



Region  
of Eastern Macedonia-Thrace

# REGIONAL INNOVATION STRATEGY FOR SMART SPECIALISATION

VERSION 4.2 – APRIL 2015

## CHANGE HISTORY

Change History	Edition	Date	Status
	1.0	30 November 2013	First Edition
	1.1	6 December 2013	Updated data on research and development costs for Greece (2011)
	2.0	15 January 2014	Updated basic texts and additional data on the Gross Domestic Product and Gross Value Added of 2011
	3.0	7 March 2014	Review of the governance system. Data update Chapter 1. New Chapters 3 & 4
	4.0	10 June 2014	Final wording of Chapter 4 Addition of Chapters 5 and 6.
	4.1	26 June 2014	Improvements in Chapters 3 and 5, following recommendations by the SMS.
	4.2	1 August 2014	Revision of Chapter 2, with the introduction of the Regional System at the first level of the governance system
	5.0	28.02.2015	Finalisation of the governance system (Chapter 2), review of Chapters 5 & 6 based on up-to-date facts.
	6.0	04.03.2015	Incorporation of the feedback from the advisors of the Directorate-General for Regional Policy and Urban Development (technical meeting of the Special Service for Strategy, Planning and
	7.0	06.04.2015	Evaluation of 27 February 2015). Incorporation of the feedback from the Directorate-General for Regional Policy and Urban Development, adding Chapter 7 and
	8.0	27.04.2015	Annex A. Incorporation of the new feedback from the Directorate-General for Regional Policy and Urban Development concerning the action plan (AP).
	9.0	29.04.2015	Incorporation of the new feedback from the Directorate-General for Regional Policy and Urban Development concerning Key Enabling Technologies (KETs).

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## ANNEX A

Proposals discussed at and results of the two thematic workshops (on Wine Industry Dairy and Meat Products) organised by the Region of Eastern Macedonia-Thrace in cooperation with the European Commission's Joint Research Centre (JRC), as part of the European Parliament Preparatory Action (EPPA) implemented by the Region of Eastern Macedonia-Thrace under the entrepreneurial discovery process, as advertised by the JRC.

1. EDP Workshop on Wine Industry
2. EDP Workshop on Dairy and Meat Products

## Chapter 1 CRITICAL EVALUATION OF THE REGIONAL INNOVATION SYSTEM

### KEY SMART GROWTH INDICATORS

Πίνακας 1 presents the key 'smart' development indicators and the position of the Region of Eastern Macedonia-Thrace as compared to the national and European average. The two charts that follow indicate the relevant position of the Region of Eastern Macedonia-Thrace as compared to all European Regions, with regard to the number of researchers (full-time equivalent units) and the per capita expenditure for Research and Development, by sector. The last indicator is of particular interest, since it is the only one adopted in order to describe the dimension of smart growth in the Europe 2020 Strategy.

Πίνακας 1 shows an overall lag as compared to both the national and the European average. With regard to human resources (HSRT), the region of Eastern Macedonia-Thrace ranks 8<sup>th</sup> among the regions of Greece in terms of the number of graduates from or seniors in programmes of higher education between the ages of 15 and 74 (including students at universities and technical colleges), 50% of the European average. This means, in practical terms, that the pool of human resources with qualifications that can potentially support innovative activity is very small.

The small pool of human resources with suitable qualifications, combined with the structural characteristics of regional employment, which is based on low-intensity knowledge processing and the primary sector, explains the particularly low expenditure on R&D per capita, which relies essentially on staff at academic institutions, who rank low in the second quartile of the population as compared to all European regions (see third box plot in Διάγραμμα 1) and expenditure on salaries and facilities for institutes of higher education (see Διάγραμμα 2), which are also ranked in the second quartile as compared to all European regions, but closer to the median compared to the number of researchers.

The combination of limited human resources in research and the economic structure of low-intensity knowledge explains the particularly low number of individual applications for patents to the European Patent Office (EPO), which puts the Region of Eastern Macedonia-Thrace at the eighth position among Greece's regions. Many of the knowledge-intensive enterprises with productive infrastructures in the Region of Eastern Macedonia-Thrace, though, have their registered offices in other Regions, where they actually declare their patents.

However, the data in Διάγραμμα 3 show that the position of Eastern Macedonia-Thrace has improved rapidly by Greek standards, particularly as regards the research and

development intensity of enterprises (corporate R&D expenditure/GDP in 2011), where it ranks 3<sup>rd</sup> among Greece's regions after Attica and Central Greece, with a performance of 0.17% in 2011 as compared to only 0.02% in 2005.

Thus, starting from a very low position in European terms, but with a healthy upward trend, the Region of Eastern Macedonia-Thrace plans and intends to implement its regional strategy for innovation on the basis of the principles of smart specialisation, aiming to utilise all available resources effectively.

TABLE 1 KEY SMART GROWTH INDICATORS THE REGION OF EASTERN MACEDONIA-THRACE COMPARED TO GREECE AND EUROPE.

Indicator (year):	Eastern Macedonia-Thrace	Greece	EU - 28
<b>Employment in technology and knowledge-intensive sectors</b>			
Percentage of total employment – 2008			
High-Tech Sectors	1.09	2.02	4.40
High-Tech Manufacturing	n)a	0.23	1.11
Low-Tech Manufacturing	10.15	10.00	11.60
Manufacturing	11.22	12.06	18.29
Knowledge Intensive High-Tech Srvs.	n)a	1.82	3.29
Total Services	55.25	66.90	66.73
<b>Human Resources in Science and Technology</b>			
Percentage of Total Population – 2012			
	17.0	23.6	30.3
<b>Total R&amp;D personnel by sectors of performance</b>			
Researchers (FTEs) – 2011.			
<u>All Sectors</u>	<u>940</u>	<u>24 674</u>	<u>1 628 127</u>
Business	63	4 021	742 583
Government	30	4 370	203 870
<b>Higher Education</b>	<b>842</b>	16 068	662 518
Private, non profit	0	216	19 157
<b>Total R&amp;D personnel by sectors of performance</b>			
Researchers (Headcount)–2011.			
<u>All Sectors</u>	<u>2 170</u>	<u>45 239</u>	<u>2 545 346</u>
Business	128	5 858	931 716
Government	48	6 094	254 883
<b>Higher Education</b>	<b>1 194</b>	32 842	1 332 853
Private, non profit	0	445	25 893
<b>Patent applications to the EPO by priority year</b>			
Number per million inhabitants – 2009			
	1.65	6.18	111.42
<b>Total intramural R&amp;D expenditure (GERD)</b>			
Euro per inhabitant – 2011			
	75.8	125.1	512.4
<u>Percentage of GDP – 2011</u>			
Business Sector	0.17	0.23	1.14
Government Sector	0.05	0.16	0.25
Higher Education	0.35	0.27	0.41
<b>Individuals never having used the Internet</b>			
% of individuals aged 16 to 74 (2012)			
	n)a	42	22
<b>Households with BB Internet access at home</b>			
% of households with at least one member aged 16 to 74			
	50	51	72

TABLE 2 KEY REGIONAL COMPETITIVENESS INDICATORS AND RELEVANT POSITION IN THE EU AND IN GREECE.

Indicator	Classification EU-28 (273 Regions)	Classification among Greek Regions
<b>Basic Group</b>		
• Institutions	241	In the last group, together with the Region of Central Macedonia, the Region of Western Macedonia and the Region of Thessaly 7 <sup>th</sup> 12 <sup>th</sup>
• Infrastructures	244	
• Health	217	
<b>Efficiency Group</b>		
• Higher Education and Lifelong Learning	230	3 <sup>rd</sup>
• Efficiency of the Labour Market	255	11 <sup>th</sup>
• Market Size	221	7 <sup>th</sup>
<b>Innovation Group</b>		
• Technological Readiness	240	In the 3rd group (a total of 4), together with the Region of Central Macedonia, the Region of Western Macedonia and the Region of Thessaly. 11 <sup>th</sup> 9 <sup>th</sup>
• Degree of Business Sophistication	236	
• Innovation	239	

Πίνακας 2 examines the relevant position of the Region of Eastern Macedonia-Thrace in Greece and EU- 28 in relation to the main regional competitiveness indicators and confirms the findings on low competitiveness combined with the lack of strong regional characteristics in Research and Technological Development<sup>1</sup>. The same data are presented in Διάγραμμα 4 which indicates the relevant position of the Region as compared to the other European regions.

<sup>1</sup> EU Regional Competitiveness Index 2013, Joint Research Centre.

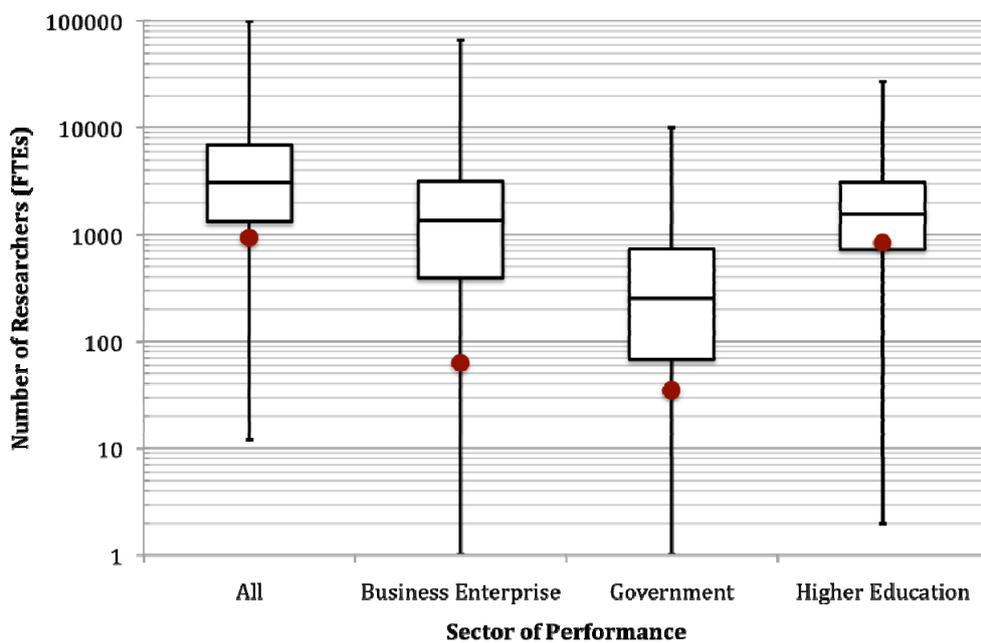


CHART 1 EQUIVALENT NUMBER OF INSPECTORS, FULL-TIME EQUIVALENT UNITS: THE POSITION OF THE REGION OF EASTERN MACEDONIA-THRACE AS COMPARED TO ALL EUROPEAN REGIONS IN 2011 [SOURCE: EUROSTAT].

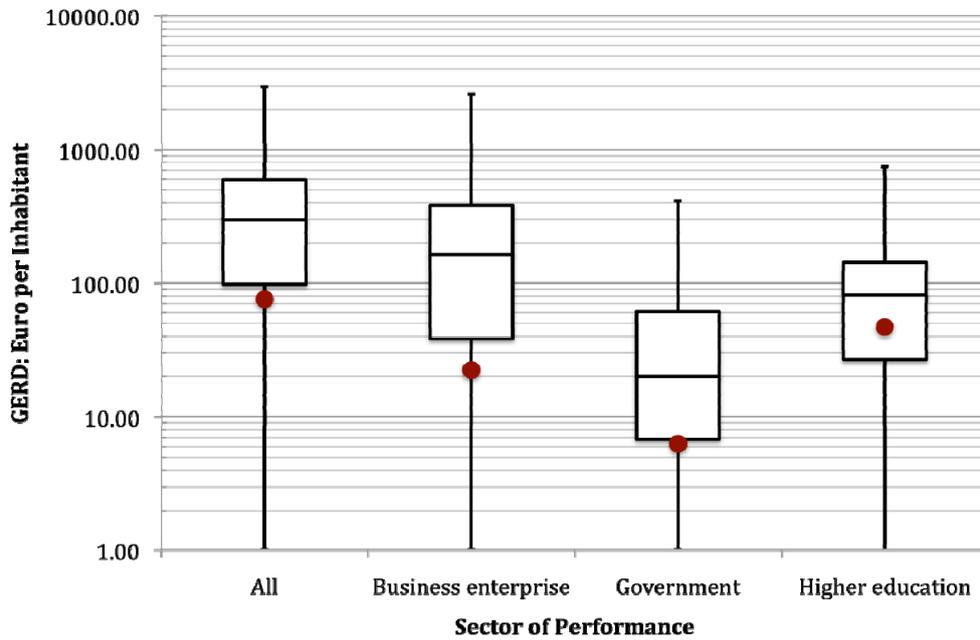


CHART 2 TOTAL EXPENDITURE FOR RESEARCH AND DEVELOPMENT (EUR/RESIDENT): THE RELEVANT POSITION OF THE REGION OF EASTERN MACEDONIA-THRACE AS COMPARED TO ALL EUROPEAN REGIONS IN 2011 [SOURCE: EUROSTAT].

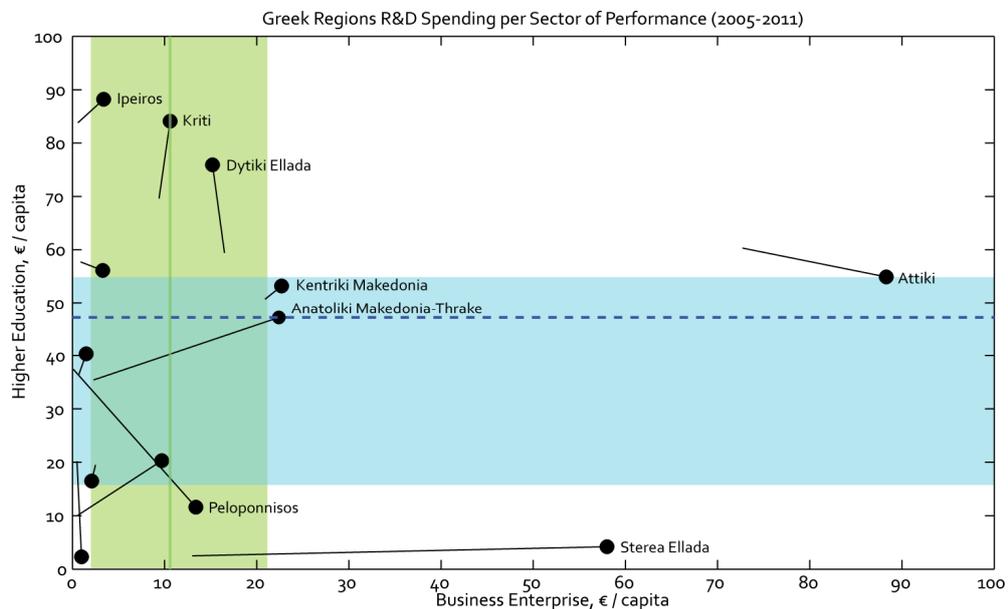


CHART 3 GROWTH OF PER CAPITA EXPENDITURE FOR RESEARCH AND DEVELOPMENT IN ENTERPRISES AND HIGHER EDUCATION FOR ALL GREEK REGIONS BETWEEN 2005 AND 2011. THE COLOUR ZONES SHOW THE 2<sup>ND</sup> AND 3<sup>RD</sup> DISTRIBUTION QUARTERS AND THE COLOUR LINES SHOW THE MEDIANS FOR EACH INDICATOR [SOURCE: EUROSTAT, OWN PROCESSING].

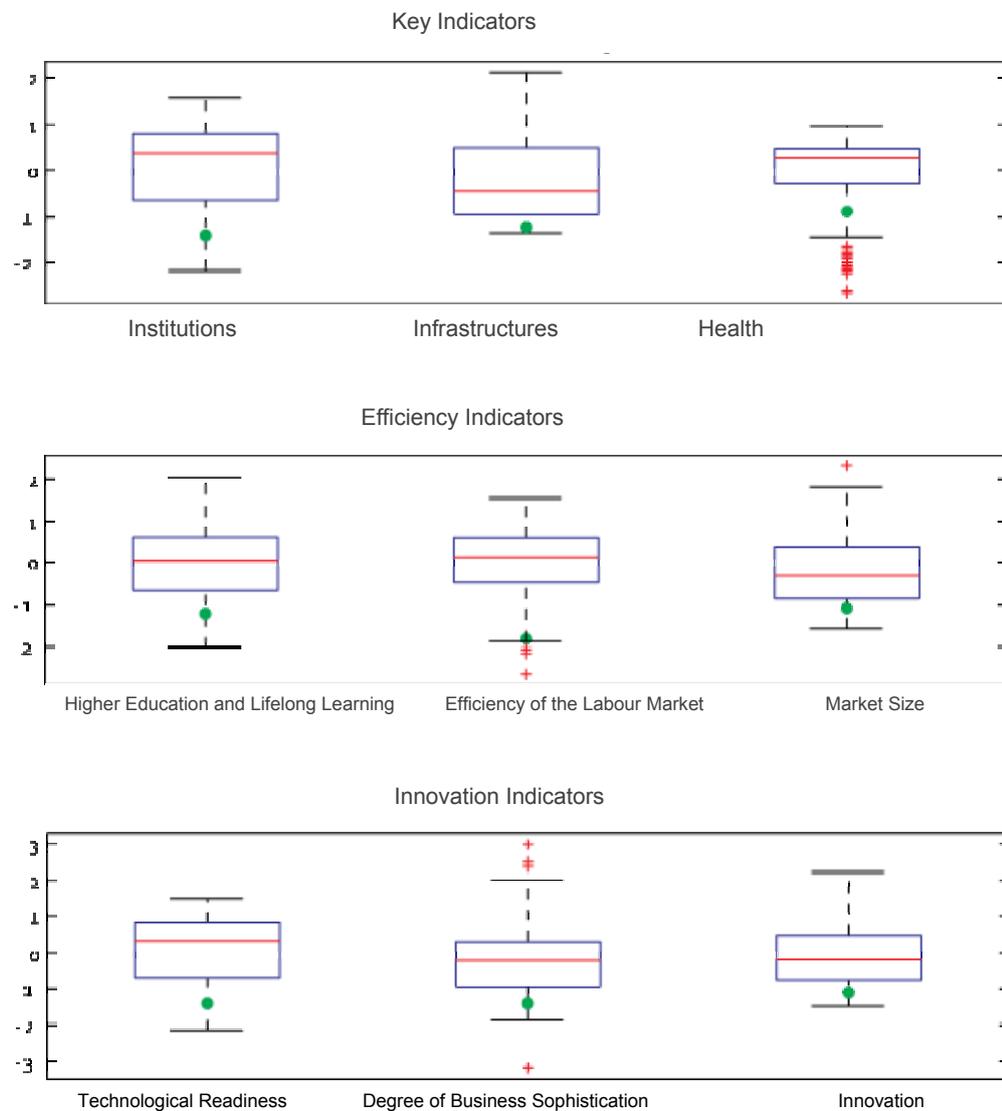


CHART 4 COMPETITIVENESS INDICATOR FOR THE EUROPEAN REGIONS: THE POSITION OF THE REGION OF EASTERN MACEDONIA-THRACE (GREEN DOT) IN THE STATISTICAL DISTRIBUTIONS FOR EACH INDICATOR AT A EUROPEAN LEVEL. [SOURCE: EUROPEAN COMMISSION, JOINT RESEARCH INSTITUTE, OWN PROCESSING].

## COMPETITION CHARACTERISTICS

### INFRASTRUCTURE, BUSINESS STRUCTURE AND EMPLOYMENT

#### INFRASTRUCTURE

The border position of the Region of Eastern Macedonia-Thrace is one of its key characteristics. The Region is located on the northeastern border of Greece, occupying a border position not only as a national border, but also as the external border of the EU, since it borders on Bulgaria and Turkey, respectively. This fact has led in the last decade to a

significant transformation of the Region of Eastern Macedonia-Thrace from a 'border region' into a 'gateway to Greece and the EU'. The key factors that have contributed to this transformation were not only the enlargement of the EU with the neighbouring states but also the completion of the Egnatia Road.

The fact of the existence of 'open borders' with Bulgaria and Turkey has had positive and negative consequences to date: the negative consequences include clearly the tendency of Greek labour-intensive industries to flee to Bulgaria, a country with a much cheaper workforce, whereas the positive ones include the expansion of the export markets of the business sector of the Region (including tourism).

In the Region of Eastern Macedonia-Thrace, there are five (5) Industrial Zones and three (3) Handicraft Parks:

- Industrial Zones of Kavala, Xanthi, Komotini, Alexandroupoli, Drama,
- Handicraft Parks of Orestiada, Sapoi, Prosotsani

No other organised zones for the installation of activities such as livestock parks, business parks, Integrated Tourist Development Areas, Areas for the Organised Development of Productive Activities or Areas for the Organised Development of Aquaculture operate in the area.

Of course, it should be mentioned that, in the existing land use plans, as in the frameworks for physical planning and sustainable development (general, specific and regional) or in the general town plans or urban control zones (where they exist), corresponding zones of productive activities have been established, without, however, having been activated yet, whereas it is considered that the procedures necessary for their implementation will require a significant amount of time, in several cases, exceeding five years.

Entrepreneurship is supported by a set of bodies and organisations that have been established with a view to assisting the enterprises of the Region to develop and survive in the current challenging business environment. These include, *inter alia*, the Centre for Entrepreneurial & Technological Development (KETA) of Eastern Macedonia - Thrace, the Investor Reception Centres (KYE) of the Prefectures of Evros, Kavala, Xanthi, Rodopi, the Development Agencies, the Chambers and the Federations of Industries and Craft Industries of the Prefectures, the Pure Enterprise of the Local Union of Communities and Municipalities of the Prefecture of Xanthi 'Energy - Environment - Development' (EPA), the International Exhibition Centre of Eastern Macedonia - Thrace, the Electronic Centre of Commerce and the Managing Authority for SME support projects of Eastern Macedonia - Thrace (DESMOS). However, even though the (main) purpose of the above bodies has been (and still is) to support entrepreneurship in the area, it is not clear on the basis of results that have been achieved that they have worked in this direction.

The existing transport infrastructures in the Region of Eastern Macedonia-Thrace may play a significant role in the development of entrepreneurship and they consist mainly in

the road system of Egnatia Road and its vertical axes as well as the grid of other national and provincial roads, the railway network, two ports of national importance and two international airports, located in Kavala and Alexandroupoli.

Of course, the construction of the Egnatia Road has undermined the usefulness of the railway network, which, in turn, has seen a lack of any significant projects for its development-upgrade in the last decades. At the same time, the two airports are gradually losing their commercial character, with a continuing decrease in their freight traffic, obviously due to the increased cost of transportation, combined with the economic crisis, whereas the airport of Alexandroupolis does not serve the international movement of goods at all.

As regards support to the transport - transit project, there are no stations or centres of commercial activity, except the two large ports of the Region (Kavala and Alexandroupolis) which support such actions and are active to a great extent in this sector without, however, having an integrated and compact form.

In the sector of Research, Technological Development and Innovation, there is a **lack of bodies and organisations for the support of innovation and technology transfer**, such as Technological Parks, Scientific Parks, Business Innovation Centres (B.I.C.), Business Incubators, Technology Transfer Centres, etc.

The academic and research institutions that exist and are active in the Region are:

1. The Democritus University of Thrace, based in Komotini, whose Departments are dispersed in all three Regional Units of Thrace.
2. The Technological Educational Institute of Eastern Macedonia and Thrace, based in Kavala.
3. The Fisheries Research Institute (INALE), based in Kavala.
4. The ATHENA Research Centre - Xanthi Branch, in which are incorporated the former Cultural and Educational Technology Institute (IPET) and the Thrace Branch of the Institute for Language and Speech Processing (IEL).
5. The Institute of Geological and Mineral Exploration (IGME) - Branch (Xanthi).

#### **BUSINESS STRUCTURE AND EMPLOYMENT**

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The recently processed data (see Διάγραμμα 5 and Διάγραμμα 6) show that the Region of Eastern Macedonia-Thrace shows a significant and long-term economic specialisation in the primary sector as concerns both Gross Value Added and Employment (~55 000 jobs in 2012). The presentation also includes the development of the regional GVA (Διάγραμμα 7) in grouped sectors of business activity. The following three of them have been selected in order to be further explored.

- The primary sector

- The processing sector
- The tourism - culture sector

The main points of this text come from individual basic texts that have been prepared and given to processing from the relevant thematic working groups.

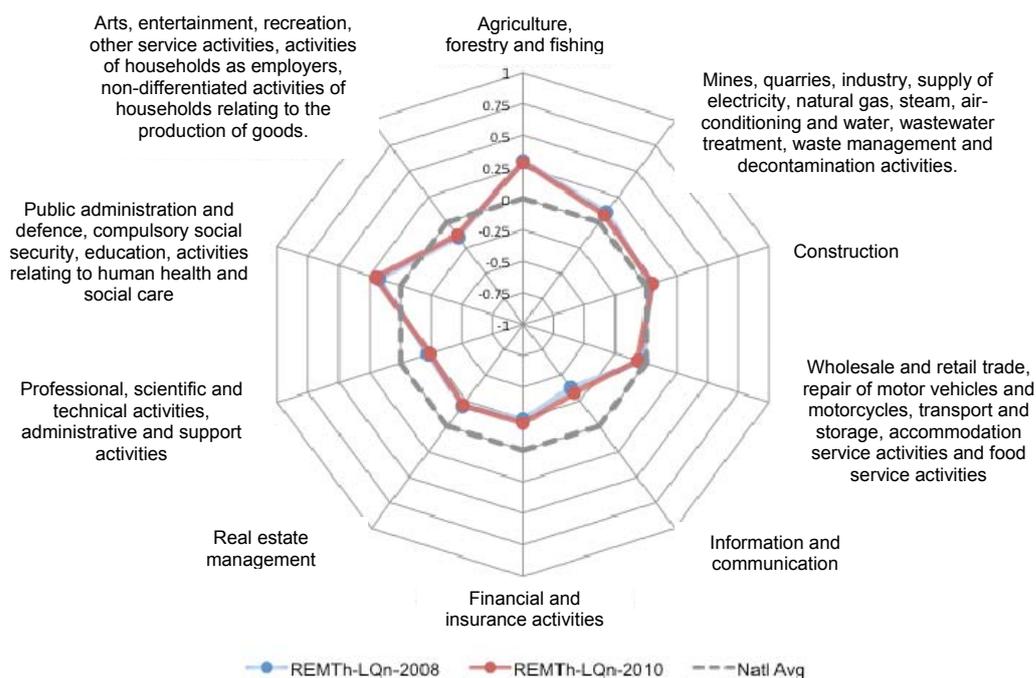


CHART 5 REGIONAL SPECIALISATION TO GROSS VALUE ADDED: THE REGION OF EASTERN MACEDONIA-THRACE COMPARED TO GREECE, YEARS 2008 AND 2010.

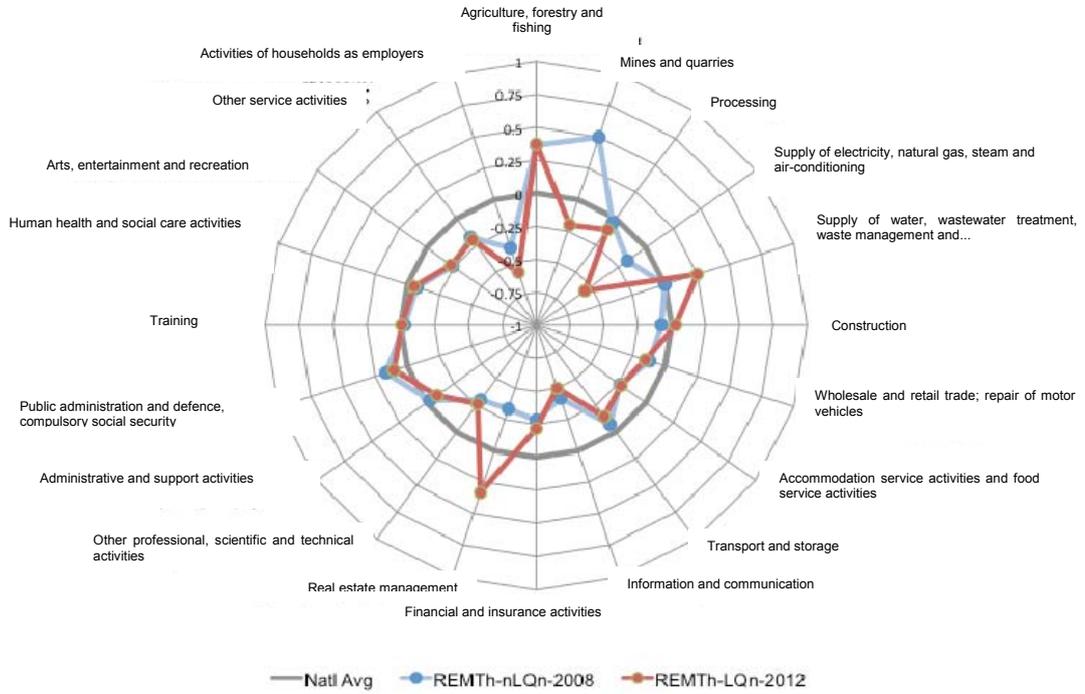


CHART 6 REGIONAL SPECIALISATION TO EMPLOYMENT: THE REGION OF EASTERN MACEDONIA-THRACE COMPARED TO GREECE AND EUROPE, YEARS 2008 AND 2012 (ELSTAT DATA).

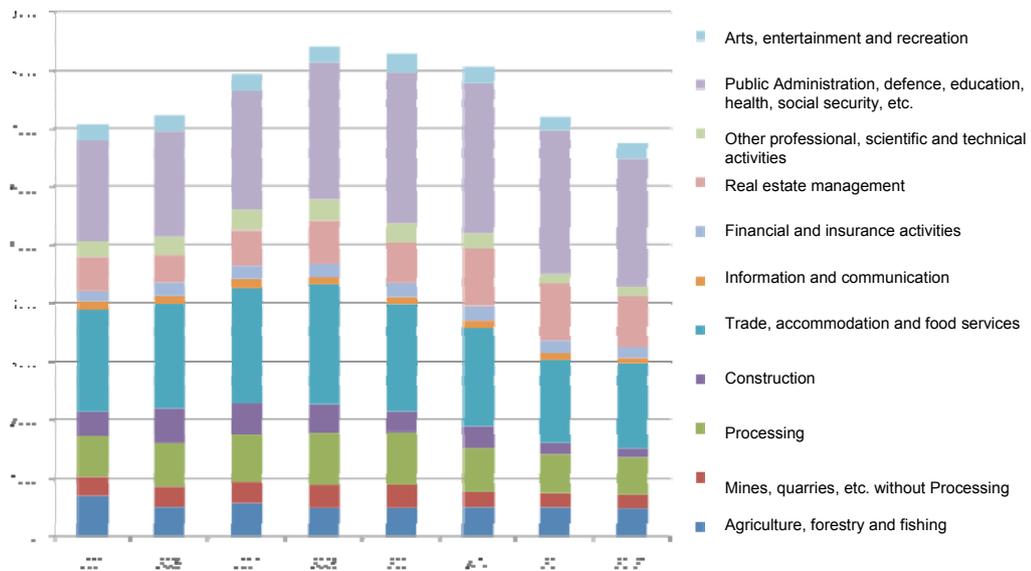


CHART 7 GROWTH OF GROSS ADDED VALUE PER SECTOR 2005-2012 IN CURRENT PRICES (EUR MILLION) SOURCE: ELSTAT, JANUARY 2015.

## AGRICULTURE SECTOR

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The agricultural sector<sup>2</sup> (agriculture - livestock farming - forestry- fisheries) is a focal point for economic activity in the Region of Eastern Macedonia-Thrace. The Region of Eastern Macedonia-Thrace may be characterised as mainly rural, given that the primary sector constitutes its basic productive sector: the percentage share of the primary sector in the gross value added (GVA) of the Region amounts to 6.2% (a percentage which is twice the national average), it represents 20.7%<sup>3</sup> of the total employment, whereas it participates by approximately 40% in the total exports of the Region. However, its interconnection with other sectors of the economy (secondary, tertiary) is even more important: if that is included in the calculations, then the share of the primary sector is even greater than the one officially recorded. Please note that, according to a recent study, the agricultural sector contributes directly to the increase of the regional GDP by EUR 300 million, from the inflow of subsidies alone, whereas 14% thereof is released into sectors beyond the primary one.

However, the competitiveness of the primary sector in the Region is relatively low, not only in comparison to other countries but also on a national level: According to data from the Agricultural Economics and Policy Research Institute (IGEKE), the Gross Agricultural Product per person employed in the Region of Eastern Macedonia-Thrace amounts to 69% of the national average whereas the other indicators are also low: soil productivity of 76%, work productivity of 77%. On an international level, competitiveness is even more limited, due to exposure to competition from other areas that are characterised by increased productivity and/or lower cost, without, though, omitting to mention the examples of successful penetration into foreign markets by enterprises or producer groups that dared to innovate and were differentiated (indicatively, the examples of asparagus, grapes, potatoes and other processed products are pointed out).

The primary sector has shown a significant trend for reduction in the last decade, particularly after the last reform of the CAP (mid-term review of 2003), when the Decoupled Single Subsidy (EAE) was adopted. Please note that the GVA of the primary sector in the Region was reduced from EUR 675 million in 2001, to EUR 696 million in 2005 and even further in 2012 (EUR 479 million). According to certain estimations, a growing number of persons will turn to the primary sector, due to the economic crisis and increasing unemployment, resulting in a reversal of the trend for reduction in the production of agricultural produce - however, this has not been confirmed definitively: In 2012, the GVA of the primary sector, both for all of Greece and for the Region of Eastern Macedonia-Thrace will be lower than in 2008 (the year in which the crisis began). Within the Region, the prefectures of Kavala and Xanthi tend to maintain their performance levels, while the other prefectures are declining (see Πίνακας 3).

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<sup>2</sup> Further in the text, the primary and rural sector are used interchangeably, in the sense that both terms indicate the coverage of farming, fisheries, livestock farming and forest holdings.

<sup>3</sup> ELSTAT (2011 Census) 38 787 out of 187 306 persons in employment

TABLE 3: GROSS VALUE ADDED IN THE PRIMARY SECTOR, CURRENT PRICES, EUR MILLION (SOURCE: ELSTAT, JANUARY 2015).

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*	2012*
Greece	7 892	8 092	8 975	8 417	8 595	7 038	7 078	6 624	6 647	6 501	6 367	6 326
Eastern Macedonia-Thrace	675	624	753	676	696	501	571	486	487	499	497	479
Evros	178	158	200	172	186	114	130	118	111	117	117	107
Xanthi	125	89	117	110	108	89	89	77	77	76	77	77
Rodopi	139	137	165	148	147	80	101	88	96	92	99	93
Drama	109	115	129	119	121	100	115	95	98	102	98	93
Kavala	124	126	142	126	133	119	137	108	105	112	106	109

The utilised agricultural area of the region amounts to 4 000 square kilometres, or 28% of the total area of the Region. Approximately 58% of the cultivated area is irrigated. There is a trend for specialisation in industrial and/or extensive crops in the Region (mainly in Xanthi and Rodopi), such as cotton, corn, tobacco, cereals. Even though livestock farming has a lot of potential for further development in the area, it constitutes currently a complementary activity, whereas the sector of fisheries is considerably developed (marine fisheries and aquaculture). The relationship between plant-animal production in the Region in terms of production value corresponds to the national average, i.e. approximately 7:3.

The main sub-sectors of agricultural production in the Region of Eastern Macedonia-Thrace, depending on the production value and the share in the GVA of the primary sector are: animal production (34%), cereals (22%), industrial crops (18%), vegetables and potatoes (17%), fruit (6%). The main products are corn (13%), milk (13%), cereals (8%), cotton (8%), potatoes (6%), tobacco (5%), grapes (4%) (ELSTAT data, 2009). Finally, it should be noted that aquaculture is an important sector which has developed dynamically in the Region during the last years.

The most important sectors in terms of **employment** are cereals, cotton, fruit and vegetables (mainly grapes, asparagus, kiwi fruit), arboriculture products (olive-growing, pomegranate). However, it should be noted that the labour-intensive products are mainly livestock farming, aquaculture, tobacco, grapes, asparagus and kiwi fruit.

As shown in the table below, the largest number of holdings in the Regional Units of the Region is recorded in the Prefecture of Evros, but the largest number of employed persons, in the Prefecture of Rodopi, indicating that the agricultural holdings are more labour-intensive there than in the Prefecture of Evros. A corresponding large number of employed persons as compared to the number of holdings is observed in the Prefectures of Xanthi and Drama.

TABLE 4: PERSONS IN EMPLOYMENT IN ALL THE HOLDINGS PER REGIONAL UNIT - 2009

Table 3: Number of persons employed in all holdings, per category and days of employment of seasonal workers, per region and prefecture (2009)

	NUMBER OF HOLDINGS OF NATURAL PERSONS, OWNERS AND THEIR EMPLOYED MEMBERS	HOLDINGS WITH PERMANENT WORKERS	HOLDINGS WITH SEASONAL WORKERS
--	--	---------------------------------	--------------------------------

REGION AND PREFECTURE	MANAGERS OF THE HOLDINGS OF LEGAL PERSONS	HOLDINGS	NUMBER OF EMPLOYED PERSONS	OF THOSE EMPLOYED IN HIS/HER HOLDING			HOLDINGS	PERMANENT WORKERS	HOLDINGS	NUMBER OF EMPLOYED PERSONS	NUMBER OF DAYS OF EMPLOYMENT
				EXCLUSIVE <sup>1</sup>	MAINLY	SECONDARILY					
ALL OF GREECE	608	722 404	1 191 008	875 565	36 164	279 279	16 979	26 207	301 281	1 036 524	14 658 407
EASTERN MACEDONIA AND THRACE	76	53 084	94 865	74 491	3 282	17 092	1 432	2 104	13 626	69 256	937 574
PREFECTURE OF DRAMA	11	5 821	9 129	7 502	283	1 344	227	359	1 482	6 366	98 408
PREFECTURE OF KAVALA	17	11 007	18 886	13 422	515	4 949	440	661	4 874	21 497	413 407
PREFECTURE OF EVROS	23	14 282	23 278	18 260	1 171	3 847	198	286	2 451	14 244	155 075
PREFECTURE OF XANTHI	20	8 272	15 792	12 091	569	3 132	236	378	1 639	7 956	117 552
PREFECTURE OF RODOPI	5	13 702	27 780	23 216	744	3 820	331	420	3 180	19 193	153 132

(1) Mount Athos is also included  
Source: ELSTAT

The main agricultural products of the Region exported are table grapes, kiwi fruit (with an increasing trend), asparagus. Significant quantities of processed products exported are recorded for olive oil, wine and tobacco. Finally, certain quantities of ginned cotton and cottonseed are exported (mainly to the Turkish market) as well as quantities of wheat and corn (without processing).

In any case, the most significant products of the Region of Eastern Macedonia-Thrace are mainly purchased domestically, given that only a small part of them is exported. Excluded are specific species of fruit and vegetables, asparagus being the most characteristic example, nearly all of which are exported. Livestock production is intended mainly for the domestic market, given that Greece is particularly deficient in the production of products of animal origin, however there is still intense competition with cheaper imported products which is, most importantly, unfair due to the illegal labelling of imported animals as 'Greek identity'.

A significant problem affecting the competitiveness of the sector is that Inter-Professional Organisations do not operate for the main products (according to standards abroad), resulting in a rudimentary and unsynchronised operation of the value/trade chain. The organisation and interaction between the bodies involved in the trade chain is slack, with the exception of the exported products which were mentioned previously, to which contract agriculture is applied, as well as the dairy sector (in which the dependence of producers on industries is nearly absolute). The Producer Groups could contribute to the mitigation of this problem but they have not organised themselves properly in the past and have failed to fill the gap created by agricultural cooperatives.

The limited effectiveness not only of the agricultural cooperatives but also of the Producer Groups exacerbates an inherent problem of the primary sector, i.e. the small size of holdings which has negative effects due to the non-achievement of economies of scale and the limited adoption of new technologies. It is noteworthy that gross fixed-capital formation in the region of Eastern Macedonia-Thrace in 2009 had shrunk significantly as compared to the period 2003-2005, contrary not only to Greece's total, but also to the majority of the other regions of the country.

Finally, another important reason for the delayed incorporation of new technologies into the primary sector (apart from the small size of the holdings and the absence of interconnection with research bodies) is the age structure of the rural population (heads of holdings who are older as compared to the average age of the EU), combined with the deficient structure of education or training for farmers (the structure of education or training for farmers has had limited effectiveness to date in the improvement of agricultural productivity and its strengthening constitutes a constant request of the bodies involved).

On the other hand, the Region has one additional comparative advantage as compared to the other Regions of the country: the **soil map**, which includes data relating to the level of nutrients, the level of heavy metals and other properties of the soils of Eastern Macedonia-Thrace. This map must be completed and its use must be promoted, thus providing an important step towards the integrated management in production, *inter alia*, and limiting the input of fertilisers, the cost and damage to the soils and groundwater.

To summarise, the significant problems which constitute a risk/threat to the entire agrifood chain is lack of coordination, not only between those involved in the trade chain, but also between the other bodies involved, combined with the lack of information and its top-down spread (as well as the reverse). Scientific knowledge generated is frequently disconnected from the productive stage and its results rarely reach the producers. Moreover, holdings and foodstuff enterprises currently face significant problems obtaining bank financing, whereas organisational problems of Producer Groups and the absence of Inter-Professional Organisations exacerbate the problems and constitute a significant cause for the lack of preparation of long-term plans for organisation and penetration in the markets.

In any case, the whole effort for the restructuring of the primary sector in the Region of Eastern Macedonia-Thrace should start with its basic structural problems: a necessary requirement is the rational restructuring of cultivations (on the basis of a scientifically-prepared plan) and the subsequent reparcelling of the areas with the aim to restrict fragmentation and small ownership. Moreover, the support to livestock farming requires the adoption of measures for the rational utilisation of pastures and the reduction of the constantly growing cost of animal feed.

Finally, the importance and necessity of infrastructure projects in the countryside should not be underestimated, not only of those which are directly related to production (reclamation projects, resolution of irrigation problems, exploitation of geothermal energy, enhancement of access to the Region, connection of the Region to large centres and markets abroad and improvement of the attractiveness of investments, etc.) but also of measures related to enhancement of the attractiveness of rural areas through the improvement of quality of life in the countryside. These measures will increase the attractiveness of the countryside which is a necessary requirement for the engagement of young people in agricultural and livestock farming activities (e.g. improvement of infrastructures such as road networks, health infrastructures, etc., improvement of access to new information and communication technologies, etc.).

## PROCESSING SECTOR

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The processing sector constitutes the second most important sector with respect to Gross Value Added produced and to employment in the Region of Eastern Macedonia-Thrace after the services sector, which, however, includes a wide range of activities (the sectors of public administration, defence, education, etc., are excluded from the classification).

