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"Actual and desired state of the economic potential in regions outside the Greek capital Athens"
Final Report

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Executive Summary

The European Parliament Preparatory Action: "Actual and desired state of the economic potential in regions outside the Greek capital Athens" has provided "hands-on" support to the refinement and implementation of the RIS3 strategy in the Greek Region of Eastern Macedonia and Thrace (REMTh), as well as generating potentially useful lessons for other regions. This has entailed the following activities:

- **Mutual learning** - this has been a core activity of the preparatory action, and has offered a unique and valuable opportunity to all the stakeholders involved to share experiences and build a common understanding of RIS3, its potential and the real challenges to its implementation.
- **Optimisation of the Entrepreneurial Discovery Process (EDP) –** the design, implementation and adaptation of a systematic participatory methodology for the EDP has centred on a series of thematic focus groups. These events enabled the generation and articulation of innovation ideas and initiated the first necessary steps towards concrete collaborative projects.
- **Capacity building** - two dedicated working groups were organised: one centred on issues of human resources mobility and the other on RIS3 governance. Selected stakeholders worked together to formulate action plans to tackle the different challenges at stake.
- **Identification of bottlenecks and systemic failures in RIS3 implementation** - the region has good potential for innovative activities, but faces a wide set of legal and administrative barriers. These need to be addressed to enable the allocation of structural funds and other resources to support RIS3 implementation in an optimal way.
- **Communication and codification of activities** - with the aim of replicating or adapting the activities of the preparatory action and the emerging learning opportunities for other regions, outcomes of all the events have been published on-line, as have methodological guidelines for the EDP process. Further publications from these activities are foreseen.
- **Supporting tools for internationalisation and collaboration** - the preparatory action has developed a set of online resources aimed at guiding the region in increasing its international outlook on RIS3 and collaboration between research and industry.

The preparatory action generated some very concrete impacts on the region, which include:

- The **mobilisation** of a critical mass of researchers and business people. The total participation in the EDP focus groups, PDLs and other events of the preparatory action has exceeded 600. This bottom-up process has increased mutual **trust**, created a **'momentum'** in initiating change and increased the **understanding of** what **RIS3** can contribute to this change.
- The appreciation of **networking and research-business collaboration** across stakeholders and especially between research and business. Indeed, some informal networks have been organised, for instance in the wine and marble sectors.
- The creation of **action plans** for both **RIS3 governance and mobility of human resources.**
- Both the Special Managing Authority and wider community of regional stakeholders have better access to **international counterparts**, both in governance of RIS3 and in performing research and innovation.

- The preparatory action has stimulated and accelerated a discussion between the European Commission, regional and national authorities which has help to clarify – for the whole of Greece – several implementation-related aspects of RIS3 and Structural Funds.
- The preparatory action has significantly influenced the approach to the design and implementation of the strategy for the region by engaging all relevant stakeholders from the outset.
- The experience of a close collaborative working relationship with the **European Commission** appears a positive one.

Whilst the Preparatory Action has helped to advance the implementation of RIS3, many legal, administrative and other challenges still persist.

- Among them, there have been perceived **ambiguities in the legal framework** concerning the remit of the region to issue calls for TO1 (directly or via the Ministry of Development) where State Aid regulation applies. A state aid guide has been developed by the Greek national administration in view of this. Still, improved clarity, more generally, in the role and implementation of **State Aid regulations in RIS3 implementation** is needed, and could be desirable at European level.
- Both the national and regional **RIS3 governance systems** have been in the process of being formally established over the course of the preparatory action.
- Of paramount importance, within this context, is the **exploitation of synergies with other ESIF funds, especially the Rural Development Fund, Fisheries Fund and European Territorial Collaborations.**

In summary, the lessons of the preparatory action point towards a number of key developments for the future:

- **Stakeholders**, now more committed to the RIS3 concept, need to be more **actively and continuously engaged in a sustained EDP process.**
- Mechanisms to **feed new ideas over and beyond those discussed in the EDP focus groups** should be identified and pursued. The new regional governance structure should be well placed to deal with these aspects and identify and implement appropriate mechanisms.
- At national level, further **clarification on the legal framework** can enable regions to issue calls, together with more **clear guidelines**, including from the EC, on State Aid regulation.
- The European Commission's S3 platform can play a role in promoting a shared **learning process,** across regions in approaches to **translate EDP ideas a**nd priority areas **into** efficient **calls for proposals.**
- Further efforts are needed in order to **move towards a fully international research and innovation ecosystem.**
- All in all, these efforts need to converge and should be reflected in the creation and implementation of a proper **monitoring and evaluation system.**

It must be noted that the preparatory action did not explicitly address the implications of the financial situation in Greece, and Europe more generally, at the time of the preparatory action (capital controls, heavy taxation and difficulties in access to finance) on RIS3. Uncertainty about the future should be adequately tackled in subsequent activities.

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The implementation of the preparatory action described in this final report was possible only through the close cooperation between a wide set of partners.

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AUTHORS

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[1] It concerns the Special Managing Authority of the Operational Programme of the Eastern Macedonia and Thrace Region. Hereafter we refer to it as Managing Authority or MA.

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GLOSSARY OF KEY TERMS

CERN	European Organisation for Nuclear Research
DAC	Digital Agenda Community
DG REGIO	Directorate-General for Regional and Urban Policy
EC	European Commission
EDP	Entrepreneurial Discovery Process
EIN	Innovation and Entrepreneurship Networks - see also IEN
EP	European Parliament
ERDF	European Regional Development Fund
ESIF	European Structural and Investment Fund
ETC	European Territorial Cooperation
FP7	7th Framework Programme for Research and Technological Development
FTE	Full Time Equivalent
GSRT	General Secretariat for Research and Technology
H2020	Horizon 2020
ICT	Information and Communication Technology
IEN	Innovation and Entrepreneurship Networks
IPTS	Institute for Prospective Technological Studies
JRC	Joint Research Centre
KET	Key Enabling Technologies
MA	Special Managing Authority of the Operational Programme of the Eastern Macedonia and Thrace Region
NCA	National Coordinating Agency
NCP	National Contact Point
PC	Programme Committees
PDL	Project Development Lab
RDI	Research Development and Innovation
REMTh	Region of Eastern Macedonia and Thrace
RIS3	Research and Innovation Strategies for Smart Specialisation
ROP	Regional Operational Programme
S3	Smart Specialisation Strategies
S3P	Smart Specialisation Platform
TO1	Thematic Objective 1

1. Introduction

This report describes the approach and outcomes of the European Parliament Preparatory Action "Actual and desired state of the economic potential in regions outside the Greek capital Athens." This activity has centred on the refinement and implementation of the Research and Innovation Smart Specialisation Strategy (RIS3) in the region of Eastern Macedonia and Thrace (REMTh), with the explicit aim to draw lessons for other convergence regions in Greece and Europe.[2]

Since 2012, a set of activities have been undertaken in REMTh with the aim to develop and implement a RIS3 strategy. Carried out between September 2014 and November 2015, this preparatory action builds on the previous efforts and analysis, and has aimed to complement and reinforce them (see Box 1). It takes as a starting point, the existing capacities available in the region (particularly in terms of research and research infrastructure, human resources, areas of specialisation, etc.) as well as the needs of regional stakeholders (business, end-users, etc.).

Box1: The draft RIS3 – a good starting point for the preparatory action

The definition of the S3 by the regional MA between 2012 and 2014 identified broad horizontal priorities and thematic pillars.

Horizontal priorities

- Upgrade of the institutional capacity of the Regional Innovation System and its constituent parts
- Upgrade and retention of human capital
- Targeted supply of knowledge, strengthening of the absorption of knowledge and induction of the entrepreneurial dynamics
- Boosting the intensity and quality of intra-regional and inter-regional networking

Thematic Pillars

- Transformation of the Agro-Food Sector
- Supporting the Growth of Emerging Sectors (including tourism, marble, plastic-rubber products, pharmaceuticals, electronic/electrical equipment, innovative building materials, energy, environment and hybrid technologies

The draft strategy built on a solid techno-economic assessment of the infrastructure and private sector demography of the region, as well as a on a clear understanding of the challenges ahead and a solid reflection on potential policy tools. Whilst attempts had been made to identify and interact with stakeholders through survey and working groups, the level and nature of their participation in the RIS3 process could offer potential for enhancement.

To support the refinement and implementation of the RIS3 strategy in the REMTh region, the activities undertaken can be grouped into the following main categories:

- **Mutual learning** - this was as essential aspect of the whole exercise, and offered the opportunity to stakeholders, the EC and the regional MA to share experiences and build a common understanding of what RIS3 is, what it can offer, and as well as the challenges to its implementation.

[2] This has been implemented through the Administrative Agreement (AA) No. 2014CE160AT056, signed between DG Regional Policy (REGIO) and the Joint Research Centre (JRC) of the European Commission

- **Optimisation of the Entrepreneurial Discovery Process (EDP)** - the preparatory action has included the design, implementation and ongoing adaptation of a systematic participatory methodology for the EDP, organising, in the first instance, four focus groups. These events enabled the generation and articulation of innovation ideas and initiated the first necessary steps to integrate them into the policy process.
- **Capacity building** - within the preparatory action two dedicated working groups were organised: one centred on issues of human resources mobility and one on RIS3 governance. In both of these working groups, relevant stakeholders, working with an expert moderator, discussed and formulated plans on how to tackle the different challenges at stake.
- **Identification of bottlenecks and systemic failures in RIS3 implementation** - the region has good potential for innovative activities, but faces legal and administrative barriers, bringing difficulties for the allocation of structural funds and other resources to support RIS3 implementation in an optimal way.
- **Communication and codification of activities** - with the aim of replicating or adapting the activities of the preparatory action and the emerging learning opportunities for other regions, outcomes of all the events have been published on-line, as have methodological guidelines for the EDP process. Further publications and other dissemination activities building on these activities are foreseen.
- **Supporting tools for internationalisation and collaboration.** The preparatory action has developed a set of online resources that aim at guiding the region in increasing its international outlook to RIS3 and its collaboration between research and industry.

