   Bottom-up approach starting from:

§   laboratories

§   Enterprises and market needs

Matching lab and market = relevant KET for industrial research

1rst step: Foresight & Megatrend

2° step: matching foresight with HTN competences

Emilia – Romagna technological foresight has been defined with the involvement of the whole innovation community of the Region: researcher and enterprises.

The methodology of work has identified from one side the general trend of market in the next 5-10 years, from the other side technical and scientific state of the art in some areas of interest compared with the regional situation.

The results of the match making are few technological trajectories for enterprises and researcher , which can offer possibility of future development, market enlargement and new path of research.

ASTER

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Megatrend are trend of global macroeconomic development which impact on business, economy , society, culture, and in general on people's life, helping building a vision of future world and its evolution.

The importance of each megatrend is related on different enterprises, sectors and culture.

Megatrend analisis and their implications on specific cases contribute in a significant manner on the definition of future strategies and on policies of innovation, giving important reflections on new products and processes.
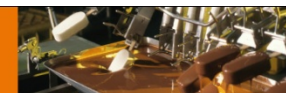
§   Next steps:

Organization of working groups on clusters but trasversal on platform :
   composed by Aster, Laboratories-centre, Enterprises

§   working group meeting organized on : discussion and draft of strategic
   documents

§   Output: 5 position paper on clusters containing the agenda for the next
   steps of development

§ The results of these documents should stress the readiness of KET on the region.

§ MAIN TOPICS:

§ food security

§ Technology of process

§ Bio production

§ More focus on tipical products & natural products

Contact:

Elisabetta Maini: emaini@regione.emilia-romagna.it

Agrifood Platform Coordinator : enzo.bertoldi@aster.it