As regards the development of the main regional figures of the processing sector, the following can be mentioned:

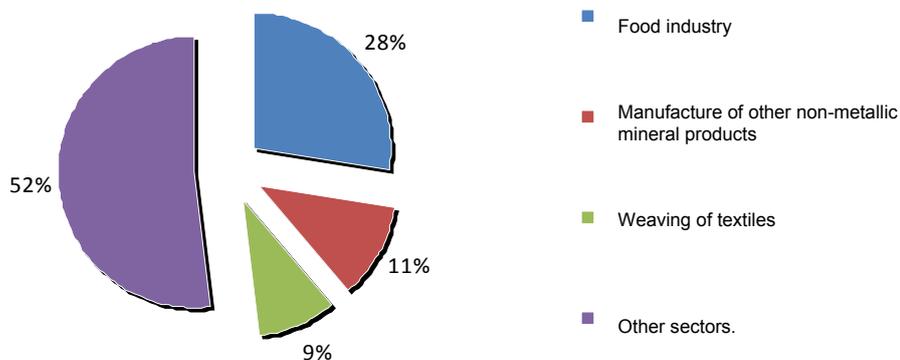
- it is the only sector in which GVA increased by 16.15% in the period 2006-2011.
- the share of processing in the regional GVA has also increased over time from 9.55% in 2006 to 11.04% in 2011.
- as regards employment, the persons employed in the processing sectors as a percentage of the total production capacity of the Region is lower than the national average (8.10% as compared to 10.50%), the main reason being the comparatively higher share of the primary sector in the employment rates in the Region of Eastern Macedonia-Thrace.

The distribution of processing units in the Region of Eastern Macedonia-Thrace into individual sectors is of particular interest, on the basis of data from the 'Annual Survey on Industry - Handicraft' of ELSTAT for 2010<sup>4</sup>. The following charts depict the supremacy of 4 specific sectors in terms of Gross Value Added (turnover from the sales of products), Total Turnover and Added Value. These sectors are the processing of agricultural products, the cutting and shaping of stones for construction purposes, the textile industry and the processing of plastic and rubber products. These specific sectors show a significant concentration of enterprises, since the large variety of raw materials (mineral resources, energy sources, agricultural products) and the delivery of the specific products to production contribute to this effect.

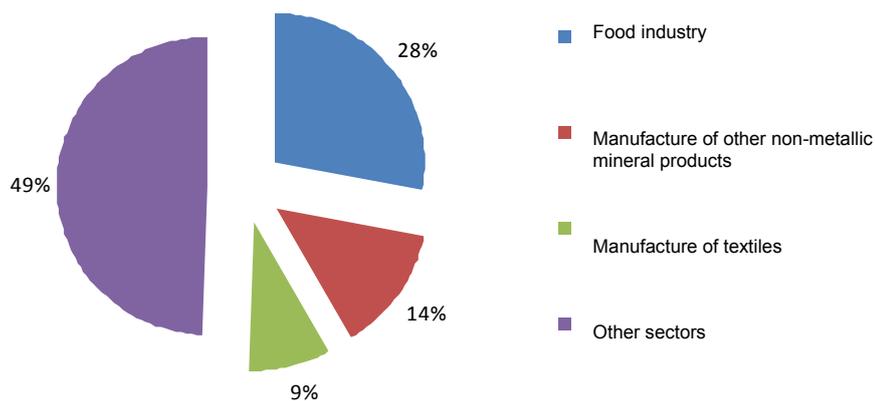
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<sup>4</sup> See Annex - Table 1

**Gross production value**



**Turnover**



**Value added**

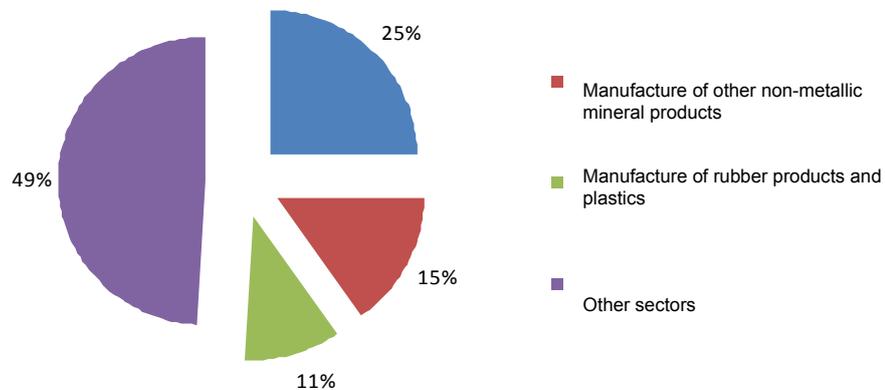


CHART 8: SECTORAL CONCENTRATION OF THE PROCESSING SECTOR (2010): SOURCE: ELSTAT, OWN PROCESSING.

Unfortunately, important sectors are missing from the data of the Annual Survey on Industry-Handicraft of ELSTAT of which the most important is that of group 27, 'Manufacture of electrical equipment', with significant players in the area, such as SUNLIGHT and RAYCAP, and of group 24, 'Manufacture of basic metals'.

The basic text for the processing sector includes the results of field research into selected enterprises of the Region of Eastern Macedonia-Thrace which aimed at measuring certain characteristics which (a) either have not been included in the usual ELSTAT's databases of enterprises or (b) have been included, however, not recently. 3 classes of enterprises with similar characteristics have been created in the presentation of the results, namely:

- Class A, which includes enterprises of the agrifood sector.
- Class B, which includes (as a rule) processing sectors of low-impact technology/innovation
- Class C which includes (as a rule) sectors processing high-impact technology/innovation.

The main results of the field research with regard to business structure and employment<sup>5</sup> are the following:

1. The sample shows an increase of turnover of 8.26% and of gross profit of 6.10% in the period 2009-2012 (total change). On the contrary, the total profitability before taxes was negative, both in 2009 (loss of EUR 9.8 million) and in 2012 (loss of EUR 102.5 million).
2. Employment shows a decrease of 8.23% which, however, is smaller than the general decrease of employment both intra-regionally and at a national level.
3. Only 12.8% of the sample participates in a cooperative cluster, whereas 94.9% states that it would be interested in a similar participation. It became clear from the survey that incentives have a larger specific weight than obstacles/hesitations, therefore, carefully planned policies on the creation of clusters could potentially be accepted by enterprises of the Region.
4. Total exports amount to 59.18% of total sales, a percentage that is especially higher than the average of the processing units of the Region. Of the enterprises of the sample, the enterprises of the agrifood sector show a low degree of openness, whereas it is of little surprise that low-impact RTDI sectors show a better performance in exports than those with RTDI with a higher intensity. A possible explanation is that sector 23 participates in class B with the strongly export-oriented marble industry.
5. The enterprises in the survey procure 42.34% of their raw and auxiliary materials from suppliers established in the Region of Eastern Macedonia-Thrace (a high intra-

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<sup>5</sup> The next sections will also present other relevant findings of the survey.

regional performance), with the agrifood sector having the highest average value, 49.83%, which is particularly important for the regional value chain.

The strategy followed by the enterprises in the sample is of particular importance. This strategy is formed by a combination of the parameters 'range of activities' and 'innovation'. The first refers to the volume of production, standardisation, number of markets which the enterprise addresses, etc., whereas the second refers to the degree of supremacy of technology, services and quality at which the enterprise aims. The distribution of the strategies followed (as stated) is shown in the following chart.

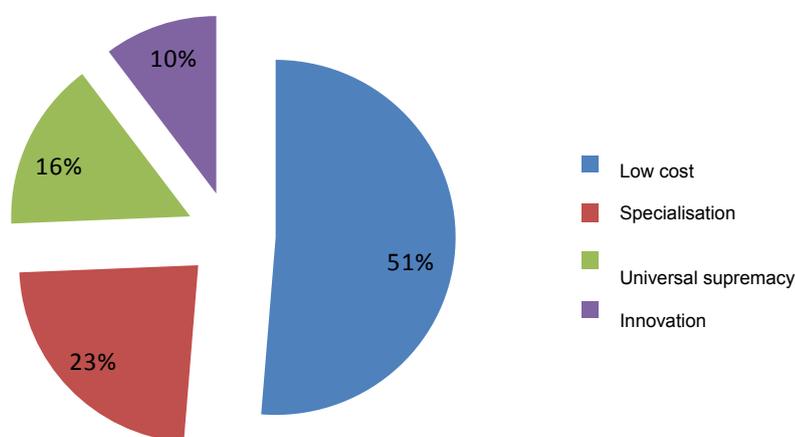


CHART 9: STRATEGIES FOLLOWED BY THE ENTERPRISES IN THE SAMPLE.

An innovation strategy is applied to a larger extent to enterprises with high-impact RTDI as compared to enterprises of the agrifood sector (proportionately). In turn, 50% of the latter implement a low-cost strategy, like the companies with low-impact RTDI.

The following diagram presents the influence of the strategy followed on the change in the turnover and the degree of openness<sup>6</sup> achieved.

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The degree of openness was calculated on the basis of the share of exports in the turnover of 2012. The indication 'Low' corresponds to the range of values [0-25%), the indication 'Average' to the range of values [25-50%) and the indication 'High' to the range of values [50-100%).

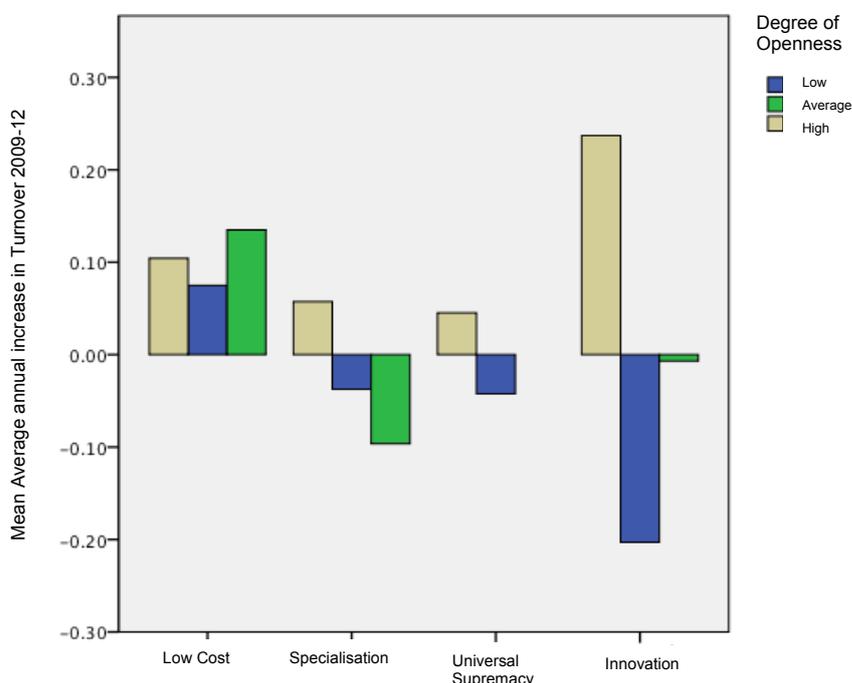


CHART 10: CORRELATION OF STRATEGY AND SALES RESULTS

Διάγραμμα 10 shows that the combination of an innovation strategy and a high degree of openness has ensured a greater positive change in turnover, whereas the implementation of a low-cost strategy, regardless of the degree of openness, has achieved a positive change in sales. Moreover, it appears that any strategy other than the low-cost strategy which mainly addresses the Greek market, does not seem to produce results

#### TOURISM-CULTURE SECTOR

The development of tourism, in addition to the direct expenditure by tourists in an area, has additional positive effects on the economy, since it mobilises a significant number of productive units which become active to cover generated demand. The contribution (impact) of tourism to the domestic economy is divided into direct, indirect and provoked (namely by the additional income of households that are affected positively by tourism). According to a study by the Foundation for Economic and Industrial Research (IOBE)<sup>7</sup>, the direct impact of tourism on the GDP of Greece is estimated at EUR 15.2 billion in 2010, the indirect at EUR 5.2 billion and the induced at EUR 13.9 billion. Therefore, the overall impact amounts to approximately EUR 34.4 billion, which demonstrates the importance of the role of tourism to the Greek economy.

Since there are no available economic data on the overall impact of tourism specifically on the regional economy (direct, indirect and induced), on the basis of the model for the calculation of the total contribution of tourism to GDP according to IOBE, the corresponding

<sup>7</sup> 'The impact of Tourism on the Greek Economy', Foundation for Economic and Industrial Research (FEIR), September 2012.

figure for the Region of Eastern Macedonia-Thrace was approximated at EUR 505 million for 2011.

Likewise, as regards the overall impact of the tourism sector on total employment, it has been calculated that the size of employment (direct, indirect and induced) amounted to 10 755 in 2012, i.e. 5.55% of the total employment of the Region, a value which is considerably lower than the average value of the Greek territory (1 out of 6 employees).

The main data which shape the picture of the existing situation of the tourism sector in the Region of Eastern Macedonia-Thrace are the following:

**Infrastructure:** According to the Registry of the Hellenic Tourism Organisation (EOT) (2013), 393 hotels are established, which include 10 759 rooms and 21 629 beds (average figure 55 beds), whereas 346 hotels, with 9 011 rooms and 17 204 beds (average figure 50 beds) operated in 2002. The average figure of 55 beds in hotels is considerably lower than the national average (78 beds per unit). Please note that the average figure in the dominant two-star category is only 44 beds. The main destinations, in which the highest percentage of accommodation establishments are located, are the island of Thasos and the coastal area of Kavala. The majority of hotels are located in the Regional Unit of Thasos, where half the hotel resources are concentrated, specifically 55.47% of the total number of the hotels of the Region and 49.35% of the total number of beds (EOT data for 2013). The Regional Unit of Evros follows with 16.54% of hotels and 18.21% of beds.

As regards the distribution of the hotels of the Region into categories on the basis of the applicable classification system (Presidential Decree 43/2002), it is observed that approximately half the hotels of the Region (48%) belong to the two-star category. There are only 10 hotels in the highest category (namely five-star hotels) which are located in the Regional Units of Kavala, Rodopi and Evros and constitute only 3% of the total number of hotels of the Region, whereas the 25 4-star hotels represent 7%.

**Supplied forms of tourism:** According to the study 'Long-term Strategic Development Plan', the tourist product is supplied locally in several forms, both as vacational tourism ('sun and sea') and as mild/alternative tourism of a considerably broad range. However, the study points out that 'there are few special tourist infrastructure facilities (marinas, convention centres, bathing-establishments) and few focused service abilities for 'alternative' or special tourism which can be significantly upgraded and, most importantly, 'there exists a lack of an overall identity to the region as a unified tourist destination'.

**Demand:** The total overnight stays in hotel establishments dropped between 2007 and 2012, despite increasing trends in 2008 and 2009. The decrease in overnight stays, combined with the increase of the accommodation capacity, entails obviously a decrease in the occupancy rates of the hotel establishments. The total change (decrease) of the average occupancy at the level of the Region of Eastern Macedonia-Thrace was almost 12.6% between 2007 and 2012. As regards seasonality, there is a strong differentiation between the regional units. The high seasonality of Kavala (mainly due to Thasos) and Evros (mainly due to Samothraki) influences the overall picture of the seasonality of tourism in the Region,

peaking primarily in July and August. Finally, the data on foreign tourists are presented in the relevant section ('Εξωστρέφεια').

In order to understand the **competitive position** of the tourist sector of the Region of Eastern Macedonia-Thrace, it is useful to mention certain data on the wider environment which affects directly and indirectly the developments in the specific sector:

- The projection of the World Tourism Organisation for 2013 is that national arrivals at an international scale will increase by 3-4% and is consistent with its long-term projections for the period 2010-2020 according to which the average annual increase of international arrivals will range at approximately 3.8%.
- An upward trend is recorded for the main competing countries of the Mediterranean regarding both arrivals and tourism revenues. The highest percentage increases in tourist figures are recorded for Greece and Turkey, whereas in contrast the increases for Italy and Spain are lower. In fact, tourism revenues in Italy show a decrease during the first four months of 2013 as compared to the corresponding period of 2012.
- The tourist traffic of foreigners to Greece was reduced by 5.5% in 2012 as compared to 2011. There was a larger reduction of tourist traffic from countries of the EU-27 (-8.5%) which was caused to large extent by the decrease of arrivals from France (-15%) and Germany (-5.9%). As regards other countries, an increase of 18.4% was recorded for arrivals from Russia, whereas arrivals from the USA were reduced by 23%. Gainers in 2012 included destinations in Northern Greece due to increased traffic from the markets of Russia, Turkey and the Middle East. Destinations in the Ionian Sea region also showed a positive progress due to the recovery of the British market.
- Even though a decrease of arrivals from the traditional markets of most EU countries was recorded in 2012, two markets which still grew at a high rate despite their already large growth in the previous year are the Russian and the Norwegian. The Russian market expanded by 18.4% after its impressive growth of 63.8% in 2011. The Russian market with 875 000 arrivals in 2012 climbed to the 4th position of the classification, exceeding the Italian market in size. Arrivals from Norway increased by 29.8% following a proportionate increase in 2011. The Turkish market also continued its growth which increased by 9.1%.
- Greek tourism faces intense problems of seasonality. On the basis of the results of the Border Survey of the Bank of Greece for 2012, 68.9% of the influx of foreign tourists takes place in the period June - September. Arrivals in the period of six months from May to October amount to 85% of the total. The monthly distribution of arrivals is not differentiated substantially from year to year. The largest number of arrivals takes place traditionally in August, during which approximately 20% of the annual visits occur.

According to the Eurostat Regional Yearbook 2013, some characteristic intensity data of the tourism sector of the Region of Eastern Macedonia-Thrace are the following:

- The total overnight stays in all types of accommodation and camping for 2010 amounted to 1.6 million in the Region, out of 66.8 million in Greece (2.4% share). The average value for all regions of the EU-27 amounted to 2.43 million overnight stays.
- The average annual change in the number of overnight stays in hotels between 2009 and 2007 in the Region of Eastern Macedonia-Thrace amounted to 2.9%, which was the 4th largest in Greece and stood much higher than the average of the EU-27 (-2.20%).
- In contrast, the same indicator had a completely different direction for the period 2011-2009 during which change in the Region was negative (-9.7%), the worst in Greece, whereas in EU-27 the trend was reversed positively (average value of increase: 3.5%).
- There is a particularly large increase in overnight stays on campsites in the Region of Eastern Macedonia-Thrace for the same period with an average value of 10.6%, the 3rd largest in Greece (average value of the EU-27: -1.9%).
- As regards overnights stays of foreigners in all accommodation establishments for 2010, the share of the total for the Region of Eastern Macedonia-Thrace was 38%, whereas the average value of the EU-27 was 43%. Due to this performance, the Region was classified in the 8<sup>th</sup> position among the Greek regions.
- In the combined indicator 'overnight stays per 1000 residents for all types of accommodation', in 2010, the Region, having 2 652 accommodation establishments, is classified as the 4<sup>th</sup> best in Greece, lagging significantly behind the average value of the EU-27 (4 847). Suffice to note that the corresponding indicator for the Southern Aegean was 51 354.
- As regards the duration of stay in tourist destinations, the average duration of stay in all types of accommodation for 2010 in the Region of Eastern Macedonia-Thrace was 2.9 days, when the average value in Greece was 4.7 days, and in the EU-27, 3.1 days.
- As regards the density indicator of beds offered per square kilometre of geographical area (tourist infrastructure intensity) for 2010, only the Regional Unit of Kavala exceeds the average value of the EU-27 with 6 beds/square kilometer (EU-27: 2.9%). The values of the indicator for the other Regional Units range at 1.
- Finally the average size of a hotel establishment in the EU-27 is 59.3 rooms. Of the Regional Units of the Region, only Drama and Evros show lower values for 2010 (51 and 41 respectively). Kavala (66), Xanthi (73) and Rodopi (75) exceed the average value of the EU.

INNOVATION POTENTIAL AND SKILLS FOR GROWTH BASED ON KNOWLEDGE

#### BUSINESS SECTOR

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According to the data included in the report of the expert group of the European Commission<sup>8</sup>, '... in terms of research, development (R & D) and innovation, the area has invested EUR 30.5 million in R & D (GERD, in purchasing power standards) in 2005 (0.33 % of the GDP of the region and 2.25 % of the GDP of the Greek territory). The percentage is significantly lower than the average in Greece, i.e. 0.6% of the GDP that has been invested in R&D, as well as the 1.83% average of the EU-27. Especially significant is the fact that local enterprises invested only EUR 1.6 million in R&D (0.02% of the GDP of the region), or 5.4% of the total GERD at a regional level (as compared to 31% at a national level and 63% in the EU-27). From 2008 onwards, private investments in R&D have not increased, probably due to the liquidity crisis'.

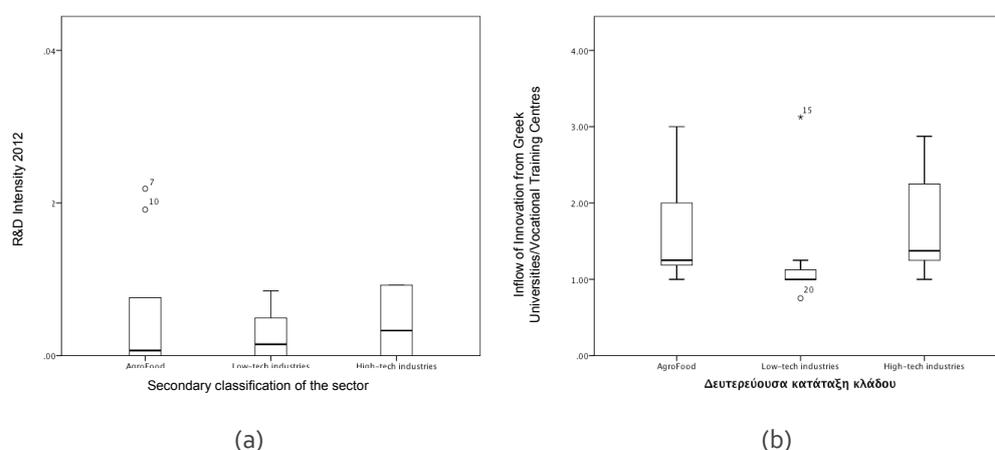


CHART 11 PERFORMANCE IN THE SAMPLE OF SELECTED ENTERPRISES AS REGARDS (A) R&D INTENSITY, AND (B) INFLOW OF INNOVATION FROM ACADEMIC AND RESEARCH INSTITUTIONS.

An attempt has been made through the field survey into selected enterprises of the processing sector (see section Infrastructure, Business Structure and Employment), to record the picture of R&D intensity and the origin of the knowledge utilised by the enterprises of the area. The main conclusions from processing the data are the following:

- 41.4% of the selected enterprises have a distinct R&D department (or organisational entity), with an average value of employed staff of 5.5 persons.
- Approximately the same percentage has participated in RTDI programmes, whereas the staff of 65.5% of the enterprises in the sample has participated in lifelong learning programmes.
- The R&D intensity indicator (namely the amount of R&D expenditure for 2012 with regard to the Turnover of the corresponding year - see Διάγραμμα 11a) amounted to 1.66%, i.e. a value that is not much lower than the Greek average. Moreover, the enterprises of the high technology sectors showed an indicator average value of 4.34%.

<sup>8</sup> 'RIS3 Strategy - Regional Assessment: Eastern Macedonia and Thrace, Report to the European Commission, Directorate-General for Regional Policy, Unit 13 - Greece-Cyprus, December 2012 (final edition) - The above argument did not take into account the new data which are presented in the above section 'Key Smart Growth Indicators'.

- As regards the cooperation networks and the sources of knowledge (sources of inflows of innovation), the basic conclusion of the survey is that the enterprises in the sample (see Διάγραμμα 11b) use their partners along the value chains (suppliers, customers) as basic inflows of innovation to a greater extent than academics or research bodies. No differentiation by activity is observed in this trend.
- Finally, as regards the utilisation of different methods of acquiring know-how, there seems to be again a trend for the enterprises in the sample to exploit in an informal manner various means/ methods of acquiring know-how.

In general, a minimal effort in product innovation is observed; rather, the tactics of creative copying are followed as regards products and their manner of production and disposal, whereas connection with the research resources of the Region in order to examine ways of commercial exploitation of remarkable research results or to resolve production and disposal problems relating to the products of the processing sector is minimal to nonexistent.

The adoption of new technologies in **rural areas** is generally limited, as compared to other sectors. However, the Region of Eastern Macedonia-Thrace has a number of comparative advantages that could be further utilised for the improvement of competitiveness in the primary sector. There are new technologies relating not only to production but also to disposal (packaging, certifications), which have started to be adopted in recent years. There are extensive geothermal fields in the Region, which, however have hardly been utilised to date. In parallel, the Region may develop the cultivation of energy crops and there is already an emphasis on sunflower production.

Forms of innovative technology that have been implemented are greenhouses with production of gas, the introduction of shading materials in vineyards, whereas significant changes have been recorded in packaging, particularly of products that are exported (table grapes, asparagus, kiwi fruit, pomegranate). Traceability tends to be adopted fully for exported products, such as grapes (various standards are applied in addition to the ISO, depending on the country of export, e.g. BRC for Great Britain, IFS for France and Germany). Three enterprises which are active in the Region of Eastern Macedonia-Thrace have recently won an award for their successful business activity in the agrifood sector and the production and marketing of innovative products: Greek tea, the garlic of Evros and the pomegranate juice of Drama.

#### ACADEMIC SECTOR

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In the last twenty years, a significant absorption capacity has been created in the Region of Eastern Macedonia-Thrace in two main scientific poles: the Faculty of Engineering in Xanthi and the Faculty of Medicine in Alexandroupoli. The data of scientific publications and the distribution of the inflows of financing support this argument. Comparing the performance of the research resources in the period 2000-2012 in scientific publications and financed research, the most important scientific areas pointed out would be the following:

- Science and Environmental Engineering

- Computer Science
- Surgery
- Respiratory medicine
- Building Materials Technology and Building Technology

In these areas there is still a critical mass and regional specialisation as compared to Greece (see also Διάγραμμα 12). Following an assessment of bibliographical studies that have been published in the last three years Διάγραμμα 12, it results that the Democritus University of Thrace shows good performance in the Relative Citation Index in the following specific scientific fields: virology (2.1), sociology (1.57), industrial technology (1.44), ecological models (1.34), social psychology (1.34), energy technology, (1.32), geotechnical engineering (1.30), but with a small number of works in each of them. In a similar manner, the Institute of Technology of Eastern Macedonia- Thrace seems to be distinguished in the scientific areas of software (1.58) and artificial intelligence (1.38), but with a small number of publications as well..

As shown in Διάγραμμα 12, the two most significant scientific areas with regard to the volume of publications in the Region of Eastern Macedonia-Thrace (Engineering and Computer Science) show a rate of development which is lower than the national one for the period 2007-12. The field Energy & Fuel followed the rates of development at a national level and remains one of the fields in which there is regional specialisation. The field Environmental Sciences developed faster than the national average and constitutes a regional specialisation field in the period 2007-12 exceeding the relevant threshold. Finally, please note the performance of the field of Agriculture Science, which developed a great deal in the period 2007-2012, exceeding the national average.

Bearing in mind both the emerging scientific fields and the positioning of the research units serving them, we assess that, in Evros, a critical mass of researchers having transdisciplinary characteristics can be developed in the coming decade in the sectors of agriculture-food technology-genetics, which can have a decisive effect on the development of the agrifood cluster in the Region of Eastern Macedonia-Thrace.

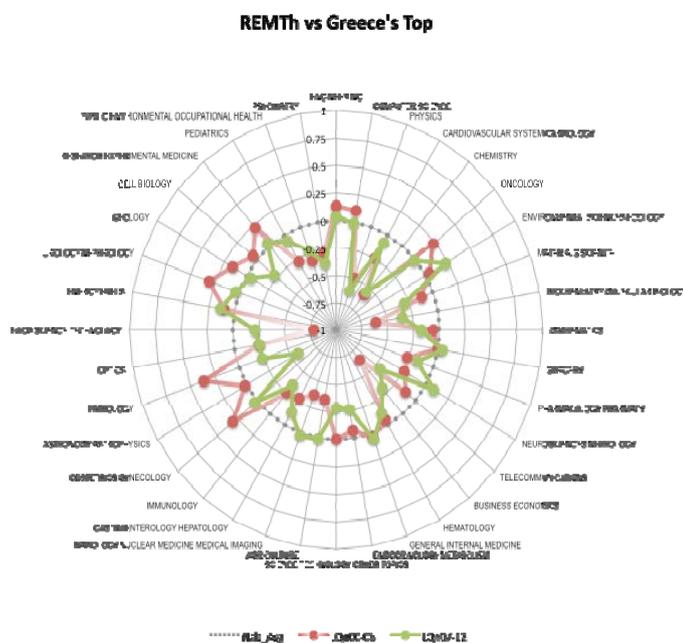


CHART 12 REGIONAL SPECIALISATION TO SCIENCE: THE REGION OF EASTERN MACEDONIA-THRACE COMPARED TO GREECE (2000-2006 AND 2007-2012).

Despite a concentration higher than the national average in scientific areas of interest and the existence of a Faculty of Engineering and a School of Health Sciences - with the only Department of Genetics in Greece - the indications of flows of knowledge/know-how to enterprises (both at a national and a regional level) are particularly limited. It should be stressed that, despite the availability of significant funds and incentives in the last decade, none of the academic/research bodies have managed to create a spin-off.

Likewise, the performance of academic/research bodies on issues of safeguarding copyrights is low as compared both to the Greek and to the European contexts.

Finally, through the OP Education and Lifelong Learning under the National Strategic Reference Framework of the employment & career structures (DASTA), innovation and entrepreneurship units (MOKE) have been created very recently and the Employment Agencies have been aided financially. None of the above structures seems to assess systematically the results from its operation, including the impact of the introduction of entrepreneurship courses in undergraduate studies.

## OPENNESS

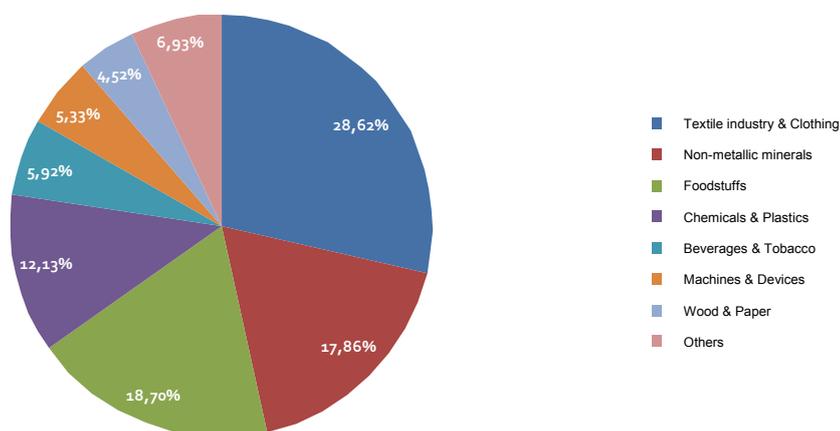
### BUSINESS SECTOR

Exports and, partly, the substitution of imports indicate to a large degree the level of competitiveness. Especially as regards the effort for the development of the Greek economy,

improvement in the trade balance (which reached only 55% in 2012) is the leading priority of economic policy.

The main points of the structure and development of the exports of the Region<sup>9</sup> are the following:

1. The contribution of the exports of the Region of Eastern Macedonia-Thrace corresponds to only 3% of the total Greek exports. Attica and Central Macedonia play a leading role in exports, contributing 70% of the total.
2. The first three sectors in terms of export activity in the Region of Eastern Macedonia-Thrace<sup>10</sup> for 2012 (in export value) are the textile industry and clothing, non-metallic minerals and foodstuffs (Διάγραμμα 13).



**CHART 13: STRUCTURE OF EXPORTS FROM THE REGION OF EASTERN MACEDONIA-THRACE, 2012**  
(SOURCE: EXPORTERS' ASSOCIATION OF NORTHERN GREECE (SEVE)/INSTITUTE OF EXPORT RESEARCH AND STUDIES (IEES)-OWN PROCESSING)

3. The sector of non-metallic minerals shows an increase of 2.41% as compared to 2011 (and 21.87% as compared to 2008), mainly due to marble products, while the other significant processing sectors show a negative performance (textile products, a decrease of 6.70% as compared to 2011 and 12.26% as compared to 2008, foodstuffs, a decrease of 5.02% as compared to 2011 and 8.71% as compared to 2008). Only the sector of wood and paper shows an increase of 28.78% as compared to 2011 and 63.74% as compared to 2008, however with clearly lower export values than the above-mentioned sectors.

<sup>9</sup> The sector of oil products is not included in the presentation.

<sup>10</sup> Annex - Table 2 contains details on the value of exports

4. In general, the development of exports in the Region of Eastern Macedonia-Thrace as compared to all of Greece, follows the same trend in the period 2008-2011, but a decrease in export activity is recorded in the Region in 2012 (-5.99%, see Διάγραμμα 14), contrary to the national total.

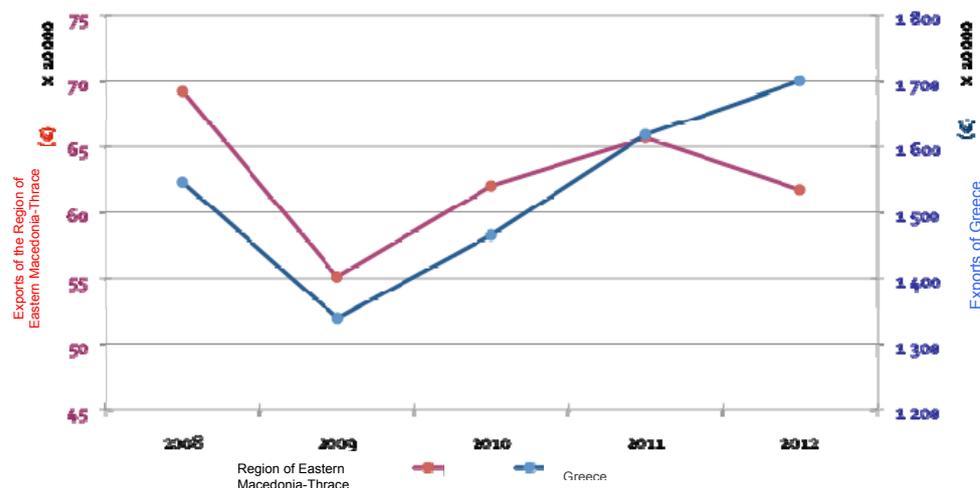


CHART 14: COMPARATIVE DEVELOPMENT OF EXPORTS FROM THE REGION OF EASTERN MACEDONIA-THRACE/GREECE, 2012 (SOURCE: EXPORTERS' ASSOCIATION OF NORTHERN GREECE (SEVE)/INSTITUTE OF EXPORT RESEARCH AND STUDIES (IEES)-OWN PROCESSING).

The export destinations of the Region of Eastern Macedonia-Thrace are mainly countries of the EU (34%), followed by countries of Southeastern Europe (20%), the Middle East and other Arab countries (18%) and, finally, Asia (15%). Of the destination countries, Turkey appears as a good 'customer' with an increase of 11.27% as compared to 2011, whereas the best performance is recorded in exports from the Region to the Former Yugoslav Republic of Macedonia, i.e. 51.15%. In contrast, exports to Germany and China have decreased (-5.44% and -7.42% respectively). However, the negative performance as regards countries toward which it had intense export activity, e.g. Italy (-30.32%) and France (-4.12%), gives rise to concern.

5. The increase of exports in the sector of non-metallic minerals is considered to be important not only at a Regional but also at a national level, since it contributes to the increase of Greek exports of this category between 2008 and 2012 by 8%.

As regards the tourism sector, the term 'openness' is interpreted as the percentage of foreign tourists who use the tourist infrastructures of the Region. According to the above reasoning, the main points relating to the tourist traffic of foreign tourists in the Region of Eastern Macedonia-Thrace are the following:

6. The overnight stays of foreign tourists in hotel establishments of the Region increased over time in the period 2007-2012, both in absolute terms and as a percentage of the total overnight stays in general.

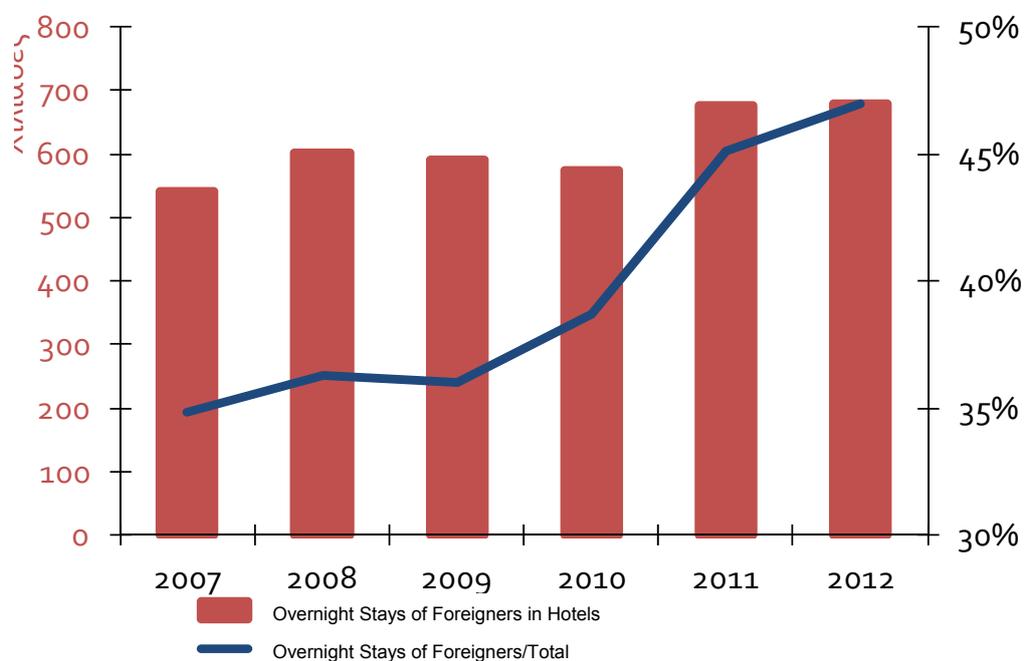


CHART 15: DEVELOPMENT OF OVERNIGHT STAYS OF FOREIGN TOURISTS IN THE REGION OF EASTERN MACEDONIA-THRACE, 2012 (SOURCE: ELSTAT-OWN PROCESSING)

The increase comes from a particularly low basis, given that the number of overnight stays of tourists in the Region of Eastern Macedonia-Thrace in 2012 represents less than 1.3% of the national total.

The following data, which come from the Hellenic Chamber of Hotels,<sup>11</sup> are provided with some reservation, since they are based on a field survey and concern only August 2013:

7. The Region is classified in the 6th position (out of a total of 13 Regions) as regards the number of foreign visitors, overnight stays and total expenditures.
8. On average, visits have a duration of 6.4 days and the average expenditure amounts to EUR 396 for the total stay or EUR 61.7 daily.
9. 41.61% of the tourist expenditure corresponds to residents of EU countries, (Germany 14.92%, Italy 6.66%, France 5.09%) whereas 47.12% to European countries outside the EU (Russia 5.73%) and the remaining 11.27% to third countries.

<sup>11</sup> Border Survey & Survey on the Regional Distribution of Annual Tourist Spending Hellenic Chamber of Hotels - TNS ICAP-QUANTOS.

## ACADEMIC / RESEARCH SECTOR

The analysis of networks that was carried out as part of the assessment of the performance of the academic - research sector (Tolias, 2013, Chart 2) leads to the conclusion that a particularly significant ongoing process of internationalisation has been in progress in the last six years: the number of joint scientific publications with institutions abroad per year increased from approximately 100 in 2007 to 180 in 2012, mainly at the expense of single-institution publications. This trend must be monitored closely in the coming years, due to the fact that it creates conditions for the assimilation of knowledge from abroad that can be potentially utilised at a regional scale and for the networking of research resources. However, the number of joint publications with Universities that occupy the first 100 positions in the global classification remains very low.

## DYNAMICS OF BUSINESS ACTIVITY

### NEW KNOWLEDGE-INTENSIVE ENTERPRISES, CLUSTERS, BUSINESS NETWORKS

As has already been mentioned in the section 'Υποδομές' in the RTDI sector, there is a lack of bodies and organisations for supporting innovation and technology transfer, such as Technological Parks, Scientific Parks, Business Innovation Centres (B.I.C.), Business Incubators, Technology Transfer Centres, etc.

As regards the establishment of spin-offs (PRAXE A and PRAXE B under the 3<sup>rd</sup> CSF and Aid to Knowledge-Intensive Enterprises under the NSRF), we have found that the share of the Region of Eastern Macedonia-Thrace in the approved proposals was particularly low: an approved project for the exploration of capacity for exploitation of research results under PRAXE A (3<sup>rd</sup> CSF) has not resulted in the establishment of any spin-off. In action under the NSRF, which corresponds to PRAXE B, demand by the Region of Eastern Macedonia-Thrace was equal to only 4 of the 158 (2.53%) proposals submitted under the four cycles of the programme. Only one of these, which came from a new knowledge-intensive enterprise (Lamda Electronics), was approved.

The Programme 'New Innovative Entrepreneurship' under the Operational Programme 'Competitiveness and Entrepreneurship II'<sup>12</sup>, is the most recent notice for creation of new Enterprises with targeted characteristics which includes an analysis of the qualitative characteristics of the enterprises included. The study was prepared by the Directorate for SMEs and the Management Team of StartupGreece, the General Secretariat for Industry and the Intermediate Body of the Operational Programme Competitiveness and Entrepreneurship. The following apply for the Region of Eastern Macedonia-Thrace:

- 15 enterprises were approved (out of 439 nationwide), with final public expenditure corresponding to 3.22% of the respective nationwide figure.

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<sup>12</sup> The programme assists, through grant, the establishment of enterprises by natural persons over 18 years old, who seek to transform an innovative idea and/or proprietary know-how that has not to date been utilised commercially into an entrepreneurial innovation.

- Of the 15 enterprises, 7 were in the process of being set up, 7 were new and one was a start-up.
- Of the 15 business plans, 9 concern processing activities, 3 concern sector 63 - Information service activities - and 3, sector 71 - Architectural activities.

As regards business networks and clusters, according to the data included in the report of the expert group of the European Commission, the Region lacks previous experience in policy on clusters and does not have mature networks which are active in the area. As part of the operation of the Working Groups of the Regional Council for Innovation and Entrepreneurship (PSKE), the exploration of latent resources and conditions which can favour the development of clusters with competitive characteristics has been assigned to a group.

#### FOREIGN DIRECT INVESTMENTS INTENSITY, SECTORAL SPECIALISATION, POSITIONING

In the last few years there have been no indications of the existence of Foreign Direct Investment in the Region of Eastern Macedonia-Thrace. This is an indication of the negative conditions that shape the general business environment, which does not constitute a pole of attraction for foreign investment in the Region of Eastern Macedonia-Thrace<sup>13</sup>.

In contrast, as regards the intensity of financing for the strengthening of entrepreneurship at a regional level, not only through Operational Programmes of national and regional scope under the 3<sup>rd</sup> CSF and the NSRF, but also local programmes which were planned and executed as part of mainly European initiatives<sup>14</sup>, the following can be mentioned:

The financial incentives that were provided in the form of Development Laws 3908/2011, 3982/2011 on Business Parks, 3299/2004 and 2601/1998 and the similar actions taken by the ROP for Eastern Macedonia-Thrace 2000-2006 had a higher share than the total Public Expenditure (PA) for the period 2000-2013 (40.2% and 82.73% respectively).

The total public expenditure for actions aimed at strengthening entrepreneurship reached EUR 248.5 million under the 3<sup>rd</sup> CSF and EUR 220 million under the NSRF (until 26 March 2013), whereas Programmes for aid for infrastructure and the development of human resources which improve the wider business environment are not included.

Specifically as regards the projects for enhancing RTDI, according to data from the General Secretariat for Research and Technology (concerning the period 2010-2013), the distribution of aid to enterprises under the OP Competitiveness and Innovation amounted to EUR 6 million (49% of the total public expenditure for all forms of bodies financed). The

<sup>13</sup> However, we must not forget the planned investment of the TAP pipeline transit from the Region.