Section 2 of this report describes the core activities of the preparatory action in further detail. Section 3 examines the impacts of the preparatory action, and section 4 focuses on the legal, administrative and other barriers to RIS3 implementation. Finally, section 5 concludes and identifies key steps forward. In addition, a series of annexes to provide substantial additional details.

- **Annex 1: Regional profile of REMTh – facts and figures**

This annex summarises the data and metadata collection activities and sources used to profile the region. It includes:

  - The report *Review and Summary of the RIS3 in the Region of Eastern Macedonia and Thrace,* which was commissioned from the consulting company Innovatia Systems at the beginning of the preparatory action. The report also contains a reference/bibliography session with other relevant reference material.
  - The report *S&T & FP7 Facts & figures,* which provides statistical and financial information relating to the use of FP7 and structural funds dedicated to Research and innovation during the financial period (2007-2013). This allows the identification of specialisation areas emerging from FP7 participation and examines their correspondence with RIS3 priorities.

- **Annex 2: Entrepreneurial Discovery Process Focus Groups**

Bringing together stakeholders from industry, academia and national and regional administrations, this series of four events aimed at identifying potential avenues for innovation activities in the region. Presentations from national and international experts on relevant topics stimulated

structured discussions. The results are a set of potential innovative ideas aligned with the RIS3. This annex contains a description of the methodology of the EDP focus groups, the agendas and summaries of the outcomes of the first four EDP events, focused on wine, meat and dairy products, tourism and marble/non-metallic minerals.

- **Annex 3: Project Development Labs**

This annex contains a description of the methodology and summaries of the outcomes of the two project development labs (PDLs) organised. These events aimed to further push forward the entrepreneurial discovery process of the region, developing the ideas from the EDP focus groups and assessing the various funding possibilities.

- **Annex 4: Peer Review**

This is a detailed summary of the focused peer review of the Region of Eastern Macedonia and Thrace, organised on 12 and 13 February 2015 in the city of Alexandroupolis. The event brought together invited peers and regional stakeholders, to share experiences, both in the context of the implementation of the REMTh RIS3, and with a view to generating lessons for other regions.

- **Annex 5: Board of Critical Friends**

This annex summarises the role and activities of the "Board of Critical Friends" established to provide guidance and to share experience relevant for the preparatory action.

- **Annex 6: RDI guide**

This annex contains information on the online RDI guide, which provides summary information on the national and regional sources of funding relevant for the implementation of the RIS3 in Eastern Macedonia and Thrace. It aims to be a quick and accessible reference point for all stakeholders, describing the characteristics, indicative actions and financial amounts available under each relevant scheme.

- **Annex 7: Human Resources Mobility**

This annex comprises two reports:

  - **Exploring Options for University-Industry Mobility Programmes in REMTh**, prepared for JRC-IPTS by Mr Michalis Metaxas, Innovatia Systems, to serve as a background for the working group on the mobility of human resources.
  - **A Roadmap for Improving Human Capital Mobility in Anatoliki Makedonia-Thrake** on the outcomes of the working group on human mobility, prepared for the JRC-IPTS by Dr Yiannis Tolias, Innovatia Systems.

- **Annex 8: RIS3 Governance System**

This annex comprises two reports summarising the activities and outcomes of the working group on RIS3 governance: the first proposes a RIS3 governance structure, whilst the second assesses the skills required to implement it.

- **Annex 9: Final events**

This annex summarises the main outcomes of the two final events of the preparatory action. The first, held in Xanthi on the 21st of October 2015, took stock of the achievements of the preparatory action and reflected on the key challenges for the future. The event was conceived as a way to listen to the concerns of stakeholders, in order to reflect on how to best support local development and resilience in times of uncertainty, as now faced by the region. The second, held in Brussels on the 18th of November 2015, drew together wider stakeholders and experts to review the outcomes and future prospects for work on other lagging regions.

- **Annex 10: Publications**

This annex lists the current and forthcoming publications authored by JRC-IPTS arising from work carried out in relation to the preparatory action.

- **Annex 11: Case studies**

This annex contains a series of eight case studies which develop ideas generated during the EDP focus groups and explored further during the PDL workshops. These case studies take into account opportunities for sources of funding beyond ERDF, they identify the role of ICT as Key Enabling Technologies, as well as relevant international networking platforms and consortia.

- **Annex 12: Collaboration Spotting Tool: Tim Browser**

This annex summarises the outcomes of preliminary exploration of potential added value of the collaboration spotting tool TimBrowser. Still under development, this tool generates a graphic description of scientific networks across fields, allowing the identification of key actors across sectors.

- **Annex 13: Evaluation of the Preparatory Action**

A short evaluation exercise was foreseen to reveal the main outcomes of the preparatory action (e.g. results, success or failure factors, lessons learnt, actions proposed for Greek and other lagging EU regions). A number of evaluation activities have been undertaken and their outcomes are summarised in this annex.

- **Annex 14: ICT Capacities**

This annex comprises three reports exploring the potential of ICT, as a key enabling technology, for the development of Eastern Macedonia and Thrace.

- **Annex 15: Note on FDI governance**

This document provides an overview of the framework that governs major investments in Greece, covering both the regional and the national scale.

2. Key activities

2.1 MUTUAL LEARNING AMONG STAKEHOLDERS

At the heart of preparatory action was the development and exploitation of opportunities for mutual learning. All the actors involved (stakeholders, the EC and the regional managing authority) had the opportunity to share experiences and build a common understanding of RIS3, what it can offer, and the challenges to its implementation.

Within this context, the following events represent milestones in this learning process. They were also critical in building trust among the stakeholders involved.

- The **exploratory visit** of JRC- IPTS to region. This centred on meetings with the regional Managing Authority (MA) and other key stakeholders of the region, taking place in September 2014. This enabled JRC-IPTS to become more familiar with the region and the work conducted so far. In particular, the draft RIS3 was discussed, as well as the methodology applied in its elaboration and the key stakeholders of the region. It was the first step towards building trust among the actors involved and allowed a dialogue on the expectations on the preparatory actions and the challenges ahead.
- The in depth **Peer Review,** held in February 2015, developed the traditional approach to peer learning successfully employed by the JRC Smart Specialisation Platform, whereby selected regions meet to critically review each other's RIS3s. With peers coming from regions across Europe, an in-depth examination of issues central to the successful implementation of the RIS3 of Eastern Macedonia and Thrace took place. A summary is included in Annex 4, as well as on the Preparatory Action website.
- The **final events** in **Xanthi,** held in October 2015, and **Brussels** in November 2015, provided opportunities to reflect on the outcomes of the preparatory action with a range of stakeholders, from within the region and beyond. The Xanthi event served to reinforce the commitment of the region and its stakeholders to the RIS3 process. The Brussels event also looked ahead at the lessons for other regions. Summaries of both events are provided in Annex 9.

Mutual learning was reinforced by the support received from the **Board of Critical Friends**, created to provide external guidance on the approach and outcomes of the preparatory action, giving feedback on its activities and contributing lessons both to JRC-IPTS and to the region. The board comprises seven members including representatives of government, business and academia from other parts of Europe. They had, in different capacities, already faced the challenges of setting up a RIS3 strategy and could thus offer precious advice to REMTh, while also transmitting lessons emerging from the preparatory action to the wider community. Details of this group and their main activities are provided in Annex 5.

The board first met together with the JRC-IPTS, as well as members of the REMTh MA at a specially convened meeting in Barcelona in January 2015. The board helped to refine the methodology for implementing the entrepreneurial discovery process, for building an adequate governance structure and for developing a mobility roadmap. Some appropriate thematic support was provided by board members based on their respective backgrounds and experience. The critical friends also participated in the Peer-Review event and the final event of the Preparatory Action in Brussels in November 2015.

In addition, the preparatory action provided opportunities to the region for mutual learning, by encouraging participation in relevant international events of the S3 Platform, including a workshop

on EDP in Pisa (September 2014), one on monitoring in November 2014, a high-level event on RIS3 in Seville (March 2015) and an event on the role of Universities in RIS3 in Barcelona (June 2015).

2.2 OPTIMISATION OF THE ENTREPRENEURIAL DISCOVERY PROCESS

A core activity of the preparatory action has been to contribute to establishing a sustainable and effective entrepreneurial discovery process, in which stakeholders' engagement in the identification and refinement of priority areas could feed directly into the policy process. To this end, the preparatory action has implemented through two sets of workshops:

- **The Entrepreneurial Discovery Process (EDP) focus groups** –a set of four events, with a sectoral focus, aimed at generating innovative ideas through the interaction between business, public and research sectors.
- **The Project Development Labs (PDL)** – a set of two further events aimed at processing the EDP ideas and moving them towards implementation, identifying funding opportunities and action plans for policy.

These are described, in turn, below. These activities have provided concrete support to the region's stakeholders, encouraging and strengthening their engagement in and commitment to the process of entrepreneurial discovery, as well as in the development of concrete collaborative projects.

Entrepreneurial Discovery Process Focus Groups

Following initial engagement with key stakeholders during the exploratory visit to the region in September 2014, a successful programme of events has been implemented to test and optimise the EDP in the region. This has centred on the organisation, at various locations around the region, of six EDP focus groups targeted at selected sectors under the broader RIS3 strategy of the region, which have sought to identify and develop priorities for project calls.