<sup>14</sup> Data from the Intermediate Managing Authority (IMA) of the Region of Eastern Macedonia-Thrace on the projects under the 3<sup>rd</sup> CSF and provisionally the NSRF (notification of 26 March 2013).

comparison with public expenditure allocated to aid to bindings, primarily through the Development Laws (EUR 220 million as compared to EUR 6 million), is typical of the specific weight of 'policies on financing entrepreneurship' vs RTDI in the direct past.

Inclusions per action appear in Διάγραμμα 16 whereas Διάγραμμα 17 shows the distribution in thematic areas in the Region of Eastern Macedonia-Thrace.

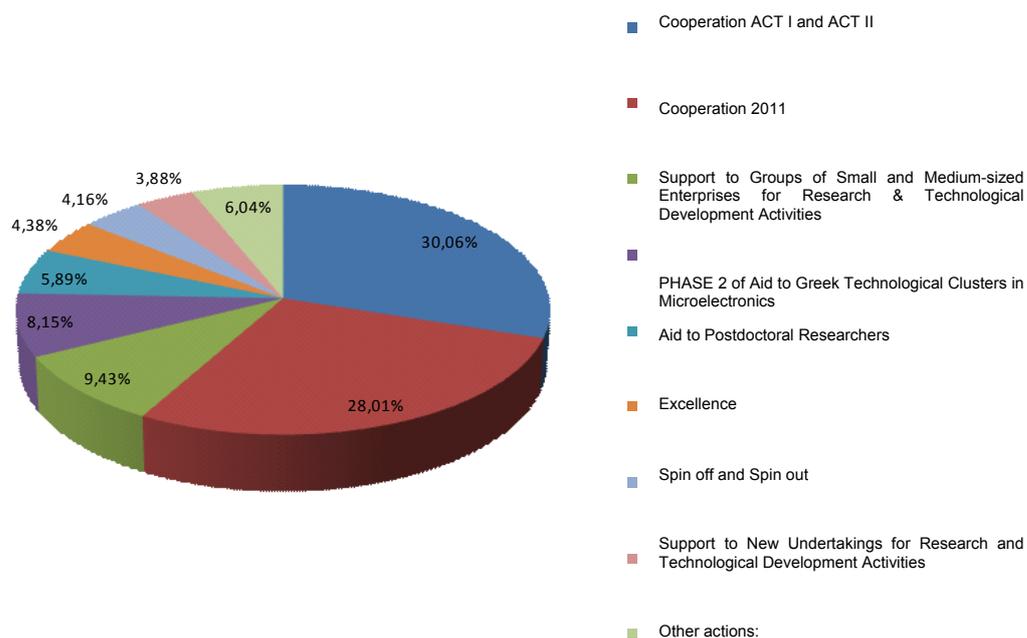


CHART 16: INCLUSION PER OPERATION OF THE OP COMPETITIVENESS AND INNOVATION - PERCENTAGE OF TOTAL BUDGET (SOURCE: GSRT, OWN PROCESSING).

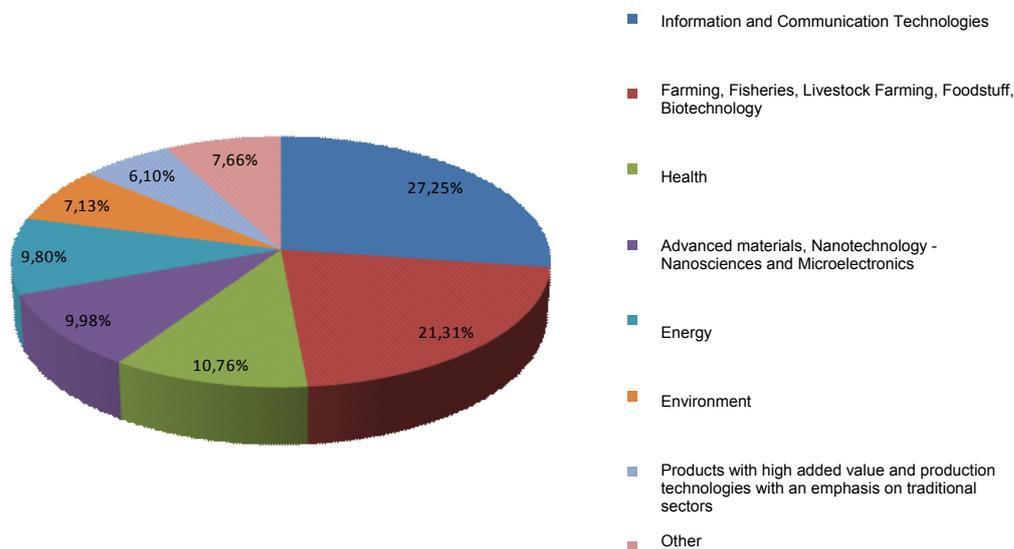


CHART 17: INCLUSION PER THEMATIC AREA OF THE OP COMPETITIVENESS AND INNOVATION - PERCENTAGE OF TOTAL BUDGET (SOURCE: GSRT, OWN PROCESSING).

## ASSESSMENT OF THE TRIPLE HELIX STRANDS<sup>15</sup>

The **interconnections between the academic/research and business sector** are fragmented, based on research programmes which are financed under the 3<sup>rd</sup> CSF or the NSRF or, to a smaller extent, from European funds. The common experimentation and technology transfer structures are very limited (e.g. experimental crops in the Rural Development Department). The *main technology transfer mechanism* which is highlighted on the basis of data from co-financed research of the Democritus University of Thrace, the Institute of Technological Education of Eastern Macedonia-Thrace and the Fisheries Research Institute (INALE), is *the provision by the institutes of advisory services* to the enterprises. In contrast, the more 'complex' mechanisms such as research financed by enterprises (contract research), academic spin-offs, etc. have not yet found fertile ground in the Region. The revenues of the Democritus University of Thrace from enterprises in the period 2004-2009 amounted to EUR 1.25 million, i.e. only 1.6% of incoming financing. The percentage of publications in which enterprises of the Region of Eastern Macedonia-Thrace participated, out of the total research production of the period 2007-2012 is 0.38% and is

<sup>15</sup> The present section attempts to reply to questions concerning the 'smartness' of the regional innovation system (Johanneum Research Graz, 2012· section 2.4).

considered particularly low. The technology transfer structures in the new academic institutions are very recent and have not gained pace yet.

The structure of the business environment (primary sector and low-level technology processing) and the lack of intermediate innovation support mechanisms (technological parks, incubators, etc.) exacerbate the problem. The former National Agricultural Research Foundation (N.AG.RE.F, currently Hellenic Agricultural Organisation DIMITRA) operated as a focal point for the transfer of know-how, particularly with experimental fields; however due to the economic crisis, the remaining research institutions/research stations in the Region have decreased significantly.

Students' practical training is the only potential wide-scale mechanism for the diffusion of knowledge from the Institutes, and in particular, the Institute of Technological Education of Eastern Macedonia-Thrace, even though there are no measurable data for its assessment as one.

The **degree of cooperation between the three parts of the triple helix** for the purpose of the joint formulation of regional RTDI strategies was particularly limited, if not nonexistent, until the recent (30 July 2013) establishment of the PSKE, which, to date, has had an advisory character. It should be stressed that during the current programming period (2007-2013) there was no essential object for RTDI since there was a central management of the relevant resources under the NSRF by the General Secretariat for Research and Technology, without leaving scope for regional adjustment. The last attempt for the joint development of a regional innovation strategy was made in the period 2004-2006 as part of the project TECHNOGENESIS but it was not followed up, due partly to the change in the method of administration of the NSRF

Even though the establishment of the PSKE was a first step in the right direction, **the establishment of an effective governance system** for the regional innovation system **is still required** in a challenging environment; critical variables of the regional innovation system (taxation, investment incentives, education - including tertiary, employment, agricultural policy) are regulated at a national level; the business sector has not established collective bodies at a regional level, capable of developing strategies and policies, and is under pressure from the daily routine imposed by the long-term economic prospects; the regional government structures operate in a transactional rather than an executive manner and there is, of course, a lack of a culture of dialogue and consensual procedures.

Within this framework, the **main challenges** the Region must tackle in the coming decade are the following:

- The restructuring of the processing sector for the recovery of lost jobs and the improvement of its competitiveness.
- The restructuring of the primary sector towards a purely business orientation and the exploitation of under-utilised natural resources combined with reduced protection/aid under the new CAP.

- The improvement of the educational level of the residents of the Region with a reduction of the percentage of the population that leaves secondary education and the retention of tertiary education graduates in knowledge-intensive jobs.
- The utilisation of the TAP natural gas pipeline transit through the Region of Eastern Macedonia-Thrace, both during its construction and its subsequent productive operation. There is significant scope not only for the creation of new jobs but also for the upgrading of enterprises of the construction sector and of human resources in a number of technical specialisations so that they operate on the basis of the quality criteria applied by a multinational company and can subsequently be utilised outside the Region.
- The utilisation of the increased number of new persons who are returning to the countryside and are active in the primary sector, as a model for change.
- The improvement of the added value of the primary sector combined with first-stage processing by the introduction of innovations that will enhance productivity, will differentiate the products in terms of quality and will solve long-lasting problems along the value chain.

**The main challenges faced by the Region with regard to its performance in the RTDI sectors** are four:

- The upgrading and retention of human capital
- The development of critical mass in scientific areas that are closely related to its business profile.
- Strengthening of links in the business - research sector with the support of the regional administration.
- The 'assisted induction' of the absorption of knowledge, experimentation and business dynamics.

A central role in the above challenges will be played de facto by the academic/research sector which must act as leverage for the transformation of the regional economy on the basis of the knowledge and standards described by Goddard (2011). This includes, *inter alia*, the strengthening of the interconnections between the academic sector and the regional economy through technology transfer and knowledge exchange activities, support by academic/research institutions for the diffusion of knowledge and innovations that have been developed elsewhere, to the benefit of the regional economy; effective exploitation of the lifelong learning structures.

The existing structure of the productive sector focuses on 'traditional'-commoditised, low-intensity activities which are not competitive on an international scale. Due to this fact, the supply of knowledge is not utilised locally. The capacity for supply of knowledge that has been concentrated in the regional unit of Evros in the sectors of Agriculture, Forestry and Molecular Biology-Genetics fits the productive profile of the Region of Eastern Macedonia-

Thrace and can form the basis for the qualitative upgrading of the primary sector and the differentiation of the agrifood cluster. On the other hand, there is a clear inconsistency between supply of knowledge and commercialisation margins in Engineering, Information Technology, Environmental Engineering and Medicine.

In the agrifood sector, the Region of Eastern Macedonia-Thrace has many similarities with Central Macedonia and together, they constitute the largest producer of agricultural products in Greece. According to the above reasoning, there are many synergies, mainly due to the production of the same products (cereals, cotton, vegetables, livestock products). Precisely the same occurs as regards local scientific specialisations. Therefore, there are many levels, not only of synergies, but also of complementarity.

## SWOT ANALYSIS.

The results from the procedure so far for the analysis of the regional environment and the capacity of the Region of Eastern Macedonia-Thrace for innovation, lead to the identification of the areas in which the Region of Eastern Macedonia-Thrace is distinguished on the basis of its performance to date in the areas of entrepreneurship, science, knowledge and creativity, digital infrastructure/services. This leads to the mapping of regional **Powers**. The second component of the SWOT analysis is also a result of this specific procedure, namely the deficiencies and weaknesses in the regional fabric (always on the basis of research of past data).

In a similar manner, but with recourse to more bibliographical data and recent references/reports of international bodies, the factors of the wider external environment of the Region of Eastern Macedonia-Thrace (External/Remote Environment), not only of the European Union, but also of the more general globalised environment, were examined. These factors create **Opportunities and Threats** having positive and/or negative effects, without the Region being able to influence them. On the other hand, it can attempt to deal with the changes which occur over time.

### POWERS

- S1 Concentration in sectors with comparative advantages due to uniqueness and/or excellent quality of raw materials.
- S2 Existence of individual enterprises with excellent performance in emerging sectors which can be an example for the creation of business 'clones'.
- S3 Large extent of coverage of processing in raw materials intra-regionally with positive effects on the regional added value.
- S4 Remarkable availability of lowland areas, pastures, forest and fishery resources.
- S5 Extensive geothermal fields
- S6 Existence of a soil map.
- S7 Existence of a significant number of high-value products in the primary sector (e.g.

PDO).

- S8 Emergence of new alternative crops
- S9 Important range of intangible knowledge in the livestock sector.
- S10 Full academic composition of the academic sector.
- S11 Particularly positive trends in openness, academic productivity (publications) and financing flows to the research sector.
- S12 Strong scientific specialisation in the sector of ICT.

#### WEAKNESSES

- W1 Relatively small size, family enterprises with an organisational structure that does not ensure robustness in the strategic tackling of challenges. This specific weakness is exacerbated by the lack of formation of business clusters.
- W2 Little effort for product innovation. Rather, the tactic of creative copying is followed as regards products and the manner of their production and disposal.
- W3 Deficiency in designing single tourist 'destinations' with characteristics that satisfy corresponding tourist groups.
- W4 Low performance in most categories of competitiveness of the tourist sector of the Region as compared to the more developed areas of Greece.
- W5 No financing structures for high-risk investments of enterprises
- W6 Small and fragmented size of holdings that weighs disproportionately on production cost and renders them uncompetitive.
- W7 Specialisation in crops the demand for which does not show dynamics (cotton, sugar beet, tobacco).
- W8 Low level of standardisation and yield of agricultural production - reduction of processing industries over time.
- W9 Weak collective mechanisms for the promotion and trade of agricultural products
- W10 Low degree of utilisation of natural resources (geothermal fields, pastures, forests, fishery resources).
- W11 Ageing of rural population.
- W12 Abandonment of crops due to disconnection-loss of know-how
- W13 Small supply of ICT services by enterprises in the Region of Eastern Macedonia-

Thrace, without indications of specialisation and technological maturity.

- W14 Lag of all ICT indicators as regards national and European performance.
- W15 Particularly low R&D expenditure as compared to other European regions. However, the positive development of indicators of R&D expenditures in the business sector for the period 2005-2011 is a positive point.
- W16 Particularly low percentage of tertiary education graduates out of the total population as compared to both the national and the European average.
- W17 Significant, almost exclusive, dependence of the research sector on direct or indirect public financing.
- W18 Particularly limited indications of research excellence.
- W19 Poor results and lack of systemicity in the transfer of technology from public research or academic organisations to enterprises.
- W20 Poor performance in European competitive research and technological development projects.
- W21 Absence of intermediate bodies of support to innovation and exchange of knowledge (e.g. Technological Parks, Incubators, BICs, accelerators, etc.).
- W22 Low competitiveness of the academic sector as regards attracting talented students.
- W23 Limited capacity for strategic and business planning as regards Regional Government structures, Local Authorities and the local collective bodies of entrepreneurship.

#### OPPORTUNITIES

- O1 Recovery of economic climate in the Eurozone
- O2 Increasing demand from markets abroad in sectors in which the Region shows an adequate critical mass and a large variety of raw materials of excellent quality.
- O3 Positive trends as regards the increase of the tourist flow to the Greek market on the basis of the changes observed during the period of three years 2011-2013.
- O4 Constant development of the demand for tourism models of special forms of tourism.
- O5 Maximisation of the impact of the routing of the TAP pipeline through the Region.

- O6 Incentives under the new CAP for the restructuring of crops on business criteria instead of subsidies.
- O7 Low level of self-sufficiency as regards products of animal origin at a national level.
- O8 The dynamics of the sector of aquaculture in the international market.
- O9 Incentives under the new CAP for rural development, improvement of infrastructure, etc.
- O10 Utilisation of the approach RIS3 for the planning of a truly regional RTDI policy.
- O11 Utilisation of the HORIZON 2020 programme for aid to excellent research groups.
- O12 Utilisation of researcher mobility programmes for the purpose of strengthening the knowledge base of the Region.
- O13 The transformation of the character of the Region of Eastern Macedonia-Thrace from a 'border area' into a 'gateway to Greece and the EU', owing to the EU's enlargement policy.

#### THREATS

- T1 Weak demand and private consumption without predictions of direct recovery.
- T2 Fears of political instability due to accumulated social tension.
- T3 An overpriced Euro slowing the increase of exports outside the Eurozone.
- T4 A negative environment for entrepreneurship in Greece (legislation, bureaucracy, taxation, access to financing).
- T5 Exposure to competition from other areas that are characterised by increased productivity or lower cost.
- T6 The existence of more than 100 European regions with the same structural characteristics as the Region of Eastern Macedonia-Thrace limits the opportunities for differentiation.
- T7 Global increase of the prices of foodstuff, agricultural supplies and fuel.
- T8 Further reduction of subsidies (and therefore revenues) due to the new CAP.
- T9 Gradual transition to the financing of research on the basis of excellence at a European level.
- T10 Trend for reduction of public expenditure for research (staff, facilities, equipment).
- T11 Brain drain to more attractive Greek or European regions.

T<sub>12</sub> The experience from the current programming period as regards the management of the thematic objectives of smart growth at a central level.

What matters in the reading of the data of the SWOT analysis is the combination of the powers with opportunities (desirable combinations) and of the weaknesses with threats (undesirable combinations) and, on another level, in which way regional weaknesses can be 'corrected' so that they can also occupy the position of a potential desirable combination.

Grouping the **desirable combinations** leads to the following main points:

- Potential competitive advantages in the primary sector and processing can be developed since there are natural resources, know-how and characteristics of concentration of adequate critical mass in selected production sub-sectors. Their exploitation, driven by increasing trends of demand at a European and global scale, can be achieved with the implementation of the appropriate planning/programming and control. Favourable combinations S<sub>1</sub>, S<sub>4</sub>, S<sub>7</sub>, S<sub>8</sub>, S<sub>10</sub> with O<sub>1</sub>, O<sub>2</sub>, O<sub>6</sub>, O<sub>8</sub>, O<sub>9</sub>, O<sub>13</sub>.
- Even though the tourist sector has a relatively small share in the regional GDP but affects positively a wide range of other sectors of the economy, both directly and indirectly, it can, if the weaknesses that have been pointed out (W<sub>3</sub>, W<sub>4</sub>) are eliminated, exploit the projected favourable circumstances for the increase of the tourist flow to Greece with a change in the characteristics of the requested tourism models (O<sub>3</sub>, O<sub>4</sub>).
- The creation and maintenance of the specific comparative advantages requires the 'correction' of certain weaknesses of the regional environment. The main among them refer to aid for research and its interconnection with pre-selected sectors which can create high added value (elimination of weaknesses W<sub>15</sub>, W<sub>16</sub>, W<sub>17</sub>, W<sub>21</sub>, W<sub>22</sub>).

Individual desirable combinations may be examined and highlighted at the processing stage of individual policies and corresponding action plans, e.g. For example, the exploitation of production conditions (S<sub>5</sub>, S<sub>6</sub>), with the elimination of related weaknesses (W<sub>10</sub>, W<sub>6</sub>).

Respectively, the grouping of **undesirable combinations** offers a picture of future situations which the Region of Eastern Macedonia-Thrace would like to avoid.

- Continuation of the inward direction of the productive base in combination with reduced demand from private consumption at a national level leading to stagnation and/or a continuation of downward trends in GVA produced (W<sub>1</sub>, W<sub>2</sub> with T<sub>1</sub>).
- Low competitiveness and deficiency in innovative characteristics in all sectors of the regional economy renders their development under global competition conditions vulnerable (W<sub>4</sub>, W<sub>7</sub>, W<sub>8</sub>, W<sub>10</sub>, W<sub>12</sub> with T<sub>3</sub>, T<sub>5</sub>, T<sub>7</sub>, T<sub>8</sub>).
- Failure to include productive sectors in international value chains exacerbates the problem, as referred to in the above point (W<sub>3</sub>, W<sub>9</sub> with T<sub>5</sub>, T<sub>6</sub>).

- The relevant weak position of the academic and research sector in practically all the significant indicators of knowledge production is at risk, on the one hand, due to its large dependence on public financing which is being continually reduced and, on the other hand, due to change in the characteristics of international competitive programmes (W16, W17, W18, W19, W20 with T9, T10, T11).

Finally, the absence (as shown by both the distant and recent past) of coherent structures of planning-implementation control of results in actions taken to boost innovation and entrepreneurship, completes the vicious circle of exacerbation of the above undesirable combinations, in view of the new Programming Period.

The study of the above points by the decision-making bodies, as part of the RIS3 methodology, can lead to the formulation of a Generic Strategy for the creation of a Vision for the future of the Region of Eastern Macedonia-Thrace and the individual strategic priorities and policy mix that will be implemented in order to achieve the appropriate transformation scenarios.

## GENERAL RTDI STRATEGIES

Combining the above analysis and taking into account the relevant recommendations of the Implementation Guide and the OECD<sup>16</sup> on the typology of the regions, based on the competitiveness and degree of maturity of each regional innovation system on the basis of which three main groups are identified (knowledge nodes, industrial production zones and regions not driven by Science and Technology), we classify the Region of Eastern Macedonia-Thrace in the third category. International experience suggests three main strategic directions:

1. **Building on existing advantages** (boosting of science/guidance by technology or a mix of both). This strategy clearly fits regions with a leading position in the global technological environment, have accumulated R&D capabilities and are likely to have an advantageous 'positioning' for proceeding to the next technological stage. Moreover, they show a great concentration of significant enterprises, research centres and an effective mix of public and private infrastructures with optimum synergies in the creation and diffusion of knowledge.
2. **Support of socio-economic transformation.** This specific strategic direction usually has application in regions in which, following a successful period of development, it is discovered that they must reassess their priorities, improve their know-how, endeavour to introduce it to existing productive structures while, at the same time, creating room for creativity in new areas. Typical examples are regions with a developed motor vehicle industry in which the formation of new areas of knowledge within the existing tradition that they have created in a sector, is a potential route for returning onto the path of growth.

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<sup>16</sup> Regions and Innovation Policy, OECD, 2011

3. **Catch-up in the direction of creating potential on the basis of knowledge.** This obviously concerns regions that follow (or endeavour to follow) developments with the ultimate aim to improve their residents' standard of living. They show characteristics of an absence of high added value economic activities, infrastructures and mechanisms related to the creation and diffusion of knowledge. A critical success factor is to recognise other regional characteristics as well, characteristics which do not rely exclusively on issues of Science & Technology in order to create potential based on knowledge.

**THE APPROPRIATE REGIONAL RTDI STRATEGY IN THE REGION OF EASTERN MACEDONIA-THRACE IS A COMBINATION OF CATCH-UP AND SUPPORT TO THE SOCIO-ECONOMIC TRANSFORMATION.**

What is at issue for the Region is the formation of a mix of strategic priorities which will in turn be transformed into policies and corresponding action plans. Since in the planning and implementation of innovation strategies, the greatest load **falls on the central government, regional policies should be consistent with the general framework of the central targeting strategy.** However, there is still room for regional strategies or interregional strategies, adopted jointly with other regions that have similar characteristics and problems to those of the Region of Eastern Macedonia-Thrace.

Table 5 shows the *suggested strategies* and *indicative policies* that are proposed for the typology of the Region of Eastern Macedonia-Thrace, documented in the previous sections.

Joint agreement on the strategy and development of the necessary policies that can contribute to the achievement of the RTDI strategic objectives, will lead to taking the step of formulating the priorities and road map, i.e. the action plan for the period 2014-2020.

TABLE 5: INDICATIVE STRATEGIES FOR CATCHING UP IN REGIONS WITH A LOW/MEDIUM INSTITUTIONAL INTERVENTION CAPACITY.

REGIONAL TYPOLOGY	STRATEGY / INDICATIVE POLICIES
Primary-sector-intensive regions	<p><b>Upgrade &amp; maintenance of human capital; creation of critical mass &amp; strengthening of links with global knowledge and value chains</b></p> <ul style="list-style-type: none"> <li>• Programmes for the support of innovation: innovation mediators, support to business development with national body antennae, connection to export trade support structures.</li> <li>• Promotion of lifelong learning schemes for enterprises and</li> </ul>

**Regions with structural inertia and/or de-industrialisation**

employees.

- Connection of the coefficients of the regional innovation system to global value and knowledge chains.
- Securing national investment for infrastructure with the aim to enhance connectivity with neighbouring regions.

**Induction - enhancement of the absorption of knowledge and business dynamics**

- Actions taken to strengthen local supply chains with the aim to minimise their fragmentation
- Public contracts oriented toward innovation
- Actions for the promotion of entrepreneurship based on innovation
- Development of latent demand for innovation (innovation coupons, placement of students in SMEs)
- Development and promotion of the use of joint experimentation infrastructures
- Orientation of technological schools toward new qualifications & skills
- Education of low skill employees & unemployed persons
- Support to cooperative clusters which show innovation potential
- Support to the inclusion of the Region in international production networks

THE NEXT STEP: THE VISION

The processing of the overall vision for the future must be based on the recognition of the dominant characteristics of the Region, so as to achieve its most precise place within the existing conditions. According to the Guide of the European Commission on RIS3, a three-dimensional classification system is proposed in which each Region can be 'placed'. The three dimensions represent the corresponding priorities for 'Europe 2020'.

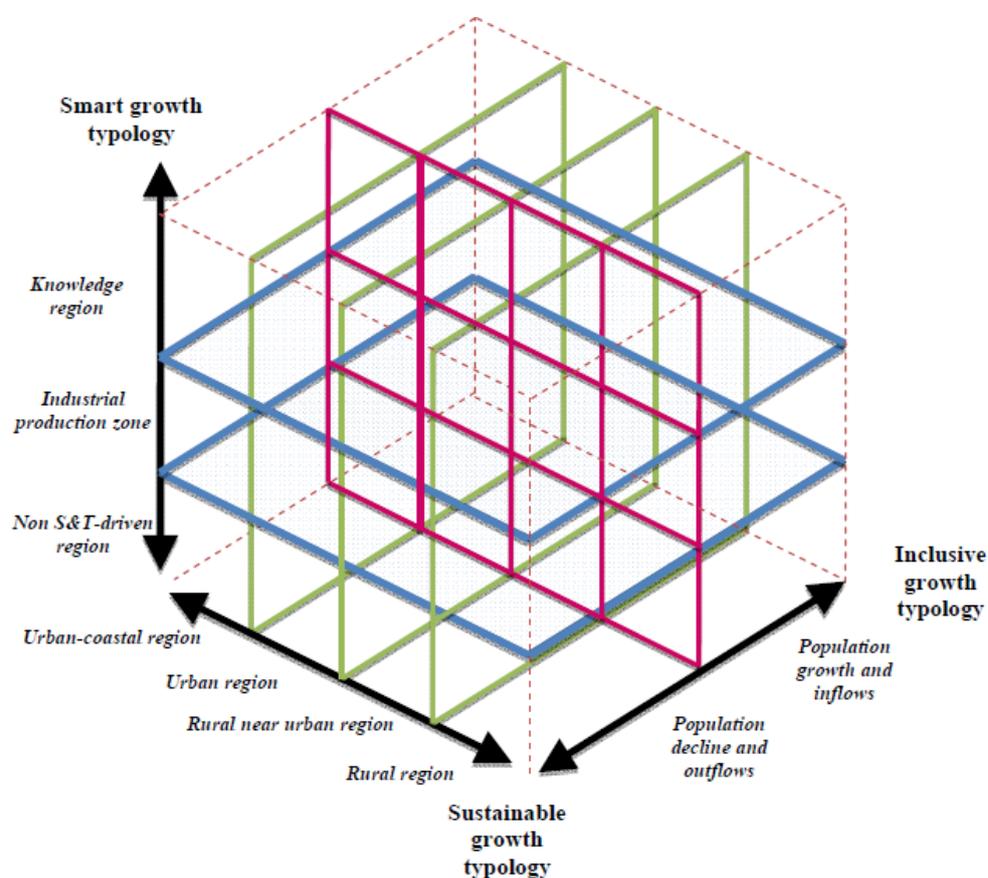


CHART 18: INTEGRATED REGIONAL TYPOLOGIES ACCORDING TO 'EUROPE 2020'

As regards the typology 'Smart Development' (vertical axis), according to the data of the above analysis, the Region of Eastern Macedonia-Thrace is placed in the lower end of the regions **not driven by science and technology**.

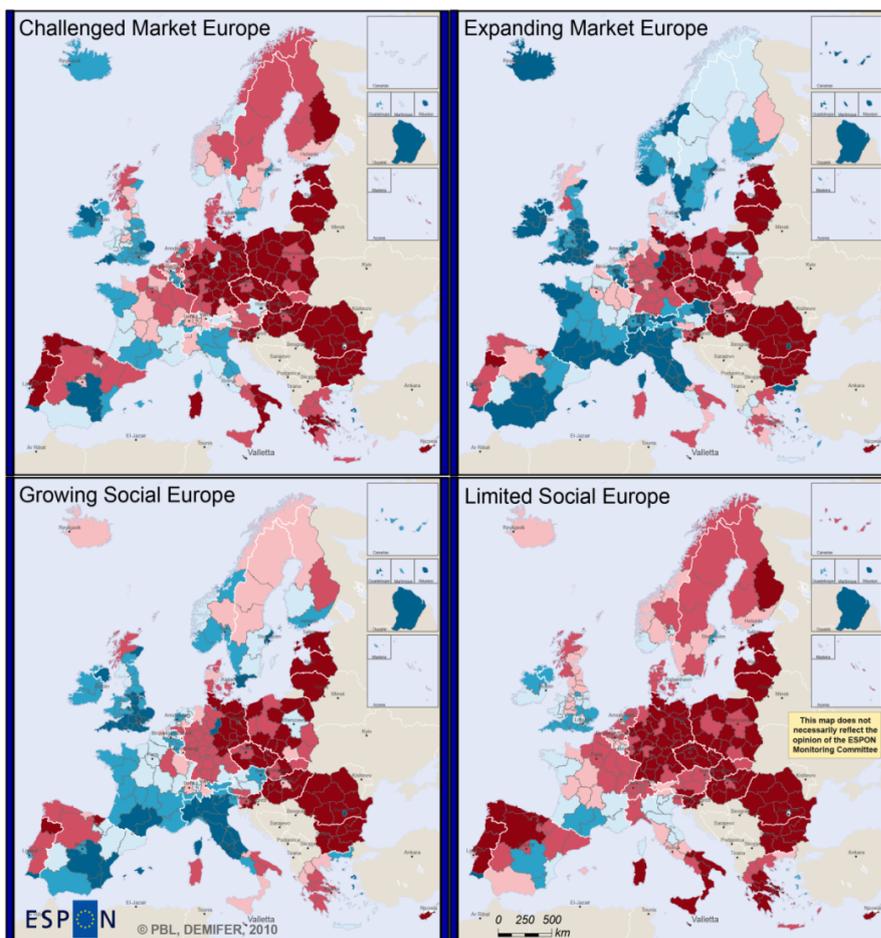
As regards the typology 'Sustainable Development', the classification system which covers the different combinations of environmental and energy challenges is based on the relationship between the anthropogenic and natural environment. The Region of Eastern Macedonia-Thrace is included in the area of the **primarily rural regions**.

Finally, as regards the typology 'Development without exclusions', the classification system that describes briefly the very different issues of social integration faced by the regions is the one that has been incorporated by the programme ESPON DEMIFER<sup>37</sup>. This includes two broad categories of regions, namely those facing a decrease and outflow of population and those facing an increase and inflow of population. On the basis of the four scenarios processed by the specific project (Challenged Market Europe, Expanding Market Europe, Growing Social Europe and Limited Social Europe - see Διάγραμμα 19), the Region of

<sup>37</sup> ESPON. (2010). DEMIFER-Demographic and Migratory Flows Affecting European Regions and Cities. Final Report. September.

Eastern Macedonia-Thrace seems to be very well-positioned in relation to the other Greek regions, with projections of an increase in the active population in three out of the four and to a decrease of 10% in the fourth (Limited Social Europe).

Therefore, the Region is positioned in the **middle of the transverse axis with a trend towards the right.**



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Regional level: NUTS 2  
Source: ESPON 2013 Database, 2010  
Origin of data: Eurostat, NSIs, Estimations, 2010  
© EuroGeographics Association for administrative boundaries

Change in number of persons in labour force, 2005-2050  
(in % after different scenarios)

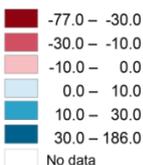


CHART 19: PROJECTION OF CHANGES TO THE ACTIVE POPULATION UNTIL 2050 (ESPON DEMIFER PROJECT 2013).

Considering the current position of the Region of Eastern Macedonia-Thrace, the participants should discuss and determine the possible scenarios of regional transformation 5-10 years from today. The starting point is the position of the Region of Eastern Macedonia-Thrace in Διάγραμμα 18. The individual priorities and strategic objectives respectively will arise by implementing the main strategy. They will in turn form the appropriate mix of action plans with a view mainly to achieving the objective of the desired regional transformation.

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ANNEX TO THE 1<sup>ST</sup> CHAPTER – TABLES & CHARTS

ANNEX - TABLE 1: ANNUAL SURVEY ON INDUSTRY - HANDICRAFT - 2010/ SOURCE: ELSTAT

DESCRIPTION	SECTOR	NUMBER OF ENTERPRISES	GROSS PRODUCTION VALUE	VALUE ADDED	TURNOVER
Food industry	10	72	256 502 215	87 343 928	286 457 364
Beverage industry	11	9	57 471 924	28 899 316	52 698 309
Manufacture of tobacco products	12	*	*	*	*
Weaving of textiles	13	9	84 260 983	26 732 613	90 838 990
Manufacture of clothing apparel	14	17	60 800 502	16 177 654	65 963 032
Manufacture of leather and leather products	15	3	1 635 193	875 013	1 804 333
Manufacture of wood and of products of wood	16	14	81 068 537	30 530 582	88 219 826
Manufacture of paper	17	3	34 616 716	7 686 579	39 599 012
Printing and reproduction of recorded media	18	3	6 789 629	3 085 286	7 547 860
Manufacture of coke and refined petroleum products	19	*	*	*	*
Manufacture of chemicals and chemical products	20	5	36 049 585	11 920 101	39 091 145
Manufacture of rubber products and plastics	22	15	82 911 628	37 157 861	83 927 723
Manufacture of other non-metallic mineral products	23	42	104 493 800	53 537 508	140 828 342
Manufacture of basic metals	24	*	*	*	*
Manufacture of metal products	25	21	83 171 104	31 713 081	83 739 752
Manufacture of Computers, electronic and optical products	26	*	*	*	*
Manufacturing of electrical equipment	27	*	*	*	*
Manufacture of machinery and equipment	28	5	5 582 068	3 673 078	6 823 111
Manufacture of motor vehicles	29	*	*	*	*
Manufacture of furniture	31	15	23 728 511	7 653 607	24 138 566
Other processing activities	32	7	9 555 535	3 456 549	10 824 378
<b>TOTAL</b>		<b>240</b>	<b>928 637 929</b>	<b>350 442 756</b>	<b>1 022 501 744</b>

\*Confidential

ANNEX - TABLE 2: VALUE OF EXPORTS FROM THE REGION OF EASTERN MACEDONIA-THRACE – SHARE OF SECTORS AND CHANGE AS COMPARED TO 2011 AND 2008 - THE OIL PRODUCT SECTOR IS EXCLUDED

SECTOR	VALUE 2012	SHARE 2012	CHANGE 2011	TOTAL CHANGE 2008
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<b>Textile industry &amp; Clothing</b>	176 702	28.62%	-6.70%	-12.26%
<b>Foodstuff</b>	115 450	17.86%	2.41%	21.87%
<b>Non-metallic minerals</b>	110 247	18.70%	-5.02%	-8.71%
<b>Chemicals &amp; Plastics</b>	74 863	12.13%	-16.51%	-34.28%
<b>Beverages &amp; Tobacco</b>	36 523	5.92%	-28.33%	-45.55%
<b>Machines &amp; Devices</b>	32 887	5.33%	8.84%	-21.78%
<b>Wood &amp; Paper</b>	27 926	4.52%	28.78%	63.74%
<b>Other</b>	18 037	2.92%	-33.60%	117.29%
<b>Metals</b>	15 352	2.49%	57.38%	-21.26%
<b>Vehicles</b>	9 372	1.52%	8.62%	53.99%
<b>TOTAL</b>	<b>617 358</b>	<b>100.00%</b>	<b>-5.99%</b>	<b>-10.82%</b>

Source: ELSTAT Processing: Institute of Export Research and Studies (IEES) of SEVE

## Chapter 2 GOVERNANCE SYSTEM

It appears that the organisation of the Governance System, even though an integral part of each smart specialisation strategy, cannot fit into specific 'moulds', i.e. be specified in a uniform manner for all regions. It is likely that this occurs due to the completely different abilities of participants in each region, the objectives of each regional RIS3, the policy instruments that are or will be adopted and in general the maturity of each regional innovation system.

After having reviewed all the guidelines available to date with regard to the organisation of governance systems as part of the development of smart specialisation strategies (chapter 5 in OECD, 2011; Del Castillo et al., 2012; Reek, 2013), the relevant provisions of the Implementation Guide (European Commission, 2012), the recommendations of the expert group to the European Commission (Reid et al., 2012) and the results of self- and hetero-evaluation procedures, we propose a plan for the Governance System of the RIS3 in the Region of Eastern Macedonia - Thrace.

The presentation begins with a representation of the objectives and operations of the Governance System, namely the actions and procedures that a governance system must undertake as part of an RIS3. Subsequently, we examine a possible governance structure which relies mainly on the utilisation of the existing structures that have been developed by the participants in the Regional Innovation System in the Region of Eastern Macedonia - Thrace and finally, we attempt to make an ex ante assessment of our proposals on the basis of the assessment criteria of the European Union for the part of the smart specialisation strategy that is related to governance.

### THE FUNCTIONS OF THE GOVERNANCE SYSTEM

It is absolutely obvious, that for the development of the RIS3 Strategies, the European Commission has adopted the approach of the Deming Cycle (Plan - Do - Check - Act), which constitutes a commonly acceptable approach for the implementation of changes on any scale and for continuous improvement. Διάγραμμα 20 presents this cycle in the framework of RIS3 (Reek, 2013, P. 6-7). This cycle is expected to be repeated at least twice in the period 2014-20 (Foray and Rainoldi, 2013, pp. 8-9), or more often on the basis of the specific provisions of each monitoring and assessment system.



CHART 20 THE GOVERNANCE CYCLE.

Even though, on the basis of the above model, the definition and agreement on the governance needs is one of the last steps (8<sup>th</sup>) of the cycle, elements of governance must have been adopted much earlier; e.g., how are the common strategy and operational planning defined if the participants' positions are conflicting or do not share common ground? (see also Διάγραμμα 21, which follows).

According to Del Castillo *et. al.* (2012), a good model of spatial development must be based on a **governance system** and the appropriate **processes** which allow the search for a competitive advantage through new - future - economic activities. From the perspective of the system, a role is sought for each participant so that its impact on the joint effort is maximised. From the perspective of the process, the most efficient and effective way is sought to define, implement and achieve smart development.

Πίνακας 6 presents the components on the basis of which the Governance System of the RIS<sub>3</sub> will be structured in the Region of Eastern Macedonia - Thrace, the necessary contribution of each and the participants comprising them. It is obvious from the representation that so far, there has been a marginal overlap in only two of the three sectors of the triple helix: the business sector and local government. In contrast, the academic-research sector has not yet developed interfaces with the other two, this being another issue that should be addressed urgently.

TABLE 6 THE COMPONENTS OF THE GOVERNANCE SYSTEM.

Components	Contribution to the Governance System	Existing 'Players' in Eastern Macedonia - Thrace
<b>RESEARCH</b> <i>(Universities, Research Institutes)</i>	<ul style="list-style-type: none"> <li>• They develop the basic knowledge that leads to support technologies of general use</li> <li>• They can be a source of entrepreneurial discovery</li> </ul>	<ul style="list-style-type: none"> <li>• Democritus University of Thrace</li> <li>• Institute of Technological Education of Eastern Macedonia-Thrace</li> <li>• Fisheries Research Institute (INALE)</li> <li>• Local trail R.I. ATHENS</li> </ul>
<b>TECHNOLOGY</b> <i>(Research into enterprises)</i>	<ul style="list-style-type: none"> <li>• They develop solutions which correspond to the needs of enterprises</li> <li>• Significant role of mediator between RESEARCH and ENTERPRISES</li> </ul>	<ul style="list-style-type: none"> <li>• Very few, but good examples (RAYCAP, Lamda Electronics, ...)</li> </ul>
<b>FARMS</b>	<ul style="list-style-type: none"> <li>• Creation of wealth and jobs</li> <li>• A key challenge is to highlight 'hidden innovation' and incorporate it into the innovation management procedures (and into the statistics!)</li> </ul>	<ul style="list-style-type: none"> <li>• Very small and Small enterprises of low (to zero) knowledge intensity.</li> <li>• Small agricultural and livestock holdings</li> </ul>
<b>SUPPORT STRUCTURES</b> <i>(Technological parks, clusters, associations of enterprises,...)</i>	<ul style="list-style-type: none"> <li>• They mediate between RESEARCH, ENTERPRISES and LOCAL GOVERNMENT.</li> <li>• Their role depends on the strategic approach that will be followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Chambers and collective bodies of enterprises / producers by sector</li> </ul>
<b>LOCAL GOVERNMENT</b> <i>(Region, Development Agencies of the Local Authorities)</i>	<ul style="list-style-type: none"> <li>• Key partners in the initial stages of the procedure, supporting the overcoming of obstacles in the relationships/networking of the other participants.</li> </ul>	<ul style="list-style-type: none"> <li>• PSKE</li> <li>• Region of Eastern Macedonia - Thrace and its underlying structures (SMS of the Region of Eastern Macedonia - Thrace, Regional Development Fund, Directorate General for Development Planning, ...)</li> <li>• Development agencies at the level of regional unit</li> </ul>
<b>SOCIETY</b>	<ul style="list-style-type: none"> <li>• Validation of the strategy</li> <li>• Reduction of the time from the creation to the commercialisation of knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• NGOs, social entrepreneurship bodies, etc.</li> </ul>

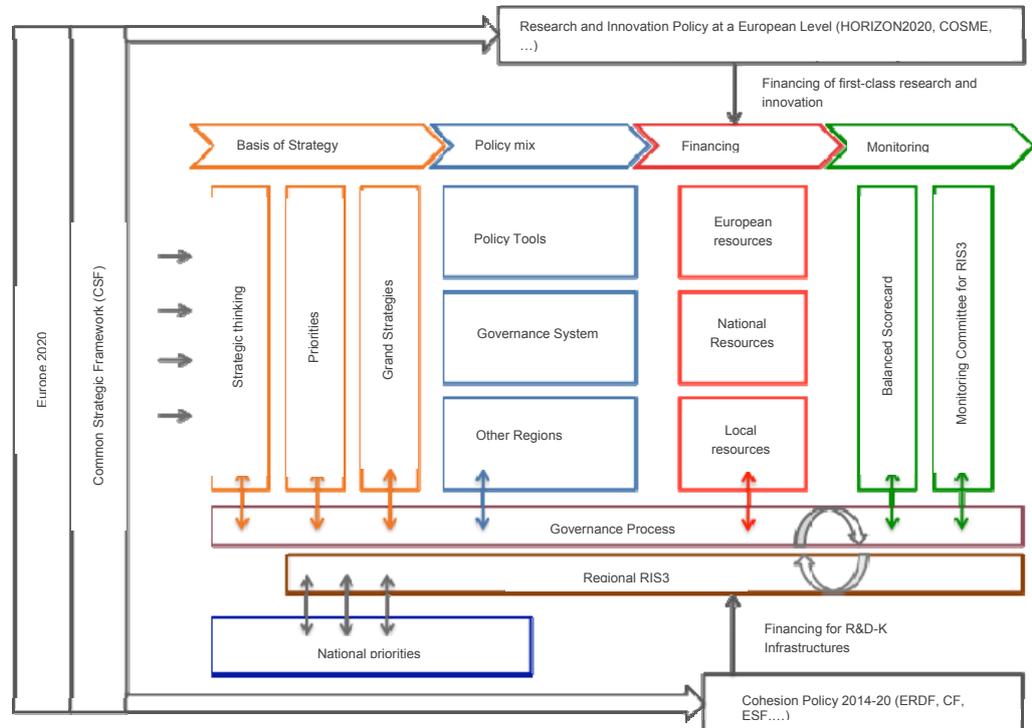


CHART 21 THE GOVERNANCE PROCESS AS PART OF THE SMART DEVELOPMENT STRATEGY.  
ADAPTATION BY DEL CASTILLO ET AL (2012).