The first four focus groups focused on the wine sector (Drama, November 2014), meat and dairy products (Komotini, January 2015), tourism (Alexandropoulos, February 2015), and marble and non-metallic minerals (Drama, May 2015) and on selected activities which contribute to their future development. The common aims of all four focus groups were:

- To bring together relevant stakeholders in the sector, throughout the value chain to explore and catalyse the dynamics of the entrepreneurial process of discovery;
- To increase the understanding for the need to select a limited number of priorities, and to build trust among stakeholders, including with public authorities;
- To examine key criteria to identify and pursue relevant projects for the region;
- To collect ideas for regional innovation that combine regional strengths with international (emerging) trends;
- To shape initial partnerships around those ideas, to foster a culture of collaboration, between stakeholders and with public authorities and to increase awareness of the international context of regional innovation activities; and
- To refine the focus group approach for its future application to other key sectors of the region, and subsequently for other regions.

Preparation of the focus groups generally entailed a desk based analysis of the value chain of each the sectors under consideration, the identification of likely topics for discussion, together with the identification of relevant regional, national and international participants. Attempting to capture

different elements of the value chain proved valid and more detailed analysis could enhance future events.

With each event usually taking place over the course of two days, the focus group approach combines plenary and parallel sessions, with interventions by regional, national, and international experts. All these events have achieved good visibility in the region, with increasing numbers of regional stakeholders, including a significant proportion of entrepreneurs attending each successive event. All have been opened by the Governor of the Region, who, together with the MA and the Regional Council of Innovation and Entrepreneurship has been strongly committed to the process. This strong and sustained commitment to the process is critical to its success.

Within the focus groups, each parallel group was tasked with exploring and refining several promising ideas in selected subsectors of each of the priority areas examined to date. These have been particularly productive activities, with several promising ideas emerging, as well as linkages between actors and ideas across focus groups. The main outcomes of the first four EDP focus groups were promptly shared with stakeholders through on-line publication[3], together with all the presentations. Summaries are also provided in Annex 2. The methodological approach to the EDPs has been progressively refined in view of continued replication and adaptation. A summary is provided in Policy Brief 1 (see Annex 10).

It has been recommended, and subsequently planned by the MA, that similar workshops be organised across all RIS3 priorities. Following the EDP Focus groups organised within the preparatory action the region has applied the methodology for two further priority areas (chemical and polymer materials; and production of electronic and electrical equipment). Furthermore, the Greek region of Thessaly is currently implementing a similar process, whereas interest has been expressed from Bulgaria and the Turkish region of Easter Marmara to replicate the EDP focus group approach. These thematic events were also widely attended by Managing authorities from other Greek regions.

In order to evaluate the focus groups a questionnaire was sent to the experts that participated. The results are shared, among the others, in Policy Brief 1 (Annex 10). Overall, they were positive, although pointed out that the participation of the private sector could have been enhanced.

In summary, the EDP focus groups have led to the following impacts:

- The novel bottom-up way of contributing ideas, forming partnerships, and thus jointly shaping priorities was considered highly valuable by all stakeholders, and contributed to increased trust.
- Hundreds of ideas were collected and refined, leading to 55 grouped ideas and related partnerships.
- The MA expressed its intention to continue the EDP process, and stakeholders expressed interest in the possibility to continue proposing ideas for new business.
- Network building, not only internationally, but also regionally, has taken place. A number of regional stakeholders appeared unaware of each other's activities, in spite of their geographical and thematic proximity.

[3] http://s3platform.jrc.ec.europa.eu/edp-focus-groups

Project development labs

The project development labs (PDLs) comprised two consecutive events, organised either side of an on-line stakeholder consultation, aimed at moving ideas from the EDP focus groups closer towards implementation. The approach to this set of events was the subject of a complex discussion among the JRC-IPTS and the Special Managing Authority and its eventual implementation evolved from the original idea. Whilst the PDLs were first conceived to be centred on stakeholder mobilisation, training and participation, greater emphasis was eventually given to a combination of a thorough technical reflection on funding opportunities and a smaller-scale stakeholder engagement, as described below. This evolution reflects the real challenges of aligning the concept of RIS3, the actual dynamics of stakeholder engagement and the administrative context.

PDL1, held in May 2015, assumed a technical focus and represented a first step to translate stakeholder engagement into policy actions. The participants comprised JRC-IPTS and its subcontractors, the Special Managing Authority, representatives of regional and national government with expertise on S3, ESIF and state-aid regulations, and representatives of regional higher-education and research organisations.

The event explored exclusively the administrative dimensions of the EDP ideas, covering issues related to effectiveness, appropriateness, delivery mechanisms, project selection criteria, fitness to the national RIS3, state aid rules and their implications for launching calls. A significant portion of the discussion was also devoted to clusters, since they were suggested in all four EDP focus groups.

The bridging of the EDP ideas to the formal policy process was organised through a detailed mapping of the delivery instruments that the Special Managing Authority intended to use. This was accompanied by an evaluation of whether and how the EDP ideas would fit under those instruments (as illustrated in Table 5). In some case, this required segmenting EDP ideas that fell under different investment priorities in the Regional and National Operational Programmes. This first PDL was followed by an on-line stakeholder consultation of the ideas carried out via the S3 Platform (http://s3platform.jrc.ec.europa.eu/ideas-for-pdl2). This consultation aimed to identify those ideas most appropriate for further development through analysis of stakeholder interests. In total 134 stakeholders (out of which 29 companies) participated in the consultation. Most interest was expressed in ideas related to tourism (86 stakeholders), followed by wine (62), dairy & meat (56) and marble (27). The specific ideas in each area with most interest from stakeholders were prioritised to be discussed at the PDL2.

For PDL2, the original intention was for stakeholders to work together in groups to further develop selected ideas on a set of dimensions (research aspects, training needs, innovation/knowledge management, international positioning of the idea, budgeting (private vs public), and the potential role of ICT as KET, mobility solutions, exploration of various possible funding sources, etc.). The event thus had two main groups of objectives:

- To show how the stakeholders' engagement in PDL1 fed back into the policy process by presenting and to discuss the draft calls to be launched under Thematic Objectives 1 to 3 of the ROP (morning session);
- To explore the possibility of financing the EDP ideas (or some of their components) from other funding sources, particularly from Horizon2020 (afternoon session).

Following a detailed presentation and discussion of the draft calls, the event included contributions on the linkages between regional and national RIS3 and the various forms of support. Feedback and questions from stakeholders centred on a number of detailed technical issues. These included: the inclusion of managerial adequacy and efficiency among the selection criteria of the calls; compatibility of the calls with State Aid rules; how the specific needs of tourism as a sector and academia as a stakeholder are addressed; and whether there would be any mechanisms for proposals to H2020 which passed the thresholds but did not receive funding to subsequently receive ERDF funds. During the afternoon of the event stakeholders, with the support of Greek H2020 NCPs explored the potential to fund (components of) EDP ideas under Horizon 2020.[4] This was done by discussing in group a set of questions related to H2020 eligibility and selection criteria. The exercise proved more difficult than envisaged and needed to be simplified on the spot, not least because the regional stakeholders are unfamiliar with H2020 and with the high degree of innovation it requires. The outcomes were a series of project fiches which served as an input to the case studies (described in below and in Annex 11).

The evolution of the PDL concept and implementation was influenced by the timing of the RIS3-approval process and administration, as well as by the serious political and economic uncertainty of Greece in May-June 2015. The deviations in the eventual organisation of the PDLs reflect different needs and expectations. For the region, there was a need to place emphasis on short-term issues related to the administration of the ROP, rather than the long-term sustainable development of the strategy and the engagement of stakeholders. It is likely that this trade-off is common beyond REMTh and demands attention to ensure that strategic development does not fall victim of short-term concerns. Annex 3 provides the summary reports for the two events, which are also available online. These reflections are in line with the results of the evaluation questionnaires sent to the three H2020 NCPs.

Overall the PDL events had the following main impacts:

- Further advancement of ideas developed, as well as of community building around them.
- Capacity building among stakeholders regarding idea development and the use of different funding sources.
- Increased coordination between regional and national level, through alignment of national and regional plans (and avoiding funding of similar ideas at both levels), and through clarifying technicalities (in terms of state aid, fundability of ideas, coherence with national strategy, etc).
- Paving the way for other regions, especially in terms of implementation details, including related to state aid, thanks to the pioneering role the region has played in clarifying a wide set of technical challenges to implementation.

2.3 CAPACITY BUILDING

Within the preparatory action two working groups were organised, one focused on **human resources mobility** and the other on **RIS3 governance**. In each case, relevant stakeholders, discussed and formulated plans on how best to tackle the different challenges at stake. Each group was

[4] Prior to PDL2, the most voted ideas in the online consultation were discussed with three National Contact Points for H2020, who selected a sub-set of potentially eligible ideas.

moderated by an independent expert, who also produced a report on the outcomes (see Annexes 7 and 8 respectively).

The **human resources mobility** working group was set up with a view to better adapting skills to the needs of the smart specialisation concept (e.g. entrepreneurship, collaboration, creativity). The group comprised stakeholders from the public, private and research sectors to discuss opportunities to enhance human resources and their mobility. The outcomes of the group's discussions included an assessment of good practices across the EU to engage and train academia to work with industry and to adapt skills in support of RIS3 implementation. Furthermore, the group benefited from a series of reflections embedded across all the events of the Preparatory Action, particularly the PDLs, which stressed the importance of international networking and collaboration as a way to improve human resources.

The approach of the working group (based in the "theory of change") was to establish a set of goals. The participants then worked together to identify concrete steps towards their achievement (Figure 1). A clear action plan was formulated involving universities and businesses, with distinctions made between fast wins, and actions for the medium and long term.