Διάγραμμα 21 highlights the central role of the governance process in the planning and implementation of a smart development strategy. In practical terms, the process traverses all activities horizontally, which means that **multiple - and potentially unsynchronised governance procedures are required at an operational level, operating under a single procedure of a strategic nature at a high level** (Reek, 2013, p. 24).

As shown in the process map (Chart 21, bottom left part), **an issue of coordination and alignment with the national level at the level of strategy arises clearly**. The Regional RIS<sub>3</sub> must at least be informed of the national priorities in the RTDI sector and update them on the regional priorities on the basis of the results of the entrepreneurial discovery procedure. This issue has been partly addressed by adopting a common output and result indicator system (see Chapter 5 & 6). Many of the problems in the RTDI policies are attributed to the difficulty in achieving an effective coordination between, on the one hand, the central government bodies, and on the other, the central government and the regional authorities. The OECD (2011, Table 3.6) mentions seven categories of problems: a) availability of funds - the regional budgets may not suffice for taking policy measures at a regional level which complement the respective national measures, b) administrative boundaries - the geographical boundaries of a region may not correspond to the actual geographical boundaries within which an economic activity operates, c) administrative capacity, d) setting of objectives - e.g. the adoption of an objective for an intensity of 1% of

R&D expenditure may not be feasible as such at a regional level, e) policy framework - when the competences of the Ministries do not take into account the complementarity required by cross-sectoral policies, f) asymmetry at the level of information - when different levels of the government do not have all the information necessary for designing and implementing their policies, g) accountability: the results of the RTDI policies are not 'visible' to the general public and therefore, political leaderships avoid to undertake the relevant responsibilities.

The usual ways to tackle the above coordination problems are (OECD, 2011, Table 3.7) systematic dialogue, consultation, establishment of appropriate structures (e.g. regional innovation agencies), financing or co-financing of projects at a regional level from national resources on the basis of criteria of performance in the achievement of goals, as well as the establishment of spatial competences of central government officials. Experience from the OECD Member States suggests that at least 4 of the above options must be active in order to solve the problems, systematic dialogue being the most appropriate method.

A last issue of critical importance even for the first steps of development of the RIS3 is related to **communication as an awareness-raising procedure which promotes participation in public dialogue**. Access to the general public is neither easy nor inexpensive, but wide participation is necessary for the development of a truly universal strategy that will cover the needs of enterprises. Raising awareness, in addition to informing the public on the objectives of the smart development strategy, plays a significant role in the identification of potential partners and their commitment to participate in the procedure.

## GOVERNANCE STRUCTURE

Any plan for changes and economic transformation of the scale which represents a regional smart specialisation strategy requires the existence of appropriate organisational structures which will guide it properly. After reviewing all the relevant guidance texts and the requirements laid down in Law 4310/2014, Eastern Macedonia-Thrace has adopted a three-tier model as follows:

1. **Governance Structure Tier 1 Coordination through a Regional Coordinating Committee (RCC)** At this level, the Regional Research and Innovation Council (RRIC) is utilised, as provided for by Article 10 of Law 4310/2014, with assistance from representatives from the Regional Administration (including the Managing Authority) and social organisations/associations. Representatives are therefore appointed by various social organisations to set up a pool of bodies, dealing with such matters as food, the environment, culture, health, etc., who are invited by the RCC to attend its meetings, depending on the relevance of the agenda each time (e.g. environment, health, culture, food, etc.). The RCC members are highly esteemed and influential individuals, with in-depth knowledge of research and innovation matters and decision-making capacity.
2. The basic competences of the Regional Coordinating Committee include:
  - a. submission of recommendations to the Head of the Region and the Regional Council concerning the

- i. networking of the regional officials dealing with the RTDI, as well as proposals on the inclusion of the officials and research organisations in and interconnection thereof, with the regional economies;
  - ii. analysis of the strategies for RTDI development in the region, of the regional partnerships and of suitable tools for the achievement of the RIS3 targets;
  - iii. increased access of beneficiaries to sources of financing, as well as inclusion of research organisations in, and interconnection thereof with, the economy; and
  - iv. utilisation of the Region's researchers by strengthening existing or emerging excellence and encouraging participation of researchers from the regions in those research activities at national, Union or international level;
- b. coordination and supervision of the tasks carried out by the Executive Structure;
  - c. securing of political and institutional support to the lower tiers of the governance system;
  - d. support to the regional RIS3 before other regional, national or European authorities (neighbouring regions, Ministries, the European Commission).

The RCC comprises a total of 12 members, including the 7 individuals provided for in the articles of incorporation of the RRIC, 3 individuals from the Regional and 2 representatives of social organisations.

3. **Tier 2: Executive / Administrative** A small **Executive Structure** (ES) (with 4 members) will be established, which will be responsible for the implementation of the action programme under the coordination and guidance of the RCC and in consultation with the KICs (see tier 3). Its key competences include:
- a. collection of data through the monitoring system, drawing up of periodic progress reports on the basis of a target-setting system;
  - b. monitoring and implementation of the action programme;
  - c. monitoring and coordination of actions at governance tier 3;
  - d. translation of the strategic targets managed by the RCC into operational targets for governance tier 3;
  - e. networking with other regions on matters of common interest;
  - f. active search for funds from sources other than the Partnership Agreement and setup of the relevant files on behalf of the Region as the beneficiary of the financing;

- g. diffusion of the results relating to the RIS3 of activities throughout the entire regional fabric;
- h. implementation of the entrepreneurial discovery process, to create Knowledge and Innovation Communities and provide them with post-establishment support.

The Executive Structure (ES) is staffed with persons with administrative experience, e.g. from the SMS of Eastern Macedonia-Thrace, the Directorate for Development Planning, the Directorate for Rural Economy and Veterinary Medicine of the Region and the Employment and Career Structure of the Democritus University of Thrace, in cooperation with the respective structure of the Institute of Technological Education of Eastern Macedonia-Thrace (appointment of a common representative).

4. **Tier 3: Documentation and planning of actions. Knowledge and Innovation Communities (KICs)** will be established in specific sectors of interest. These are informal partnerships that can be set up by the networking of interested bodies, to allow such processes as entrepreneurial discovery. It is, however, important to support the sustainability of these communities following completion of an entrepreneurial discovery process. The purpose and key competence of the KICs consist in the further processing of proposals with a view to developing plans that can be included in the RIS3 or other relevant available programmes at national and European levels and to ensure two-way dialogue between the planning and the application/implementation of the RIS3. The KICs are intended to turn into autonomous and self-governed communities of legal and natural persons from all branches of the quadruple helix in specific sectors of interest in the region, as well as at an inter-sectoral level according to the region's priorities. Initially, KICs may be set up in the agrifood sector, tourism and other emerging sectors, as well as in inter-sectoral fields such as agrotourism, e-tourism, etc. Particular emphasis is placed on the participation of representatives of social organisations, to ensure two-way dialogue with the business and academic communities in the context of creating innovation that is relevant to the society's needs, informing the society with a view to ensuring acceptance of innovation, as well as encouraging all forms of innovation (technological, organisational, etc.), social innovation in particular.

The above are summarised graphically in Διάγραμμα 22. The basis structures of each level are supported in their work by appropriate bodies, depending on their deficiencies in skills, special resources or on the basis of explicit requirements which are provided for in the legislation or the regulatory framework and are already known (e.g., ongoing assessment) or will arise in the future.

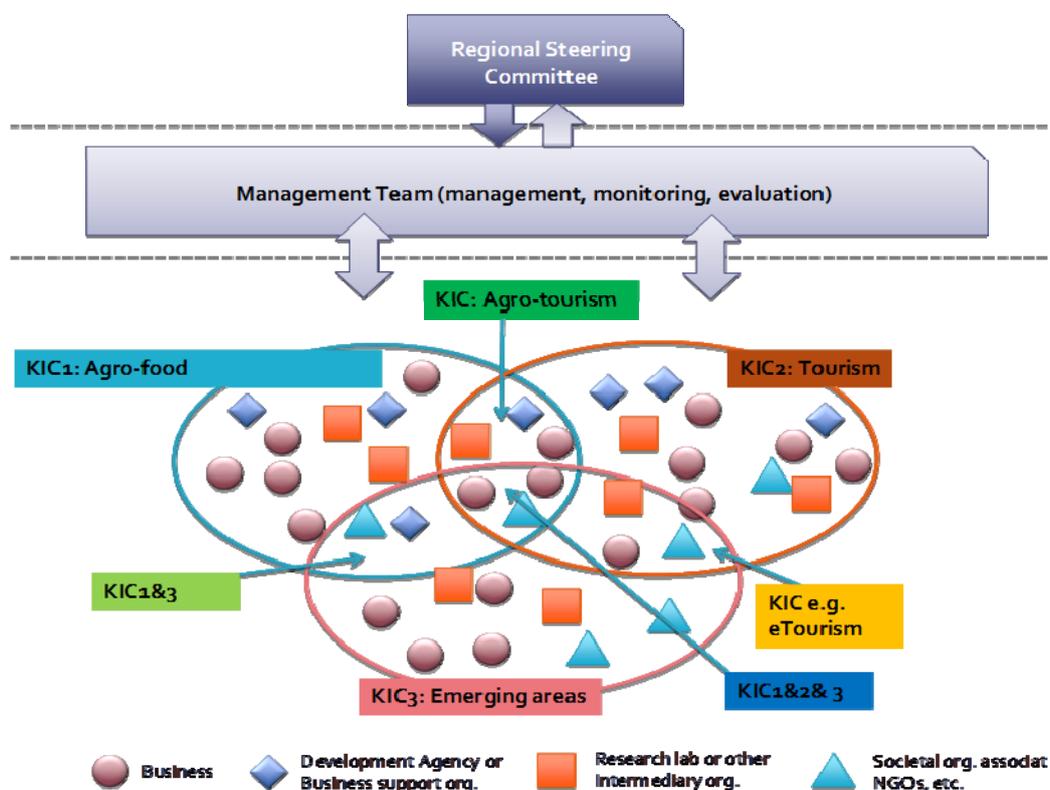


CHART 22 THE STRUCTURE OF THE GOVERNANCE SYSTEM.

A working group has been set up in the context of the European Parliament Preparatory Act to support the maturing of the RIS<sub>3</sub> in Eastern Macedonia-Thrace, with the following goals *inter alia*:

- to further process the structure;
- to set out the procedures;
- to identify exactly the bodies to participate at each governance level and each sectoral field of interest, and
- the criteria used to choose the staff members of each structure; and
- to specify the required qualifications and skills which will determine the education and training needs.

It should be noted that the procedure used to set up the three-member committee provided for by Article 10 of Law 4310/2014 on the establishment of the PSKE, was activated on 25 February 2015 by decision of the Head of the Region of Eastern Macedonia-Thrace.

Moreover, in the context of the technical assistance of the ROP for Eastern Macedonia-Thrace 2014-2020, a specific target has been set (both in Priority Axis 5 - ERFD and Priority Axis 6 - ESF) for supporting the Regional Innovation and Entrepreneurship System. Initially, the cost of the planned support stands between EUR 100 000 and 120 000 per year.

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## Chapter 3 VISION

According to the data so far, the growth vision of the Region concerns *'the gradual restructuring and modernisation of the production model of the Region of Eastern Macedonia-Thrace, the deepening of social cohesion with the utilisation of the intrinsic potential of the Region of Eastern Macedonia-Thrace, including its geostrategic position and the mobilisation, not only of existing, but also of new social collegialities'*.

The theory of systems of administration by objectives states that a successful vision must be S.M.A.R.T., namely:

- Specific - it should aim at specific areas of improvement.
- Measurable - it should quantify the measurement of progress.
- Assignable - it should define who is responsible for its achievement
- Realistic - it should state what is actually achievable given the available resources.
- Time-related - it should undertake a commitment as regards when the objectives will be achieved

Examining the wording in relation to the SMART criteria and taking into account the RIS3 areas of intervention which are a sub-group of the development planning of the Region, we find that the points 'gradual restructuring and modernisation of the production model', 'utilisation of the intrinsic potential' and 'mobilisation of social collegialities', must be specified further and performance objectives for 2020 must be set in relation to them. In addition to the above, it must be taken into account that the only impact indicator at the level of the Strategy Europe 2020 on 'smart development' is the R&D intensity as a percentage of the GDP, in regards of which the performance of the Region of Eastern Macedonia-Thrace for 2011 was 0.57% when the European target for 2020 is 3% and the corresponding national one, 1.2%.

The selection of a vision with SMART characteristics, in addition to everything else, leads to the activation of the procedure for the formation of the monitoring system for the RIS3 strategy: all the activities that will be subsequently designed should serve, on the basis of logical relationships of causality, the achievement of the quantitative objectives of the vision.

A proposal for a vision consistent with the above is the following:

*In 2020, Eastern Macedonia-Thrace will be the second knowledge-intensive industrial pole on Greece, doubling investments of enterprises in research and development. The utilisation of intrinsic and imported knowledge will improve the gross value added of its agrifood cluster by 20%. At the same time it will invest in its natural and cultural reserves so that it will be transformed into a 'tourist destination of excellence' improving the tourism key performance indicators by 20%. For this purpose, it will exploit new collegialities to the maximum extent, releasing creative forces and strengthening the base of its creative potential.*

The first part of this proposed vision concerns the reconstruction and modernisation of the production model on the basis of the principles of smart growth and implies a restructuring of the industrial base. Reference to the agrifood cluster, the basic production structure of the Region, also serves the same purpose, from the point of view of non-technological innovation. Finally, reference to new collegialities and the strengthening of the base of the creative potential implies a bottom-up governance procedure with an enhancement of the institutional capacity of the regional innovation system.

All the objectives set above are measurable and are illustrated in the following table.

TABLE 7: IMPACT INDICATORS OF THE VISION

OBJECTIVE	INDICATOR	REFERENCE YEAR	BASIC PRICE	OBJECTIVE 2020	UNIT OF MEASUREMENT
<b>Doubling of investments of SMEs in R&amp;D</b>	Per capita business expenditures in R&D	2011	22.4	45.0	EUR
<b>Increase by 20% in the GVA of the agrifood cluster</b>	GVA of the agrifood cluster	2011	874.0	1048.8	(million EUR)
<b>Improvement by 20% in the key performance indicators of the tourism sector</b>	Total overnight stays	2012	1 442 132	1 730 558	overnight stays
	Total overnight stays of foreigners	2012	675 237	810 284	overnight stays
	Average revenue per overnight stay	2011	68.4	82.0	EUR
	Average duration of stay per visitor	2010	2.9	3.5	days
	Total impact (direct, indirect and provoked) of the value chain of the tourism sector on the Regional economy	2011	505.0	606.0	(million EUR)

## Chapter 4 PRIORITIES

### HORIZONTAL PRIORITIES FOR IMPROVING THE REGIONAL INNOVATION SYSTEM.

As mentioned above, the SWOT analysis resulted in a general strategy which aims *at the recovery of lost ground against the other European regions, combined with support to the socio-economic transformation*. Having regard to:

- the regional typology under which the Region of Eastern Macedonia-Thrace is classified (see point 12 in Section II above),
- the recommendations of the Guide (see Annex II, pp. 51-52), and the
- the Position Paper of the European Commission on the development of the Partnership Agreement for the Period 2014-2020 of 13 November 2012,

we conclude with the following horizontal priorities:

- 1) **Upgrade of the institutional capacity of the Regional Innovation System and its constituent parts** as regards the:
  - i) improvement of the systemic capacity for the planning and implementation of a documented, overall and coherent regional strategy on innovation, equipped with appropriate feedback loops;
  - ii) development of capacities for the prompt recognition of opportunities - at a technology and market level - and risks to the external environment and management of their consequences on the regional innovation system;
  - iii) establishment of an efficient and effective governance system for the Regional Innovation System;
  - iv) iv) creation of a methodology for the design and implementation of feedback cycles for the purpose of supporting the innovation system of the Region which, *inter alia*, is called on to assess the 'carrier capacity' in each proposed action, in other words, whether a proposed investment grid in a specific branch/sector leads to a corresponding result. This methodology will allow the updating of the initial planning and the direct assessment of small-scale pilot projects, in order for them to be transformed (or not) into project nuclei of the transformation plan of the regional economy;
  - v) the assessment of existing research structures and infrastructures which are characterised as excellent at a European level (Software Technology and Genetics)

or are unique at a national level (Genetics and Oil Technology) and additionally, the strengthening of new structures and infrastructures.

- 2) **Upgrade and retention of human capital aiming, *inter alia*, at:**
  - i) the implementation of training and lifelong learning programmes with an emphasis on the learning of the Greek language by adults and a focus on business enterprise and other priority objectives for the Region of Eastern Macedonia-Thrace;
  - ii) the reorientation of the study programmes of the regional academic institutions for the provision of new skills;
  - iii) the promotion of an innovation and entrepreneurship culture at all levels of education and to graduates;
  - iv) the provision of incentives to enterprises for the improvement of the skills of their staff;
  - v) the attraction of talented students, researchers and teachers in the academic and research institutions of the Region of Eastern Macedonia-Thrace with support to the development of networks of scientific and research excellence in the form, e.g., of scholarships, 'eponymous seats', interdisciplinary, cross-sectoral, cross-departmental and cross-institutional laboratories; and
  - vi) the provision of opportunities for acquiring work experience or commencement of a knowledge-intensive entrepreneurial activity for new graduates.
- 3) **Targeted supply of knowledge, strengthening of the absorption of knowledge and induction of the entrepreneurial dynamics, aiming *inter alia* at:**
  - i) promoting business investment in R&D, either autonomously or in cooperation with knowledge-producing bodies;
  - ii) highlighting the underlying demand for innovation, e.g. through innovation coupons;
  - iii) developing common experimentation structures between the research and productive sector;
  - iv) supporting the development of research results through the creation of spin-offs;
  - v) supporting innovative and open entrepreneurship;
- 4) **Boosting the intensity and quality of intra-regional and inter-regional networking, aiming, *inter alia*, at:**
  - i) supporting cooperative schemes of enterprises with an innovation potential, along the value chains;
  - ii) activating and consolidating technology transfer channels from the research to the productive sector, e.g., through the placement of students or new graduates in enterprises or of business executives in research laboratories, with shared use of

research infrastructures such as, *inter alia*, the GRID computer node in the Institute of Technology of Eastern Macedonia-Thrace.

- iii) actions for the awareness-raising and information of the production network on opportunities arising from the application of technological (also including the basic support technologies) and non-technological innovation in traditional sectors (primary sector, tourism), so as to create requisites for the diffusion of innovation and boosting of demand;
- iv) iv) encouraging intra-regional and international research cooperation, also including strengthening the participation of academic or research institutions and enterprises in the programmes of the European Centre for Nuclear Research (CERN).
- v) v) supporting the interconnection of enterprises with interregional and international production networks;
- vi) vi) interconnection of the support structures for enterprises (e.g. Chambers, development agencies) and openness with more experienced, national structures.

As regards the above, **the issue of the overall upgrade of the institutional capacity of the regional innovation system is crucial** and concerns all the sectors of the triple helix (productive sector, research/academic sector, regional administration). If it is not addressed in a systematic and comprehensive manner, both the effort for recovery of the lost ground at an institutional level and the establishment of a virtuous circle of improvement are put at risk.

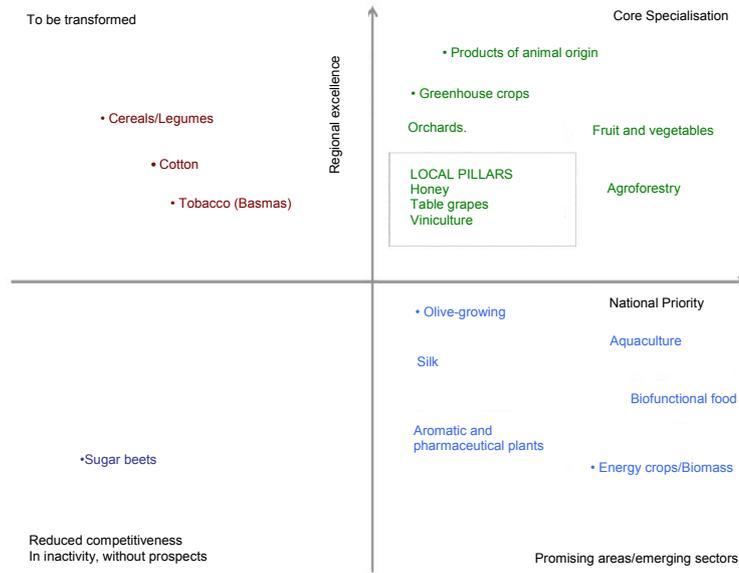
## VERTICAL PRIORITIES FOR INTERVENTION IN THE PRODUCTION SYSTEM

In early January 2014, the Council for Innovation and Entrepreneurship adopted a multicriteria methodology for prioritising the areas of intervention in the production system, based on two axes: *national priorities*, on the basis of the available strategy texts, and the *capabilities of Eastern Macedonia-Thrace*, based on the existing situation. The areas of intervention were classified into four categories:

- (a) the areas of the regional *core specialisation* which are characterised as high-priority at a national level and show a significant concentration of powers at a regional level,
- (b) the Promising or Emerging areas of regional specialisation which are characterised as a high national priority but show a low concentration of powers at a regional level,
- (c) the areas to be transformed, i.e. showing a high concentration of powers at a regional level but characterised as a low national priority; and
- (d) the areas without prospects, i.e. characterised as a low national priority and showing a low concentration of powers at a regional level.

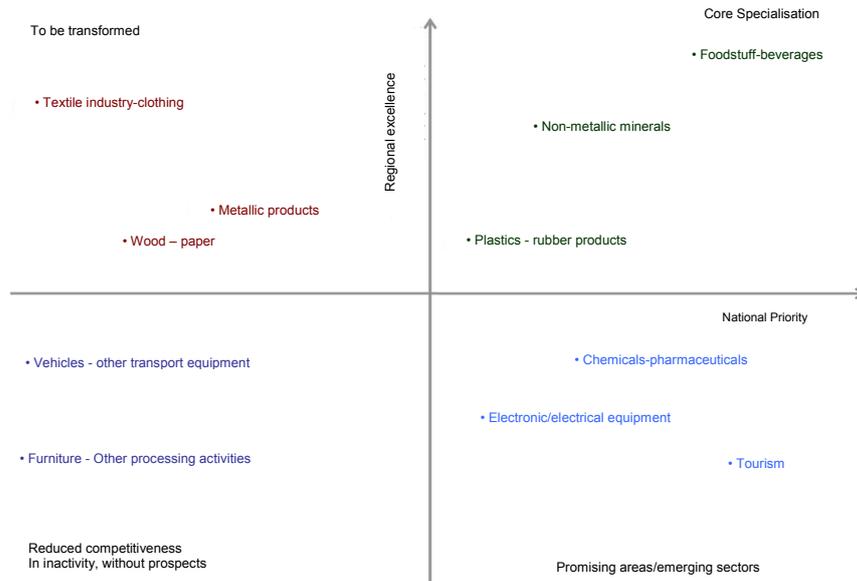
The results of this procedure are summarised in the chart which follows and forms the basis for following proposals.

Agricultural Sector: Final Classification



(a)

Agricultural Sector: Final Classification



(b)

**CHART 23 HIERARCHY OF AREAS OF INTERVENTION IN THE PRODUCTION SYSTEM OF THE REGION OF EASTERN MACEDONIA-THRACE. (A) AGRICULTURAL SECTOR. (B) PROCESSING - TOURISM.**

Having regard to the data which led to prioritising the areas of intervention in Διάγραμμα 23 (relative size, critical mass, capacity for the leveraging of R&D expenditure by sector, level of technological capacity), we distinguish two main pillars of intervention in the production system of Eastern Macedonia-Thrace, i.e.,

- the transformation of the agrifood cluster and
- the expansion and consolidation of the emerging sectors of the regional economy.

Both pillars of intervention have significant scope for both technological and non-technological innovation. The following hierarchy specifies the horizontal priorities referred to in the previous section in the sense of focusing available resources on specific activities.

The priorities for interventions under the first pillar are the following:

- 1) Modernisation of the agrifood cluster and improvement of the regional added value with the use of technologically-driven innovation:
  - i) Development of new, competitive agricultural products which are certified as regards quality and characteristics.
  - ii) Development of new, competitive products which are certified, as regards quality and characteristics, in the sector of foodstuff-beverages, utilising input from the primary sector.
  - iii) Utilisation of modern technologies and production systems for the reduction of inputs in the production process.
  - iv) Reduction of the cost of production and distribution of products (including energy and transport costs).
  - v) Utilisation through alternative uses of the by-products of the primary sector, including their use as an energy resource.
  - vi) Utilisation of technologies for the reduction of the volume and toxicity of waste along the value chain of the agrifood cluster and for the further reduction of its environment footprint.
- 2) Improvement of regional added-value through the adaptation and use of mature process, organisational and promotional innovations, including the use of ICT, aid to sources of uniqueness (e.g. PDO products) and the upgrading of human resources. Such interventions include, *inter alia*, on the basis of the results of the consultation:
  - i) Spatial planning, cadastre, mapping, designation of land use zones, reparcelling.

- ii) Rational management and utilisation of natural resources (waters, agricultural land, forestry heritage, pastures, etc.)
- iii) Restructuring and balanced development of the productive sectors (replacement of part of the areas of field crops, promotion of mixed cropping, aid and development of livestock farming, modernisation of existing traditional crops, aid for fisheries and aquaculture, exploitation of forests as an additional resource base, targeted promotion of energy, aromatic and pharmaceutical products.
- iv) Enhancement of actions for the completion of value chains through organisational innovations.

The weight of development of product innovation in the agrifood sector will fall on the enterprises of the foodstuff-beverages sector, which means that they must be supported in respect of the development of their innovation capacity through human and material resources. The same enterprises may also lead initiatives for new crops utilising organisational innovations such as contract agriculture. The other activities referred to above concern mainly producers or holdings which require intensive informative actions and demonstrations.

The priorities for interventions under the second pillar are the following:

- 1) Strengthening of technologically-driven product or process innovation, preferably through the implementation of Key Enabling Technologies in the sectors:
  - i) plastic-rubber products,
  - ii) pharmaceuticals,
  - iii) electronic/electrical equipment,
  - iv) innovative building materials,
  - v) energy, environment and hybrid technologies.
- 2) Provision of incentives for the installation of units of the three above sectors in Eastern Macedonia-Thrace and encouragement of new innovative activity.
- 3) Expansion of the tourist product through organisational and promotional innovations such as:
  - i) creation of a single system for the organisation, operation and management of the integration of products of the natural and cultural environment, of the agrifood and the industrial sector, into the tourism/culture network of the Region of Eastern Macedonia-Thrace.
  - ii) the networking of the tourism sector with sectors that affect the tourist product directly (food services, transport, trade, processing).

- iii) the strengthening of tourist networks and integrated tourism programmes/destinations.
- 4) Development of promotional innovations for the strengthening of the branding of marbles and the expansion of markets.
- 5) Attraction or support to investments in service enterprises which serve consolidated or emerging sectors of the regional economy such as:
  - i) Certification of health claims in foodstuff, design of biofunctional foodstuff.
  - ii) Information and communication technologies with applications in the primary sector or industrial information technology;
  - iii) Industrial planning;
  - iv) Industrial product certification;
  - v) Marketing of agricultural products;
  - vi) Special forms of tourism (cultural tourism, ecotourism, medical tourism, religious tourism, winter tourism, conference tourism, gastronomic tourism, etc.)
  - vii) Specialised health services (diagnosis, prevention, rehabilitation, treatment).

## Chapter 5 POLICY MIX, ROAD MAP AND ACTION PLAN

A European Parliament Preparatory Action entitled '*Actual and desired state of the economic potential in regions outside the Greek capital Athens*' has been in progress since 1 September 2014, as implemented by the Joint Research Centre of the European Commission (JRC/EC), whose beneficiary is the Region of Eastern Macedonia-Thrace. This action will be implemented over a period of 15 months.

Based on a detailed evaluation of the RIS3 in Eastern Macedonia-Thrace and of the factors affecting its successful implementation, significant steps have been taken to ensure that the entrepreneurial discovery process is sustainable, well-documented and firmly established, to strengthen and support the creation and development of ideas for development.

More specifically, a participant engagement process has been developed, which is being implemented gradually and is oriented towards the organisation of focus groups as a means for entrepreneurial discovery. The focus groups results will be further processed through the project development labs. These focus groups are comprised of groups of participants covering all the aspects of the quadruple helix. A total of 12 focus groups have operated so far, covering already, three fields of activity in the core sector or in the emerging sectors of interest in the Region (value chains in the wine, dairy, meat, tourism sectors). Another 3 to 4 groups are expected to operate for the value chain of marble-zeolite in March 2015.

The activity carried out so far has brought up 36 potential projects for further processing and analysis in the context of the project development labs, where participants will consider more detailed implementation parameters, such as the timeframe, financing from various sources and implementation procedures. This process will provide additional indications and recommendations for the optimal implementation of RIS3 in Eastern Macedonia-Thrace. It will also support the process for the determination of appropriate selection criteria, as well as monitoring and evaluation tools and procedures.

In view of the above, coupled with the action plan of the European Parliament Preparatory Act, it is obvious that the specialisation process of the action plan, in the context of the RIS3 in Eastern Macedonia-Thrace, is in progress and implemented smoothly, with very hopeful results achieved so far.

### AXES OF INTERVENTIONS

The drafting of the regional innovation strategy on the basis of smart specialisation has relied, in addition to the representation and assessment of the areas of smart development

policy, on an integrated mapping, through the cause and effect relationships of the factors affecting the overall growth potential of Eastern Macedonia-Thrace. This mapping was carried out during the planning of the new ROP and supplied RIS3 with specific logical paths for the required interventions.

The list of priorities in the 4th Chapter, combined with the range of potential sources of financing for the necessary interventions (Structural Funds - i.e. ERDF, ESF, EAFRD, EMFF - not only with a regional but also a sectoral dimension, HORIZON 2020, COSME, ERASMUS, EUSAIR, INTERREG, etc.) comprise an interesting riddle - 'which programme pays for what, and when?').

The Region of Eastern Macedonia-Thrace considered the planning of the new ROP for the period 2014-2020 as a challenge, trying to meet the following criteria with regard to RIS3:

- The necessary actions for restarting the coordinated operation of the regional innovation system and the gradual strengthening of the factors that are financed primarily under the new ROP. In this way the basis is set, *inter alia*, for the effective operation of the governance system.
- Due to the diagnosed low maturity of the regional management mechanism, initially, the utilisation of mature policy tools allowing the rapid setting-up of the corresponding actions was preferred.
- The new ROP adopts some of the policy tools of the previous programming period, in which an intense interest had been recorded on the part of the factors of the Regional Innovation System in the Region of Eastern Macedonia-Thrace, with the aim to speed up the procedures of their life cycle for covering established regional needs.
- Actions are being planned for implementation through the new ROP for Eastern Macedonia-Thrace aiming to deal with purely regional needs and support activities which are highly interesting at a regional level, but are classified very low on the national list of priorities.

Approval of the final versions of the sectoral operational programmes by the European Commission services will allow for a more detailed presentation of both the actions relating to the priorities of the RIS3 of Eastern Macedonia-Thrace and a rudimentary assessment of the financing ceilings (public expenditure and private participation) which can be secured by the Region of Eastern Macedonia-Thrace from specific sources.

Πίνακας 8 shows the result of the above exercise in terms of specific targets (and in terms of categories of operations, as appropriate), by correlating the contents of all operational programmes with the key axes of intervention of the RIS3.

TABLE 8 KEY AXES OF INTERVENTION PER SOURCE OF FINANCING

Axis of Intervention	ROP for Eastern Macedonia-Thrace 2014-20	Sectoral Programmes 2014-20	European Programmes or
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			other sources
<b>Creation of Aptitudes under the Regional Innovation System</b>	(ST 5.3) Establishment and operation of the governance system  Collective tools of strategic planning on a regional scale  Research strategy of higher education institutions	Operational Programme Competitiveness, Entrepreneurship and Innovation, Axes 4 & 5 (only for Public Administration).  (OP Competitiveness, Entrepreneurship and Innovation, ST 2.4) Upgrading the public administration's capacity to support entrepreneurship.	Participation, as appropriate, of bodies of the Region of Eastern Macedonia-Thrace in European or transnational programmes with similar objectives.
<b>Creation of new knowledge</b>	(ES 1) Increasing R&D business investment for the development of new products and services in the priority areas of the RIS <sub>3</sub> .	(OP Human Resources Development, Education and Lifelong Learning, ST 10.2.ii) Strengthening research human resources.  (OP Competitiveness, Entrepreneurship and Innovation, ST 1.1) Increasing business initiatives and partnerships for the promotion of innovative entrepreneurship, according to the national research and innovation strategy for smart specialisation (RIS <sub>3</sub> strategy).  (OP Competitiveness, Entrepreneurship and Innovation, ST 3.1, OC 1) Upgrading and/or developing research and innovation infrastructure, to enhance Greece's innovation capacity for supporting entrepreneurship.  (OP Rural Development, Measure 16, Sub-measure 1) Establishment and operation of operational groups within the European Innovation Partnerships (EIPs) for agricultural productivity and sustainability.	Participation of research groups or enterprises with research activity in the programme HORIZON 2020.  Participation of SMEs in COSME and the SME Instrument of HORIZON 2020.
<b>Diffusion of knowledge and innovations and networking</b>	(ST 2) Strengthening collaborative research between research-academic bodies and undertakings in the priority areas of RIS <sub>3</sub> .	(OP Human Resources Development, Education and Lifelong Learning, ST 10.2.ii) Strengthening research human resources.  (OP Human Resources Development, Education and Lifelong Learning, ST 10.2.iii) Increasing partnerships between higher education institutions and the business community.  (OP Competitiveness, Entrepreneurship and Innovation, ST 3.1, OC 3) Development of capacity centres.  (OP Competitiveness, Entrepreneurship and Innovation, ST 3.1, OC 4) Innovation development centre.  (OP Rural Development, Measure 1) Knowledge transfer and information actions.  (OP Rural Development, Measure 16, Sub-measure 2) Pilot projects for the development of new products, practices, processes and technologies.	Participation, as appropriate, of bodies of Eastern Macedonia-Thrace in European or transnational programmes with similar objectives.
<b>Human Resources</b>	Not Applicable.	(OP Competitiveness, Entrepreneurship and Innovation, ST 2.2) Enterprise and worker adaptation to new development requirements, concerning in particular enterprises that meet the standards of the new development pattern for	The programme ERASMUS+ is fully compatible with the individual priorities which concern the

Greece.

(OP Competitiveness, Entrepreneurship and Innovation, ST 2.3) Strengthening enterprise participation in education and training systems and in skill prediction mechanisms.

(OP Human Resources Development, Education and Lifelong Learning, ST 10.3.i) Enhancing the quality and attractiveness of lifelong learning and participation of people therein (aged 16-66+), with certification of qualifications and interconnection of formal, non-formal and informal learning.

(OP Human Resources Development, Education and Lifelong Learning, ST 10.4.i) Upgrading the vocational education and training curricula - Increasing the number of students/graduates holders participating in apprenticeship programmes.

(OP Human Resources Development, Education and Lifelong Learning, ST 10.4.ii) Practical training, entrepreneurship & innovation programmes in higher education.

academic institutions of the Region.

The Marie Skłodowska-Curie actions in the context of HORIZON 2020 relating to academic and research bodies in the Region.

### **Actions for the support of innovative entrepreneurship and openness**

(ST 4) Increasing new research- and technology-intensive enterprises in the priority areas of the regional smart specialisation strategy (RIS3).

(ST 5) Increasing SME performance and productivity.

(ST 6) Increasing SME openness.

(OP Competitiveness, Entrepreneurship and Innovation, ST 1.3) More effective utilisation of new ideas and development of entrepreneurship, focusing on globally marketable-exportable goods and services, with priority given to Greece's strategic sectors.

(OP Competitiveness, Entrepreneurship and Innovation, ST 1.4) Increasing business activity volumes and developing state-of-the-art business partnership models, with priority given to the nine (9) priority areas.

(OP Competitiveness, Entrepreneurship and Innovation, ST 1.5) Upgrading SME business organisation and functioning level, with priority given to the nine (9) priority areas.

(OP Competitiveness, Entrepreneurship and Innovation, ST 1.6) Increasing the exports of Greek enterprises, with priority given to the nine (9) priority areas.

(OP Competitiveness, Entrepreneurship and Innovation, ST 2.1) Increasing employment by promoting entrepreneurship and self-employment.

(OP Competitiveness, Entrepreneurship and Innovation, ST 3.5) Developing and/or promoting the physical capital and cultural heritage of Greece, focusing on Tourism.

(OP Human Resources Development, Education and Lifelong Learning, 9.5.1) Creating new jobs by promoting the establishment and operation of social undertakings.

(OP Rural Development, Measure 16, Sub-measures 3-6) Partnerships along value chains.

Participation of bodies promoting entrepreneurship in transnational - cross-border programmes with a view to strengthening the inter-regional relationships between SMEs and the Region of Eastern Macedonia-Thrace.

Utilisation of EU financial engineering tools for support to SMEs.

### **Restructuring of the agrifood cluster**

Not Applicable.

Operational Programme Rural Development 2014-2020:

Measure 1 / Knowledge transfer and information actions

Sub-measure 4.1 / Investments in agricultural holdings

Sub-measure 4.2 / Investments in processing / trade and/or development of agricultural products

Measure 16 / Cooperation concerning Sub-measure 16.1 / Establishment and operation of operational groups within the European Innovation Partnerships (EIPs) for agricultural productivity and sustainability and Sub-measure 16.2 / Pilot projects for the development of new products, practices, processes and technologies

### **Information and Communication Technologies**

(ST 3) Development of digital content with sufficient margin for re-utilisation in local authority and culture-tourism.

(OP Competitiveness, Entrepreneurship and Innovation, ST 1.2) Increasing the amount of digital services, applications and integrated ICT solutions available to

Research into ICT state of the art of technology through HORIZON

enterprises.	2020.
(OP Competitiveness, Entrepreneurship and Innovation, ST 3.2) Expanding broadband service and high-speed network infrastructure.	ICT systems to deal with cross-border challenges (e.g., environmental management).
(OP Public Sector Reform, ST 2c1) Increasing the number of public sector bodies with intensive use of effective e-governance methods.	
(OP Rural Development, Measure 7, Sub-measures 7.3 & 7.4)	

Πίνακας 9 shows the financing prospects for the same exercise, taking into account the distribution of public expenditure to intervention codes for all operational programmes (ROP, OP Competitiveness, Entrepreneurship and Innovation, OP Human Resources Development, Education and Lifelong Learning, OP Administrative Reform and OP Rural Development) relating to financing granted for RTDI actions, strengthening entrepreneurship and information and communication technologies. Public expenditure was allocated to the sectoral programmes, based on population. A total budget estimate was made, based on the forecasts of Regulation (EU) No 651/2014 concerning the maximum aid intensities applicable to each aid category. As regards the OP Rural Development, the estimate was made taking into account a substantiated request filed by the Region of Eastern Macedonia-Thrace with the Ministry of Rural Development & Food concerning the distribution of public expenditure (ref. 6871/31-12-2014) and the maximum aid intensities specified for each measure.

In any event, it should be noted that the calculations relating to funds from the sectoral operational programmes to be disbursed to the Region of Eastern Macedonia-Thrace are only indicative and are subject to the tendering conditions and procedures for the evaluation and approval of proposals.

TABLE 9 ESTIMATE OF THE TOTAL EXPENDITURE (PUBLIC AND PRIVATE) MAXIMUM AMOUNTS DISBURSED TO EASTERN MACEDONIA-THRACE FROM THE NSRF 2014-2020.

Thematic target	ROP for Eastern Macedonia-Thrace 2014-20	Other Sectoral Programmes 2014-20
RTDI	18.3	272.13
ICT	4.06	265.53
Entrepreneurship	104.55	1 365.47
<b>TOTAL</b>	126.91	1 903.13

\* The table does not include the Governance Structure amounts and the financing from HORIZON, which are detailed in the Table ACTION PLAN SUMMARY: TYPES OF ACTIONS PER AXIS OF INTERVENTION AND PER SOURCE OF FINANCING (PE & PP)

## POLICY TOOLS

The policy tools that will be activated under the responsibility of the regional mechanisms in the first cycle of implementation of the RIS3 in Eastern Macedonia-Thrace are the following, by intervention category:

### 1) Policy tools for Research, Technological Development and Innovation:

#### i) *Direct aid for the following activities:*

- Support for the operation of the governance system for RIS3, including monitoring and assessment mechanisms.
- Support for the operation of Innovation Platforms on a regional scale, with the participation of representatives of all sectors of the quadruple helix.
- Implementation of collective methods for planning a regional RTDI strategy (e.g. Foresight, Prediction Markets, Delphi, etc.)
- Support to the academic and research institutions of the Region for the planning of a medium-term research strategy and policies on technology transfer and interdisciplinary research, harmonised with international optimal practices.
- Information activities for financing Research and Technological Development from sources outside Greece and for supporting the required actions of networking, finding international partners and submitting proposals.
- Investment of public R&D bodies for the joint promotion or exploitation of IPR, mature research results and their research infrastructures.
- Active technology transfer activities towards enterprises.
- Investments of public R&D bodies for the development of joint experimentation structures with enterprises.
- Activities for encouraging the safeguarding of intellectual property rights by academic or research institutions in international patent offices.

#### ii) *Grants for encouraging R&D activities by undertakings which belong to the core specialisation or the emerging sectors of the regional economy:*

- Individual business investments in applied research which are targeted at product innovation.
  - Partnerships or collaborations of groups of enterprises with academic or research bodies of applied research for the resolution of problems of common interest (process or organisational innovations) or for the joint development of new products.
- iii) Innovation Coupons for the development or introduction of innovations, new to the enterprise, for small enterprises or start-ups.
- iv) *Research incentives for targeted applied research for the needs of the regional innovation system by public research organisations:*
- Activities for the development of small-scale demonstration projects by academic or research bodies with a view to:
    - (1) the diffusion of international best practices in priority areas for the regional production system, through informative actions and demonstrations,
    - (2) the update of the regional production system on ways of utilising the enabling technologies,
    - (3) the search and adaptation to local needs of innovations that have been developed outside the Region of Eastern Macedonia-Thrace which can be adopted, and their diffusion.

## 2) Policy tools for support to small and medium enterprises and entrepreneurship:

- i) *Infrastructures supporting entrepreneurship:*
- Establishment of new innovative business incubators.
  - Areas of concentration of new innovative potential entrepreneurs, for experimentation and exploration.
  - Creation - inclusion in already existing living labs.
  - Demonstration centres, where enterprises will be able to test prototypes prior to their introduction to the production procedure or to present the results of their work to potential interested persons.
- ii) *Financial aid:*
- Grant for the implementation of business plans of innovative enterprises.
  - Grant for new knowledge- and technology-intensive enterprises.
  - Grant for the introduction of technological and non-technological innovations in SMEs.
  - Subsidy through alternative financing tools, depending on the life cycle of SMEs.