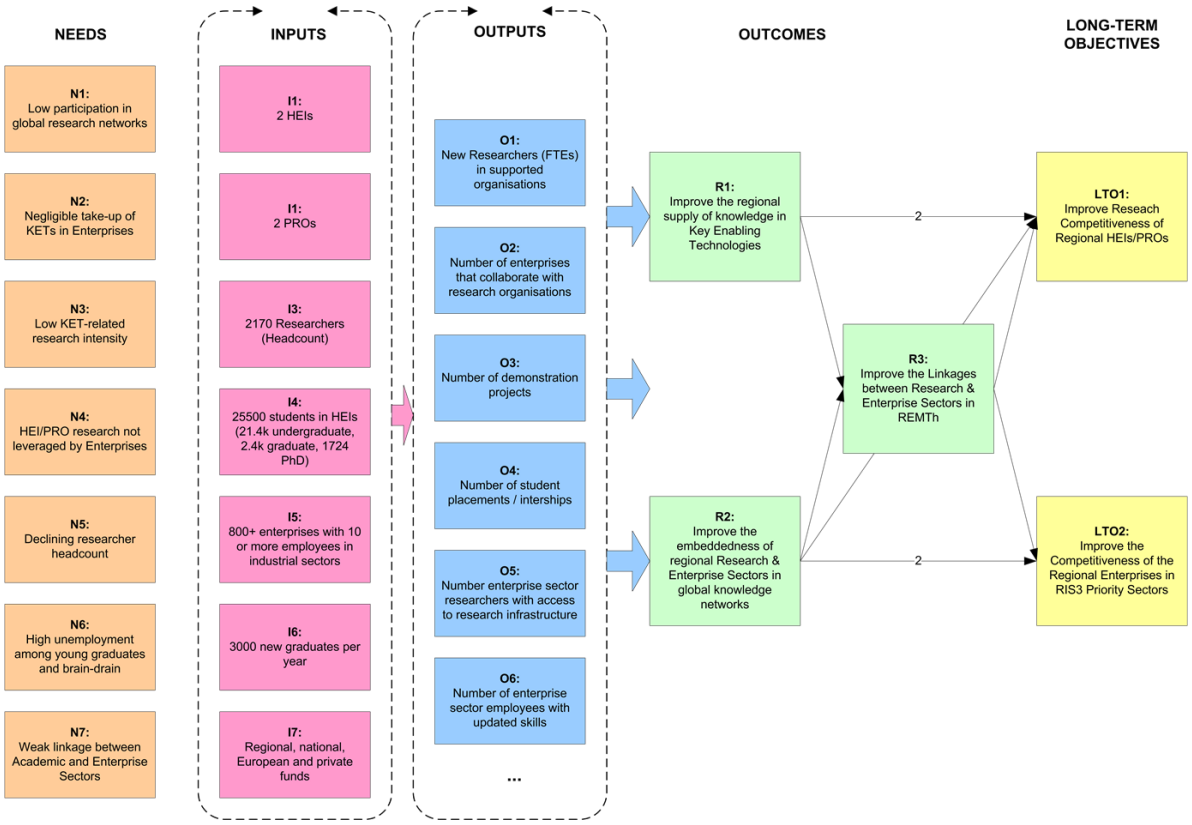

Figure 1: Objectives and their relation to inputs required for mobility in REMTh

The **governance working group** comprised 16 members, drawn from the public, research and private sectors in the region. In considering how best to manage the sustainable implementation of the RIS3, there was an identified need for enhanced alignment between the technological infrastructure of the region and its business needs.

Starting with a review of the existing governance system, the participating stakeholders shared expectations and concerns, working towards the creation of a common understanding on which to base future activities. They then worked to identify the entities relevant for each of three distinct governance levels and priority areas (see Figure 2, below). The Working Group also developed an action plan with a roadmap for its implementation, as well as a list of difficulties that may arise during implementation together with proposed solutions. The MA of REMTh announced at the final event in Xanthi that the governance structure will be implemented in line with this proposal.

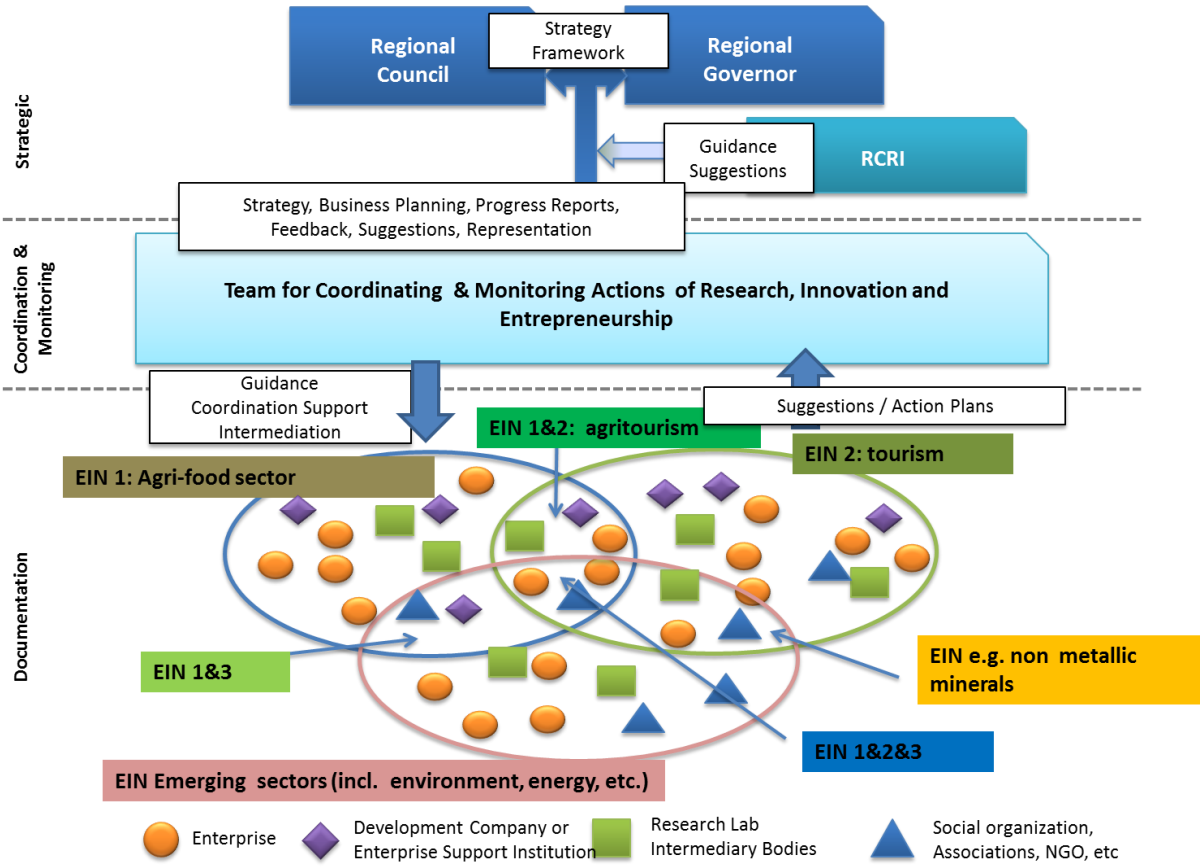

Figure 2: Proposed governance structure for the implementation of RIS3 in REMTh

2.4 SUPPORTING TOOLS FOR FURTHER IDEA DEVELOPMENT: INTERNATIONALISATION, COLLABORATION AND THE ROLE OF ICT

One of the key findings of the EDP process was that stakeholders in the region were not used to collaborations between the research and business sectors, nor did they tend to explore opportunities offered by international networks or to focus on international business opportunities.

This finding led to the development of a series of resources, made available on the preparatory action web-page which serve as guidance in exploring the opportunities offered by cross-sectoral collaboration and internationalisation. These include:

- The **RDI funding guide**, which includes a comprehensive list of the different funding sources available for projects launched in the region at EU, national and regional levels, in both English and Greek (see Annex 6).

- The exploration of potential added value of the collaboration spotting tool **TimBrowser**. This tool generates a graphic description of scientific networks across fields, allowing the identification of key actors across sectors. The tool is currently under development and only available in beta version. Selected ideas from the project development labs have been used to test the potential added value of the tool (Annex 12). In the course of 2016 the tool is expected to be mature enough to be applied more widely.
- Further assessment of the region's research activities has been carried out, with the production of a **regional profile using data[5] from FP7 and Structural funds** dedicated to Research and innovation for the previous financial period (2007-2013) (Annex 1).
- While the **attraction of FDI** and the **promotion of exports** can complement the implementation of the RIS3, these issues fall outside the policy remit of the MA. Nevertheless, these issues have been covered in the various debates around the internationalisation of RIS3 and explicitly addressed in the funding guide, through two explanatory notes on the governance of FDI in Greece (see Annex 6).
- **Case studies,** based on the EDP ideas and the funding guide, tackle eight of the ideas developed in the EDP and PDL focus groups, exploring the opportunities offered by the different funding streams. They identify potential extension to the original ideas, relevant international networks as well international project consortia that can inform further thoughts on individual ideas. The case studies also explore how ICT, as a key enabling technology, can exploit the potential of the idea. The case studies effectively identify concrete proposals on how to increase internationalisation and collaboration within the RIS3 framework. They have been made available online[6] and are set out in Annex 11.
- The **ICT Capacities** of the region and the role of ICT in RIS3 have also been examined (see Annex 14). In the RIS3 of the region information and communication technologies (ICTs) were identified as important key enabling technologies for the region. In order to optimise the use of ICTs in the implementation of the RIS3, analytical work was commissioned regarding the role of ICT in the following areas:
  - An ex-ante assessment of potential ICT-enablers in each of the four priority areas for which an initial EDP focus group took place;
  - Overview of potential ICT contribution along the whole value chain of non-metallic minerals, together with ICT supported functions, expected benefits/prospects, as well as other knowledge supply synergies;
  - An overview of potential ICT contributions and knowledge mapping at the level of individual ideas collected in each of the priority areas;
  - A more detailed analysis on the role of ICT and partners to involve in a selected set of ideas, discussed during PDL2;
  - Linkages of those ideas to specific funding sources;

This work can support stakeholders in further developing their ideas, especially in terms of how ICT could support and enable successful implementation of the ideas. It is also useful as background to support the Special Managing Authority in the region in designing calls for proposals and other actions in implementing the RIS3, in particular in how to support and advance the role of ICT in each priority area. Emerging from this analysis is a proposal to develop a Regional Digital Growth Agenda.