*iii) Advisory services:*

- Strengthening of the business support structures of SMEs (business support services).
- Creation of a functional structure for the update/information, encouragement and facilitation of the procedure for the internationalisation of SMEs.
- Advisory services on intellectual rights issues.
- Support of the commercialisation of innovative products/services.

*iv) Policies on the encouragement of the formation of horizontal and vertical clusters:*

- Support to the creation of regional large-scale clusters aiming at the shared use of technological resources and capacities for inclusion in international value chains.
- v) Encouragement of cooperation of large enterprises with SMEs for the formation of clusters of an integrated value chain.

Similar policy tools are used by the OP Competitiveness, Entrepreneurship and Innovation, after being enhanced with financial engineering mechanisms (co-investment funds, loans, guarantees), thus increasing the options available to interested undertakings.

## ACTION PLAN

The composition of the above sections, i.e., the key Axes of Interventions and Policy Tools proposed to be implemented at a regional level, leads to a coherent Action Plan. Please note, once again, the existence of limitations in the listing of data, owing to the lack of finalised texts of the individual Operational Programmes. The presentation of the individual action plans follows the order of presentation of Table Πίνακας 8.

As regards the indicators of the Regional RIS3, it should be noted that Priority Axis 1 of the ROP Eastern Macedonia-Thrace 2014-2020 is fully linked with output and result indicators with base and target values, whereas the relevant indicators of the sectoral operational programmes (OP Competitiveness, Entrepreneurship and Innovation and of the Lifelong, OP Human Resources Development, Education and Lifelong Learning) are also included. Should there be a need to add further indicators, these will be determined in cooperation with the General Secretariat of Research and Technology (GGET) and the National Documentation Centre (EKT).

## AXIS OF INTERVENTION: DEVELOPING SKILLS IN THE REGIONAL INNOVATION SYSTEM

### Intervention Logic

The procedure for drawing-up the regional smart specialisation strategy has highlighted significant incapacities in all sectors of the triple helix of thinking strategically about the future of the Region and of documenting their strategic choices, not only theoretically, but also on the basis of data. The dialogue between the participants of the regional innovation system was particularly fragmentary, if not nonexistent.

For the purpose of addressing the above and for the effective operation of the governance system for the smart development strategy, both the gradual upgrade of the institutional capacity of the individual sectors of the triple helix and the development and consolidation of channels of communication between them are considered as necessary prerequisites. This is achieved through the direct establishment of the governance system and through aiming at: a) the improvement of the capacities for strategic planning in the collective bodies of the productive sector and the academic institutions of the Region, and b) the initiation of procedures of participatory planning for the entire regional innovation system.

The participants will take part in the governance mechanism of the national smart specialisation strategy and will also seek opportunities for acquiring experience in issues of strategic planning in their area of competence through their participation in corresponding actions of sectoral and European programmes or initiatives.

### Objectives

- Improvement of the capacity for development of a regional innovation strategy on the basis of evidence and utilisation of the lessons that arise from the implementation of policies, with the involvement of all sectors of the triple helix.
- Improvement of the capacity for development of a research strategy by public, academic and research organisations with a global and regional perspective.
- Development of capacities for the anticipation and management of technological progress, factors and risks of the external environment and management of their consequences on the regional innovation system;
- Establishment of the governance system provided for in the RIS<sub>3</sub> strategy.
- Design and implementation of a system for the collection of indicators of input, output, results and impacts for all prospects affecting the regional innovation strategy.
- Sustainable and independent operation of the Knowledge and Innovation Communities provided for by the governance system until 2020.

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- Arrangements for monitoring and assessing RIS<sub>3</sub>
- Information activities
- Strengthening the institutional capacity of the Public Administration for the standardisation and certification of products and services, etc.

Given that this group of interventions is a critical requirement for the operation of the governance system and the success in the implementation of the RIS<sub>3</sub> strategy, provision has been made for the financing of the basic core of interventions under it through the new ROP.

Moreover, a significant contribution is expected to be made also by the OP Competitiveness, Entrepreneurship and Innovation, primarily towards financing interventions for strengthening the institutional capacity and effectiveness of the Public Administration.

### Target groups (benefited parties - beneficiaries)

**Benefited parties** of the interventions include (on an indicative basis):

- Enterprises and collective bodies of entrepreneurship
- Academic institutions and research centres
- Region of Eastern Macedonia-Thrace and decentralised structures of the central government

**Beneficiaries** of the interventions include (on an indicative basis):

- Region of Eastern Macedonia-Thrace and decentralised structures of the central government
- Chambers, employees' associations, collective bodies of entrepreneurship

### Sources of financing

- ROP Region of Eastern Macedonia-Thrace
- Other new NSRF (emphasis placed on the OP Competitiveness, Entrepreneurship and Innovation)

### Temporal dimension

The action traverses the entire current programming period.

### Output indicators

- Number of indicators which are monitored as part of the operation of the governance system.
- Academic institutions with a formulated research strategy.

### Indicators of Result

- Percentage of indicators in the monitoring system which fall within the objectives.

## AXIS OF INTERVENTION: CREATION OF NEW KNOWLEDGE

### Intervention Logic

The academic and research infrastructure in the Region of Eastern Macedonia-Thrace is characterised by the existence of relatively new institutions that have completed their academic composition relatively recently and place greater emphasis on teaching rather than research. The analysis of the supply of knowledge leads to the conclusion that the Region of Eastern Macedonia-Thrace has few 'islands of research excellence' of European standards and few research groups with prospects to excel. The academic composition of the academic/research sector is characterised as full, as regards the 'treated' disciplines, and as having a relatively good relevance to the structure of the regional economy. The academic/research sector remains the only source of knowledge and highly-skilled human resources in the Region. The business sector is characterised, due to the structure of the productive fabric, as generally low knowledge-intensive. However, the existence of a few but significant enterprises with very good performance in R&D issues is particularly positive.

### Objectives

- Increase of the supply of knowledge in fields of application with a direct interest in the production system of the Region of Eastern Macedonia-Thrace.
- Leveraging of private investments in R&D
- Development of absorption capacity in enterprises or holdings with low exposure to RTDI.
- Development of strong research groups which will be able to carry out competitive research at both a national and an international level.

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- improving research infrastructures in public research organisations in the Region, including the creation or improvement of research infrastructures based on the National Research Infrastructure Map;
- boosting the research activity of public research organisations in national and regional priority fields;
- boosting the research activity of individual enterprises of an appropriate size based in the Region of Eastern Macedonia-Thrace for the purpose of supporting product innovation;
- boosting the research activity of individual suitably-sized undertakings established in the Region of Eastern Macedonia-Thrace, to support product innovation;
- providing small undertakings with incentives to participate in RTDI actions (e.g. through innovation coupons);
- strengthening joint research efforts of enterprises and academic or research bodies based in the Region of Eastern Macedonia-Thrace, toward product, process, organisational or promotional innovation;
- strengthening the joint research efforts of enterprises and academic or research bodies throughout Greece (inter-regional research cooperation);
- supporting enterprises and research groups with prospects of excellence in claiming European funding.

The interventions of the current axis benefit from the interventions 'Development of Aptitudes under the Regional Innovation System' and 'Human Resources' and supply in part the intervention axes 'Diffusion of knowledge, Innovations and Networking' and 'Economic Exploitation of Knowledge'.

The ROP and the OP Competitiveness, Entrepreneurship and Innovation are key sources of financing for the above interventions, and a significant contribution is expected from the OP Rural Development, whereas the programme

HORIZON 2020 will be the key instrument to support excellent research units or enterprises (SME Instrument).

It should be noted that the interventions relating to the strengthening of research infrastructures and the research activities of public bodies and enterprises falling under national priorities, are expected to be financed by the OP Competitiveness, Entrepreneurship and Innovation.

The OP Competitiveness, Entrepreneurship and Innovation is expected to provide financing for actions (research activity, product innovation, operation of operational innovation groups, etc.) relating to the agrifood sector.

### Target groups (benefited parties - beneficiaries)

**Benefited parties** of the interventions include (on an indicative basis):

- Academic Institutions and Research Institutes of the Region.
- Business

**Beneficiaries** of the interventions include (on an indicative basis):

- Academic Institutions and Research Institutes of the Region.
- Enterprises in the priority areas of the national and regional RIS.

### Sources of financing

- ROP Region of Eastern Macedonia-Thrace
- Other new NSRF (emphasis placed on the OP Competitiveness, Entrepreneurship and Innovation and on the OP Rural Development)
- Other sources (emphasis placed on HORIZON 2020)

### Temporal dimension

The action traverses the entire current programming period.

### Output indicators

ROP for Eastern Macedonia-Thrace & OP Competitiveness, Entrepreneurship and Innovation

- Productive investments: Number of enterprises receiving aid
- Research, innovation: Private investment, coupled with public aid in the field of innovation or in R&D projects
- Research, innovation: Number of enterprises receiving aid to introduce new products in the company

OP Competitiveness, Entrepreneurship and Innovation

- Productive investments: Number of enterprises receiving financial aid other than grants
- Productive investments: Number of new enterprises receiving aid
- Research, innovation: Number of new

### Indicators of Results

ROP for Eastern Macedonia-Thrace

- R&D expenditure of enterprises, expressed as a ratio of the regional GDP

OP Competitiveness, Entrepreneurship and Innovation

- R&D expenditure of enterprises, expressed as a ratio of the GDP
- Number of PCT patents
- Average of reports per paper published by Greek researchers (impact indicator)

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researchers in bodies receiving aid

- Productive investments: Number of enterprises receiving financial aid other than grants
  - Productive investments: Increasing employment in enterprises receiving aid
  - Research, innovation: Number or researchers working in improved facilities of research centres
  - Number of research infrastructures receiving aid
-

## AXIS OF INTERVENTION: DIFFUSION OF KNOWLEDGE AND INNOVATIONS AND NETWORKING

### Intervention Logic

The assessment of the links between the academic and the research community has shown that these links are particularly weak. The local production system considers the search for specific knowledge by the local academic and research institutions as a low priority, mainly due to the limited relevance between supply and demand. The newly-established technology transfer structures in academic institutions are under-utilised. On the other hand, the academic institutions neither have clear policies on innovation transfer nor provide incentives to their staff towards this direction. The theory of diffusion of innovations dictates that prior to the adoption of an innovation, its potential users must be informed of its existence, test it in practice and then decide whether they will accept or reject it.

### Objectives

- Conversion of part of the investments in R&D into economic resources for the Region of Eastern Macedonia-Thrace.
- Development of technology transfer infrastructures which are compatible with the needs of the productive base.
- Strengthening of cooperation links between research organisations and enterprises.
- Update of the regional fabric on innovations and technologies that can be utilised by the productive base and the provision of opportunities for them to be tested.

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- The creation of a single mechanism for the support of technology transfer for all academic and research institutions of the Region which will constitute the focal point of servicing enterprises (both within and outside the Region of Eastern Macedonia-Thrace) on the utilisation of knowledge supplied, the mature research results, the provision of services and access to research or laboratory infrastructure. This mechanism will be connected, at the level of access to information, with other corresponding mechanisms on a national scale (e.g., PRAXI network).
- The active technology transfer through utilisation of the above mechanism, following an analysis of needs in the largest enterprises of the Region of Eastern Macedonia-Thrace in the emerging sectors and the core specialisation.
- The development of joint experimentation structures of enterprises and academic - research bodies.
- The development of small-scale demonstration projects combined with intense promotional actions for the diffusion of technological or non-technological innovations into the production system, also including enabling technologies.
- The upgrade of the RTDI of enterprises by placing new graduates with post-graduate degrees or doctoral candidates in them.

The interventions are financed by the ROP for Eastern Macedonia-Thrace, the OP Competitiveness, Entrepreneurship and Innovation, the OP Rural Development and the OP Human Resources Development, Education and Lifelong Learning. The forms of technology transfer which are based on the mobility of new graduates (knowledge spillovers) of the axis of intervention 'Human Resources' and the new knowledge which is created as part of the axis of intervention 'Creation of New Knowledge', function in a manner complementary to the above.

Financing is expected from the OP Competitiveness, Entrepreneurship and Innovation mainly for the knowledge

transfer support arrangements and the innovation development networks.

Financing is expected from the ROP mainly for knowledge transfer to enterprises and joint research activities carried out by enterprises and research bodies.

Financing is expected from the OP Rural Development for projects included in Measures 01 - 1.2 Demonstration activities and information actions, and M16.2 Pilot projects for the development of new products, practices, processes and technologies.

Financing is expected from the OP Human Resources Development, Education and Lifelong Learning for strengthening research human resources.

**Target groups (benefited parties - beneficiaries)**

**Benefited parties** of the interventions include (on an indicative basis):

- Academic Institutions and Research Institutes of the Region.
- Business

**Beneficiaries** of the interventions include (on an indicative basis):

- Academic Institutions and Research Institutes of the Region.
- Enterprises in the priority areas of the national and regional RIS.

Sources of financing	Temporal dimension
<ul style="list-style-type: none"> <li>• ROP Region of Eastern Macedonia-Thrace</li> <li>• Other new NSRF (emphasis placed on the OP Competitiveness, Entrepreneurship and Innovation, on the OP Rural Development and on the OP Human Resources Development, Education and Lifelong Learning)</li> </ul>	The action traverses the entire current programming period.

Output indicators	Indicators of Results
<p>ROP for Eastern Macedonia-Thrace &amp; OP Competitiveness, Entrepreneurship and Innovation</p> <ul style="list-style-type: none"> <li>▪ Number of enterprises which cooperate with academic and research institutions.</li> </ul> <p>OP Human Resources Development, Education and Lifelong Learning</p> <ul style="list-style-type: none"> <li>▪ Number of benefited persons from the actions aiming to strengthen research in higher education</li> <li>▪ Number of benefited women from the actions aiming to strengthen research in higher education</li> <li>▪ Students participating in practical training programmes</li> </ul>	<p>ROP Region of Eastern Macedonia-Thrace</p> <ul style="list-style-type: none"> <li>▪ Running average of technology transfer contracts of all kinds, as entered into by research organisations and enterprises every three years</li> </ul> <p>OP Human Resources Development, Education and Lifelong Learning</p> <ul style="list-style-type: none"> <li>▪ Percentage of benefited persons working as researchers or in a field relating to their research, one year after expiry of the intervention</li> <li>▪ Percentage of students carrying out their practical training in enterprises</li> </ul>

## AXIS OF INTERVENTION: ECONOMIC EXPLOITATION OF KNOWLEDGE

### Intervention Logic

The degree of exploitation of intellectual property rights which is financed by public expenditure in R&D in the academic and research institutions of the Region of Eastern Macedonia-Thrace is negligible, mainly due to the absence of relevant policies in the institutions. Moreover, from 2001 to date, none of the institutions have managed to establish a spin-off company, despite the existence of particularly favourable incentives for this purpose. Therefore, significant opportunities for the development, *inter alia*, of an ecosystem of new enterprises around the two main poles of the Region (Faculty of Engineering in Xanthi and Faculty of Medicine in Alexandroupoli) which will manage to retain new graduates and provide them with employment opportunities are lost.

The present group of interventions attempts to address the above needs through interventions on both sides: institutional interventions and incentives for the public research organisations and incentives for the establishment and installation of spin-offs in the Region of Eastern Macedonia-Thrace.

### Objectives

- Development of policies and incentives for the safeguarding of intellectual property rights in the Higher Education Institutions and Research Centres of the Region of Eastern Macedonia-Thrace.
- Establishment of spin-off companies

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- Strengthening of public research organisations in the Region of Eastern Macedonia-Thrace for the purpose of safeguarding intellectual property rights
- Providing incentives for the establishment of spin-offs

The new ROP for Eastern Macedonia-Thrace and the OP Competitiveness, Entrepreneurship and Competitiveness are key sources of financing, whereas there are opportunities for the participation of Academic Institutions and Research Centres in European programmes for the exchange of practices on issues of exploitation of intellectual property rights.

### Target groups (benefited parties - beneficiaries)

**Benefited parties** of the interventions include (on an indicative basis):

- Academic institutions and research centres
- Researchers

**Beneficiaries** of the interventions include (on an indicative basis):

- Academic institutions and research centres
- Researchers

### Sources of financing

- ROP Region of Eastern Macedonia-Thrace

### Temporal dimension

The action traverses the entire current programming

- Other new NSRF (emphasis placed on the period. OP Competitiveness, Entrepreneurship and Innovation)

Output indicators	Indicators results
<ul style="list-style-type: none"> <li>• Number of requests for the granting of patents by Higher Education Institutions/Institutes of Technological Education/Research Institutes</li> <li>• Number of spin-off companies established.</li> </ul>	<ul style="list-style-type: none"> <li>• Revenue of Higher Education Institutions/Institutes of Technological Education/Research Institutes from concession contracts for intellectual property rights per year.</li> </ul>

## AXIS OF INTERVENTION: HUMAN RESOURCES

### Intervention Logic

The Region of Eastern Macedonia-Thrace is characterised by the lowest performance in the Greece as regards the indicator 'Human Resources in Science and Technology', not managing to retain the human resources that are educated in its academic infrastructures. The drain of trained human resources is mainly due to the lack of a corresponding level of jobs and, secondarily, to the reduced research competitiveness of the academic and research infrastructures of the Region, which does not create adequate career opportunities. In addition, a significant amount of young people do not complete compulsory education, creating a reservoir of human resources with objectively small potential to be utilised in the future.

### Objectives

- Attraction of talented students and researchers, requirement for the improvement of research competitiveness.
- Strengthening of knowledge spillovers and development of links between universities-enterprises.
- Provision of training opportunities and continued education to specific population groups.

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- Numerical and qualitative upgrade of the staff in its academic institutions (teachers, researchers and students) through actions for the attraction of talents in targeted areas of excellence, on the basis of the research strategy of each institution.
- Development of requirements for the acquisition of entrepreneurial skills and professional experience for senior undergraduates or new graduates through appropriate mechanisms, and the development of technology transfer mechanisms towards enterprises, through placement of postgraduate students or doctoral candidates for applied research.
- Provision of incentives to enterprises for the recruitment of trained staff.
- Investment in education, skills and lifelong learning through the development of corresponding infrastructures and appropriate programmes.
- Interventions aiming to link education to market needs.
- Interventions aiming to decrease early school leaving and promotion of equal access to all levels of education.

It should be noted that interventions are being planned in the context of the European Parliament Preparatory Action for workforce mobility from the academic/research sector to the business sector.

All the above are expected to be financed mainly by the OP Human Resources Development, Education and Lifelong Learning and, secondarily, by the OP Competitiveness, Entrepreneurship and Innovation and the OP Rural Development. Certain of the actions under the programmes Marie Curie, ERASMUS+ are also compatible with the

efforts for the qualitative upgrade of human resources in academic institutions, whereas the Programme COSME includes support actions for entrepreneurial skills which are addressed to potential entrepreneurs.

### Target groups (benefited parties - beneficiaries)

**Benefited parties** of the interventions include (on an indicative basis):

- Academic Institutions and Research Institutes of the Region.
- Senior graduates, secondary and tertiary education graduates, postgraduate students and doctoral candidates.

**Beneficiaries** of the interventions include (on an indicative basis):

- Academic Institutions and Research Institutes of the Region.
- Senior graduates, secondary and tertiary education graduates, postgraduate students and doctoral candidates.
- Business.

### Sources of financing

- Other new NSRF (emphasis placed on the OP Competitiveness, Entrepreneurship and Innovation, on the OP Human Resources Development, Education and Lifelong Learning and on the OP Rural Development)
- Other sources (e.g. Marie Curie, ERASMUS+, COSME)

### Temporal dimension

The action traverses the entire current programming period.

### Output indicators

- OP Human Resources Development, Education and Lifelong Learning
- Number of benefited persons from the actions aiming to strengthen research in higher education
  - Number of benefited women from the actions aiming to strengthen research in higher education
  - Persons (aged 16-66+) attending lifelong learning programmes
  - Persons (aged 16-66+) attending second chance programmes
  - Students participating in practical training programmes
  - Number of pupils/students/graduates participating in apprenticeship programmes.

### Indicators of Results

- Human Resources in Science and Technology - % of the population
  - Amount of population of the age between 24-35 who are tertiary education graduates
  - Percentage of the population aged 25-64 that attended lifelong learning actions in the last month.
- OP Human Resources Development, Education and Lifelong Learning
- Percentage of benefited persons working as researchers or in a field relating to their research, one year after expiry of the intervention
  - Increase percentage of participants (aged 16-66+) in certified lifelong learning and second chance programmes
  - Percentage of students carrying out their practical training in enterprises
  - Percentage of benefited persons participating in apprenticeship programmes out of the total number of pupils/students/graduates of Vocational Senior High School/ School Laboratory

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Centres/Vocational Training Institutes, etc.

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## AXIS OF INTERVENTION: HORIZONTAL ACTIONS FOR THE SUPPORT OF ENTREPRENEURSHIP AND OPENNESS.

### Intervention Logic

All productive sectors of the Region show a low degree of competitiveness. The processing sector is characterised by family enterprises of a relatively small size, with an organisational structure which does not ensure a comprehensive strategic response to challenges. The tourism sector is characterised by a deficit in designing single tourist 'destinations' with characteristics that satisfy corresponding groups of tourists. Despite the existence of bodies and organisations which have been established with the aim to assist the enterprises of the Region to develop and survive in the business environment, it is not clear on the basis of the results that have been recorded to date that they have operated toward this direction. The need for access of the SMEs of the Region of Eastern Macedonia-Thrace to non-traditional financing tools (grants, bank loans, etc.) which will meet targeted needs for financing investment projects introducing innovation for the production of new improved products, creation of spin-offs, introduction to international value chains, etc., is also important.

This specific axis of intervention focuses on the provision of access by SMEs to a network of effective and quality support services.

### Objectives

- Creation/strengthening of regional support structures for entrepreneurship and openness by 2016.
- Promotion of regional infrastructure with the aim to approach 50% of the regional entrepreneurial potential by 2017.
- Promotion of the national/sectoral support structures for entrepreneurship with the aim to cover 50% of the regional entrepreneurial potential, one year after their creation under the OP Competitiveness, Entrepreneurship and Innovation.

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- Support for business plans for the introduction of technological innovation (off the shelf) in existing and new enterprises
- Support and guidance for enterprises (strategic information, innovative and technological entrepreneurship, support for the quality and productivity of enterprises)
- Interventions aiming to promote the openness of enterprises in Eastern Macedonia-Thrace

As regards the alternative financing tools, these will be specified by OP Competitiveness, Entrepreneurship and Innovation and they will include, *inter alia*, tools for capital aid and SMEs, including improvement in the energy efficiency of SMEs.

The successful implementation of the above interventions is considered as critical, since success for many of the proposed actions for the strengthening of innovation and entrepreneurship (clusters, spin-off companies, etc.) relies to a great extent on the level of readiness and self-awareness of enterprises, i.e., on the understanding of the question, 'what are their basic needs and why can they actually be assisted through the new tools for the development of entrepreneurship'.

### Target groups (benefited parties - beneficiaries)

**Benefited parties** of the interventions include (on an indicative basis):

- Business

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**Beneficiaries** of the interventions include (on an indicative basis):

- Region of Eastern Macedonia-Thrace and decentralised structures of the central government
- Chambers, collective bodies of entrepreneurship
- Business

#### Sources of financing

- ROP Region of Eastern Macedonia-Thrace
- Other new NSRF (emphasis placed on the OP Competitiveness, Entrepreneurship and Innovation)

#### Temporal dimension

The action traverses the period 2015-2016 for the creation of the support infrastructure and the remaining current programming period for the provision of support services.

#### Output indicators

- Number of bodies supporting entrepreneurship with a formulated strategy at a regional level
- Number of services provided

#### Indicators of Results

- Number of enterprises which come into contact with the support structures for entrepreneurship
  - Percentage of enterprises which receive support as compared to the number of enterprises which come into contact
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## AXIS OF INTERVENTION: RESTRUCTURING THE AGRIFOOD CLUSTER

### Intervention Logic

The agricultural sector constitutes a key regional specialisation in the Region of Eastern Macedonia-Thrace, given that it meets the required characteristics (high percentages of participation in the formation of the regional GDP, employment and degree of interconnection with other sectors). However, it shows a significant trend for reduction in the last decade, particularly following the last reform of the CAP (mid-term review of 2003), with a decrease not only of the value of production and the number of holdings, but also of gross fixed-capital formation. The competitiveness of the primary sector is low, due to certain structural problems such as the small average size of enterprises and fragmentation, as well as the absence of clusters for the organisation and marketing of products, organised on an entrepreneurial basis.

The agricultural sector is the focal point of economic activity in the Region and contributes to the economic and social cohesion to a degree substantially higher than its participation in the Regional GDP. The improvement of productivity and competitiveness will increase revenues and jobs, also supplying the necessary raw materials for the food and beverage industry, whereas the tourism industry will be able to supply a differentiated product.

The increase of the competitiveness of the primary sector requires a shift towards the production of more competitive products with high added value and high demand.

### Objectives

- Creation of a competitive, export-oriented sector, with vertically integrated production and an emphasis on the interconnection of the agricultural production with processing and/or marketing at a local and regional level.
- Increase in the competitiveness of the primary sector through a shift towards the production of more competitive products with high added value and high demand.

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- Supporting actions of cooperation between production, processing, standardisation and marketing of products.
- Operation of Inter-Professional Organisations with the aim to encourage organised actions for the collective promotion of local products.
- Modernisation of the agrifood cluster and improvement of the regional added value with the use of technologically-driven innovation.
- Adaptation and use of mature process, organisational and promotional innovations, including the use of ICT, aid to sources of uniqueness (e.g. PDO products) and the upgrading of human resources.
- Support for business plans in the processing and product trading sectors of the agrifood cluster
- Support of investment plans of enterprises in the agrifood cluster for the introduction of RES technologies

### Target groups

**Benefited parties** of the interventions include (on an indicative basis):

- Producers and groups of producers (agriculture, livestock farming, fisheries, aquaculture, logging).
- Enterprises (irrespective of form), active in the primary sector.
- People living in rural areas of Eastern Macedonia-Thrace.

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**Beneficiaries** of the interventions include (on an indicative basis):

- Region of Eastern Macedonia-Thrace and decentralised structures of the central government
- Individual producers and groups of producers (agriculture, livestock farming, fisheries, aquaculture, logging).
- Enterprises in the agrifood cluster

Sources of financing	Temporal dimension
<ul style="list-style-type: none"> <li>• ROP Region of Eastern Macedonia-Thrace</li> <li>• Other new NSRF (emphasis placed on the OP Rural Development)</li> </ul>	<p>The action traverses the entire current programming period. Emphasis will be placed on the acceleration of mature projects which will be used as pilots for wider application.</p>

Output indicators	Indicators results
<ul style="list-style-type: none"> <li>• Number of producers/enterprises which introduce technological and non-technological innovation</li> <li>• Number of partnerships with bodies producing knowledge</li> <li>• Number of partnerships driven by the need for a more effective promotion-marketing of products</li> </ul>	<ul style="list-style-type: none"> <li>• New, improved products in the entire value chain of the agrifood cluster</li> <li>• Improvement in added value through the introduction of technological and non-technological innovation</li> <li>• Increase of the value of exports of products of the agrifood cluster</li> </ul>

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## AXIS OF INTERVENTION: STRENGTHENING AND CONSOLIDATION OF THE EMERGING SECTORS

### Intervention Logic

The processing sectors (except for those which are related to the agrifood cluster and have been allocated under the corresponding axis of intervention) are characterised by different needs as regards the adoption of appropriate policies and instruments for the expansion of the regional economy. However, the following have been established for all sectors:

- lack of competitiveness
- absence of economies of scale in the introduction of both technological and organisational innovation
- inability of SMEs to be included in national value chains
- little effort for product innovation. Rather, tactics of creative copying are followed as regards products and their manner of production and disposal.
- low export performance
- low level of creation (and mainly of survival) of new knowledge- and innovation-intensive enterprises

### Objectives

- Strengthening of technologically-driven product or process innovation, preferably through the implementation of Key Enabling Technologies in the regional and national priority sectors
- Installation of production units of the above sectors in the Region of Eastern Macedonia-Thrace and encouragement of new innovative activity.
- Expansion of the tourist product through organisational and promotional innovations.
- Attraction or support to investments in service enterprises which serve consolidated or emerging sectors of the regional economy.

### Types of actions:

Following are indicative interventions in the context of this axis of intervention:

- Promotion of the establishment and support at the initial stages of the operation of New Technology-Intensive Enterprises.
- Creation of incubators for new research- and technology-intensive enterprises
- Strengthening of cooperative schemes (clusters), either between similar enterprises or enterprises which form an integrated value chain, for the introduction of innovative characteristics in products/services.
- Reinforcement of the outward orientation of groups of enterprises (horizontal and vertical clusters).
- Completion of the value chain of the tourism-culture sector.
- Support for business plans for the introduction of organisational innovation in existing and new enterprises
- Support of investment plans of enterprises for the introduction of RES technologies.

### Target groups

**Benefited parties** of the interventions include (on an indicative basis):

- Business

- Startups
- Researchers

**Beneficiaries** of the interventions include (on an indicative basis):

- Region of Eastern Macedonia-Thrace
- Business

Sources of Financing	Temporal dimension
<ul style="list-style-type: none"> <li>• ROP Region of Eastern Macedonia-Thrace</li> <li>• Other new NSRF (emphasis placed on the OP Competitiveness, Entrepreneurship and Innovation)</li> </ul>	The action traverses the entire current programming period.
Output indicators	Indicators results
<p>ROP for Eastern Macedonia-Thrace &amp; OP Competitiveness, Entrepreneurship and Innovation</p> <ul style="list-style-type: none"> <li>• Productive investments: Number of enterprises receiving aid</li> <li>• Productive investments: Number of enterprises receiving grants</li> <li>• Productive investments: Number of enterprises receiving non-financial aid</li> <li>• Productive investments: Number of new enterprises receiving aid</li> <li>• Productive investments: Increasing employment in enterprises receiving aid</li> </ul>	<p>ROP Region of Eastern Macedonia-Thrace</p> <ul style="list-style-type: none"> <li>• Percentage of startups out of the total number of new businesses</li> <li>• Gross value added</li> <li>• Value of exports</li> <li>• Number of overnight stays of foreign tourists in hotels</li> </ul>
<p>OP Competitiveness, Entrepreneurship and Innovation</p> <ul style="list-style-type: none"> <li>• Productive investments: Number of enterprises receiving financial aid other than grants</li> <li>• Sustainable tourism Increasing the anticipated number of visits to places of cultural and natural heritage and tourist attractions receiving aid</li> <li>• Business initiatives supported by incubators</li> <li>• Number of infrastructures for the establishment of business host areas (business parks) receiving aid</li> </ul>	<p>OP Competitiveness, Entrepreneurship and Innovation</p> <ul style="list-style-type: none"> <li>• Percentage of innovative enterprises out of the total number of enterprises</li> <li>• Gross value added of the 9 strategic sectors of Greece</li> <li>• Exports of Greek enterprises in the 9 strategic sectors of Greece</li> </ul>

## AXIS OF INTERVENTION: INFORMATION AND COMMUNICATION TECHNOLOGY

### Intervention Logic

The key interventions of e-government are designed, announced and implemented through projects of national scale at a central level, leaving little scope for intervention at a regional level. The demand for ICT products and services in the Region is relatively small. The use of computers and the Internet and broadband penetration in households show positive trends in the last 3 years, but are lower than the averages of Greece and the European Union. The ICT sector in the Region of Eastern Macedonia-Thrace is characterised by its small size and by activities which, however, have a low percentage of local added value. There are important cores with a relevant specialisation in the local academic and research institutions which could act as levers both for the dissemination of innovations to other sectors of the economy and for the commercial exploitation of their research results, in the appropriate manner, depending on the case. Finally, as regards the manner of covering broadband needs, local loop technologies are currently dominant (ADSL, with satisfactory levels of coverage) and without significant investments - of questionable viability, exclusively in economic terms- in optical distribution networks.

### Objectives

- Digitisation and disposal on terms of open access to public data with potential for reutilisation.
- Development of smart city applications in the capitals of regional units.
- Implementation of the national strategy for new-generation networks and upgrade of digital services of public administration.

### Types of actions:

The approach followed by the Region of Eastern Macedonia-Thrace on the topics of the Digital Agenda for 2020 is defined along the following axes:

- Creation of open public data and smart city applications in the capitals of the Prefectures, both of which have the aim to support the development of integrated solutions for the promotion of tourism and destination management (e.g. e-governance, e-tourism-culture, e-inclusion).
- Launch of the national policy on ICT as regards the new-generation networks, the digital services of public administration, digital inclusion actions with interventions in human resources and in general the national priorities for meeting the objectives of the digital agenda. Connection with initiatives of a European scale such as the Connecting Europe Facility, will be made from a national and not a regional starting point.

Axis 1 is expected to be financed by the ROP for Eastern Macedonia-Thrace, and Axis 2 is expected to be financed by the sectoral programmes included in the NSRF (OP Competitiveness, Entrepreneurship and Innovation and OP Public Sector Reform)

### Target groups (benefited parties - beneficiaries)

**Benefited parties** of the interventions include (on an indicative basis):

- Residents in and visitors to Eastern Macedonia-Thrace
- Public administration bodies
- Business

**Beneficiaries** of the interventions include (on an indicative basis):

- Public administration bodies
- Business

### Sources of Financing

### Temporal dimension

<ul style="list-style-type: none"> <li>• ROP for Eastern Macedonia-Thrace</li> <li>• Other new NSRF (emphasis placed on the OP Competitiveness, Entrepreneurship and Innovation and on the OP Public Sector Reform)</li> </ul>	The action traverses the entire current programming period.
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Output indicators	Indicators results
ROP Region of Eastern Macedonia-Thrace	ROP Region of Eastern Macedonia-Thrace
<ul style="list-style-type: none"> <li>• Number of public data which were upgraded.</li> <li>• Number of public datasets which are made available electronically.</li> </ul>	<ul style="list-style-type: none"> <li>• Natural persons who have had on-line interaction with the public authorities in the last 12 months</li> </ul>
OP Competitiveness, Entrepreneurship and Innovation	OP Competitiveness, Entrepreneurship and Innovation
<ul style="list-style-type: none"> <li>• Productive investments: Number of enterprises receiving aid</li> <li>• Productive investments: Number of enterprises receiving grants</li> <li>• Productive investments: Number of enterprises receiving financial aid other than grants</li> <li>• Productive investments: Increasing employment in enterprises receiving aid</li> <li>• Percentage of additional registrable rights per geographic unit (cadastre)</li> <li>• ICT infrastructure: Additional households with access to broadband networks at speeds of not less than 30 Mbps</li> <li>• Additional enterprises with access to broadband networks at speeds of not less than 30 Mbps</li> </ul>	<ul style="list-style-type: none"> <li>• Enterprises adopting ICT technology</li> <li>• Percentage of landline broadband connections with a speed of &gt;=100Mbps</li> <li>• Coverage percentage of next generation broadband connections</li> </ul>
OP Administrative Reform	OP Administrative Reform
<ul style="list-style-type: none"> <li>• Number of projects for the creation or upgrade of ICT systems to support the horizontal functions of public bodies</li> <li>• Number of projects for supporting the interoperability of registers and services in the public sector</li> <li>• Number of projects for upgrading the operation of the one-stop shop, providing people with access to public sector services</li> <li>• Number of projects for the development or upgrade of key public administration services provided primarily on an electronic basis</li> <li>• Number of projects for promoting the provision of information to and participation of people</li> <li>• Number of ICT projects for supporting the upgrade of the operation of the priority fields of</li> </ul>	<ul style="list-style-type: none"> <li>• Number of bodies whose operation is being upgraded by the use of ICT systems</li> <li>• Number of public sector registers which are interoperative</li> <li>• Number of e-governance systems made available to people</li> <li>• Number of people with identifiable access at the one-stop shop providing people with access</li> </ul>

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the OP, with a view to providing people with services

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## Key Enabling Technologies (KETs) and RIS3

An important part of the strategy is utilisation, to the degree allowed by the Region's capabilities, of Key Enabling Technologies (KETs). KETs require a high level of knowledge and are linked to intensive research effort, significant investment in capital stocks and highly skilled human resources<sup>38</sup>. Therefore, their development exceeds the resources (financing, infrastructure and human resources) that can be leveraged at a regional level, in regions with the characteristics like those of the Region of Eastern Macedonia-Thrace in particular. Such technologies can be developed more effectively at national and European levels. In contrast, at a regional level, such technologies need to penetrate the local economy by knowledge transfer and development of applications which can be incorporated in products and in the production capacity of local enterprises. Activities for which aid could be granted are demonstration projects (Technology Readiness Level (TRL) 5-8),<sup>39</sup> and in particular the know-how market, commercial exploitation and primary industrial production (Technology Readiness Level (TRL) 9).

More specifically, in the context of the proposed action plan and under Investment Priority 1b in particular, the link with KETs concerns the following:

- Strengthening of technologically-driven product or process innovation, with emphasis placed on the implementation of Key Enabling Technologies in the regional and national priority sectors
- Developing partnerships with the laboratories of public research bodies for the provision of specialised S&T services to support the production, diffusion and utilisation of KETs, by developing partnerships between enterprises and laboratories of public research bodies which are organised and provide innovative technology services to third parties
- Developing small-scale demonstration projects combined with intense promotional actions for the diffusion of technological or non-technological innovations into the production system, also including enabling technologies with a view to diffusing international good practices and keeping the regional production system up-to-date with ways of the utilisation of enabling technologies.
- Strengthening, through the Horizon Programme, excellent research units or enterprises (SME Instrument), with emphasis placed on those adopting KETs.

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<sup>38</sup> European Commission (2012), *A European strategy for Key Enabling Technologies - A bridge to growth and jobs*, COM(2012) 341 final.

<sup>39</sup> *Ibid.*

It should be stressed, finally, that the research and technology & innovation development actions are marked with strong synergies and complementarity with ICTs, as they are key enabling technologies.

The table below shows the correlation between the key smart specialisation sectors of the Region of Eastern Macedonia-Thrace and key enabling technologies.

CORRELATION OF KETs WITH SPECIALISATION IN THE REGION

KETs	Agrifood sector	Culture-Tourist sector	Processing sector	Environmental sector	Knowledge sector
ICT	✓	✓	✓	✓	✓
Micro-nanoelectronics				✓	✓
Photonics					
Nanotechnology					✓
Industrial biotechnology	✓		✓	✓	✓
State-of-the-art materials			✓		✓
State-of-the-art manufacturing technology			✓	✓	✓

**ACTION PLAN SUMMARY: TYPES OF ACTIONS PER AXIS OF INTERVENTION AND PER SOURCE OF FINANCING (PE & PP)**

AXIS OF INTERVENTION	TYPES OF ACTIONS	SOURCES OF FINANCING							COMMENTS
		ROP (PE & PP) (1)	OP COMPETITIVENESS, ENTREPRENEURSHIP, AND INNOVATION (PE & PP)	OP RURAL DEVELOPMENT (PE & PP)	OP HUMAN RESOURCES DEVELOPMENT, EDUCATION AND LIFELONG LEARNING	OP PUBLIC SECTOR REFORM	OTHER PROGRAMMES (HORIZON 2020, ETC.)	TOTAL	
DEVELOPMENT OF CAPACITIES IN THE REGIONAL INNOVATION SYSTEM	<ul style="list-style-type: none"> <li>• Arrangements for monitoring and assessing RIS3</li> <li>• Information activities</li> <li>• Strengthening the institutional capacity of the Public Administration for the standardisation and certification of products and services, etc.</li> </ul>	EUR 2 000 000	EUR 5 000 000					EUR 7 000 000	As regards the ROP for Eastern Macedonia-Thrace, it relates to TB. At a specialisation level per axis of intervention according to the implementing regulation, it is linked to Priority Area 119 'Investment in the institutional capacity and effectiveness of public administrations and services at national, regional and local levels given the reforms, better statutory regulation and good governance'

AXIS OF INTERVENTION	TYPES OF ACTIONS	SOURCES OF FINANCING						TOTAL	COMMENTS
		ROP (PE & PP) (1)	OP COMPETITIVENESS, ENTREPRENEURSHIP, AND INNOVATION (PE & PP)	OP RURAL DEVELOPMENT (PE & PP)	OP HUMAN RESOURCES DEVELOPMENT, EDUCATION AND LIFELONG LEARNING	OP PUBLIC SECTOR REFORM	OTHER PROGRAMMES (HORIZON 2020, ETC.)		
CREATION OF NEW KNOWLEDGE	<ul style="list-style-type: none"> <li>Improving research infrastructures in public research organisations in the Region, including the creation or improvement of research infrastructures based on the National Research Infrastructure Map;</li> <li>Boosting the research activity of public research organisations in national and regional priority fields;</li> <li>Boosting the research activity of individual enterprises of an appropriate size based in the Region of Eastern Macedonia-Thrace, for the purpose of supporting product innovation;</li> <li>Boosting the research activity of individual suitably-sized undertakings established in the Region of Eastern Macedonia-Thrace, to support product innovation;</li> <li>Providing small undertakings with incentives to participate in RTDI actions (e.g. through innovation coupons);</li> <li>Strengthening the joint research efforts of enterprises and academic or research bodies based in the Region of Eastern Macedonia-Thrace toward product, process, organisational or promotional innovation;</li> <li>Strengthening the joint research efforts of enterprises and academic or research bodies throughout Greece (inter-regional research cooperation);</li> <li>Supporting enterprises and research groups with prospects of excellence in claiming European funding.</li> </ul>	EUR 13 800 956	EUR 99 784 991	EUR 11 000 000			EUR 20 000 000	EUR 124 585 947	It relates to Thematic Target 1. Interventions relating to the strengthening of research infrastructures and the research activities of public bodies and enterprises falling under national priorities are expected to be financed by the OP Competitiveness, Entrepreneurship and Innovation. The OP Competitiveness, Entrepreneurship and Innovation is expected to provide financing for actions (research activity, product innovation, operation of operational innovation groups, etc.) relating to the agrifood sector. The HORIZON 2020 Programme will constitute the basic aid mechanism for excellent research units or enterprises (SME Instrument). The sums from the HORIZON programme are the threshold of the funds that can be claimed from the HORIZON Action: Scientific Excellence

AXIS OF INTERVENTION	TYPES OF ACTIONS	SOURCES OF FINANCING						TOTAL	COMMENTS
		ROP (PE & PP) (1)	OP COMPETITIVENESS, ENTREPRENEURSHIP, AND INNOVATION (PE & PP)	OP RURAL DEVELOPMENT (PE & PP)	OP HUMAN RESOURCES DEVELOPMENT, EDUCATION AND LIFELONG LEARNING	OP PUBLIC SECTOR REFORM	OTHER PROGRAMMES (HORIZON 2020, ETC.)		
DIFFUSION OF KNOWLEDGE AND INNOVATIONS & NETWORKING	<ul style="list-style-type: none"> <li>The creation of a single mechanism for the support of technology transfer for all academic and research institutions of the Region, which will constitute the focal point of servicing enterprises (both within and outside the Region of Eastern Macedonia-Thrace) on the utilisation of knowledge supplied, the mature research results, the provision of services and access to research or laboratory infrastructure. This mechanism will be connected, at the level of access to information, with other corresponding mechanisms on a national scale (e.g., PRAXI network).</li> <li>The active technology transfer through utilisation of the above mechanism, following an analysis of needs in the largest enterprises of the Region of Eastern Macedonia-Thrace in the emerging sectors and the core specialisation.</li> <li>The development of joint experimentation structures of enterprises and academic-research bodies.</li> <li>The development of small-scale demonstration projects combined with intense promotional actions for the diffusion of technological or non-technological innovations into the production system, also including enabling technologies.</li> <li>The upgrade of the RTDI of enterprises by placing new graduates with post-graduate degrees or doctoral candidates in them.</li> </ul>	EUR 2 000 000	EUR 139 323 216	EUR 15 282 382	EUR 3 743 309			EUR 160 348 907	It relates to Thematic Target 1. Financing is expected from the OP Competitiveness, Entrepreneurship and Innovation mainly for the knowledge transfer support arrangements and the innovation development networks. Financing is expected from the ROP mainly for knowledge transfer to enterprises and joint research activities carried out by enterprises and research bodies. Financing is expected from the OP Rural Development for projects included in Measures 01 - 1.2 Demonstration activities and information actions, and M16.2 Pilot projects for the development of new products, practices, processes and technologies. Financing is expected from the OP Human Resources Development, Education and Lifelong Learning for strengthening research human resources.
FINANCIAL EXPLOITATION OF KNOWLEDGE	<ul style="list-style-type: none"> <li>Strengthening of public research organisations in the Region of Eastern Macedonia-Thrace for the purpose of safeguarding intellectual property rights</li> <li>Providing incentives for the establishment of spin-offs</li> </ul>	EUR 2 500 000	EUR 3 000 000					EUR 5 500 000	It relates to Thematic Target 1. It is a priority axis with a low financing importance.