[5] The information provides a perspective on the overall position of the Region within the country in terms of: FP7 budget awarded; Structural funds dedicated to R&I managed at regional level; the specialisation areas emerging from FP7 participation; correspondence of those areas with the ones chosen in the smart specialisation strategy; the main R&I stakeholders involved in EU programmes, regional specificities compared to national and European level; and the main European collaboration axes of the Region in the EU framework programme.

[6] http://s3platform.jrc.ec.europa.eu/ideas-for-pdl2

Such a regional agenda can be broken down to specific Digital Growth Agenda priorities for each thematic area, supported by theme-specific communities and a horizontal ICT-specific Digital Agenda Community (DAC).

2.5 COMMUNICATION AND CODIFICATION OF ACTIVITIES

The implementation of the preparatory action has relied on close collaboration and communication among the parties involved, and cuts across all strands of activity, engaging relevant organisations and individuals both within and beyond the region.

Furthermore, with the aim of making the finding accessible, a timely effort has been made to provide outputs of the activities online. The preparatory action webpage (http://s3platform.jrc.ec.europa.eu/remth) is developed and hosted by JRC as a dedicated section of the S3 platform. The site has been live since the beginning of the preparatory action, and contains regularly updated details of activities in both English and Greek.

Its design has evolved in line with progress in the preparatory action activities, enabling information on all relevant activities to be easily located. It has published the main outcomes of all preparatory action events, including summaries of the four EDP Focus Groups and the two Preparatory action Development Labs, as well as the in-depth peer review workshop. The website hosted a stakeholder survey before PDL2 to further refine ideas. This included a presentation of ideas collected during the different focus groups (http://s3platform.jrc.ec.europa.eu/ideas-for-pdl2) as well as the recent extensive case studies.

Finally, a number of publications draw on work carried out in the preparatory action. These include: policy briefs, a series of conference presentations and journal articles. Annex 10 sets out existing and planned publications.

3. Main impacts of the preparatory action

Overall, the wealth of activities conducted obtained the objectives that were set up at the beginning of the preparatory action. During the final events, reflection took place on the main impacts of the preparatory action (also see Annex 9).

Impacts of direct relevance to the region include:

- Throughout the preparatory action trust between the wide range of stakeholders involved has increased drastically, partially thanks to the creation of 'momentum' in initiating change, and an increased understanding of what RIS3 can contribute to this change.
- **The mobilisation of a critical mass of researchers and business people**. The EDP events managed to mobilise a significant part of the research and business communities in the region, with total participation in the events exceeding 600. The business community was particularly surprised by this success and stressed that, for the first time, they felt that the public administration was seriously interested in their work and interacted in a systematic, structured and constructive way.
- This in turn created high **expectations on the side of stakeholders**, which is in itself notable given the current pressures on the business community.
- Overall there was appreciation of the **business community** of the opportunities the EDP offered to create **links with the research world**. As a side effect of the EDP focus groups, there is already some concrete evidence of **network formation** among stakeholders.
- Learning how to **apply the EDP methodology** was also seen as relevant. It was widely acknowledged that the EDP is a continuous process and, as noted above, the MA has already progressed with organising two more EDP events.
- The MA **expressed its commitment to implementing the suggested RIS3 governance system**. The governance system is now at the stage of being formally approved and the new structures are to be in place shortly.
- Stakeholders appreciated the formation of a specific proposal for **human resources mobility** that was jointly agreed by representatives of the academic and business communities. Implementation of this proposal is underway with the establishment of a common unit across the academic institutions of the region that will be responsible for mobility activities.
- The MA has increased its **international connectivity with counterparts** and experts around Europe, and now has easy access to a wide body of knowledge and experience on design and implementation of RIS3.
- Regional stakeholders also benefitted from **international networking** with other regions, experts and critical fiends, allowing the exchange of experiences, good practices, tested methodologies, etc. However, there is still a long way to go towards internationalisation of the research and innovation ecosystem.
- The preparatory action has stimulated and accelerated a discussion between the EC, regional and national authorities clarify – for the whole country – several aspects of the implementation of RIS3 and the use Structural Funds.
- The preparatory action has significantly influenced the design and implementation of the development strategy for the Region by involving all the relevant stakeholders from the outset.

Broader impacts, relevant for the EC and other lagging regions, include:

An enhanced understanding, within the European Commission, of the complexities involved in implementing a novel strategic approach to regional development such as the RIS3.

- The codification of the methodologies adopted, and the material available online to support stakeholders, allow for the creation of a tool box, that can support other regions in implementing similar exercise. A first version of such a tool box is presented in Table 1 below. The tools presented have been tested in REMTh, and would benefit from further testing in other regions. Experiences from other regions can also further enrich and adapt the set of tools presented.
- The experience of a close collaborative working relationship with the **European Commission** appears a positive one.

Objective	Tool	Description
Idea generation, trust building and support quadruple helix cooperation	EDP focus group methodology	Step-by-step approach to identify or refine RIS3 priorities involving the quadruple helix
Open up to wider (online) communities	Online stakeholder engagement	Online tool for spreading information to wider groups of stakeholders. Can be used for idea prioritisation, partnership formation, online idea development, etc.
Address brain drain, build skills and	Mobility Working Group	Bottom-up approach to develop a joint strategy and roadmap for increasing cross-sectoral and international mobility. It can also be widened to cover other types of skill development. Critical elements include both joint development and joint implementation by all actors involved.
Increase coordination between national and regional level	Methodology PDL1	Coordinated approach to analyse fundability, duplication and administrative and legal and state aid issues of business ideas involving relevant national and regional level administrations
Widen funding sources to draw on for idea implementation	Methodology PDL2	Specific advice from national contact points on the use of alternative funding sources for specific ideas
	Online RDI Funding Guide	Online overview of available funding sources
	Case descriptions	Examples of further developed ideas illustrating the potential use of different funding sources to support implementation
Implement or optimise a RIS3 governance structure	Governance working group	Bottom-up approach to develop or refine a joint strategy and roadmap for a RIS3 governance structure. Critical elements include both joint development and joint implementation by all actors involved.
Support ongoing stakeholder engagement	Stakeholder round table discussions	Well-orchestrated stakeholder discussions centred on specific discussion topics. Such discussions were applied in the kick-off event and in the Xanthi final event.
Identification of barriers and systemic failures and possible solutions		
Mutual learning	Tailored peer review events	Adaptation from the traditional approach to peer learning. Peer regions critically review one specific region, based on an identification of key bottlenecks in RIS3 implementation
Support to international cooperation	Board of critical friends	International group of experts from different backgrounds (peers, business, academia) reflect on methodology, thematic priorities and related implementation issues
	Collaboration spotting tool (developed through CERN-JRC collaboration)	Quantitative visualisation tool for identifying potential international R&D partners in specific cooperation areas
Develop the potential of KETs in RIS3	KET value chain analysis	Analysis of the potential contribution of KETs along the whole value chain of a thematic area, including supported functions, expected benefits and other knowledge supply synergies. Example developed for ICT along the value chain of non-metallic minerals
	KET contribution and knowledge mapping at idea level	Analysis at detailed level of granularity of KET potential and required related knowledge and partners. Example developed for ICT for a series of business ideas.

Table 1: Tool box for implementation and refinement of RIS3 strategies

4. Challenges to implementation

In a little over one year, the preparatory action has contributed to progress in RIS3 implementation. Nevertheless, various obstacles still remain. These are set out below, based on a review of the outputs of the preparatory action (especially the Peer Review and PDL1) and a discussion with Greek government officials and the MA.[7]

Legal framework	
Description of the issue	At the **national level** the governance of the different operational programmes is defined by **Law 4314/2014** on *the implementation and management of development interventions during the programming period 2014-2020.* This law defines, among other things, the role of the Programmes **Managing Authorities (MAs)**, that of the **Programme Committees (PC)** and of the **National Coordination Authorities (NCA**). In article 47 the law discusses State Aid actions included in Regional Operational Programmes (such as some related to R&D, hence TO1). It posits that, in such cases the Minister of Development can issue calls following a proposal from the responsible Regional Governor. Another relevant legislative element in the implementation of RIS3 is law **4310/2014** which covers the research sector and hence is relevant for TO1 In article 8, it specifies that GRST is responsible for issuing calls. In article 23, it specifies the funding resources of public spending. The Law, among other things establishes the Regional Innovation and Entrepreneurship Councils.
Implications for RIS3 implementation	There is ambiguity between laws 4310/2014 and 4314/2014. Whilst the latter states that the Regional Governor can indirectly (via the Minister of Development) issue calls that imply State Aid operation (which includes R&D aspects, hence TO1), the latter puts all research and innovation actions under the responsibility of GSRT. Unless the ambiguity is clarified, the MA cannot (even indirectly) issue calls on TO1, even though –having developed the RIS3- it is the best placed to do so.
Actions taken	The issue has been addressed during the consultation between (central) governmental and regional MA's.
Future steps	The issue needs to be solved at the national level and a forthcoming revision of law 4310/2014 is expected to take place shortly and tackle this aspect.