AXIS OF INTERVENTION	TYPES OF ACTIONS	SOURCES OF FINANCING						TOTAL	COMMENTS
		ROP (PE & PP) (1)	OP COMPETITIVENESS, ENTREPRENEURSHIP, AND INNOVATION (PE & PP)	OP RURAL DEVELOPMENT (PE & PP)	OP HUMAN RESOURCES DEVELOPMENT, EDUCATION AND LIFELONG LEARNING	OP PUBLIC SECTOR REFORM	OTHER PROGRAMMES (HORIZON 2020, ETC.)		
HUMAN RESOURCES	<ul style="list-style-type: none"> <li>Numerical and qualitative upgrade of the staff in its academic institutions (teachers, researchers and students) through actions for the attraction of talents in targeted areas of excellence on the basis of the research strategy of each institution.</li> <li>Development of requirements for the acquisition of entrepreneurial skills and professional experience for senior undergraduates or new graduates through appropriate mechanisms and the development of technology transfer mechanisms towards enterprises through placement of postgraduate students or doctoral candidates for applied research.</li> <li>Provision of incentives to enterprises for the recruitment of trained staff.</li> <li>Investment in education, skills and lifelong learning through the development of corresponding infrastructures and appropriate programmes.</li> <li>Interventions aiming to link education to market needs.</li> <li>Interventions aiming to decrease early school leaving and promotion of equal access to all levels of education.</li> </ul>		EUR 5 836 293	EUR 979 804	EUR 18 183 903			EUR 25 000 000	It relates to Thematic Target 3. The OP Human Resources Development, Education and Lifelong Learning is the key source of financing, whereas the OP Competitiveness, Entrepreneurship and Innovation will contribute towards interventions aiming to connect education with market needs.
HORIZONTAL ACTIONS TO SUPPORT ENTREPRENEURSHIP AND OPENNESS	<ul style="list-style-type: none"> <li>Support for business plans for the introduction of technological innovation (off the shelf) in existing and new enterprises</li> <li>Support and guidance for enterprises (strategic information, innovative and technological entrepreneurship, support for the quality and productivity of enterprises)</li> <li>Interventions aiming to promote the openness of enterprises in the Region of Eastern Macedonia-Thrace</li> <li>Strengthening enterprises and workers to adapt to change</li> </ul>	EUR 20 548 294	EUR 125 920 320					EUR 146 468 614	It relates to Thematic Target 3. A considerable part of the financing granted by the OP Competitiveness, Entrepreneurship and Innovation relates to interventions aiming to strengthen enterprises and workers to adapt to change, whereas the ROP will contribute mainly towards strengthening investment plans for technological innovation.

AXIS OF INTERVENTION	TYPES OF ACTIONS	SOURCES OF FINANCING						TOTAL	COMMENTS
		ROP (PE & PP) (1)	OP COMPETITIVENESS, ENTREPRENEURSHIP, AND INNOVATION (PE & PP)	OP RURAL DEVELOPMENT (PE & PP)	OP HUMAN RESOURCES DEVELOPMENT, EDUCATION AND LIFELONG LEARNING	OP PUBLIC SECTOR REFORM	OTHER PROGRAMMES (HORIZON 2020, ETC.)		
RESTRUCTURING OF THE AGRIFOOD CLUSTER	<ul style="list-style-type: none"> <li>Supporting actions of cooperation between production, processing, standardisation and marketing of products.</li> <li>Operation of Inter-Professional Organisations, with the aim to encourage organised actions for the collective promotion of local products.</li> <li>Modernisation of the agrifood cluster and improvement of the regional added value with the use of technologically-driven innovation.</li> <li>Adaptation and use of mature process, organisational and promotional innovations, including the use of ICT, aid to sources of uniqueness (e.g. PDO products) and the upgrading of human resources.</li> <li>Support for business plans in the processing and product trading sectors of the agrifood cluster</li> <li>Support of investment plans of enterprises in the agrifood cluster for the introduction of RES technologies</li> </ul>	EUR 16 000 000		EUR 1 002 370 879				EUR 1 018 370 879	It relates to Thematic Target 3. The OP Rural Development is the key source of financing. The ROP for Eastern Macedonia-Thrace will provide financing for part of the investment plans in product processing and trading sectors of the agrifood cluster and the investment plans of enterprises in the agrifood cluster for the introduction of RES technologies.
STRENGTHENING AND ESTABLISHMENT OF EMERGING SECTORS	<ul style="list-style-type: none"> <li>Promotion of the establishment and support at the initial stages of the operation of New Technology-Intensive Enterprises.</li> <li>Creation of incubators for new research- and technology-intensive enterprises</li> <li>Strengthening of cooperative schemes (clusters), either between similar enterprises or enterprises which form an integrated value chain, for the introduction of innovative characteristics in products/services.</li> <li>Reinforcement of the outward orientation of groups of enterprises (horizontal and vertical clusters).</li> <li>Completion of the value chain of the tourism-culture sector.</li> <li>Support for business plans for the introduction of organisational innovation in existing and new enterprises</li> <li>Support of investment plans of enterprises for the introduction of RES technologies.</li> </ul>	EUR 68 000 000	EUR 212 179 673					EUR 280 179 673	It relates to Thematic Target 3. The OP Competitiveness, Entrepreneurship and Innovation is the key source of financing. It is necessary to specify breakdown criteria, as there are a significant number of actions included in both the ROP and the OP Competitiveness, Entrepreneurship and Innovation.

AXIS OF INTERVENTION	TYPES OF ACTIONS	SOURCES OF FINANCING						TOTAL	COMMENTS
		ROP (PE & PP) (1)	OP COMPETITIVENESS, ENTREPRENEURSHIP, AND INNOVATION (PE & PP)	OP RURAL DEVELOPMENT (PE & PP)	OP HUMAN RESOURCES DEVELOPMENT, EDUCATION AND LIFELONG LEARNING	OP PUBLIC SECTOR REFORM	OTHER PROGRAMMES (HORIZON 2020, ETC.)		
INFORMATION AND COMMUNICATION TECHNOLOGIES	<ul style="list-style-type: none"> <li>Creation of open public data and smart city applications in the capitals of the Prefectures, both of which have the aim to support the development of integrated solutions for the promotion of tourism and destination management (e.g. e-governance, e-tourism-culture, e-inclusion).</li> <li>Launch of the national policy on ICT as regards the new-generation networks, the digital services of public administration, digital inclusion actions with interventions in human resources and in general the national priorities for meeting the objectives of the digital agenda.</li> </ul>	EUR 4 064 327	EUR 260 533 349			EUR 5 000 000		EUR 269 597 676	It relates to Thematic Target 2. The ROP for Eastern Macedonia-Thrace will provide financing for the e-governance, e-tourism-culture and e-inclusion actions. Financing is expected from the OP Competitiveness, Entrepreneurship and Innovation for new generation network development actions, and financing will also be granted for actions falling under the scope of the OP Public Sector Reform.
	<b>TOTAL</b>	<b>128 913 577</b>	<b>851 577 842</b>	<b>1 029 633 065</b>	<b>21 927 212</b>	<b>5 000 000</b>	<b>20 000 000</b>	<b>2 037 051 696</b>	

(1) Private participation for the interventions to be financed by the ROP for Eastern Macedonia-Thrace 2014-2020 is estimated EUR 58.5 million.

**ACTION PLAN SUMMARY: INDICATIVE FINANCING (PE & PP) PER AXIS OF INTERVENTION AND PER SECTOR RIS<sub>3</sub> – REGION OF EASTERN MACEDONIA-THRACE**

AXIS OF INTERVENTION	AREAS OF THE RIS3 OF THE REGION OF EASTERN MACEDONIA-THRACE							COMMENTS
	Agrifood sector	Culture-Tourist sector	Processing sector	Environmental sector	Knowledge sector	Governance structure	TOTAL	
DEVELOPMENT OF CAPACITIES IN THE REGIONAL INNOVATION SYSTEM						EUR 7 000 000	<b>EUR 7 000 000</b>	
CREATION OF NEW KNOWLEDGE	EUR 5 000 000	EUR 1 000 000	EUR 10 000 000	EUR 10 000 000	EUR 98 585 947		<b>EUR 124 585 947</b>	Almost all the funds of this axis of intervention will be directed to the knowledge sector due to the nature of the actions.
DIFFUSION OF KNOWLEDGE AND INNOVATIONS & NETWORKING	EUR 7 000 000	EUR 1 000 000	EUR 12 000 000	EUR 12 000 000	EUR 128 348 907		<b>EUR 160 348 907</b>	Almost all the funds of this axis of intervention will be directed to the knowledge sector due to the nature of the actions.
FINANCIAL EXPLOITATION OF KNOWLEDGE	EUR 500 000	EUR 500 000	EUR 500 000	EUR 500 000	EUR 3 500 000		<b>EUR 5 500 000</b>	Almost all the funds of this axis of intervention will be directed to the knowledge sector due to the nature of the actions.
HUMAN RESOURCES	EUR 979 804	EUR 6 906 059	EUR 11 510 098	EUR 4 604 039	EUR 1 000 000		<b>EUR 25 000 000</b>	

AXIS OF INTERVENTION	AREAS OF THE RIS3 OF THE REGION OF EASTERN MACEDONIA-THRACE							COMMENTS
	Agrifood sector	Culture-Tourist sector	Processing sector	Environmental sector	Knowledge sector	Governance structure	TOTAL	
HORIZONTAL ACTIONS TO SUPPORT ENTREPRENEURSHIP AND OPENNESS	EUR 43 940 584	EUR 29 293 723	EUR 58 587 446	EUR 14 646 861			<b>EUR 146 468 614</b>	
RESTRUCTURING OF THE AGRIFOOD CLUSTER	EUR 1 008 370 879				EUR 10 000 000		<b>EUR 1 018 370 879</b>	Almost all the funds of this axis of intervention will be directed to the knowledge sector due to the agrifood sector.
STRENGTHENING AND ESTABLISHMENT OF EMERGING SECTORS		EUR 106 909 276	EUR 160 363 913	EUR 12 906 484			<b>EUR 280 179 673</b>	The agrifood sector, being included in the core specialisation, is not quantified.
INFORMATION AND COMMUNICATION TECHNOLOGIES	EUR 10 000 000	EUR 43 101 852	EUR 57 469 136	EUR 43 101 852	EUR 10 499 889	EUR 105 424 948	<b>EUR 269 597 676</b>	The Governance Structure includes new generation networks and e-governance, which cannot be linked to the RIS3 sectors.
<b>Total</b>	<b>1 075 791 267</b>	<b>188 710 909</b>	<b>310 430 593</b>	<b>97 759 236</b>	<b>251 934 743</b>	<b>112 424 948</b>	<b>2 037 051 696</b>	
<b>%</b>	<b>52.8%</b>	<b>9.3%</b>	<b>15.2%</b>	<b>4.8%</b>	<b>12.4%</b>	<b>5.5%</b>	<b>100%</b>	

## FINAL TARGET: TO EXPAND THE PRODUCTION SYSTEM

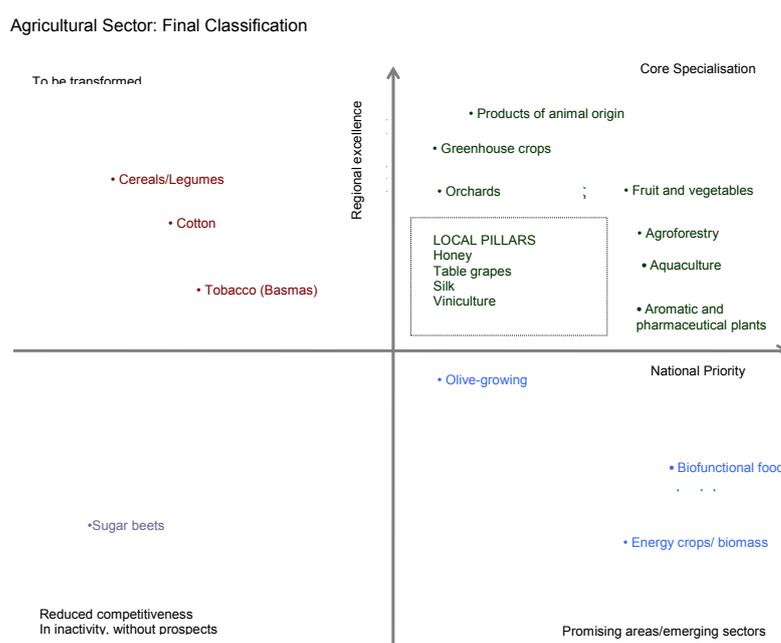
The successful implementation of the policy mix and the action plan, as developed in the previous sections, aim at the sustainable growth of the Regional economy, achieving measurable results as regards:

- the transformation of the agrifood cluster; and
- the expansion and consolidation of the emerging sectors of the regional economy.

The specific objective, in 2022, will lead to a different representation of the dynamics of the key sectors and branches of the economy of Eastern Macedonia-Thrace (see Διάγραμμα 23 Ιεράρχηση Τομέων Παρέμβασης στο Παραγωγικό Σύστημα της ΠΑΜ-Θ. (α) Αγροτικός Τομέας. (β) Μεταποίηση – Τουρισμός.)

The expected transformation largely maintains the sectors/branches of the quadrant 'core specialisation' in a competitive position, clearly strengthened. Since the greatest weight of the planned interventions falls on them, they are expected to make the largest contribution to key growth indicators. At the same time, another framework of interventions seeks to upgrade certain of the emerging sectors/promising areas in the category of core specialisation. A special reference is made to the value chain of the tourism sector, since, as it has been pointed out, the Region of Eastern Macedonia-Thrace has the potential to be transformed into a tourist destination of 'excellence'.

The results from the expected mix of the productive sectors/branches of the regional economy for 2022 is shown in the following chart.



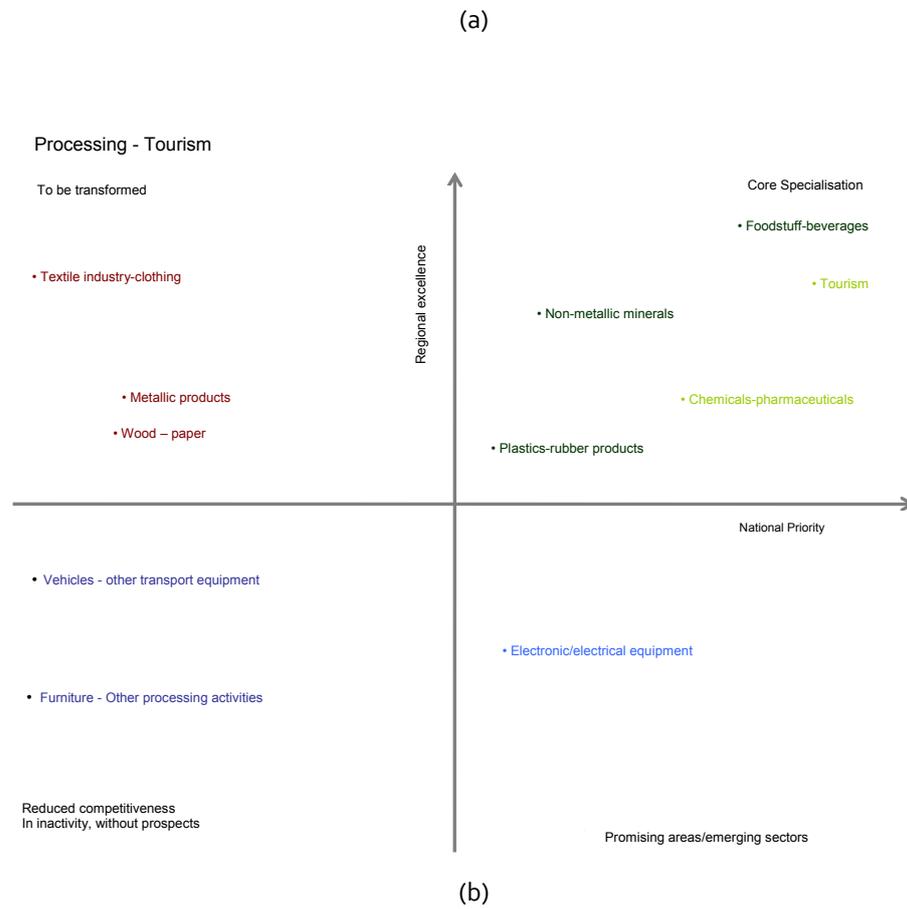


CHART 24: THE PRODUCTION SYSTEM OF THE REGION OF EASTERN MACEDONIA-THRACE FOR 2022

## Chapter 6 MONITORING AND EVALUATION ARRANGEMENT

### GENERAL PRINCIPLES

The RIS<sub>3</sub>, as a set of interdependent and interrelated actions which are oriented towards the achievement of a common objective, shows particular technical and management characteristics, which document the feasibility of forming an integrated and coherent methodological framework for **monitoring and assessment**.

The monitoring procedure attempts to measure results against objectives that had been set at the planning stage. Monitoring aims at the verification of the actions that are planned, the presentation of the resources used, the temporal dimension of the implementation of the programmes and the recording of the indicators of results. As a procedure it is fairly consistent with the procedure that has been already followed by the Managing Authorities of the Operational Programmes in the previous and the current programming period.

However, assessment aims at the estimation of impacts of the implementation of policies and 'tools' that have been selected and the interpretation of whether the relevant interventions have been successful or not. In turn, combined with the changes in the external environment (risks and opportunities), it supplies the review procedure, namely, the procedure which brings about changes in the entire RIS<sub>3</sub> for the subsequent period of implementation.

The key components of the system are the procedures, the indicators used and the administrative structure supporting the system.

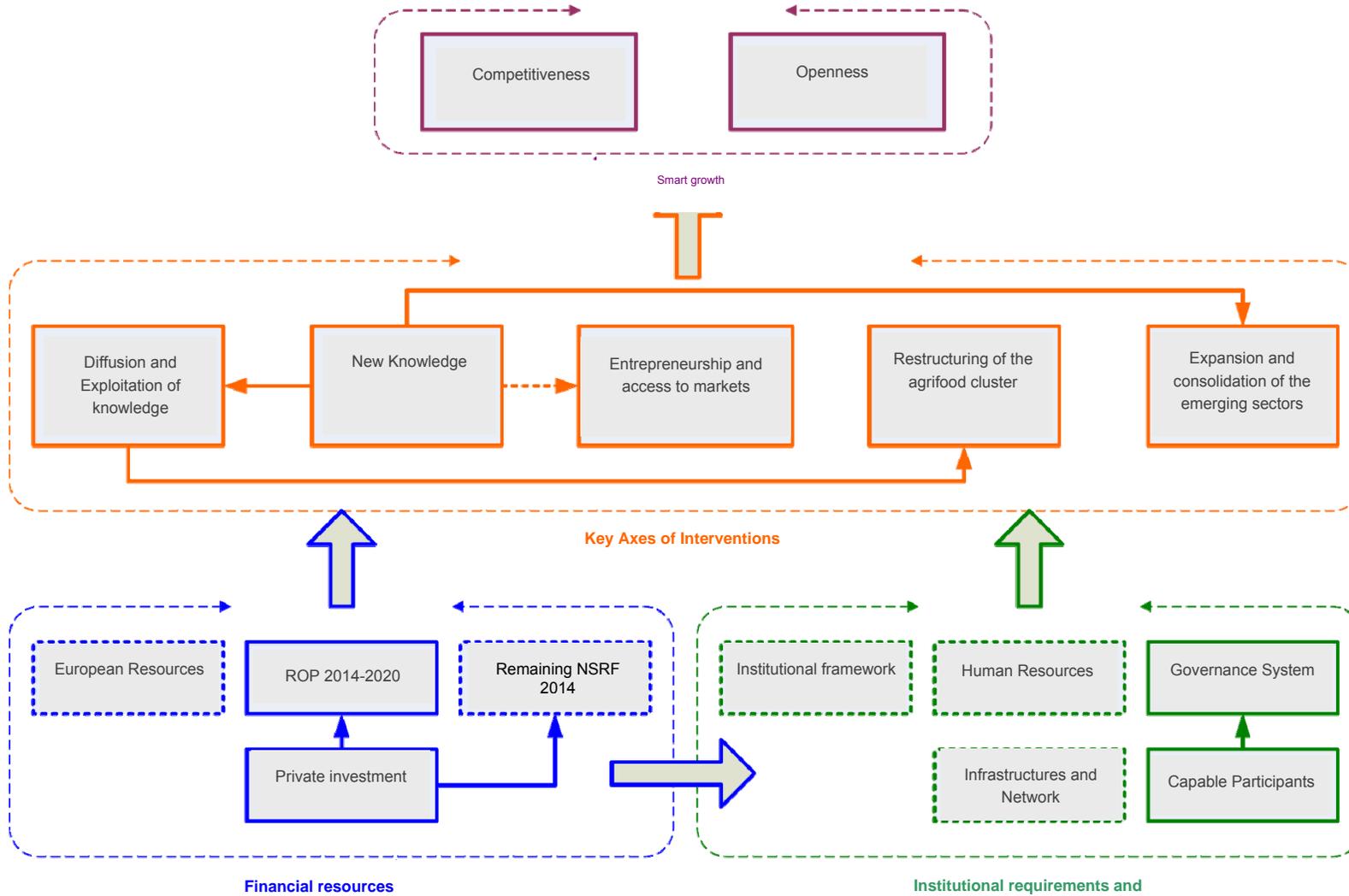
### MONITORING SYSTEM:

The system for monitoring the implementation of the regional smart specialisation strategy is based on the methodology Balanced Scorecard<sup>20</sup> and utilises the relationships of cause - effect and the system of indicators that has been set out in the section Action Plan of the 5<sup>th</sup> Chapter. The structure of the system is presented in Διάγραμμα 25, where only the interconnections within each prospect are presented, for reasons of readability.

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<sup>20</sup> Kaplan R.S. and Norton D.P. (1996). *The Balanced Scorecard: Translating Strategy into Action*. Boston: Harvard Business School Press; Kaplan R.S. and Norton D.P. (2004). *Strategy Maps: Converting Intangible Assets into Tangible Outcomes*. Boston: Harvard Business School Press; Kaplan R.S. and Norton D.P. (2006). *Alignment*. Boston: Harvard Business School Press.

CHART 25: STRUCTURE OF THE MONITORING SYSTEM



The material resources-financing (blue area at the bottom) and the human resources, which are partially funded under the Regional and National Programmes (green area at the bottom), are used for the implementation of the interventions which are distributed under the key Axes of Intervention (orange area in the middle), with direct and/or indirect interconnections between them. The result of the interventions affects the two main objectives of Smart Growth (purple area at the top of the chart), which is also the ultimate objective for the implementation of the RIS3 Strategy in the Region of Eastern Macedonia-Thrace. Throughout the chart, the continuous lines show a higher intensity intra-regionally, whereas the dotted lines indicate a lower intensity or interventions outside the geographical boundaries of the Region.

The monitoring procedures include:

1. Monitoring of the physical, economic and temporal progress.
2. Risk management
3. References of processed data.
4. Quality management.

The following are required for the main monitoring procedure:

- collection of data on physical implementation and economic absorption
- control of schedules
- monitoring of contract notices
- identification of deviations and adoption of corrective measures
- monitoring of the absorption rate of financial resources
- assessment of the implementation progress of Types of Action/Action Plans
- keeping a record for the monitoring of Action Plans

The following are required for the Risk Management procedure:

- risk identification
- risk assessment
- risk management
- systematic overview of risks

Moreover, the administrative structure which the monitoring system will be required to support has already been defined in unit 2 'Σύστημα Διακυβέρνησης' and is included in the medium level of the governance structure of RIS3, namely the small Executive Structure which 'is responsible for the implementation of the action programme under the guidance of the Regional Coordinating Committee.' Its key competences include *inter alia*:

- a. Collection of data through the monitoring system, their publication and the drawing up of periodic progress reports on the basis of the system of objectives that has been adopted, so as to support the decision-taking procedure and update the regional fabric
- b. Monitoring and coordination of activities at the third level of governance.
- c. Coordination of the communication of the regional RIS3 with the regional fabric and the rest of the world.

Finally, as regards the formation of indicators that will be used by the monitoring system, they have already been referred to in the section Σχέδιο Δράσης of Chapter 5 and are divided into indicators of activities (those which cause the desired result) and indicators of results (those which measure the desired result). The indicators for the ROP for Eastern Macedonia-Thrace have been fully specified (base values, as appropriate, and target values), and estimates have already been made, based on realistic assumptions relating to indicators from other operational programmes.

The finalisation of the indicators, i.e. the formula of calculation, the source files and the basic and norm prices, will be determined following the corresponding finalisation of the monitoring system which the Greek Secretariat for Research and Technology is prepared to implement on a national scale and which will be fed by the 13 regional monitoring systems.

## ASSESSMENT

Assessment consists of the systematic measurement of the results produced by the implementation of the RIS3 strategy and their comparison with respective objectives which have been set at the planning stage. The systematic comparison of objectives-results enables the assessment of the efficiency and effectiveness of the interventions that have been implemented, the control of the course of planning with regard to the objectives that had been set and finally, the comprehensive report of proposals/recommendations with the aim to review the Strategic Plan.

The assessment may include annual check points and will definitely include the point of interim evaluation of the entire strategy and interventions, which will be at the end of 2017 for the Region of Eastern Macedonia-Thrace. The conclusions from the procedure for the interim assessment may lead to the revision procedure of the initial planning and its components, namely:

- policies and tools
- implementation schedule
- objectives and expected results
- budget and financing.

The assessment is carried out by a structure that is different than the monitoring procedure, as is reasonable. This has already been specified in the sector 'Σύστημα

Διακυβέρνησης' and is included in the highest level of the governance structure of the RIS3, namely, the Regional Coordinating Committee, on which factors of the quadruple helix are adequately represented. Among the key competences of the Regional Coordinating Committee is *'adopting a governance system on the basis of objectives, ...and monitoring their achievement on a periodic basis, at least twice every year. Updating the regional fabric on progress toward achieving the objectives through the Internet in real time is an optimum practice'*.

## Chapter 7 INDICATIVE ACTION PLAN

### METHODOLOGY

Based on the results of the thematic workshops already organised by the Region of Eastern Macedonia-Thrace, in cooperation with the Joint Research Centre (JRC) of the European Commission in the context of the European Parliament Preparatory Action, as implemented by the Region of Eastern Macedonia-Thrace, concerning the Entrepreneurial Discovery Process (EDP) in the value chains of the wine, dairy & meat and tourism sectors, numerous proposals have been submitted which can, in themselves, provide the basis for future financing invitations (Annex G hereto lists all the proposals discussed and the results of the two thematic workshops [for wine and dairy-meat], as already advertised by the JRC).

Apart from the thematic workshops included in the European Parliament Preparatory Action, additional thematic workshop have also been planned to enable the Region of Eastern Macedonia-Thrace to record, analyse and evaluate the proposals made by the members of the triple helix and of the other sectors of the Regional RIS3. According to plan, therefore, a thematic workshop is taking place within the following period (May 2015), concerning the entrepreneurial discovery process for non-metallic minerals (marble, zeolite, etc.).

It should be noted that the no zeolite-related business activities are carried out in the area currently. However, this is a very promising business activity. Therefore, it is included in the following thematic workshop, given that, being an emerging sector, it is deemed to offer an opportunity with multiplying benefits for other regional development sectors, too.

Following is an indicative action plan example, as it resulted from processing the proposals submitted to the thematic workshop for wine, broken down according to the type of intervention required.

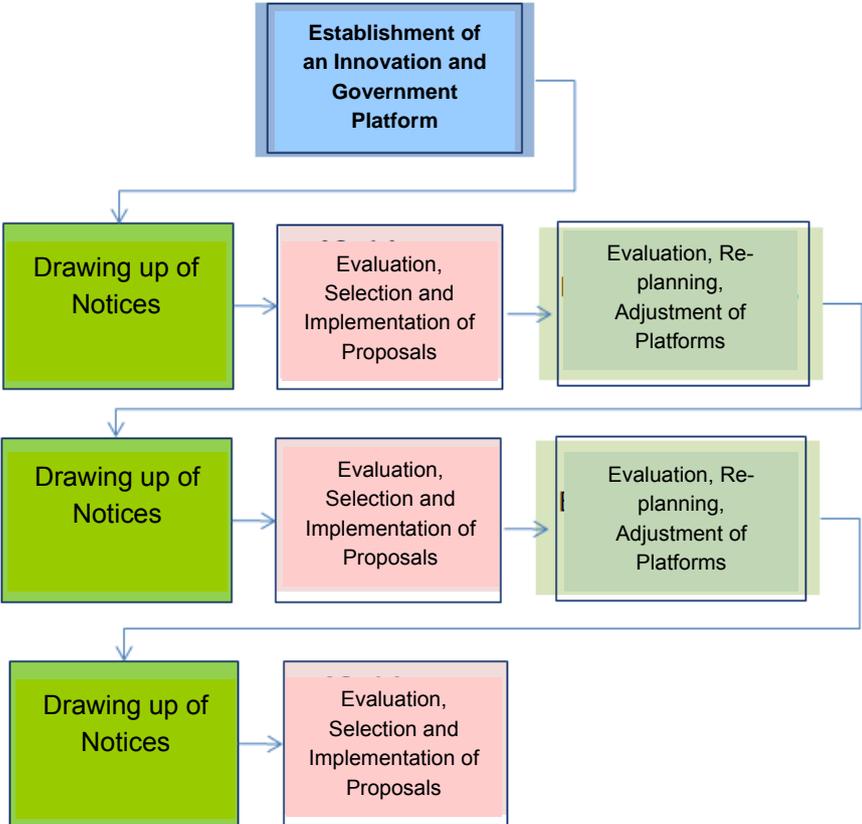


### FOLLOWING STEPS

Moreover, at least two project development labs (PDLs) have been planned for implementation in the following period (May and June 2015), within the context of the European Parliament Preparatory Action. In the context of these labs, the proposals already submitted to the thematic workshops conducted by then will be analysed, to consider their inter-sectoral implementation. Through that blending process, an assessment will be made of the most targeted financing intervention, to ensure finally the best possible utilisation of available resources in the Region. A complete and properly-documented action plan is being elaborated by implementing the project development labs.

### INDICATIVE TIMEFRAME

An indicative timeframe is being drawn up on the basis of both the programme structure and targets and the steps followed. The dynamic nature of the programme, including periodic reviews and notices, aiming to correct any possible mistakes and/or include complementary provisions to broaden the list of potential beneficiaries depending on the required modifications, is shown by the following chart:



According to plan, three rounds of invitations (notices, evaluation, selection and implementation) have been specified, to allow the evaluation and adjustment of the programme, as appropriate.

The indicative timeframe below will be finalised after the setup of the Governance Structure and Innovation Platforms.

YEAR	2014				2015				2016				2017				2018				2019				2020															
QUARTER	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D												
Agrifood Cluster	Programming Planning				Establishment of Platform				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation			
Culture-Tourism Cluster	Programming Planning				Establishment of Platform				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation			
Processing Cluster	Programming Planning				Establishment of Platform				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation			
Environment	Programming Planning				Establishment of Platform				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation			
Knowledge Structure	Programming Planning				Establishment of Platform				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation				Evaluation, Re-planning, Adjustment				Notices				Implementation			
Governance Structure	Programming Planning				Establishment of Platform				Entrepreneurial Discovery Process, Consultation, Monitoring, Evaluation, Adjustment																															

## **ANNEX A**

Proposals discussed at and results of the two thematic workshops (on Wine Industry and Dairy and Meat Products) organised by the Region of Eastern Macedonia-Thrace in cooperation with the European Commission's Joint Research Centre (JRC), as part of the European Parliament Preparatory Action (EPPA) implemented by the Region of Eastern Macedonia-Thrace under the entrepreneurial discovery process, as advertised by the JRC.

## EDP Workshop on Wine Industry

### ENTREPRENEURIAL DISCOVERY FOCUS GROUP ON WINE IN EASTERN MACEDONIA AND THRACE

18-19 November 2014, Kouros Hotel, Drama, Greece

#### **Overview**

Organised under the aegis of the European Parliament Preparatory Action "Actual and desired state of the economic potential in regions outside the Greek capital Athens," this event focused on the wine sector in the Region of Eastern Macedonia and Thrace (REMTh) and on selected activities which can contribute to its future development. Organised by the European Commission's Joint Research Centre in collaboration with the Managing Authority of the region, the main aims of this focus group were threefold, namely:

- To bring together relevant stakeholders in the sector, going beyond the core value chain to explore and catalyse the dynamics of the entrepreneurial process of discovery;
- To examine the key criteria to identify and pursue relevant projects for the region; and
- To refine the focus group approach for its future application to other key sectors identified under the RIS3 strategy of the region.

These aims align with one of the core activities of the preparatory action: to test and optimise the entrepreneurial discovery process (EDP) within selected sectors under the broader RIS3 strategy of the region.

Over the course of two days, the focus group meeting combined plenary and parallel sessions, with interventions by regional, national, and international experts. Within the wine sector, the following *a priori* themes for discussion were identified:

- Research and innovation focusing on technological improvements in wine;
- Research and innovation focusing on by-products of grapes and wines;
- Research and innovation related environmental sustainability and the wine sector;
- Research and innovation in wine tourism.

In the opening session, the aims and approach of the preparatory action were set out by JRC-IPTS Aiming to facilitate the refinement and implementation of the RIS3 strategy in a region heavily hit by the crisis, while also serving as a model for other convergence regions in Greece and Europe, the project centres on the provision of "hands-on" support to the REMTh RIS3 implementation process. In addition to developing the process, the envisaged outcomes include the support for the launch of concrete projects in the region and consequent absorption of structural funds. In view of this primary aim, this event represents an important step along this path.

Two concrete concerns for the EDP were emphasised by JRC-IPTS in the introductory session. First was the issue of whether it is best for ideas to match the funding available or whether a more ambitious search for ideas should be undertaken based on potential, for which it is

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better to then seek appropriate funding. Second, the need to better engage with international networks was emphasised.

In order to fully explore the value chain of wine production, a variety of international and national experts were invited to make presentations centred on each of the four themes identified above. To further examine ideas and opportunities in each of these areas, parallel working groups were organised, following a common participatory methodology. These centred on the generation of ideas, and the selection of the most feasible for further discussion. Moderators and rapporteurs were appointed for each group to oversee the application of the methodology and report the outcomes.

The participation and engagement in the event, in terms of both level and quality, were high. More than 70 stakeholders from within the region and beyond participated. Both the plenary and parallel sessions saw active engagement by both invited experts and stakeholders from the region and beyond.

A key issue identified by the region during the RIS3 preparation was the lack of business involvement. A key positive outcome of this event was the level of business participation: more than half of the participants came from the private sector, and actively engaged in proposal formulations for future collaboration.

This generation and exchange of ideas were key elements of the meeting. The outcomes of the working groups were highly constructive, with a number of feasible ideas, proposed and thought through during the second day. The participatory process used for this worked smoothly, with participants actively engaging in the tasks, and with lessons emerging for its refinement in the subsequent such events envisaged under the preparatory action. The overall perception of participants was highly positive.

A key issue of the meeting was the making and reinforcement of linkages, and the importance of subsequent joint efforts, on both bilateral and multilateral bases. The good levels of engagement between the stakeholders should be followed up.

As the first event of its kind, it has also generated valuable lessons in how to refine the EDP focus group methodology and the overall strategic approach of the project. This also aligns with the second objective of the project, in generating lessons that can be applied to other regions.

#### **Outcomes: Participation**

In planning the event, a broad mix of potential participants was identified, based on an initial value chain analysis. The main stakeholder groups included:

- Individual grape growers and regional associations;
- Wineries and distilleries.
- Researchers and experts on the primary activities of the value chain (e.g., agronomists, oenologists, biologists)

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- Experts on the secondary activities of the value chain (e.g., suppliers of equipment, packaging, fertilisers, marketers, distributors)
- Representatives of other value chains that provide mutually beneficial opportunities, i.e. tourism and cultural events.
- Chambers of Commerce.
- Representatives of regional and national administration.

To provide a broader perspective, 13 national and international experts were also participated, having been invited to share their knowledge and expertise on:

- Marketing and promotion of Greek wine in foreign markets
- Access to European funding and how to get involved in international project consortia
- Support programmes for the Wine Sector in the Context of the Common Agricultural Policy
- Aspects of the four key themes of the EDP.

In total, 73 participants registered for the event, and while not all eventually participated, the event was publicised locally and on-line, bringing the total number of participants to almost 100.

#### **Outcomes: Parallel Working Groups**

For each of the four themes listed above, a parallel working group was organised, based on the participant preferences expressed by all participants during the on-line registration process. Each group followed the same basic procedure, guided by a moderator and with the support of a rapporteur:

- An introductory presentation by a local or national expert on the theme.
- A brainstorming session in which each member of the group was asked to generate an idea under the thematic area of the work group (task 1).
- The presentation of the ideas by each participant to the rest of the group (task 2).
- The discussion and selection of most favourable ideas leading to the formation of “innovation partnerships”, sub-groups within the main working group (task 3).
- The development of ideas by the partnerships and initial reflections on issues to be tackled for ideas to be transformed into concrete projects (task 4).
- The presentation of ideas within the working group and then to the plenary session.

There was some deviation from the four workgroups initially envisaged. As the level of interest for the environmental sustainability theme was relatively low and that for wine tourism very high, the environmental sustainability working group was replaced by a second working group on tourism. The four EDP working groups were attended by 46 participants (excluding moderators and rapporteurs) divided among the stakeholder groups as follows:

- 30 from industry
- 10 from research / academia
- 6 from public administration (national and/or regional)

Table 1 summarise the main outcomes of the working groups.

Table 1: Main outcomes of the participatory exercise

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
R&I focusing on technological improvements in wine	Research and exploitation of local wine grape varieties	Research on 6-7 local wine grape varieties aiming at the definition of their oenological potential and its enhancement during the grape and wine production process	Definition of the varietal character/potential of each variety Enhancement of the initial potential during all stages of wine production, from vineyard site evaluation to the marketing of the final products
	Development of a network for collecting and management of data on wine grape cultivation	Development of a vineyard network within REMTh using GIS tools. The aim is the monitoring and collection of vineyard data (soil, climate, in-situ sensors) and their management with the use of adapted software	Development of an interactive platform designed to assist vine growers in decision-making Assistance to Regional Administration to designate areas of predilection for vine growing and wine production
	Exploitation of indigenous microbiota in the production of local wines	Exploitation of local grape microflora for the quality improvement and diversification of local wines	Contribution for the improvement of local wine identity
	Methods to prevent the growth of Dekkera/Brettanomyces bruxellensis against wine spoilage	Prevention of spoilage of local wines by the yeast Dekkera/Brettanomyces bruxellensis since it is often associated with the local wine industry	Productivity improvement for local grape producers
R&I focusing on by-products of grapes and wine	Energy Production using by-products of winemaking or distilling	Use of the biomass of the entire wine producing value chain to produce biogas through anaerobic fermentation	Implementation of an environmentally friendly alternative method for energy production
	Food Supplements and Cosmetics	Production of food supplements and cosmetics using extracts from by-products of the various stages of the wine or tsipouro production process	Exploitation of a low capacity plant to extract useful substances from by-products of wine and tsipouro production

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Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
	Using distillery by-products as organic fertiliser	Use of "giparta", the key by-product of the tsipouro-distilling process, as a low-cost organic fertilizer	Production of an organic fertilizer based on an organic residue rich in N <sub>2</sub>
	Using by-products of winemaking or distilling for animal feeds	Production of animal feeds using extracts from by-products of the various stages of the wine or tsipouro production process	Exploitation of a low capacity plant to extract useful substances from by-products of wine and tsipouro production and sell to animal feed manufacturers
	Tsipouro-based Liqueurs	Introduction to the market of tsipouro-based liqueurs flavoured by pomegranate, dogwood berries, honey or similar local products	Creation and development of a completely new to the market product family based on a traditional production technique
Wine tourism (combined outcome of two working groups)	Identification and preservation of local wine varieties and related cultural assets	Adoption of selected wine varieties, cultivation and wine making practices and methodologies in order to disseminate this knowledge to all businesses and interested individuals	Establishment of relations of local communities with local culture and wine making with the overall aim to increase accessibility, and visibility of wine, wineries and vineyards
	Creation and branding of an integrated tourist product based on wine, gastronomy and cultural heritage	Exploitation of regional wines, gastronomy and cultural assets in order to create a strong image of REMTh.	Integration of wine-tourism in touristic and agricultural strategy of the Region Creation of a "unique touristic offer" to the market Development of a highly recognised touristic destination
	Formation of a "wine value chain" cluster within REMTh	Creation of strong linkages among the various players of the wine value chain within the Region	Foundation of a model based on economies of scale for the creation of sustainable touristic product

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**Detailed Outcomes: Working Group on technological improvements in wine**

Moderator:	Mr Konstantinos KOKKINOPLITIS
Presentation by:	Dr Aspasia NISIOTOU – ELGO “DEMETER” / Wine Institute of Athens
Industry:	10 representatives
Academia/Research community:	5 representatives

In the initial brainstorming, 13 ideas were generated and presented. Given the proximity of some of them, the group clustered them into six main ideas for subsequent ranking, formation of partnerships and further discussion:

1. Research and exploitation of local wine grape varieties
2. Development of a network for collecting and management of data on wine grape cultivation
3. Exploitation of indigenous microbiota in the production of local wines
4. Grape must acidification by using green harvest grapes
5. Study for management of water use for wine production
6. Methods to prevent the growth of *Dekkera/Brettanomyces bruxellensis* against wine spoilage

From these six, the participants were asked to rank the three ideas in which they would most like to participate. Idea no. 1 (Research and exploitation of local wine grape varieties) was thus perceived as the primary focus of the group, where ideas 2, 3 and 6 were recognised as equally important. Consequently, the whole group first discussed the elaboration of the specific partnership for idea no.1, and then ideas 2, 3 and 6 in smaller groups, according to preferences. The main outcomes of these discussions are described below.

**1. Research and exploitation of local wine grape varieties (idea 1)**

*Partnership composition: 10 from industry and 5 from research/academic community*

**1.1. Brief description of the idea-partnership**

The idea focuses on research on 6-7 local wine grape varieties, aiming at the definition of their oenological potential and its enhancement during the grape and wine production process. The implementation of the idea comprises two steps: (a) the definition of the varietal character/potential of each variety and (b) the ways to enhance/maximize the initial potential during all stages of wine production, from vineyard site evaluation to the marketing of the final products.

**1.2. Contribution of the different partners**

The research will focus on varieties existing in established vineyards but can be extended to the discovery of lesser known ones. Collection and description (both ampelographic and molecular) will be performed by specialized scientists and institutes (molecular biologists, plant pathologists and viticulture specialists). Nursery facilities will join the project to assure the propagation and delivery of the planting stock.

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For the definition of the varietal character (for both existing and promising varieties), laboratories specialised in grape and wine chemical analysis will be needed and tasting panels must be assembled and trained.

To maximise varietal potential, viticulture and oenology experts will be necessary to plan and implement experimental protocols and evaluate the results.

Grape growers and wine producers in the region will participate by providing vineyards and wineries for experimental implementation (experimental vineyard blocks, micro-vinifications).

#### 1.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

The main perceived obstacle to the implementation of the idea is the current legal framework, limiting the expansion of vineyards. Within the region, there are grape and wine producers that can support the idea with tangible assets (experimental cultivations and pilot wine-making process) and human capital. Democritus University of Thrace (DUTH) could also support the action with the participation of specialised labs. Reservations regarding the lack of infrastructure of the department of oenology at Drama might be solved by the participation of other well equipped labs in Aristotle University of Thessaloniki (AUTH) and the Agricultural University of Athens.

#### 1.4. First financial considerations

As the duration of the action at full scale deployment would be at least four years, only rough estimates of budget are feasible, and would be in the order of € 2M.

#### 1.5. Identification of first “next” steps

These include: state of the art analysis regarding current knowledge on local varieties; evaluation of planting material and nursery facilities; and definition of areas and most important varieties for further research.

## **2. Research and exploitation of local wine grape varieties (Idea 2)**

*Partnership composition: 5 from industry and 2 from research/academic community (see Table 2, blue team)*

### 2.1. Brief description of the idea-partnership

The idea refers to the development of a vineyard network within REMTh using GIS tools. The aim is the monitoring and collection of vineyard data (soil, climate, in-situ sensors) and their management with the use of adapted software. The results will be uploaded on an interactive platform designed to assist vine growers in decision making. The network will also help the Regional Administration to better designate areas for vine growing and wine production

### 2.2. Contribution of the different partners

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It is critical a responsible organisation (e.g. Regional Authority and/or association of producers) assumes responsibility for organising the network.

Research activities will be based on expertise in Precision Agriculture assisted by adapted technological equipment.

Hardware suppliers (weather stations, sensors etc.) are also necessary, as are IT providers with relevant experience and expertise complement the task force of the action.

#### 2.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

No legal obstacles are evident. However, there is a need for agronomists, IT staff and specialised scientists within the domain of precision farming. The regional pool of experts could be supported by specialised institutions from other regions. There is also the need for local agronomists to follow specialised training programmes prior to the implementation of the action.

Local grape and wine producers would generally be willing to participate in the network. Regional Authorities will support the action, as it will be a useful tool for policy making in the sector.

#### 2.4. First financial considerations

The duration of the action at full scale deployment would be at least three years. An initial budget estimate is €2M.

#### 2.5. Identification of first "next" steps

Grouping of current vineyard and neighbouring ones, and development of the core for implementation.

### **3. Exploitation of indigenous microbiota in the production of local wines (Idea 3)**

*Partnership composition: 5 from industry and 3 from research/academic community (see Table 2, orange team)*

#### 3.1. Brief description of the idea-partnership

The idea is to exploit local grape microflora for quality improvement and diversification of local wines. For this purpose, native microbiota from important viticultural regions within REMTh will be assessed. Elite strains will be selected based on their technological characteristics and performance in experimental and pilot plant scale fermentations. The wines will be examined through chemical, sensory, microbiological and molecular analyses.

#### 3.2. Contribution of the different partners

Local grape and wine producers constitute the final beneficiaries.

Research activities will be based on research institutes of domains relevant to the action proposed.

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3.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

No legal obstacles were envisaged. There is a need for qualified oenologists, chemists, agronomists and molecular biologists. The regional pool of experts could be supported by specialised institutions from other regions.

3.4. First financial considerations

The duration of the action at full scale deployment would be at least three years. An initial budget estimate is €2M.

3.5. Identification of first “next” steps

- Identification of viticulture zones of interest
- Site and cultivar selections within zones for sampling
- Isolation of microbial
- Molecular characterization
- Selection of microbial
- Pilot vinifications
- Evaluation

**4. Methods to prevent the growth of *Dekkera/Brettanomyces bruxel-lensis* against wine spoilage (idea 6)**

*Partnership composition: 5 from industry and 3 from research/academic community (see Table 2, orange team)*

4.1. Brief description of the idea-partnership

The idea is to better prevent spoilage of local wines by the yeast *Dekkera/Brettanomyces bruxellensis* since it is often associated with the local wine industry. Research activities will include the isolation of *Dekkera bruxellensis* from local wines, the genetic and physiological characterisation of the isolates, the development of detection methods, and the development of control protocols to be transferred to the producers.

4.2. Contribution of the different partners

- Local grape and wine producers constitute the final beneficiaries group.
- Research activities will be based on research institutes of domains relevant to the action proposed.

4.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

No legal obstacles were envisaged. There is a need for qualified oenologists, chemists, agronomists and molecular biologists. The regional pool of experts could be supported by specialised institutions from other regions.

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#### 4.4. First financial considerations

The duration of the action at full scale deployment would be at least three years. An initial budget estimate is €1.5M.

#### 4.5. Identification of first “next” steps

- Identification of infected sites
- Collection of red wine samples from all the local wineries
- Wine tasting by experts
- Analytical identification of the compounds affecting the flavour of the wines
- Identification of the Brett strains/ molecular biology tools
- Methods for addressing the problem

#### Detailed Outcomes: Working Group on Grapes and Wine by-products

Moderator:	Mr Vasileios PITSINIGKOS
Presentation by:	Prof. Dimitrios KOURETAS – University of Thessaly
Industry:	9 representatives
Academic / Research community:	1 representative
Public Administration:	1 representative
Total participants:	11

Eight ideas were initially generated and presented:

1. Using by-products for energy production;
2. Using by-products to extract essential oils for the perfume industry;
3. Using by-products to extract substances for the cosmetics industry;
4. Using by-products to create organic fertiliser;
5. Using by-products to extract substances for food supplements;
6. Using by-products to extract substances for animal feeds;
7. Using plant residues as biomass;
8. Creating tsipouro-based flavoured liqueurs.

From these, the participants were asked to rank the three ideas in which they would most like to participate. Partnerships to take ideas further forward thus focused on “food supplements and cosmetics,” which combined ideas 3 & 5, and on ideas 1, 4, 6 and 8. The main outcomes of these more focused discussions are described below.

#### **1. Energy Production using by-products of winemaking or distilling (idea 1)**

*Partnership composition: 2 from industry*

##### 1.1. Brief description of the idea-partnership

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The idea is to use the biomass of the entire wine producing value chain (grape residues, winery residues, distillery residues) to produce biogas through anaerobic fermentation and then, energy.

1.2. Contribution of the different partners

The following key partners are needed to implement the idea:

- A research organisation to assess the energy producing efficiency of the grape/wine/tsipouro by-products biomass.
- An engineering consultancy or a research organisation to design the process of converting the said biomass to energy (the anaerobic fermentation tanks, the biogas boiler, etc).
- Grape yards, wineries and distilleries to provide biomass.

1.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

- No legal problems foreseen.
- Positive environmental impact.
- Sustainability of the entire value chain.
- The skills for running the energy plant are available in the Region.

1.4. First financial considerations

- An initial budget estimate for setting up a new 100 kW plant is in the range of €300k.
- The cost of inputs is very low, since wine producers and distillers actively seek appropriate and environmental-friendly means to discard waste.
- The thermal energy produced in the process can be used by greenhouses.
- Revenues of selling electricity to the national distribution network of approximately €80-100k/yr.

1.5. Identification of first “next” steps

- Verification of the amount of biogas produced per unit of biomass.
- Feasibility study.
- Seek funding.

**2. Food Supplements and Cosmetics (ideas 3 and 5)**

*Partnership composition: 2 from industry, 1 from public administration*

2.1. Brief description of the idea-partnership

The idea is to produce food supplements and cosmetics using extracts from by-products of the various stages of the wine or tsipouro production processes.

The implementation of the idea consists of (a) establishing a local network of wine / tsipouro producers to collect the by-products; (b) setting up a low capacity plant to extract useful substances from by-products and (c) establishing a distribution network.

2.2. Contribution of the different partners

The following key partners are needed to implement the idea:

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- A research organisation to analyse the availability of useful substances in by-products, classify them in terms of market / application potential and design a process to extract them.
- A local network of wine/tsipouro producers to supply the inputs to the process and manage the business of running the plant and selling substances.
- A distribution network, initially at the local level, to supply the extracts to their users or, at a later stage, agreements with pharmaceutical and cosmetics firms for the procurement of extracts.

### 2.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

- The legal framework for setting up such a plant is not clear to the participants, and must be reviewed, especially in terms on environmental regulations, plant specifications, hygiene and safety and quality control for final products.
- In terms of human resources, the critical skills required for the plant's operation are a process engineer, a quality and a marketing manager. These can both be sourced in the local market.

### 2.4. First financial considerations

- An initial budget estimate for setting up a new plant is in the range of €500k, but this can be reduced if an existing winery or distillery is expanded to perform this task, assuming that the licensing framework permits this.
- The cost of inputs is very low, since wine producers and distillers actively seek appropriate and environmental-friendly means to discard their waste.

### 2.5. Identification of first "next" steps

- First, an applied research product to conduct analyses, specify marketable substances content in winery/distillery by-products and design an extraction process.
- Second, assessment of the market potential and the revenue streams for the results of step one, and
- Third, elaborate a business model that would result into positive cash flows from the operation of the plant.

### **3. Using distillery by-products as organic fertilizer (idea 4)**

#### *Partnership composition: 2 from industry*

#### 3.1. Brief description of the idea-partnership

The so-called "giparta", the key by-product of the tsipouro-distilling process, is an organic residue rich in N<sub>2</sub> that can be used as a low-cost organic fertilizer.

#### 3.2. Contribution of the different partners

For the idea to be implemented, the following contributions are needed:

- A network of tsipouro distillers that would provide adequate quantities of "giparta".
- A plant to reduce the water content of giparta, reduce humidity below 10%, homogenize, pack and distribute the final product.

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- A lab to certify the final product in terms of N-P-K concentration.

3.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

- No legal issues and no special skills and knowledge required.

3.4. First financial considerations

No data available so far.

3.5. Identification of first “next” steps

- A network of tsipouro distillers to provide adequate quantities of giparta.
- Pilot production and certification of the final product.
- A market survey.

**4. Using by-products of winemaking or distilling for animal feeds (idea 6)**

*Partnership composition: 1 from industry, 1 researcher*

4.1. Brief description of the idea-partnership

The idea is about producing animal feeds using extracts from by-products of the various stages of the wine or tsipouro production process.

The implementation of the idea consists of (a) establishing a local network of wine / tsipouro producers to collect the by-products; (b) setting up a low capacity plant to extract useful substances from by-products and (c) sell the substances to animal feed manufacturers.

The idea is a derivative of another idea on using substances for food supplements (see above for details) and therefore uses the same approach in its development.

**5. Tsipouro-based Liqueurs (idea 8)**

*Partnership composition: 2 from industry*

4.1. Brief description of the idea-partnership

The idea is about bringing to the market tsipouro-based liqueurs flavoured by pomegranate, dogwood berries, honey or similar local produce. Tsipouro itself is a strong distilled spirit containing 40-45% alcohol by volume that is produced from the pomace (the residue of the wine press).

Tsipouro-based flavoured liqueurs are traditionally produced and consumed in households throughout the Region, but their market opportunity has not been considered so far for various reasons discussed below.

4.2. Contribution of the different partners

The main idea is to be implemented through a collaborative partnership of 'amateur distillers' that would collectively produce and market such liqueurs using a pre-specified protocol.

Local orchard growers and beekeepers would be an essential part of the partnership.

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4.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

- The legal framework regarding taxation of liqueurs inhibits large-scale production.
- 'Amateur distillers' possess, by tradition, all the necessary skills to make the product; only some seminars are needed to provide the necessary extra knowledge.
- The implementation of the idea would require a local "Novemberfest" event to attract customers.

4.4. First financial considerations

- Other than the cost of prototyping a production protocol that would guarantee a stable product, the only cost is procuring the flavouring agents.
- The partnership estimates that a stable product would be sold at 4x the current price.
- An initial assessment of the customers' profile is already available.

4.5. Identification of first "next" steps

- A cluster-like scheme of amateur distillers has to be formed
- A production protocol has to be agreed among collaborating partners to guarantee product stability and specifications, including bottling and labelling.
- The integration of the aggregated production into a local marketing event.

**Detailed Outcomes: Working Groups on Wine Tourism**

**Wine tourism working group 1**

Moderator:	Mr Panagiotis KOUDOUMAKIS
Presentation by:	Mrs Maria ALEBAKI – Hellenic Agricultural Organization Demeter
Industry:	2 representatives
Academic / Research community:	2 representative
Public Administration:	3 representative
Total participants:	7

The initial brainstorming session in this working group yielded 10 ideas:

1. Regional winery for all. Vineyard adopted/rented by citizens to take part and produce their own wine (cooperative undertaking between research, wineries, firms, local authorities, etc.) outward looking approach (community-based agriculture; community vineyard)
2. Local varieties and local history. Promotion of historical sites in REMTh; local produce; local qualities; varieties; combine wine food and local history; need wide training incl. restaurants, etc. Public intervention to improve framework conditions; cooperation with research
3. Combined wine-tourism. Combine wine tourism and leisure (horse riding, bike riding, entertainment); public-private collaboration; accessibility issue (needs public intervention); More specialised wine exhibitions promoting, raising awareness, and attracting not only exhibiting; public-private collaboration – more targeted, well-organised and informed events

*EDP workshop on wine industry*

4. Local wines and local gastronomy identity. Promotion of local wines through local products and gastronomy (mapping of wineries, exchange of knowledge, networking / collaboration, research and databases to be created supported by firms and associations and regional auth.; take on board chefs, sommeliers, etc.: non-tech innovations important in this group)
5. Accessibility and local wine identity. Sustainability through visibility/accessibility and local identity for local wine; promotion of multi-cultural background of region; target education in all age ranges; involve regional authority, tourist agents, museums, etc.
6. Gastronomy mapping platform of EMTh. Gastronomy profile of the region; online platform supported by local agreement for raising awareness / promoting; food and wine pairing; mobile apps
7. Promotion train for all products of the region touring all around Greece; private support
8. Thematic park for wine and food showing historical evolution and diversity of products
9. Integration of wine-tourism in regional tourism strategy. Connection of accessible wineries and wine roads; combination with tourist packages, local festivals; involve regional authority, Greek Tourism Organisation, chambers, tourist operators / associations, research into reasons people select a place to visit and ways to connect wineries with tourist packages; JTI application on internet: an application showing all touristic locations (incl. wine) in REMTh and two Bulgarian neighbouring regions
10. Platform for touristic actions for exploitation of wine-makers. Databases and promotion tools for different target groups to be exploited / adjusted by wineries to build their own customised/ local promotion programme.

From these 10 ideas, the participants were asked to rank the three ideas in which they would most like to participate. Ideas 2 and 10 were highest ranked, although 10 was considered by the group more as cross-cutting tool that could complement the other ideas. The second sub group was therefore focused on developing idea 4 (local wine and gastronomy identity).

**1. Local varieties & local histories (idea 2)**

*Partnership composition: 1 from industry, 1 researcher and 2 from public administration*

**1.1. Brief description of the idea-partnership**

Local vineyards should be selected and ‘adopted’ to ‘save’ and spread certain varieties and cultivation and wine making practices and methodologies from extinction but also in order to disseminate this knowledge to all businesses and interested individuals. The idea also includes building up relations with the local cultural identity, history, cuisine, gastronomy alongside maintaining, and spreading local recipes as well as producing new wine and by-products. Mapping gastronomical profiles of the region is also important in a specific platform to promote local products. The overall integration of wine-tourism in touristic and agricultural strategy of the region is crucial.

**1.2. Contribution of the different partners**

### *EDP workshop on wine industry*

The main idea is to build relations of local communities with local culture and wine making with the overall aim to increase accessibility, and visibility of wine, wineries and vineyards. Restaurants, research bodies, education, IT users, wine specialists, producers, social media should be brought on board.

#### 1.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

- Legal issues: bureaucracy and establishment limitations of wineries (e.g. not all varieties are included in the national wine variety registry so that their cultivation is licensed); rules and regulations encouraging new forms of tourism and agro-tourism
- Wine training in the service sectors; relevant courses in school curricula
- Task forces including research, industry and local/regional authorities
- Financing tools, funding instrument, private funds should be made available; voluntarism can also be exploited in communicating / raising awareness.

#### 1.4. First financial considerations

Not developed by the partnership.

#### 1.5. Identification of first “next” steps

- Follow up meeting of this group to see what has been done, how to move on
- Collection of needed data and knowledge through MSc or PhD research
- Launch of programme - calls for proposals.

## **2. Wine, gastronomy, culture, entertainment combined (idea 4)**

*Partnership composition: 1 from industry, 1 researcher and 1 from public administration*

### 2.1. Brief description of the idea-partnership

Combination of wine – gastronomy – entertainment and culture (including, sports, local customs, art, etc.) at the regional level; research needed on varieties and on producing a wine - gastronomy – culture mapping for the specific region; other prototype regions should also be examined/mapped; the exchange of ideas and knowledge with other regions is important.

### 2.2. Contribution of the different partners

Engagement of the Greek Tourism Organisation is necessary as well as of local authorities for promotion, also restaurants, alternative tourism sector, social enterprises (KOINSEP); initiatives should be co-funded by the private sector too.

### 2.3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

- Consulting / training on the themes involved (tourism-gastronomy-leisure-culture)

*EDP workshop on wine industry*

- Networking of local authorities, industry and research community but also civic society (NGOs for food, environment, cultural issues)
- The private sector should be in the driving seat; the right balance needed across wine, alternative, agro-tourism so that one form of tourism does not jeopardise the value of the other.

2.4. First financial considerations

Estimated cost for preliminary research for mapping and a pilot action: 500K Euro.

2.5. Identification of first “next” steps

- Clusters or think tanks (involving all key actors: policy-business-research-society) to be created and continued.
- The private sector should utilise online communication, including also social media for both internal and external communication and recording / collection of relevant data (ERP type of platform).
- On line tools and platform building should be enabled through public procurement.
- Communication / collaboration with schools, vulnerable groups, certain festivals for raising awareness and engagement.

Wine tourism working group 2

Moderator:	Prof. Lena TSIPOURI
Presentation by:	Mrs Maria ALEBAKI – Hellenic Agricultural Organization Demeter
Industry:	9 representatives <sup>1</sup>
Academic / Research community:	2 representative <sup>2</sup>
Public Administration:	2 representative
Total participants:	13

17 ideas were initially generated and presented:

1. Wine tourism hookup with ICT
2. “My Wine Visit Planet” (ICT solution)
3. Utilization of Social Media
4. Your Wine Bottle, ICT solution
5. Branding
6. Branding combined with other local & tourist products & accessibility
7. Wine tourism hooked up with other local & tourist products
8. Creation of tourist product
9. Drama wine producers cluster
10. Drama as Wine & Culinary Destination
11. Devise the exploitation of results

<sup>1</sup> 5 entrepreneurs, 1 trader, 1 (entrepreneurial) professional association, 2 consultants

<sup>2</sup> 1 academic, 1 researcher

*EDP workshop on wine industry*

12. Engagement of public administration in promotional activities
13. Calendar of events
14. Wine festival, with parallel events
15. Festivals
16. Targeted multi-sensory experiences
17. Local Quality Pact

Following the ranking exercise, three pairs of these ideas (namely 5 & 6, 7 & 8 and 9 & 10) were merged to form more three solid partnerships.

**1. Branding (ideas 5& 6)**

*Partnership composition: 4 from industry*

1. Brief description of the idea-partnership

The idea is to capitalize on the assets of regional wines with cultural and touristic characteristics in order to create a strong image of REMTH as far as wine tourism is concerned. The next step would be the planning of a solid promotion campaign creating awareness of the Region, hence positioning it as a highly recognised touristic destination.

2. Contribution of the different partners

Engagement of wine producers, cultural bodies, hotels, restaurants and tourist organisations was acknowledged as critical for the success of the partnership.

3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

- Training and education
- Interaction among various organizations to reach the goals.

4. First financial considerations

Hard to estimate. Very roughly ~ 1M€

5. Identification of first "next" steps

- Mobilisation in regional level
- Effective co-ordination

**2. Creation of tourist product "Wine-Gastronomy / Cultural Tourism" (ideas 7& 8)**

*Partnership composition: 3 from industry and 2 from public administration*

1. Brief description of the idea-partnership

The idea is related to the previous one. The main marginal aspect is the recording of small elements that could be linked to form the basic product portfolio in terms of a "unique touristic offer" to the market.

2. Contribution of the different partners

### *EDP workshop on wine industry*

Every link of the value chain of wine making along with cultural heritage, food industry based on local tastes, natural resources, local identity translated into interactive tools and techniques for attracting tourists.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Accessibility to knowledge and regional characteristics in order to be recorded and be processed is considered as the most critical issue.

#### 4. First financial considerations

Hard to estimate: very roughly ~ 10M€

#### 5. Identification of first “next” steps

- 1) Road map for suitable interventions.

### **3. Formation of “wine value chain” cluster (ideas 9 & 10)**

*Partnership composition: 2 from industry and 2 researchers*

#### 1. Brief description of the idea-partnership

The formation of a wine cluster could create stronger linkages among the various players of the value chain within the Region. At the same time it is recognized as the main tool to create economies of scale since most of the enterprises of the sectors involved are small/very small firms, and therefore cannot handle the costs associated with the necessary action to create a sustainable touristic product with a regional dimension.

#### 2. Contribution of the different partners

It is natural that for the specific partnership to be effective, actors of every link of the value chain need to contribute: grape farmers, wine makers, local and regional authorities, point of sales, tourism and culture bodies, food and hospitality firms, research institutes, education and training, legal support entities, marketing support, management and logistics.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

- Legal form of the cluster has to be investigated
- Required human resources have to be investigated
- There will be great needs for training on various aspects.

#### 4. First financial considerations

Hard to estimate. Very roughly ~ 1M€

*EDP workshop on wine industry*

5. Identification of first “next” steps

- Shared Concept & Vision
- Best practices acknowledgment
- Business Model Plan
- Steering Committee.

**Common Conclusions from Wine Tourism Working Groups**

Although there were differences in terms of logistics of the process, there were some ideas in common between the working groups. The following table summarizes the common ideas:

**Table 2: Common ideas on wine tourism**

Idea	Brief description	Expected results/outcomes
Identification and preservation of local wine varieties and related cultural assets	Adoption of selected wine varieties, cultivation and wine making practices and methodologies in order to disseminate this knowledge to all businesses and interested individuals	Establishment of relations of local communities with local culture and wine making with the overall aim to increase accessibility, and visibility of wine, wineries and vineyards
Creation and branding of an integrated tourist product based on wine, gastronomy and cultural heritage	Exploitation of regional wines, gastronomy and cultural assets in order to create a strong image of REMTh.	Integration of wine-tourism in touristic and agricultural strategy of the Region Creation of a “unique touristic offer” to the market Development of a highly recognised touristic destination
Formation of a “wine value chain” cluster within EMTh	Creation of strong linkages among the various players of the wine value chain within the Region	Foundation of a model based on economies of scale for the creation of sustainable touristic product

- There is a strong notion that wine tourism within REMTh is in a very weak position for the moment. Only common efforts could lead to a sustainable growth model.
- Formation of a cluster that might cover the whole “wine value chain” is considered as an effective tool to achieve the growth goal. This could establish economies of scale since most of the firms operating within the value chain are small.
- Identification and preservation of local wine varieties might lead to the differentiation of the wine tourism model. Linking this with the cultural heritage and natural habitat assets of the region could create value to the model of alternative tourism in the market.
- The integrated tourism product based on wine, gastronomy and cultural heritage should be the focal point for the creation of a different proposition to the touristic market that the current one.

*EDP workshop on wine industry***Assessment**

This section provides an initial assessment of the outcomes of the first EDP focus group drawing on the opinions expressed by participants and recorded by the four working group rapporteurs.

Overall, the participants enjoyed the process and expressed very positive comments. They were keen to learn the final outcomes from all the working groups. Workshops encouraging local actors to work together to generate ideas and agree priorities and action plans are dependent on local culture and idiosyncrasies. A flexible methodology is therefore necessary, which takes into consideration and builds on the specific local and sectoral characteristics. The engagement of local participants in the roles of moderators and rapporteurs and allowing a degree of flexibility in the methodology were seen to contribute to the success of the workshop.

The positive mentality, real interest and willingness of participants underpinned their engagement in the process and led to the generation and detailed consideration of useful ideas, with clear potential for further development. Momentum has also been created, on which the regional authorities should build to design and facilitate bottom-up governance structures that include all key stakeholders in generating ideas, building networks and collaborations and translating these into concrete actions. The interest and enthusiasm of the participants to get involved and to take things further (overcoming longstanding hindrances, institutional conditions and other problems) is highly encouraging. Continued discussion and follow up of ideas are both desirable and necessary to ensure that this activity has real and lasting impacts. The local television news (TVD) covered the event, and broadcasted interviews with the Governor and MA of REMTh. The journalists noted that the importance of what the event produces and its impact.

The working groups included all types of key actors of the triple helix but, in general, civil society was underrepresented. The role of the voluntary sector however was mentioned in one of the tourism working groups. Relevant NGOs and societal organisations that are interested in issues of food, environment and culture exist in the region, and could usefully contribute to future such activities.

This event marked an important step in a process, which will be followed up in two main ways:

1. Follow up the ideas and linkages developed in the event. The concrete ideas emerging from the EDP focus groups are envisaged to be followed up through implementation focus groups in 2015. These will take into account more practical human and financial resource issues, also being explicitly addressed by the project.
2. Reflection and refinement of the process for subsequent application in the other priority areas of the region's RIS3, through planned focus groups in other areas including dairy and meat production and tourism.

## 1. EDP Workshop on Dairy and Meat Products

# Review and Summary of the EDP workshop on dairy and meat products for REMTh

Michalis METAXAS\*

20 February 2015

## INTRODUCTION

The report summarises the main outcomes of the second Entrepreneurial Discovery Process (EDP) workshop focusing on the dairy and meat products, which took place at Komotini (Hotel Arcadia) in January 29-30. Minutes from the 4 working groups are the main inputs of the report. Lessons learnt by the implementation of the specific methodology proposed by JRC/IPTS are also stated for the optimization of the design of the next EDP workshops that are going to take place in due course.

This report was commissioned by the Institute for Prospective Technological Studies (IPTS) of the European Commission's Joint Research Centre (JRC) in the framework of a European Parliament Preparatory Action aiming to provide support to the refinement and implementation of the RIS3 in the Region of Eastern Macedonia and Thrace that has been launched in September 2014.

## OVERVIEW

The workshop on the value chain of dairy and meat products was based on the initial approach followed for the set-up of the first EDP focus group (wine industry) with slight changes.

The event would give the opportunity to the participants (representing all the strands of the triple helix) to be exposed on key innovations in the value chain of the selected sectors at the national and European level and at the same time to stimulate idea generation for business development. These objectives would be achieved via plenary sessions for knowledge diffusion and focused parallel sessions that addressed more specific topics.

Over the course of two days, the focus group meeting combined plenary and parallel sessions, with interventions by regional, national, and international experts. Within the dairy and meat products sector, the following a priori themes for discussion were identified:

- 1) Research and Innovation in animal husbandry
- 2) Food processing technologies
- 3) Research and innovation in dairy products
- 4) Organic meat and dairy products and sustainable production

In the opening session, the aims and approach of the preparatory action were set out by JRC-IPTS. Aiming to facilitate the refinement and implementation of the RIS3 strategy in a region heavily hit by the crisis, while also serving as a model for other convergence regions in Greece and Europe, the project centres on the provision of "hands-on" support to the REMTh RIS3 implementation process. In addition to developing the process, the envisaged outcomes include the support for the launch of concrete projects in

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the region and consequent absorption of structural funds. In view of this primary aim, this event represents an important step along this path.

Two concrete concerns for the EDP were emphasised by JRC-IPTS in the introductory session. First was the issue of whether it is best for ideas to match the funding available or whether a more ambitious search for ideas should be undertaken based on potential, for which it is better to then seek appropriate funding. Second, the need to better engage with international networks was emphasised.

In order to fully explore the value chain of wine production, a variety of international and national experts were invited to make presentations centred on each of the four themes identified above. To further examine ideas and opportunities in each of these areas, parallel working groups were organised, following a common participatory methodology. These centred on the generation of ideas, and the selection of the most feasible for further discussion. Moderators and rapporteurs were appointed for each group to oversee the application of the methodology and report the outcomes.

The participation and engagement in the event, in terms of both level and quality, were high. More than 90 stakeholders from within the region and beyond participated. Both the plenary and parallel sessions saw active engagement by both invited experts and stakeholders from the region and beyond.

A key issue identified by the region during the RIS3 preparation was the lack of business involvement. A key positive outcome of this event was the level of business participation: more than half of the participants came from the private sector, and actively engaged in proposal formulations for future collaboration.

This generation and exchange of ideas were key elements of the meeting. The outcomes of the working groups were highly constructive, with a number of feasible ideas, proposed and thought through during the second day. The participatory process used for this worked smoothly, with participants actively engaging in the tasks, and with lessons emerging for its refinement in the subsequent such events envisaged under the preparatory action. The overall perception of participants was highly positive.

A key issue of the meeting was the making and reinforcement of linkages, and the importance of subsequent joint efforts, on both bilateral and multilateral bases. The good levels of engagement between the stakeholders should be followed up.

## OUTCOMES: PARTICIPATION

In planning the event, a broad mix of potential participants was identified, based on an initial value chain analysis. The main stakeholder groups included:

- 1) Farmers and animal breeders;
- 2) Dairy and meat product industries.
- 3) Researchers and experts on the primary activities of the value chain (e.g. veterinaries, agronomists, biologists, economists)
- 4) Representatives of other value chains that provide win-win opportunities, i.e. tourism and cultural events.
- 5) Regional Administration officers

The regional members of the above-mentioned groups were identified with the collaboration of the five regional Chambers of Commerce and the regional Managing Authority. Some of the entrepreneurs suggested that additional members of their staff should also attend the workshop, on the basis of their technical skills, competences and functional roles.

### *EDP workshop on dairy and meat products*

The second pool of participants consisted of national and international experts that would share their knowledge and expertise on:

- Value enhancing innovations for dairy products;
- Co-operation projects in the field of animal nutrition;
- Marketing tools in the field of the food industry;
- The selected 4 areas of the EDP.

Totally 11 experts were selected to cover the above issues, 2 international and 9 local/national.

A consolidated list of participants was reviewed by JRC/IPTS and the MA and invitations were sent by JRC/IPTS with an option for e-registration. Overall, 123 participants were recorded in the list and 43 of them used the e-registration tool to confirm their participation. At the same time an open invitation was published in the local press and online by the Regional Government, encouraging any other interested party to attend. The workshop was attended by 93 participants (excluded JRC/IPTS and MA REMTh staff).

In conclusion, stakeholder engagement was a demanding process in terms of time and cost, based on the combined efforts of two organizations (JRC/IPTS and MA/REMTh) with certain pitfalls mainly due to the geographic distance as well as local constraints (motivation, trust issues, etc.) regarding the nature of the event.

### OUTCOMES: PARALLEL WORKING GROUPS

The most important element of the workshop was the Participatory Exercise that took place within the parallel sessions by 4 working groups (WGs). The formation of the 4 WGs corresponded to the 4 thematic areas and was based on the preference expressed by all participants during the e-registration process. The exercise included the following stages:

- An introductory presentation by a local/national expert on the area examined as an ignition for the discussion followed.
- A brainstorming session in which each member of the group was asked to generate an idea under the thematic area of the work group (task 1).
- The presentation of the ideas by each participant to the rest of the group (task 2).
- The discussion and selection of most favourable ideas leading to the formation of “innovation partnerships”, in other words, sub-groups within the main work group (task 3).
- The development of ideas by the partnerships and initial reflections on issues that they had to tackle for the ideas to be transformed into sound projects (task 4).
- The further refinement of the ideas based on a set of guiding questions (task 5)
- The presentation of the ideas within the work group and to plenary session as well.

A detailed presentation of the methodology of the exercise was given to all participants during the plenary session. Prior to the exercise, a moderator and a rapporteur had been appointed and were also provided by instructions towards the effective implementation of the tasks. It must be noted that neither the moderators nor the rapporteurs were involved in the various partnerships.

The basic difference from the first EDP focus group in Drama was that the participatory exercise was split into 2 days. As a consequence the composition of the WGs was changed between day 1 and day 2. In some WGs this created some problems in terms of consistency of the partnerships creation.

Apart from this change the process was followed as described by the methodology. Small changes were made after discussion among WG members without having negative effects to the overall results of the exercise.

The four EDP parallel sessions were attended by 62 participants (excluding moderators and rapporteurs) representing the following stakeholder groups:

- 28 from industry
- 13 from research and/or academic community
- 19 from public administration (national and/or regional)
- 2 from non government organizations

It must also be noted that we had 3 participants from a neighboring region of Bulgaria.

Table 1 presents a summary of the main outcomes of each group, while the remaining sections set out the outcomes, based on the minutes compiled by the rapporteurs during the process.

Table 1: Main outcomes of the participatory exercise

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
R & I in animal husbandry	Cluster for animal husbandry and agriculture	Production of milk (and meat) in clusters with the aim to produce high quality products at competitive prices and with specific features linked to the local advantages and unique characteristics.	Establishment of a healthy co-operative model based on clustering. Increase of production and employment of the sector. Creation of a brand name and image of local products.
	Genetic mapping and genetic improvement	Genetic mapping and genetic engineering aiming at increasing production and resistance to illnesses.	Production of high-quality and safe products and the creation of herds of national / local identify (through creating cores of development of genetic material) for each animal breed. Development of races that are resistant to animal / human illnesses targeting mainly exports.
	Inter-community supporting farming/production; Short supply chain (from consumer to producer)	Establishing collaboration with neighbouring regions in Bulgaria.	Increase of trans-national sales for animals and products but also the creation of support structures for coaching, mapping and training activities. To raise awareness about local gastronomy.
	Completion of vertical integration – slaughter houses in small farms	Completion of the vertical integration in animal husbandry by creating slaughter houses in small farms. The costs of the slaughter houses can be shared among groups of small farms by creating for instance producers' cooperatives.	Creation of vertically integrated units that would ensure better value for money. Increased quality of products based on local unique features as well as certification and traceability of quality of products.
R & I in processing and preservation of meat	Religious Certifications of Meat and Meat Products	Organisation and certification of all the links of the value chain of Hallal-certified meat (breeders, slaughterhouses, meat processing plants), initially to cover the needs of the Muslim population in REMTh and in the longer term to enter other markets abroad (EU coun-	Exploitation of the potential for exports of Hallal-certified meat products in markets with strong Muslim populations.

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
		tries with significant Muslim populations, Turkey).	
	Production of certified traditional meat products and their promotion via marketing innovations	Introduction of a private/proprietary quality certification scheme that would cover traditional (meat) products and guarantee the use of local inputs across the value chain and correlate these products with the historical and territorial context of REMTh.	Part of the certification scheme would be an electronic infrastructure that would provide to end-users traceability-related information on the inputs and value-added information related to the end products.  Constitution of a network-type of business model, which is novel to REMTh.  Extension of the certification scheme to other categories of primary sector products, foods and beverages and improve exports and mark-ups.
	Innovative technologies in producing local non-pig meat products with improved conservation ability	Development of a series of innovative meat products characterised by improved conservation ability by exploring dehydration or natural antibacterial substances or traditional preservation methods.	Expansion of current product mix.  Improved sales of innovative products with higher margins.
R & I in dairy products	Sustained and integrated promotion of local, traditional fermented food systems from authentic microbial cultures	Isolation and identification of the microbial strains from local traditional milk products. It is also refers to probiotic properties standards testing, testing for research activation of cytochromes, as well as antibiotic resistance testing.	Experimental application in food products and evaluation of their characteristic organoleptic properties.  Set up of a Laboratory Bank of wild isolated strains.  Application for international patents and commercialization of the final outputs/products.
	Development of a Certification Scheme for dairy products based on the local quality characteristics (geographic, chemical and organoleptic properties)	Development of an integrated quality certification scheme system for local products that could guarantee the use of local products and producers within the value chain of dairy products.	Promotion of local quality and functional characteristics of the factors that contribute to the milk and dairy production.  Implementation of technology tools for the traceability authentication.

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
	Development of functional products based on local dairy products	Research and development of functional products based on local dairy products. The functional products will be enriched with different ingredients (for example carbohydrates from domestic legumes) and will be promoted to special groups of consumers.	The project is closely related to the other 2 ideas of the same WG, especially with the development of local microbial cultures that might boost the functional food sector.  Possible exploitation of by-products should be further investigated, since they present a high market potential.
Organic meat and dairy products and sustainable production	Dairy / Meat Sectors Cluster	Formation of a wide cluster initiative comprised by as many actors of the meat and dairy value chain.	To comprise a regional epidemiological control mechanism.  Establishment of livestock zones / production parks.  To take advantage of shared resources and services (e.g. standardisation, veterinary services, etc.) with additional research activities.
	Research and/or implementation of new technologies and methodologies for the production of new value added products	Development of new technologies or implement new production methodologies in order to innovate at traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey).	Exploitation of regional characteristics (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions, etc.).  Implementation of modern marketing techniques to capture niches with recorded price premiums.
	Energy production from animal waste	Biogas (and other forms of energy) production from animal waste and its exploitation.	Implementation of an environmentally friendly alternative method for energy production.
	Development of a network for collecting and management of data on milk and dairy production chain	Creation of a regional network for recording and valorisation of regional data (from soil studies, measurements and mapping) and their management to the local producers' benefit.	Development of an interactive platform designed to assist local stakeholders (meat/dairy production / distribution) in decision making. Assistance of Regional Administration in policy making.

### 1. DETAILED OUTCOMES: WORKING GROUP ON RESEARCH & INNOVATION IN ANIMAL HUSBANDRY

Moderator:	Mr Panagiotis KOUDOUMAKIS
Presentation by:	Mr Anagnostis ARGYRIOU – CERTH / Institute of Applied Biosciences
Industry:	4 representatives
Academic / Research community:	3 representatives
Public Administration:	4 representatives
Non government Organisations:	1 representative
Total participants of the 2 days:	12

Since the process was spread in two days, the composition of the group was change in the second day. More important is considered the absence of 2 of the researchers at the second day (the partnership formation and discussion task). On the other hand the group was enriched with 3 participants from a neighbouring region of Bulgaria and a representative of a local societal organisation.

In the initial brainstorming session the following ideas were generated and presented:

1. Production of milk in clusters;
2. Creation of a brand name for local animal products – traceability of products;
3. Protection of animal health – assessment of impact of illnesses on production and quality of raw materials;
4. Genetic mapping and genetic improvement. Creation of herds of national identity per animal breed;
5. Training of professionals in management, bio-security, use of new technologies, etc.;
6. Development of commercial roots for animals and products with neighbouring areas. Trans-national collaboration supported also by services provision in relation to coaching, mapping, training, mentoring, etc.;
7. Buffalo breeding;
8. Creation of small slaughter houses in cattle farms.

From the above 8 ideas, the participants were asked to express their preference to the ideas in which they considered as more appealing and innovative. The following table shows the results of this process. Each participant (P1, P2, ... P<sub>n</sub>) ranked 3 ideas with one to three asterisks. Table also includes origin of participants in terms of stakeholders group. “I” stands for industry, “R” for research and academic community “P” for public administration and “S” for societal organisation.

**Table 2: Ideas ranking for WG1**

IDEA\PARTICIPANT & STAKEHOLDER GROUP	P1/S	P2/P	P3/I	P4/P	P5/P	P6/I	P7/I	P8,9,10* /I,R,P
1. Production of milk in clusters	*	***	***	***		**	***	
2. Creation of a brand name for local animal products – traceability of products		**						
3. Protection of animal health – assessment of impact of illnesses on production and quality of raw materials				*	*		**	
4. Genetic mapping and genetic improvement.		*	**	**	***			

## EDP workshop on dairy and meat products

IDEA/PARTICIPANT & STAKEHOLDER GROUP	P1/S	P2/P	P3/I	P4/P	P5/P	P6/I	P7/I	P8,9,10* /I,R,P
5. Training of professionals in management, bio-security, use of new technologies, etc.			*		***			
6. Development of commercial roots for animals and products with neighbouring areas.	****					*		***
7. Buffalo breeding							*	****
8. Creation of small slaughter houses in cattle farms	***					****		

\*Bulgarian Participants

Next step was the discussion on preferred ideas (highlighted rows of the table) according to given methodology. The main outcomes of these discussions are described below.

### 1.1 CLUSTER FOR ANIMAL HUSBANDRY AND AGRICULTURE (IDEA 1)

*Partnership composition: 2 from industry and 1 from public administration*

#### 1. Brief description of the idea-partnership

The idea is about the production of milk and meat in clusters with the aim to produce high quality products at competitive prices and with specific comparative advantages linked to the regional advantages and unique characteristics.

#### 2. Contribution of the different partners

The stakeholders needed in each cluster include farmers (for fodder), breeders (for the livestock), financial institutions (for the capital), education institutes (from knowledge and research), development agencies (for consultancy services).

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Since there is limited experience of how to organise an effective cluster, “THESSACTION” (as presented by prof. Gousios in the plenary session) would be a good example to adjust and transfer from the Region of Thessaly as the supporting structure of the cluster.

#### 4. First financial considerations

It is estimated that the design and creation of the cluster would costs around 100k€.

#### 5. Identification of first “next” steps

A pilot cluster for the production of milk based on the existing examples in the region could be set up. This would need the identification of the cluster participants, then the creation of the needed infrastructure, accounting support, management and evaluation services.

#### 6. Regional Strengths / Sources of Uniqueness

The existing livestock is an asset of the region as well as the agricultural production of fodder and alternative cultivations with the gained knowledge and experience.

#### 7. Research / Technology Content

The research capabilities refer to the methods to increase milk and meat production. This knowledge is available in Greece if not in the region itself.

#### 8. New business models

The new business model is the clusters model of organisation and operation.

#### 9. Linkages to other sectors

Increased and high-quality milk and meat production will benefit the tourism sector as well as wine and food production.

#### 10. Mobility issues

*Not answered by the partnership.*

#### 11. A vision for the future

It is expected to increase production and employment in the sector and contribute also to the creation of a brand name for local products produced by the cluster. The aim would be to reduce the deficit in covering the needs in milk and meat at the national scale (currently these are covered at around 70-80%).

#### 12. Opportunities for by-products or suppliers networks for creating new markets

By-products envisaged are for instance biomass or bio-gas which are directly related to energy production. Other by-products of milk and meat would also be relevant here of nutritional value.

#### 13. Capacities needed to implement the idea

Effective communication and collaboration have been acknowledged as key capacities needed for the implementation of the idea.

### 1.2 GENETIC MAPPING AND GENETIC IMPROVEMENT (IDEAS 2,3,4)

*Partnership composition: 2 from public administration*

#### 1. Brief description of the idea-partnership

The idea refers to the degree that genetic mapping and genetic engineering could increase production and resistance to illnesses. The overall aim would be to produce high-quality and safe products and create herds of national / local identify (through creating cores of development of genetic material) for each animal breed.