State Aid and Competition Regulation	
Description of the issue	State Aid and Competition regulations (EU regulation 651/2014) have a significant bearing on the use of funds for Research and Innovation as well

[7] The barriers identified at this stage focus on RIS3 rather than innovation in general. The preparatory action has not so far explored critical aspects such as: the limits imposed on universities to collaborate with businesses, the working conditions for researchers, R&D taxations, etc.

	as SMEs. During the events of the preparatory action the MA raised questions about the aspects of the regulation that apply to innovation (i.e. SMEs, Cluster, and Research Infrastructure). Some specific examples were discussed during the Peer Review, however the overarching concern is that the definitions of the regulation 651/2014 needed further clarification (see Annex 4) .
Implications for RIS3 implementation	There are unsolved ambiguities in the RIS3 guidelines and ERDF regulations as far as State Aid is concerned. To ensure that the EDP is duly reflected in the calls for proposals requires further clarity on how to proceed when the State Aid Regulation applies. This uncertainty also delays the implementation of RIS3.
Actions taken	During the Peer Review the REMTh MA has engaged with the State Aid Unit of the central government as well as representatives from DG COMP. Whilst some doubts were clarified, many uncertainties remained and, in the absence of further guidelines from DG COMP and DG REGIO, the Greek National Coordination Authority has needed to interpret the regulation based on their experience. A national document with Guidance for state aid in RIS has been developed and is going to be distributed to the Managing Authorities shortly. This includes indications on how to issue calls. The REMTh preparatory action was instrumental to this development, somehow accelerating the learning process and providing input for the development of prototype calls.
Future steps	Guidance will be distributed shortly.

Capacity building for RDTI policy	
Description of the issue	It is the first time that responsibilities for RTIDI policy have been placed at the regional level.
Implications for RIS3 implementation	As the region needed to build capacity, the RIS3 development needed a learning phase.
Actions taken	The region has been proactive in its interaction with the central government and the EC (JRC-IPTS) undergoing a strong learning process to familiarise with the RIS3 concept and practice as well as with RTDI policies. The region has hence improved considerably its capacity.
Future steps	To sustain and build on the learning process, following up on the activities started during the preparatory action. These include: setting up the governance structure and implementing the actions devised by the Human Resources working group, sustaining the EDP and promoting networking for businesses, universities and policy makers.

Transitional RIS3 governance structure at the regional level	
Description of the issue	The region has a preliminary governance structure in place, however, this cannot be finalised because **Law 4310/2014,** establishing the Regional Councils for Research and Investment (which would be an element in the governance system), is currently under review.
Implications for RIS3 implementation	The MA has so far taken responsibilities for the RIS3 governance and development (not last by managing the preparatory action) which go beyond its remit of managing the funds and beyond the human resources available.

	Without a dedicated governance structure, the RIS3 may lose its long-term developmental nature and be confined to the administration of ERDF funds for TO1, for which the MA is responsible.
Actions taken	The MA has, throughout the RIS3 development and with the support of the preparatory action, addressed the design of the governance structure. The proposed system comprises the entire quadruple helix and stakeholders are aware of their role and the need for them to be proactive once the system is in place.
Future steps	Whilst waiting for the review of law 4310/2014, the region will proceed to set up the governance structure under the current legal framework and implement any necessary change once the law is revised. Another key element is the implementation of an appropriate monitoring system with relevant indicators to confirm and /or call for a change of the RDI strategic choices of the Region. DG REGIO, responding to the needs of stakeholders, has planned a seminar in early 2016 addressing these issues.

Delayed formal governance structure at the national level	
Description of the issue	The national RIS3 strategy defines the governance at the Greek level. As the strategy has only recently been approved, the appropriate governance system is currently being formalised.
Implications for RIS3 implementation	In the past months, the lack of governance structure at the National level may have made it difficult to identify key interlocutors and define answers to implementation questions for REMTh.
Actions taken	Whilst the formal governance structure was not yet in place, informally it has been possible for REMTh to interact with the key relevant actors at the National level. Furthermore, some of the lower-level elements of the governance structure, such as the *Sectoral and Regional Network of OPs for Smart Specialisation*, have been active for some time. Likewise, the National Council of the RIS3 –which is at the top level of the governance structure- has been established since July 2015 and its first meeting was held also in July
Future steps	As the strategy has been approved the governance system will be fully implemented shortly. Another key element is the implementation of an appropriate monitoring system with relevant indicators to confirm and /or call for a change of the RDI strategic choices of the country.

Need to ensure strategic dialogue between governance bodies and MAs of different ESIF funds – especially Rural and Fisheries Fund and ECT	
Description of the issue	The National Coordination Authority, defined by Law 4314/2014, has the mission to link the relevant national and regional authorities with the appropriate European Commission bodies, to coordinate the activities of the relevant bodies set at the national and regional levels and promote the harmonised implementation of the EU and the Greek law. It is critical that such coordination among OPs is implemented strategically. In the case of REMTh it is especially important for RIS3 to exploit synergies with Rural and Fisheries Fund and various ETC programmes. Indeed the ETC programmes have taken into consideration

	the priorities of the regions concerned and they have included innovation to their operations related to entrepreneurship (furthermore, the case studies developed by JRC- IPTS – Annex 11, exemplify some preparatory action-based potential synergies). Formally, each MA of a ROP is the member of the Programme Committee for relevant ETC programmes. However, so far an explicit discussion to exploit synergies has not taken place. In pursuing such synergies, however, it must be noted that the funds of the ROP and of the ETC programmes are of very different order of magnitude (the ROP being significantly smaller).
Implications for RIS3 implementation	Rural and Fisheries Funds are related to the Agro-food sector which is fundamental priority for all the Greek Regions. The smooth collaboration and coordination with these Funds is key for the successful implementation of RIS3. The ETC programmes offer the opportunity to think internationally and benefit from international networks. At the same time, the funds are easier to access than for other EU funds (such as H2020). They can significantly help enhancing the RIS3.
Actions taken	Whilst no formal structure is in place, informally, the REMTh MA has participated in meetings of ETC Operational Programmes.
Future steps	The Operational Programmes for Rural development and Fisheries need to be approved by the Commission before starting delivering related actions. OP Fisheries was approved in October 2015 while the Rural is delayed. The importance of an international outlook for the region cannot be overstated. It is suggested that once the governance system is in place, the relevant bodies explore opportunities for interaction and synergies with ETC Managing Authorities.

Communication with the EC	
Description of the issue	The MA felt that the requirements for approval set by the European Commission were not always communicated clearly. This made it difficult to address EC comments and requests.
Implications for RIS3 implementation	The approval of the RIS3 required several interactions.
Actions taken	Throughout the Preparatory Action the region and various parts of the European Commission have had the opportunities to discuss and clarify various issues.
Future steps	The learning process occurred throughout the Preparatory Action and the increased familiarity with EC institutions and modes of work will hopefully facilitate communication between REMTh and the EC in the future.

Tax Legislation	
Description of the issue	A crucial issue is related to tax legislation. Companies that have debts with the tax authority (which are the vast majority), whilst eligible to receive public money, would first need to refund the tax debt should they be beneficiaries of any ERDF funding.
Implications for RIS3 implementation	This generates a vicious cycle, which is very difficult to solve and which hampers the potential development of RIS3.
Actions taken/Future Steps	The issue is currently beyond the remit of the region. It is nevertheless suggested to explore how other countries are addressing similar issues.

Other challenges	
Description of the issue	There is some history of lack of trust-building among stakeholders, putting high pressure on the current exercise to succeed in order to maintain the trust that has been created. There is a limited culture of collaboration between businesses and researchers inside the region which also hamper international collaboration. Last but not least, the region –as well as Greece as a whole- is facing a very complex and unstable economic time. The environment is not favourable to investment and to business practice in general.
Implications for RIS3 implementation	Due to the current situation, the challenges faced by local stakeholders in their day-to-day business are paramount and, whilst put pressure and expectation on the success of RIS3 as an exercise also hamper its development. In this context, the opportunities offered by internationalisation and collaboration, become even more important.
Actions taken	The preparatory action has promoted of a culture of internationalisation as well as collaboration among stakeholders.
Future steps	Once the governance for RIS3 is in place, the Regional Council for Innovation and Entrepreneurship should reflect on ways to increase participation in international consortia, especially in RIS3 priority areas.
Actions taken	The preparatory action has promoted of a culture of internationalisation as well as collaboration among stakeholders. Regarding human resources the Mobility Working Group has devised an action plan for the short, medium and longer term.
Future steps	Once the governance for RIS3 is in place, the Regional Council for Innovation and Entrepreneurship should reflect on ways to increase participation in international consortia, especially in RIS3 priority areas, and monitor the implementation of the Mobility Roadmap.

5. Conclusions: the way forward

5.1 CONCLUSIONS FOR THE REGION OF EASTERN MACEDONIA AND THRACE

To conclude, the various activities of the preparatory action have formed an important and valuable exercise in trust building, understanding and commitment towards RIS3.

Over its 15 month duration, the preparatory action has developed an enhanced understanding of the realities of the RIS3 process, and how it relates to the political and economic context, at regional, national and EU levels. The focus groups and subsequent preparatory action development labs have been important for the mobilisation and engagement of regional stakeholders to explore opportunities, gaps and barriers. It has also been very much a shared learning process, through which to catalyse closer collaboration and build trust in the stakeholder community with concrete outcomes. This has contributed to the development of a codified methodology to support EDP, for wider replication and adaptation.

The end of the preparatory action marks the beginning of a new phase for the RIS3 in REMTh, one in which the challenges identified need to be dealt with and the RIS3 finally deployed through the implementation of the governance system, the human resources mobility actions and the calls for proposals. In so doing, it is also necessary to implement an appropriate monitoring and evaluation system, building on the results of the preparatory action and on the discussions taking place during the Peer Review. Appropriate regional indicators should be identified and monitored to help understand the evolution of RIS3 and guide all stakeholders in subsequent steps of implementation.

The challenges identified above, need to be dealt with by all stakeholders involved. Chambers of commerce and universities need to become more proactive in sustaining the EDP and ensuring the broadest participation in the process, including civil society and social organisations. This requires, as pointed out during the final events, sustained efforts in intelligence building from the business sector aimed at knowing in more depth its members and its capacities.

At the level of RIS3 governance, it is critical, also according to stakeholders, to identify mechanisms to generate and disseminate new ideas over and beyond those discussed in the focus groups. More generally, the governance system should ensure that the RIS3 approach is internalised and mainstreamed. This should also lead to an increased financial involvement of private funds in research and innovation activities, through the appropriate provisions of incentives and risk-sharing.

It is anticipated that the new regional governance structure will deal with these aspects and identify appropriate mechanisms. With regards to internationalisation, the region can now benefit from a wider network, but steps still need to be taken towards a fully international research and innovation ecosystem. Such internationalisation can focus on research, innovation and marketing activities of stakeholders, as well as on alignment of strategies with other regions, nations or cities and possibly move towards jointly programming those activities internationally.

Within this context, it is important for the region to maximise the impact of Key Enabling Technologies. The development of a synergetic Digital Agenda for Growth is a prime example for the region, where business density is lower.

At the national level, it is desirable that clarifications on the legal framework unblock the possibility for regions to issue calls, together with more clear guidelines, from the EC, on State Aid regulation.

A final caveat is that the preparatory action did not explicitly address the implications of the current financial situation (capital controls, heavy taxation and difficulties in access to finance) on RIS3. This creates uncertainty about the future which should be adequately tackled in future activities.

Box 2: Key recommendations for an effective RIS3 Implementation

- Build on **existing innovation capacity and infrastructure**, identifying unexplored opportunities that such assets may have.
- **Sustain the EDP process** throughout the programming cycle, establishing feedback channels among stakeholders in the quadruple helix and focussing on value-chains rather than sectors.
- Identify mechanism **to feed stakeholders' engagement back to policy**, avoiding that technical bottlenecks jeopardise stakeholders' participation, this is critical to **build trust and give legitimacy** to the whole process.
- Ensure that the opportunities offered by **Internationalisation and Collaboration** are not missed. This can be done by sharing experiences of international experts, reflect on relevant international consortia and networking platforms and invite stakeholders to reflect on and apply to other EU funds. The case studies developed within the preparatory action provide relevant examples.
- **Internationalisation** must also be pursued in terms of **market outlets**: it is critical to understand the commercial potential of innovations in the region.

5.2 CONCLUSIONS FOR OTHER GREEK REGIONS AND LESS DEVELOPED EU REGIONS

REMTh as well as national level actors can continue to play a leading role in advancing the RIS3 process in Greece, benefitting, in turn, other regions though mutual learning activities. Relevant topics for such activities include the translation of EDP ideas and priority areas into efficient calls for proposals, the identification of other instruments that could complement such calls, the establishment of an ongoing and sustainable EDP process as well as a monitoring and evaluation system.

The activities of the preparatory action are particularly relevant for "low density economies," such as more rural areas. These areas offer specific opportunities and development trajectories, and also require strong support as stakeholders are fewer, with and less developed structures that favour interaction.

The Preparatory Action has resulted in a first version of a toolbox of approaches for RIS3 implementation that have been tested in REMTh. This toolbox will continue to serve this region as well as other regions in Europe. This will offer scope for further testing of existing tools as well as the creation of new tools to complement the toolbox. Possible areas in which further tools could be developed include:

- tools and approaches that support increased internationalisation of the regional research and innovation ecosystem
- approaches to implement an ongoing EDP processes and for ongoing stakeholder engagement
- tools supporting the acquisition of new skills and competences

- approaches for monitoring and evaluation of RIS3
- common approaches to address common barriers, for example in the area of state aid, and in alignment between national and regional level RIS3 activities.

5.3 CONCLUSIONS FOR ADVANCING THE THEORY ON SMART SPECIALISATION

The hands-on approach taken for the implementation of this Preparatory Action, as well as the flexibility to adapt methodologies to local needs and context, have resulted in a wide set of lessons on the details of implementing regional smart specialisation strategies. Methodological lessons have already partially been codified in a number of publications, and can be of benefit to both less developed regions that have failed to restructure their economy in the past in spite of considerably investments, as well as to all regions that face difficulties in implementing RIS3 as a new and largely unknown governance approach.

Annex 1 Regional Profile on Eastern Macedonia and Thrace

This annex summarises the data and metadata collection activities and sources used to profile the region. It includes:

- The report *S&T & FP7 Facts & figures,* which provides statistical and financial information relating to the use of FP7 and structural funds dedicated to Research and innovation during the financial period (2007-2013). This allows the identification of specialisation areas emerging from FP7 participation and examines their correspondence with RIS3 priorities.
- The report *Review and Summary of the RIS3 in the Region of Eastern Macedonia and Thrace,* which was commissioned from the consulting company Innovatia Systems at the beginning of the preparatory action. The report also contains a reference/bibliography session with other relevant reference material.

S&T & FP7 Facts & figures

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Introduction

Main purpose of the document

The main aim of this document is to draw the European profile of a region with statistical and financial information coming from the EU 7th framework programme and Structural funds dedicated to Research and innovation during the previous financial period (2007-2013). Other information is used in support of this aim. The document is guided by the following questions:

- What the overall position of the Region within the country in terms of FP7 budget captured and Structural funds dedicated to R&I managed at regional level?
- What are the specialisation areas emerging from FP7 participation? Are they corresponding with areas chosen in the smart specialisation strategy (S3)?
- What are the main R&I stakeholders involved in EU programmes? Is there a regional specificity compared to national and European level?
- What are the main European collaboration axes of the Region in the EU framework programme?

The document should provide to regional (or national) authorities and the European Commission relevant and useful information to facilitate the creation of synergies between structural funds dedicated to research and innovation and the Horizon 2020 programme.

The document is divided in four sections: (1) the keys messages coming from the direct interpretation of tables and figures provided in the following sections, (2) the main regional characteristics, (3) the regional specialisation areas, and (4) the Characterization of regional organisations participating in the FP with the identification of the key regional players and the main European organisations collaborating with the region.

Source of information

The regional macro-economic indicators are provided by Eurostat. Regional specialisation areas and structural closeness are extracted from the S3 platform. The FP7 related information comes from the last updated FP7 contracts database (June 2014) provided by DG RTD J5. The information about ERDF is provided by DG REGIO database.

Key messages

Overall economic performance of the region by comparing macro-economic indicators, FP7 and ESIFs indicators

EU programme participation typology

Specialisation areas

Beneficiaries profile including SME participation

Main regional collaboration axis and structural comparison between the targeted region and other European regions

Main regional characteristics

1.1 General macro-economic indicators

Table 1 demonstrates some selected macro-economic variables appertaining to the research and development activities, including the R&D expenditure and number of full time equivalent research personnel by different sectors. While the significant gap between EU15 and EU13 Member States is observable in this table, it also provides a general comprehension on the position of the region and MS in the European geography.

Table 1 General macro-economic indicators of the region in 2010* (Table to be completed)

	Eastern Macedonia and Thrace	Greece	EU13**	EU15	EU28
Population	610,112	11,123,392	105,929,360	397 449 945	503,379,305
GDP - Euro per capita	16,200	17,400	9,557	29200	25100
GDP - Euro per capita in % of EU average	64	87	38	116	100
R&D expenditure – Total (million Euro)	46.25	1,391.16	9,500.46	238,111.48	246,915.39
R&D expenditure – Total [% of GDP]	0.56	0.60	0.94	2.02	2.00
R&D expenditure - Business Enterprise Sector (BES) [% of GDP]	0.17	0.23	0.44	1.26	1.24
R&D expenditure - Government Sector (GOV) [% of GDP]	0.05	0.16	0.23	0.25	0.26
R&D expenditure - Higher Education Sector (HES) [% of GDP]	0.35	0.27	0.24	0.49	0.47
R&D expenditure - Private non-Profit Sector (PnP) [% of GDP]	0	0.01	0.004	0.02	0.02
R&D Personnel*** – Total (% of active population)	0.58	0.73	0.56	1.18	1.06
R&D Personnel – BES (% of active population)	0.07	0.13	0.18	0.64	0.54
R&D Personnel – GOV (% of active population)	0.04	0.19	0.15	0.15	0.15
R&D Personnel – HES (% of active population)	0.48	0.42	0.23	0.38	0.35
R&D Personnel – PnP (% of active population)	0	0.01	0.002	0.01	0.01
Unemployment Rate	14.5	12.7	9.9	9.50	9.60

Source: Compiled and calculated by using Eurostat 2010
* 2011 is used if data is not available for 2010.
** As EU13 indicators are not available in the data sources, the values are calculated over national statistics provided by Eurostat 2010.
*** R&D personnel refer to the number of full time equivalent R&D personnel.

1.2 Main EU funding targeting Research and Innovation received by the region

1.2.1 Breakdown of the main EU funding received by Regions

The data in **Table 2** is for FP7 and the Structural Funds 2007-2013. The FP7 data represents the total EC contribution to projects for each NUTS2 region in Poland. The information is from the contract database for FP7 and it represents funding to beneficiaries in the regions for projects that have been successfully evaluated. The table is ranked by the first region being the one with the largest contribution from FP7.

The data on structural funds is from the Annual Implementation Report (AIR)[1] for 2013 and represents the EU support allocated to selected projects. The values presented in Table 1 are only for priority themes that represent research and technological development, innovation and entrepreneurship (RTDI) as described in the Official Journal[2]. It should be noted that these values do not represent the funding available, only the total allocated to projects at the time of the 2013 AIR.

It is notable that more than 50% of the funds allocated to projects were managed at the national level rather than the regional level.