#### 2. Contribution of the different partners

Capacities and knowledge needed include genetics, and breeders in close collaboration for the experimentation phase as well as regional authorities for support and elaboration of data and results.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Legal barriers should be lifted in relation to genetic engineering and improvement. Specialised training is also important for breeders and regional authority services for participating in the experiments and monitoring the results. Certain issues about genetic engineering should be addressed and taken into consideration including ethical, legal and social issues affecting social acceptance.

#### 4. First financial considerations

It is estimated that the cost for such a project would be around 800k€.

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#### 5. Identification of first “next” steps

First steps include the identification of partners (services, institutes, and breeders) and of the herds to be selected. Selection criteria for the herds could include the different breeds, and the state of the herds; for the partners the selection should be based on the knowledge available, interest and level of collaboration.

#### 6. Regional Strengths / Sources of Uniqueness

The key regional strengths that have been identified refer to the large number of breeders and livestock as well as the relatively good state of existing livestock.

#### 7. Research / Technology Content

Genetic engineering is obviously the basic research discipline for the implementation of the idea. Pool of researchers can be found within the Region (Democritus University of Thrace) as well as the neighboring Region of Central Macedonia (Aristotle University of Thessaloniki).

#### 8. New business models

No direct new business model is expected to be applied. However new activities might be created or developed. The more important are:

- Generators for sale and export;
- Genetically improved cores for sales;
- Breeding of animals resistant to animal / human illnesses for export.

#### 9. Linkages to other sectors

The specific project would also influence and benefit the production of fodder, manufacturing of the equipment needed, but also agro-tourism.

#### 10. Mobility issues

Possible mobility program could include a two side training: of breeders to be trained in how to take part in the experiments as well as of genetic researchers that need to visit the farms and get training on how to conduct and monitor research in the field.

#### 11. A vision for the future

The main evolvement of the project might be the improvement and stabilisation of the characteristics of the local breeds.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

Production of traditional local by-products would also benefit from the specific project. In addition the increased production (in milk, meat and animals) would be channeled to new markets such as those of the Arab countries. The project would also help increase the number of hibernation units in the Region.

#### 13. Capacities needed to implement the idea

Genetics, nutrition and management of herds and statistics have been acknowledged as key capacities needed for the implementation of the idea.

### **1.3 INTER-COMMUNITY SUPPORTING FARMING/PRODUCTION; SHORT SUPPLY CHAIN - FROM CONSUMER TO PRODUCER (IDEA 6)**

*Partnership composition: 1 from industry, 1 from research, 1 from Bulgarian national authorities and 1 from non government organisation*

#### 1. Brief description of the idea-partnership

This idea refers to establishing collaboration with neighbouring regions in Bulgaria. The aim would be to increase trans-national sales for animals and products but also to create support structures for coaching, mapping and training activities.

Another aim would be to raise awareness of local communities about local gastronomy. This would be the activity of networks of consumers – users – families – restaurants, etc. These networks would also facilitate exchange of information across the different communities as well as visits to production places or even practice community-based farming (based on the model of community –based agriculture).

#### 2. Contribution of the different partners

Partnership would involve the majority of the stakeholders of the value chain. Secondary groups of interest also include network of consumers of the initial meat and dairy products. Networking and trans-regional co-operation is essential for the implementation of the project.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

There are barriers in both countries prohibiting small animal farmers from selling their products directly to businesses. To overcome such barriers specific platforms might be created for import-export of small farmers' products at trans-national scale.

#### 4. First financial considerations

*Not answered by the partnership*

#### 5. Identification of first “next” steps

*Not answered by the partnership*

#### 6. Regional Strengths / Sources of Uniqueness

The key regional strengths that have been identified include the high number of well-organised family farms with high level of specialization, the high quality of products, the opportunities to enter new markets and to improve knowledge and awareness in families about food products and consumption. Secondary elements to be taken into account relate to opportunities to support other cultivations depending on demand and create specialisation on food and nutrition.

#### 7. Research / Technology Content

Research is needed in relation to breeding (ways of breeding, botanology in breeding, etc.) about production cost reduction methods and international good practice as well as improvement and extend of cultivations.

#### 8. New business models

This idea is based on networks of citizens that can be accompanied by producers and consumers cooperatives.

#### 9. Linkages to other sectors

The idea will benefit gastro-tourism and the retail sector but also vets and quality assurers.

#### 10. Mobility issues

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Visits to these structures and animal farms and training can be organised for students, families as well as researchers.

#### 11. A vision for the future

The main evolution of the project might include trans-national exchanges of experiences, events, mobility strengthening, etc.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

Brand names can be created for the products resulting from this trans-national collaboration.

#### 13. Capacities needed to implement the idea

Farming, marketing, logistics, collaboration, intra-regional complementarities have been acknowledged as key capacities needed for the implementation of the idea.

### **1.4 COMPLETION OF VERTICAL INTEGRATION – SLAUGHTER HOUSES IN SMALL FARMS (IDEA 8)**

*Partnership composition: 2 from industry and 2 from public administration*

#### 1. Brief description of the idea-partnership

This idea refers to completing the vertical integration in animal husbandry by creating slaughter houses in small farms. The costs of the slaughter houses can be shared among groups of small farms by creating for instance producers' cooperatives.

#### 2. Contribution of the different partners

The partnership is focused at small farms and producers.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

The existing conditions and costs for creating slaughter houses are disproportionate to the abilities and affordability of small farms.

#### 4. First financial considerations

*Not answered by the partnership.*

#### 5. Identification of first “next” steps

The idea could be placed within a wider framework of longer-term planning leading for instance to the creation of vertically integrated units that would ensure better value for money, increased quality of products based on local unique features as well as certification and traceability of quality of products.

#### 6. Regional Strengths / Sources of Uniqueness

The key regional strength that has been identified is the high quality of livestock in the region.

#### 7. Research / Technology Content

Expertise and knowledge would be needed to ensure quality assurance. This could be set up in collaboration with the local labs and university departments.

#### 8. New business models

In vertically integrated small units, the consumer has the ability to check the quality in each and every step of the process (including breeding, fodder, etc.). This presupposes accessibility to the small farms and opening up to society.

#### 9. Linkages to other sectors

The idea will benefit agro-tourism.

#### 10. Mobility issues

Training programs (including practical exercises) and visits can be scheduled for high-school and university students.

#### 11. A vision for the future

The idea could generate new meat products.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

By – products would include manure and those related to fodder. Thus the energy sector would also benefit.

#### 13. Capacities needed to implement the idea

Not specific scientific capacities are needed to implement the idea. Capital expenditure should be covered by engagement of large group of small farmers/producers willing to invest also time.

## 2. DETAILED OUTCOMES: WORKING GROUP ON FOOD PROCESSING TECHNOLOGIES

Moderator:	Mr Vasileios PITSINIGKOS
Presentation by:	Prof. Ioannis AMVROSIADIS – Aristotle University of Thessaloniki
Industry:	10 representatives
Academic / Research community:	2 representative
Public Administration:	8 representative
Total participants for the 2 days:	20

Three participants from the government sector are affiliated with the Managing Authorities of the Regions of Thessaly and Western Macedonia; although they initially considered themselves as observers, they actively joined the conversation. Most of the participants attended both sessions of the working group that were divided in two days.

The following 11 ideas were initially generated and presented (tasks 1&2):

- 1) Technology improvements on non-pig meat products (halal);
- 2) Establishing technical requirements and certification of traditional meat products;
- 3) Shelf-stable meat product technology;
- 4) New protein production technology;
- 5) Mobile applications for promotion of meat products;
- 6) Re-using rabbit meat as by-product of fur-producing rabbit farms;
- 7) Promotion of local meat products via networks of interested consumers;

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- 8) Production of new meat products using honey;
- 9) Canned chicken-based foods;
- 10) Pre-cooked foods without preservatives;
- 11) Religious certification (ie, halal, kosher) of meat and meat products.

Of the initial set of individual ideas, seven candidate partnerships were agreed through dialogue and consensus building. They were put into a vote to select three partnerships to be further elaborated. The table below summarises the results of the vote process. Each participant (P1, P2, ...P14) ranked 3 ideas with one to three asterisks. Table also includes origin of participants in terms of stakeholders group. "I" stands for industry, "R" for research and academic community and "P" for public administration.

**Table 3: Ideas ranking for WG2**

IDEA/PARTICIPANT & STAKEHOLDERS GROUP	P1/I	P2/P	P3/I	P4/I	P5/P	P6/P	P7/P	P8/R	P9/R	P10/I	P11/I	P12/P	P13/P	P14/I
1. New Protein Production Technology							*							
2. Re-using rabbit meat as by-product of fur-producing rabbit farms							**						*	
3. Canned, chicken-based, ready-to-eat foods			***	***					**			**		*
4. Religious certification of meat and meat products	*		*	**	***						**	***		**
5. Production of certified traditional meat products and their promotion via marketing innovations	***	***		*	**	***	***	***	***	***	*			
6. New dairy and meat products using honey		**			*	**		*	*	*		*	**	
7. Innovative technologies in producing local non-pig meat products with improved conservation ability	**	*	**			*		**		**	***		***	***

Next step was the discussion on preferred ideas (highlighted rows of the table) according to given methodology. The main outcomes of these discussions are described below.

## 2.1 RELIGIOUS CERTIFICATIONS OF MEAT AND MEAT PRODUCTS (IDEA 4)

*Partnership composition: 1 from industry and 3 from public administration*

### 1. Brief description of the idea-partnership

The idea is about organising and certifying all the links of the value chain of Hallal-certified meat (breeders, slaughterhouses, meat processing plants), initially to cover the needs of the Muslim population in REMTh and in the longer term to enter other markets abroad (EU countries with significant Muslim populations, Turkey).

### 2. Contribution of the different partners

The following key partners are needed to implement the idea:

- One or more meat processing enterprises to co-ordinate the partnership, to produce and to market the end products;
  - One or more slaughterhouses to be hallal-certified, or new investments in hallal-certified slaughterhouses by the meat processing enterprises (vertical integration);
- Animal breeders; contract breeding can be considered;
- A hallal certification consultancy;
- Support from the local veterinary services of the regional administration in terms of licensing and permits;
  - A research organisation specialising in food science / technology to support product development.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

The regional administration would review the regulatory framework with respect to the criteria for hallal certification. In terms of skills required most of them are already in place. Finally, there are no issues regarding the availability of human capital to support the concept.

### 4. First financial considerations

Initial assumptions regarding financial aspects of the project are the following:

- A new slaughterhouse would cost something in the range of €1m; it would break even within five years;
- Investments in new capacity or equipment to be added within existing meat processing plants cannot be quantified at this time;
- Outsourced research for new foodstuff development is a minor cost when compared to capital expenditure.

### 5. Identification of first “next” steps

These include: an initial audit by a hallal certification consultancy to identify gaps; the elaboration of a feasibility study (including market research, budgeting of capital expenditure, contributions by partners); identification of funding opportunities, especially for capex.

### 6. Regional Strengths / Sources of Uniqueness

The partnership builds on a source of uniqueness of REMTh vs the other Greek regions, namely its strong Muslim minority, which is considerably underserved by industrially produced hallal foods. The Muslim minority provides not only an initial customer base to test hallal-certified products, but also a strong tradition in skills to produce them and cultural networks that can be transformed into economic assets..

### 7. Research / Technology Content

The proposed partnership is essentially an organisational innovation that might require at some time in the future technological support in terms of food science / technology. These research inputs would probably be sourced either in Kentriki Makedonia (Aristotle University of Thessaloniki, CLERTH) or in Attiki (Agricultural University of Athens and others).

### 8. New business models

*Not answered by the partnership.*

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#### 9. Linkages to other sectors

Animal breeding (cows, sheep, goats) constitutes a strong regional specialisation in terms of gross value added and employment. This partnership builds on this strength.

#### 10. Mobility issues

Both inward and outward mobility of food technologists could be considered.

#### 11. A vision for the future

Capturing the potential for exports of Hallal-certified meat products in markets with strong Muslim populations.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

*Not answered by the partnership.*

#### 13. Capacities needed to implement the idea

In the long term, market watch, marketing and distribution networks in markets with strong Muslim populations will be needed.

## 2.2 PRODUCTION OF CERTIFIED TRADITIONAL MEAT PRODUCTS AND THEIR PROMOTION VIA MARKETING INNOVATIONS (IDEA 5)

*Partnership composition: 1 from industry, 1 researcher and 2 from public administration*

### 1. Brief description of the idea-partnership

The idea is about introducing a private/proprietary quality certification scheme that would cover traditional (meat) products and guarantee the use of local inputs across the value chain and correlate these products with the historical and territorial context of REMTh. Part of this certification scheme would be an electronic infrastructure that would provide to end-users traceability-related information on the inputs and value-added information related to the end products.

### 2. Contribution of the different partners

The following key partners are needed to implement the idea:

- A significant mass of actors throughout the meat value chain, willing to comply with the proprietary certification scheme;
- A trusted third party organisation (public or private or public-private partnership) to act as network orchestrator, i.e. to co-ordinate certification criteria, to verify conformity, to deploy and manage the supporting IT infrastructure, and to promote the certification label to national and international markets.

The key partners above can be supported by research organisation on various certification/compliance issues, the Exports Promotion Organisation (OPE) on accessing international markets and ICT companies in building value-added services to their core certification scheme.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Most needed skills are already in place. No legal / regulatory issues are foreseen in the near future.

### 4. First financial considerations

A very rough estimation on initial capital needed for setting-up the network is in the range of €100k.

#### 5. Identification of first “next” steps

- 1) Promote the certification scheme to the regional value chain that leads to meat products;
- 2) Assess the marketing potential of a regional certification scheme with international markets;
- 3) Bridge the certification scheme to other relevant regional initiatives (e.g., wine, gastronomy, etc.).

#### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the strong, in terms of GVA & employment, primary sector in the region and also a very strong food processing sector

#### 7. Research / Technology Content

The proposed partnership is essentially an organisational innovation. The use of ICT to support the certification scheme by providing traceability information to final consumers is already acknowledged. Some technological issues related to verifying the locality of inputs require scientific support that cannot be further elaborated in this time.

#### 8. New business models

This partnership constitutes a network-type of business model, which is novel to the region.

#### 9. Linkages to other sectors

There are linkages with wine clusters and gastronomic tourism.

#### 10. Mobility issues

*Not answered by the partnership.*

#### 11. A vision for the future

Extend the certification scheme to other categories of primary sector products, foods and beverages and improve exports and mark-ups.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

*Not answered by the partnership.*

#### 13. Capacities needed to implement the idea

More importantly to understand and manage network-type business models. Additional requirements include international marketing and software development.

### **2.3 INNOVATIVE TECHNOLOGIES IN PRODUCING LOCAL NON-PIG MEAT PRODUCTS WITH IMPROVED CONSERVATION ABILITY (IDEA 7)**

*Partnership composition: 2 from industry, 1 researcher*

#### 1. Brief description of the idea-partnership

The idea is about developing innovative meat products characterised by improved conservation ability by exploring dehydration or natural antibacterial substances or traditional preservation methods.

#### 2. Contribution of the different partners

The following key partners are needed to implement the idea:

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- Several meat product manufacturers interested in developing new products with improved conservation ability; they would provide experimentation test-sites, materials and equipment and exploitation paths for the methods developed through the partnership;

A research organisation specialising in food science / technology that would provide their expertise in food conservation technology;

- Suppliers of meat production equipment to implement the process at an industrial scale.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

Compliance with existing regulations on production of food is a must and should be embedded in any novel process resulting from the partnership. The existing human capital will be used; additional training on the process will be required on site.

### 4. First financial considerations

Initial assumptions regarding financial aspects of the project are the following:

- A collaborative research project in the range of €300-500k with 2-4 industrial partners and a research lab is needed;
- A new 800 m<sup>2</sup> plant with a capacity of 4000 kg/day is expected to cost around €1m.

### 5. Identification of first “next” steps

The project would be in place if a relevant call for proposal was identified and application for funding was made.

### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the strong food sector in REMTH, which is characterised by considerable installed capacity, know-how (especially on lamb and cow meat) and export orientation.

### 7. Research / Technology Content

The proposed partnership is research-oriented, aiming to explore options for creating novel meat products that do not require refrigeration by combining antimicrobial barriers (e.g., pH, dehydration, natural conservatives).

### 8. New business models

*Not answered by the partnership.*

### 9. Linkages to other sectors

*Not answered by the partnership.*

### 10. Mobility issues

Inward (research > enterprise) mobility of food scientists is applicable.

### 11. A vision for the future

Successful implementation of the partnership might lead to improved sales of innovative products with higher margins.

### 12. Opportunities for by-products or suppliers networks for creating new markets

*Not answered by the partnership.*

### 13. Capacities needed to implement the idea

Food hygiene and food safety as well as Food science.

### 3. DETAILED OUTCOMES: WORKING GROUP ON DAIRY PRODUCTS

Moderator:	Mr Petros SOUKOULIAS
Presentation by:	Dr George SAMOURIS – Veterinary Research Institute of Thessaloniki
Industry:	7 representatives
Academic / Research community:	5 representative
Public Administration:	2 representative
Total participants for the 2 days:	14

Group composition was rather stable during the 2 days of the exercise (only two participants did not take part in the second day but another two joined the working group). The following 11 ideas were initially generated and presented (tasks 1&2):

- 1) Production of feta cheese with LAB bacteria from raw material coming from Greek-bred animals;
- 2) Production of yogurt from cow's milk coming from Greek-bred animals;
- 3) Development of a new standard for the certification of milk aiming to the increase of the value added of the raw material and the differentiation of the final dairy product, therefore its entrance to international value chains;
- 4) Development of functional products based on local dairy products with the enrichment of carbohydrates from domestic legumes.
- 5) Production of milk and products based on milk with certified health claims, targeted to special groups of consumers;
- 6) Production of domestic LAB adapted by type of dairy product and regional distribution;
- 7) Development of methodology and toolkit for the support of verification and certification of dairy products;
- 8) Research and development for the revival and promotion local traditional dairy products (for example "rysogalo");
- 9) Checking of the effectiveness of probiotic foods coming from traditional probiotic strains and detection of residues of antibiotics as well as cytochromes activation. Production of probiotic products based on whey;
- 10) Research for new forms of packaging of dairy products towards the expansion of their withdrawn period;
- 11) Technical support for the development of a Certification Scheme for dairy products based on the local quality characteristics (geographic, chemical and organoleptic properties).

Of the initial set of individual ideas, three candidate partnerships were agreed through dialogue and consensus building. They were considered as "umbrella-ideas" in the sense that they integrate the initial ideas

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into three main concepts: (a) production of unique dairy products based on local characteristics (ideas 1,2,6,9), (b) certification scheme to guarantee the production of local dairy products (ideas 3,7,8,10,11) and (c) exploitation of by-products for the development of functional food (ideas 4,5).

The next stage was the expression of interest for forming potential partnerships according to the specific needs of the participants and the benefits that they would gain from a positive outcome. The participants were asked to express their preference to the ideas by answering a simple question: "rank the ideas that you like most". The following table shows the results of this process. Each participant (P1, P2, ...P12) ranked the 3 ideas with one to three asterisks. Table also includes origin of participants in terms of stakeholders group. "I" stands for industry, "R" for research and academic community and "P" for public administration.

The table shows the ranking of the initial ideas and the sub-groups for partnerships formation.

**Table 4: Ideas ranking for WG3**

IDEA/PARTICIPANT & STAKEHOLDERS GROUP	P1/I	P2/I	P3/I	P4/R	P5/P	P6/R	P7/R	P8/R	P9/R	P10/I	P11/I	P12/P
1. Development of a Certification Scheme for dairy products based on local quality characteristics (geographic, chemicals and organoleptic properties)	**	**	***	*	**	**	***	*	*	*	**	*
2. Sustained and integrated promotion of local, traditional fermented food systems from authentic microbial cultures	***	***	**	***	***	***	*	**	***	**	***	***
3. Development of functional products based on local dairy products	*	*	*	**	*	*	**	***	**	***	*	**

Next step was the discussion on the above ideas/partnerships according to given methodology. The main outcomes of these discussions are described below.

### 3.1 DEVELOPMENT OF A CERTIFICATION SCHEME FOR DAIRY PRODUCTS BASED ON LOCAL QUALITY CHARACTERISTICS (GEOGRAPHIC, CHEMICALS AND ORGANOLEPTIC PROPERTIES) – (IDEAS 3,7,8,10,11)

*Partnership composition: 2 from industry, 1 researcher and 1 from public administration*

#### 1. Brief description of the idea-partnership

The idea is about the development of an integrated quality certification scheme system for local products that could guarantee the use of local products and producers within the value chain of dairy products. Expected outcomes of the idea would be the promotion of local quality and functional characteristics of the factors that contribute to the milk and dairy production as well as the implementation of technology tools for the traceability authentication.

#### 2. Contribution of the different partners

The core of the idea is to build relations of different stakeholders of the local value chain of dairy products. Therefore for its effective implementation the participation of the following groups is required: Research Institutes with scientific knowledge and integration of applied ICT, public bodies with technical skills, local producers (animal breeders) & manufacturing of dairy products for the adoption of local/regional characteristics and social bodies that they will contribute to the identification and promotion of local/regional characteristics.

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education etc.

There are several issues that should be taken into account:

- Review and exploitation of policy tools of EU regarding classification of food products (Protected Designation of Origin-PDO, Protected Geographical Indication-PGI, Traditional Speciality Guaranteed-TSG, local products, biological products, etc.);
- Human capital for the implementation of the project for instance technicians, researchers, ICT experts, etc.;
- Education and training to final beneficiaries (producers) and to developers;
- Public bodies should be responsible for the design and monitor of new integrated processes.

### 4. First financial considerations

There were some early estimations according to the development stage of the project.

1. The initial stage refers to the research on various issues (flora, herbs, etc.) and building related know-how (800k€);
2. The next stage would include small-scale projects for the evaluation of the chosen methodology (10k€ per project – 100 small projects in total);
3. The final step would be the full deployment and integration of the Scheme with an estimated budget of 250k€.

### 5. Identification of first “next” steps

- 1) Development of a structure for the co-ordination of the Scheme under the aegis of the Regional Authority with the support of the Democritus University, EMTh Institute of Technology and other relevant stakeholder organizations;
- 2) Definition of the objectives of stage 1 (see above);
- 3) Analysis of the necessary procedures for the implementation of the small scale integration projects of stage 2 (see above);
- 4) Development of the integrated Scheme of stage 3 (see above).

### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the existence of competent research institutes within Democritus University and EMTh Institute of Technology, the existence of multiple common products within the Region and the existence of young and ambitious animal breeders and entrepreneurs within the dairy products sector.

### 7. Research / Technology Content

The proposed partnership is essentially an organisational innovation. The use of ICT to support the certification scheme by providing traceability authentication to final consumers is already acknowledged. The non-technological aspects of the project relate to the promotion of local quality and functional characteristics of the factors that contribute to the milk and dairy production. The latter is the core of the second partnership that has been formed within the working group (see below).

### 8. New business models

This partnership constitutes a cluster-type of business model, which is novel to the Region.

### 9. Linkages to other sectors

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Integration with tourism value chain is obvious as well as other sub-sectors of the agrofood complex.

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Industrial PhD programmes;
- Recruitment of highly qualified workforce;
- Workplace development projects;
- Learning networks.

#### 11. A vision for the future

Possible evolution of the project would be the enlargement of the Scheme after the assessment of the results of the initial implementation of the integrated system of quality control, certification and traceability. Successful results would lead also to incorporation of new producers and manufacturers with increasing rates.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

Niche market characteristics should be assessed first to come up with a solid approach.

#### 13. Capacities needed to implement the idea

More importantly to understand and manage network-type business models (management and monitoring of the process), since the whole model is based on the exploitation of the synergies that should be created among various bodies and groups (researchers, entrepreneurs, local administration, etc.).

### 3.2 SUSTAINED AND INTEGRATED PROMOTION OF LOCAL, TRADITIONAL FERMENTED FOOD SYSTEMS FROM AUTHENTIC MICROBIAL CULTURES (IDEAS 1,2,6,9)

*Partnership composition: 2 from industry, 2 researcher and 1 from public administration*

#### 1. Brief description of the idea-partnership

The idea refers to the isolation and identification of the microbial strains from local traditional milk products. It also refers to probiotic properties standards testing, testing for research activation of cytochromes, as well as antibiotic resistance testing. Main expected outcomes are:

- Experimental application in food products and evaluation of their characteristic organoleptic properties;
- Set up of a Laboratory Bank of wild isolated strains;
- Application for international patents and commercialization of the final outputs/products.

#### 2. Contribution of the different partners

The following key partners are essential to implement the idea:

Research Institutes, Universities;

- Local small and medium scale producers (animal breeders) & manufacturing of dairy products;
- Public Bodies – Regional Administration of Agriculture and other similar bodies.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

There is an obstacle regarding national legal framework regarding the production of ripening dairy goods from raw milk. It is expected to change because of the pressure of the cheese producers. Human resources that are needed include HEI researchers with skills to the relevant fields and disciplines, local animal breeders, industrials and producers. Education to final beneficiaries (breeders and dairy producers) is essential for the necessary changes of the production methods and finally financing of the project would supplement public spending on the implementation of the actions needed.

#### 4. First financial considerations

Estimated cost is 1m€ with an expected duration of 18-24 months.

#### 5. Identification of first “next” steps

- 1) Initial contacts with potential stakeholders;
- 2) Presentation of the project and its goals;
- 3) Establishment of necessary commitment;

#### 6. Regional Strengths / Sources of Uniqueness

This partnership builds on the existence of a great variety of local/regional traditional dairy products.

#### 7. Research / Technology Content

The project is based on the creation of indigenous microbial cultures for disposal to produce local traditional milk products. Therefore HEI’s Research Institutes in national and international level are needed to contribute to the research part of the project.

#### 8. New business models

The idea could be better implemented to cluster-type forms of co-operation due to the small size of the local producers.

#### 9. Linkages to other sectors

The project practically controls the whole value chain of dairy products, therefore integrates with primary sector, animal husbandry and meat / meat products. It has a serious effect on origin, locality and nutrition of the productive livestock. Integration with tourism value chain is also strong.

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Industrial PhD programs;
- Workplace development projects;
- Learning networks.

Possible Programs to be targeted are Erasmus, Erasmus- and Erasmus Mundus.

#### 11. A vision for the future

After the completion of the project, application for international patents and commercialization of the final outputs/products would be the next step. As explained before, there is a strong link with the Certification Scheme of the partnership No 1.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

#### *EDP workshop on dairy and meat products*

Possible exploitation of by-products should be further investigated since it is not very obvious for the moment.

#### 13. Capacities needed to implement the idea

The main capacities needed relate to technical competencies and research capacities within REMTh and elsewhere. Other important aspects include engagement of investors and regional key industrial players.

### 3.3 DEVELOPMENT OF FUNCTIONAL PRODUCTS BASED ON LOCAL DAIRY PRODUCTS (IDEAS 4 AND 5)

*Partnership composition: 1 from industry 2 researchers*

#### 1. Brief description of the idea-partnership

The idea is about the research and development of functional products based on local dairy products. The functional products will be enriched with different ingredients (for example carbohydrates from domestic legumes) and will be promoted to special groups of consumers. The project is closely related to the other 2 partnerships of the same working group, especially with the development of local microbial cultures that might boost the functional food sector. Possible exploitation of by-products should be further investigated, since they present a high market potential.

#### 2. Contribution of the different partners

There is a need for engagement from different stakeholders groups. The most important are:

- 1) HEI Research Institutes (for example department of Molecular Biology or Environmental Engineering).
- 2) Local small and medium scale SME's of manufacturing of dairy products
- 3) Specialised consultants.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

There is no issues national legal framework regarding the production of functional food products. Human resources that are needed include HEI researchers with skills to the relevant fields and disciplines (food technologists, molecular biologists, microbiologists, veterinarians, agriculturists, etc).

#### 4. First financial considerations

Initially small scale projects could be set-up with an estimated duration of 18 months and a respective budget of 200k€ per project. According to the results it is possible to develop larger scale project with the assumption of the participation of more SMEs for a common targeted product.

#### 5. Identification of first "next" steps

- Use of innovation vouchers to define objectives and possible intervention areas;
- Identification of small scale projects.

#### 6. Regional Strengths / Sources of Uniqueness

Agro-food has been set as the top priority of the RIS3 strategy of REMTh. Within agro-food complex dairy production is a serious in terms of GVA and employment value chain.

#### 7. Research / Technology Content

Local producers have inherited knowledge on products and methods of production. This can be re-enforced by scientists and researchers within the area of bio-sciences. The main opportunity that derives from the external environment is the high concerns on valuable substances on human health and need for addressing health claims to sustain healthy food.

#### 8. New business models

The idea could be better implemented to cluster-type forms of co-operation between producers and HEIs. The latter could enhance research - entrepreneurship schemes by promoting spin-offs creation.

#### 9. Linkages to other sectors

The project could assist the development of “open-to-public” innovative producers of functional food products. Integration with tourism value chain is also possible.

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Visiting post-Docs from abroad
- Workplace development projects for local post graduate students

#### 11. A vision for the future

The project is closely related to the other 2 partnerships of the working group, especially with the development of local microbial cultures that might boost the functional food sector.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

Possible exploitation of by-products should be further investigated, since they present a high market potential. Existing supplier networks are useful for the introduction of the functional products to the market.

#### 13. Capacities needed to implement the idea

Academic and research competencies especially within the disciplines of Molecular Biology and Food technology are necessary for the implementation of the project. Sources of milk supplies within REMTh in order to minimize reverse marketing cost are also essential. Technical competencies and know-how of regional key industrial players as well as specialised consultants to support project deployment are considered as valuable elements of the action.

#### **4. DETAILED OUTCOMES: WORKING GROUP ON ORGANIC MEAT & DAIRY PRODUCTS AND SUSTAINABLE PRODUCTION**

Moderator:	Mr Yiannis KESANLIS
Presentation by:	Prof. George ARSENOS – Aristotle University of Thessaloniki
Industry:	7 representatives
Academic / Research community:	3 representative
Public Administration:	6 representative
Total participants for the 2 days:	16

Group composition was changed significantly during the 2 days of the exercise. From the 16 participants of the first day only 10 were present in the second day of the participatory exercise. The following 13 ideas were initially generated and presented (tasks 1&2):

*EDP workshop on dairy and meat products*

- 1) Dairy / Meat Sectors Cluster to comprise (indicatively): gelded goat meat, regional epidemiological control mechanisms, milk from local / Greek herds for quality product diversification;
- 2) Recording and valorisation of regional data - innovative quality control methods (e.g. vision-based inspection quality control);
- 3) Biogas from animal waste with research collaboration and thermal energy production - co-funding to be sought from the National Strategic Reference Framework and commercial exploitation;
- 4) New technologies or new production methodologies to innovate traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey);
- 5) Livestock zones / production parks. Producers' cluster to take advantage of shared resources and services (e.g. standardisation, veterinary services, etc.) with additional research activities;
- 6) Revert to operation for past structures (e.g. ELGO) to support research in agriculture and veterinary science;
- 7) Innovation in fodder (e.g. sorghum animal feed) with reduced hygiene risks in contrast to existing solutions (e.g. aflotoxins in corn). - Branding of regional/national varieties/herds;
- 8) Usage of tranquilizers in animal culling for reducing meat toxins;
- 9) Education and training in animal farming, dealing with human resources regional constraints;
- 10) Soil studies, measurements and mapping;
- 11) Goat and sheep animal shows/marketplaces;
- 12) Regional characteristics exploitation (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions) and marketing;
- 13) Smart wastes management / separation of organic from inorganic waste to support sustainability.

The participants identified obvious connections between proposed ideas and felt it was more productive not to rank differently very similar proposals. Instead they produced a more compact version of the initial ideas, as seen in the following table, wherein all initial ideas are accommodated; leaving unranked ID 6.

ID	Original idea(s) ID(s)	Integrated Idea
<b>1</b>	1, 5	Dairy / Meat Sectors Cluster to comprise Regional Epidemiological Control Mechanisms  Livestock zones / production parks. Producers' cluster to take advantage of shared resources and services (e.g. standardisation, veterinary services, etc). with additional research activities.
<b>2</b>	1, 4, 12	New technologies or new production methodologies to innovate traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey). Regional characteristics exploitation (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions) and marketing. Milk from local / Greek herds for quality product diversification.
<b>3</b>	7, 8	Innovation in fodder (e.g. sorghum animal feed) with reduced hygiene risks in contrast to existing solutions (e.g. aflotoxins in corn). Branding

*EDP workshop on dairy and meat products*

#### 6. Regional Strengths / Sources of Uniqueness

Main regional strengths are considered to be the regional livestock capital (sheep/goat primarily), the proximity of natural farmlands and previous relevant experience.

#### 7. Research / Technology Content

Research to optimize yield based on animal feed needs (requiring agriculture, veterinary science support) is foreseen as the main technology to be implemented within the project.

#### 8. New business models

The idea could be better implemented to cluster-type forms of co-operation among producers with a possible shareholding form. Other aspects of business models to be implemented include:

- Agro-food collaborative entities with multi-stakeholder participation;
- Incorporation of processing capabilities within farming;
- Waste processing within business units;
- Certification and traceability;
- Contracted farming.

#### 9. Linkages to other sectors

Sectors that could be influenced by the project are tourism, culture, agriculture, processing industries, logistics networks and educational/research sectors (e.g. in measurements/certification, technology support).

#### 10. Mobility issues

Different forms of mobility could be applied during the implementation of the project. These include:

- Good practices transfer from other regions/countries;
- Low technological-intensity education needs (extended in time);
- Training in certification/quality assurance/control for end and intermediate products.

#### 11. A vision for the future

Integration of additional business and supply chain entities, scaling with new units and higher quality assured products are some of the possible positive effects by the implementation of the project.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

No opportunities for by-products. However collaborative exhibitions, animal products and animal shows and consumers networks might present interesting marketing aspects.

#### 13. Capacities needed to implement the idea

Entrepreneurial spirit down to the animal farmer level and collaborative entrepreneurship culture are perceived as the main capacities to implement the idea.

### **4.2 RESEARCH AND/OR IMPLEMENTATION OF NEW TECHNOLOGIES AND METHODOLOGIES FOR THE PRODUCTION OF NEW VALUE ADDED PRODUCTS (IDEAS 1,4,12)**

*Partnership composition: 3 from industry, 1 researcher, 5 from public administration and 1 from non-government organization*

### 1. Brief description of the idea-partnership

The idea is about the development of new technologies or implement new production methodologies in order to innovate at traditional production processes (e.g. cheese bags) or new added value dairy products (e.g. ariani with honey). The idea's main goals are:

- The exploitation of regional characteristics (e.g. minority traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions, etc.);
- The implementation of modern marketing techniques to capture niches with recorded price premiums.

### 2. Contribution of the different partners

Different partner groups include gastronomy/culinary professionals, actors of the tourism sector (hospitality professionals, restaurants) food producers, certification support service providers, cultural organisations and of course producers (individual, collaborative, companies).

### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Some early considerations include certification and organic branding/certification.

### 4. First financial considerations

Hard to estimate. It is size dependent.

### 5. Identification of first "next" steps

- 1) Organizational design and planning;
- 2) Networking/dissemination;
- 3) Creation of collaborative schemes.

### 6. Regional Strengths / Sources of Uniqueness

Main regional strengths are the rich regional/historical/ethnic background, the regional characteristics, the local micro-climate and the quality of raw materials.

### 7. Research / Technology Content

Search for, transfer and adoption of best practices is foreseen as the main "technology" aspect for the implementation of the project.

### 8. New business models

The idea is based on integration between producers and consumers networks and on fostering of strong business chain among different stakeholders (restaurants, accommodation providers/hotels, local distribution networks). Branding of products with regional characteristics and regional 'myth' associated with them is also an important element for business modeling within the project.

### 9. Linkages to other sectors

Sectors that could be influenced by the project are tourism (in terms of gastronomy) and culture.

### 10. Mobility issues

Experiential learning placements / support is the most likely form of mobility that could be applied during the implementation of the project.

### 11. A vision for the future

ID	Original idea(s) ID(s)	Integrated Idea
		of regional/national varieties/herds.
4	3, 13	Biogas from animal waste with research collaboration and thermal energy production - co-funding to be sought from the National Strategic Reference Framework and commercial exploitation. Usage of tranquilizers in animal culling for reducing meat toxins.
5	2, 10	Recording and valorisation of regional data. Innovative quality control methods (e.g. vision-based inspection quality control). Soil studies, measurements and mapping. Sharing data and services based on data.
6	9	Education and training in animal farming, dairy and meat industries

Next step was the creation of partnerships based on selection of the most appealing integrated ideas. The working group decided not to form different partnerships but rather to act as a larger partnership and elaborate on integrated ideas 1,2,4 and 5. The main outcomes of these discussions are described below.

#### 4.1 DAIRY / MEAT SECTORS CLUSTER (IDEAS 1 AND 5)

*Partnership composition: 3 from industry, 1 researcher, 5 from public administration and 1 from non-government organization*

##### 1. Brief description of the idea-partnership

The idea is related to the formation of a wide cluster initiative comprised by as many actors of the meat and dairy value chain. The idea's main goals are:

- To comprise a regional epidemiological control mechanism;
- To establish of livestock zones / production parks;
- To take advantage of shared resources and services (e.g. standardisation, veterinary services, etc.) with additional research activities.

##### 2. Contribution of the different partners

Different partner groups include animal farmers, slaughterhouses and local/regional authorities.

##### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Increased infection risks is a very critical issue. Secondary considerations include handle fragmentation of animal farming and accessibility issues.

##### 4. First financial considerations

Hard to estimate. It is size dependent.

##### 5. Identification of first "next" steps

- 1) Location study;
- 2) Setting/Updating of institutional framework;
- 3) Consensus building among producers and regional authority services support;
- 4) Infrastructure support (access, electricity, water).

Obvious linkages with energy sector (multi-sourcing in energy production, for example in greenhouses).

#### 10. Mobility issues

Energy and environmental management training is the most likely form of mobility that could be applied during the implementation of the project.

#### 11. A vision for the future

Successful results might lead to higher levels of resources exploitation and sustainability. Significant improvement on environmental impact and innovative entrepreneurial synergies are also major future options.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

New marketing models of consumer/producer networks are foreseen.

#### 13. Capacities needed to implement the idea

Energy and environmental engineering as well as chemical and biochemical processes are some of the key competences required. Entrepreneurial spirit is necessary for the exploitation of the initial concept.

### 4.4 DEVELOPMENT OF A NETWORK FOR COLLECTING AND MANAGEMENT OF DATA ON MILK AND DAIRY PRODUCTION CHAIN (IDEAS 2 AND 10)

*Partnership composition: 3 from industry, 1 researcher, 5 from public administration and 1 from non-government organization*

#### 1. Brief description of the idea-partnership

The idea is about the Creation of a regional network for recording and valorisation of regional data (from soil studies, measurements and mapping) and their management to the local producers' benefit. The idea's main goal is the development of an interactive platform designed to assist local stakeholders (meat/dairy production / distribution) in decision making. The platform would also assist Regional Administration in policy making.

#### 2. Contribution of the different partners

Different partner groups include stakeholders from different stages of the production chain (animal farming, meat/dairy processing industries), regional/local authorities, businesses offering data processing services or decision/planning support services based on data.

#### 3. First considerations on framework conditions: legal problems, needs for human capital, capacities, education, etc.

Some early considerations include data management and safety issues.

#### 4. First financial considerations

Hard to estimate. It is scale dependent.

#### 5. Identification of first "next" steps

- 1) Networking;
- 2) Measurements;
- 3) Technological infrastructure;
- 4) Dissemination/Awareness campaign.

#### 6. Regional Strengths / Sources of Uniqueness

*Not answered by the group.*

#### 7. Research / Technology Content

Soil studies/measurements and Information and Communication Technologies (ICT) are key technology factors for the successful implementation of the project. Decision support, innovative quality management/control (e.g. image processing) might be considered as supplementary ones.

#### 8. New business models

The concept of the project is based on service model provision (web services mainly).

#### 9. Linkages to other sectors

There are clear linkages with measurements and ICT sector.

#### 10. Mobility issues

Training in measurements technology and ICT are the most likely forms of mobility that could be needed during the implementation of the project.

#### 11. A vision for the future

Successful results might lead to open data and relevant platform for exploitation by all stakeholders in meat/dairy production / distribution / consumption chain within the Region.

#### 12. Opportunities for by-products or suppliers networks for creating new markets

New marketing model of co-sharing of data and services is foreseen.

#### 13. Capacities needed to implement the idea

Measurements and ICT are the key competences required.

### ASSESSMENT

*This section provides an initial assessment of the outcomes of the first EDP focus group drawing on the opinions expressed by participants and recorded by the four working group rapporteurs.*

The overall exercise was carried out as planned. The blend of participants was quite balanced, thus allowing various perspectives to emerge. Initially, the entrepreneurs thought that this process would help solve their individual issues, the need for generalisation and partnership formation was not understood in the beginning of the exercise. Overall, all participants said that they enjoyed the process and expressed positive comments.

The methodology applied was improved since the first workshop in terms of allowing more time for creative discussion. However, the EDP process was spread over two days. This resulted in 'loosing' some of the participants from one day to another. More specifically:

- For WG1 all the researchers were absent on the second day. This may have led to less qualification of the ideas in relation to the research component;
- For WG4 the group capacity felt from 16 participants on the first day to 10 in the second one.

In addition the start of the second day was considerably delayed to allow for farmers and businesses to attend. Given that their presence is essential in this process we may need to consider carrying out next workshops in two half days with the presentations not that much relevant to businesses taking up the

morning. Another option would be to organise the event on week-end time. Of course this depends on the sector specificities.

Civil society organisations were again largely missing, even though 2 participants from non governmental organisations were present. This is particularly important given also the sensitivity of the food sector to social and cultural considerations. There are several societal organisations that can be invited in following the ideas that resulted from the workshop. These include for instance Philadelphia (<http://philadelphia.blogspot.gr/>), Slow Food Thrace (<https://www.facebook.com/slowfood.thrace>), WWF, Greenpeace, etc.).

As in the previous workshop time keeping was again a difficult task. The next events can benefit from less presentations and more time for deliberation. The first day can be dedicated for example to scheduled presentations and also ad hoc interventions from the audience of people who want to present their cases. The second day can be devoted to the actual work. If more time was available discussions might have gone further to actual building an action plan that would commit at least the people in the specific groups.

Moreover a final session where a mixing of initial working groups takes place may lead to improved synergies and better processing of ideas leading to ideas spillover / cross-fertilisation between different working groups.

It is important that the attendants are clear about what they will be asked to do in the next workshops. If an invitation is sent out clearly stating that attendees will actively contribute to developing ideas for support by the regional authorities, attendance from business may be increased. In addition, the opportunities offered by the networking character of these events should also be highlighted. Certain collaborations were already established as side-effects of the formal activities of the workshop.

Another important point is to how to stimulate innovation element during ideas contribution. Best practices by innovative professionals and non-academic innovation-oriented contributions from research and academic communities can be further pursued.

In some working groups there were a lot of initial ideas proposed. Therefore it was decided to first discuss upon them and try to “cluster” them into more generic ones and then try to rank and to proceed to the formation of partnerships.

Despite some shortcomings, the positive mentality, real interest and willingness of people was also present in this workshop. This made them engage in discussions and produced useful input for designing the next steps in the follow up activities of the project. A momentum is created that the Regional authorities should build on for the benefit of the specific project as well as more generally in designing and facilitating bottom-up governance structures that include all key stakeholders in generating ideas, building networks and collaborations and translating these into concrete policy measures and even research and business strategies action plans. The continuation and follow up of the discussions is not only desired but also necessary so that this project is not discarded (as many others in the past) because of no/limited impacts.