Table 2 Regional breakdown of FP7 EC contribution received by the country

Nuts 2 Region	FP7 EC contribution (in €Mln)	% of the national total	Structural funds (in €Mln)	% of the national total
Attiki (EL30)	579.88	58.3%	899.64	20.9%
Kentriki Makedonia (EL12)	142.31	14.3%	762.95	17.7%
Kriti (EL43)	135.33	13.6%	335.74	7.8%
Dytiki Ellada (EL23)	78.91	7.9%	290.41	6.7%
Thessalia (EL14)	16.08	1.6%	219.13	5.1%
Ipeiros (EL21)	12.10	1.2%	247.83	5.8%
Anatoliki Makedonia, Thraki (EL11)	9.44	0.9%	297.32	6.9%
Sterea Ellada (EL24)	8.82	0.9%	282.55	6.6%
Voreio Aigaio (EL41)	6.48	0.7%	136.45	3.2%
Peloponnisos (EL25)	2.78	0.3%	342.42	8.0%
Dytiki Makedonia (EL13)	1.64	0.2%	132.27	3.1%
Ionia Nisia (EL22)	0.19	0.0%	191.82	4.5%
Notio Aigaio (EL42)	0.15	0.0%	167.59	3.9%
Total	994.10	100.0%	4306.13	100.0%

(Source: EC FP7 contract database June 2014 and Annual Implementation Report (AIR) for 2013)

1.2.2 The region in the FP7[3]

Table 3 General FP7 indicators (Source: EC FP7 contract database June 2014)

[1] The Annual Implementation Reports are progress reports produced by the Structural Fund managing authority they monitor information on (1) allocations decided, (2) amounts allocated to projects and (3) the core indicators used for ERDF and Cohesion Fund.

[2] See Annex IV in Council Regulation (EC) No 1083/2006 available at http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32006R1083&from=EN

[3] The ''Headquarter effect '' in the FP7 contract database can be an important issue for Regions (especially in the most centralized countries). If available, the location of a research department has been used as the “true” location if this differs from the headquarter location.

	Eastern Macedonia and Thrace (% of national)	Greece (% of FP7)	UE13 (% of FP7)	UE15 (% of FP7)	FP7[4]
EC Contribution (in M€)	9.44 (0.95%)	994,1 (2.24%)	1 883,6 (4.2%)	37 852,2 (85.3%)	44 364,1
Number of participations	43 (1.16%)	3693 (2.79%)	10 637 (8.0%)	105 731	132 382
Number of coordinations	7 (1.06%)	659(2.63 %)	1 011(4.0%)	20 301	25 052
EC contribution per inhabitant (in €)	15.6	90.4	17.8	95.2	78.9 (UE28)

Figure 1 Share of FP contribution received between 2007 and 2014 (Source: data FP6 and FP7 contract database-June 2014, processed by JRC-IPTS)

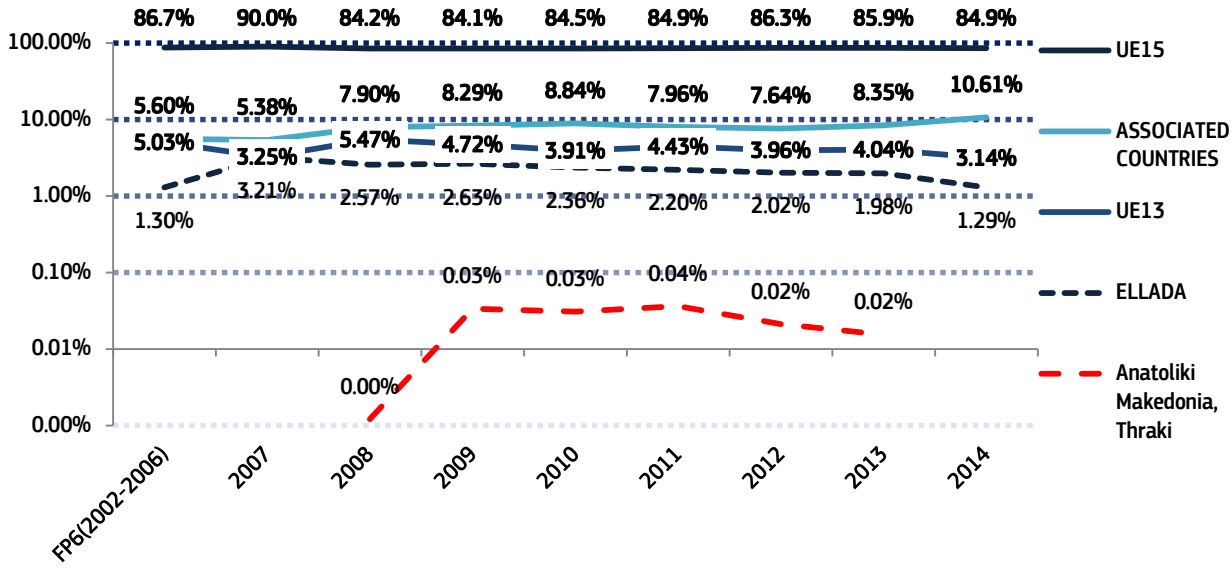


Figure 2 and Table 4 below show the difference between national and regional participation profile in terms of themes and FP7 specific programmes where the FP7 breakdown is taken as reference.

[4] EU28 and associated countries

Figure 2 Comparison of the EC contribution breakdown among FP7

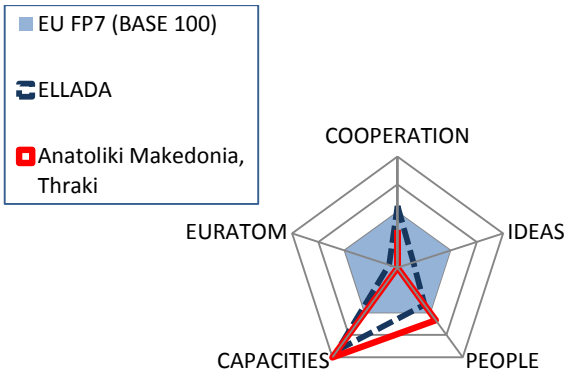


Table 4 Breakdown of the FP7 EC contribution among specific programmes

	% of EC CONTRIB		
	Anatoliki Makedonia, Thraki	ELLADA	FP7
COOPERATION	43,0%	70,4%	63,3%
IDEAS	0,0%	5,0%	16,7%
PEOPLE	12,6%	8,9%	10,7%
CAPACITIES	44,4%	15,6%	8,5%
EURATOM	0,0%	0,1%	0,8%
TOTAL	100,0%	100,0%	100,0%

1.2.3 Structural funds dedicated to Research and innovation in the region

Table 5 shows the estimated funds for the Eastern Macedonia and Thrace Regional Operational Programme dedicated to the priority themes identified as research and technological development, innovation and entrepreneurship (RTDI).

It should be noted that there are also funds from the national operational programmes that are directed to Eastern Macedonia, Thrace. However, the available information does not currently allow us to identify the proportion of such funds allocated to specific regions or themes.

Table 5: Estimated funding dedicated to Research and innovation in the Eastern Macedonia, Thrace regional OP for 2007-2013

Priority code	Priority theme	In M€	%
3	Technology transfer and improvement of cooperation networks	30.5	6.1%
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	9.9	2.0%
5	Advance support services for firms and groups of firms	52.0	10.3%
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	3.7	0.7%
7	Investment in firms directly linked to research and innovation	48.7	9.7%
8	Other investment in firms	31.1	6.2%
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	327.7	65.1%
	Total Research and innovation activities	**503.6**	**100.0 %**

(Source: Eastern Macedonia and Thrace Regional Operational Programme for 2007-2013)

Regional specialisation areas

1.3 Specialisation areas chosen in the smart specialisation strategy for the period 2014-2020

The following tables show the specialisation areas chosen by Eastern Macedonia and Thrace in the design of their smart specialisation strategy. Based on information that regional and national authorities submit to the Eye@RIS3[5] database the following related information is added:

- the regional capability for the priority;
- the target market that will be addressed; and
- the EU priority to which this specialisation area connects.

Capability and market categories are based on NACE[6] sectoral codes. Often these capability and market categories overlap, as is the case in for Eastern Macedonia and Thrace but this is not always the case as can be seen for Poland. Any subcategories were combined with the main category.

Table 6 Specialisation areas chosen in the smart specialisation strategy of Eastern Macedonia, Thrace

Description of chosen specialisation area	Identified capability and target market	EU priority connected to
Agriculture, nutrition	Agriculture, forestry & fishing	Sustainable innovation
Tourism, sustainability	Tourism, restaurants & recreation	Nature & biodiversity
Manufacturing technologies, KETs, ICTs	Manufacturing & industry	Key Enabling Technologies (KETs)

(Source: S3 web platform http://s3platform.jrc.ec.europa.eu/eye-ris3 - extracted on 04/12/2014)

The Eye@RIS3 does not currently have information related to specialisation areas for Greece. However, it should be noted that Greece does have national operational programmes for Entrepreneurship Competitiveness and Innovation, and Transport, Environment, Sustainable Development.

1.4 Regional & national specialisation indication through the participation in FP7 for the period 2007-2014

In the innovation Union progress report published in 2014[7], the science and technology classifications were matched with FP7 thematic priorities thereby offering the possibility of further analysis of co-developments of science and technologies at the EU and national level. We choose here to follow the same taxonomy in order to offer the reader the possibility to compare easily specialisation information provided by the IU progress report and those provided in this report.

The following table shows the participation breakdown by EC contribution among research

[5] http://s3platform.jrc.ec.europa.eu/eye-ris3

[6] http://epp.eurostat.ec.europa.eu/portal/page/portal/nace_rev2/introduction

[7] http://ec.europa.eu/research/innovation-union/pdf/state-of-the-union/2014/iuc_progress_report_2014.pdf#view=fit&pagemode=none
FP7 participations can be analysed with regard to specialisation indicators provided with bibliometric and patents indicators provided in the Innovation Union progress report (only) at national level.

areas. Correspondence with specialisation areas chosen by the region and countries in their Smart specialisation strategy is shown in the last column according to JRC-IPTS interpretation. Some specialisation areas chosen by the region or country can be too generic or on the contrary too specific with regard to the taxonomy used. In this case, we consider the research area not being fully covered by S3 strategy.

yes = Research area fully included into S3 priority definition;

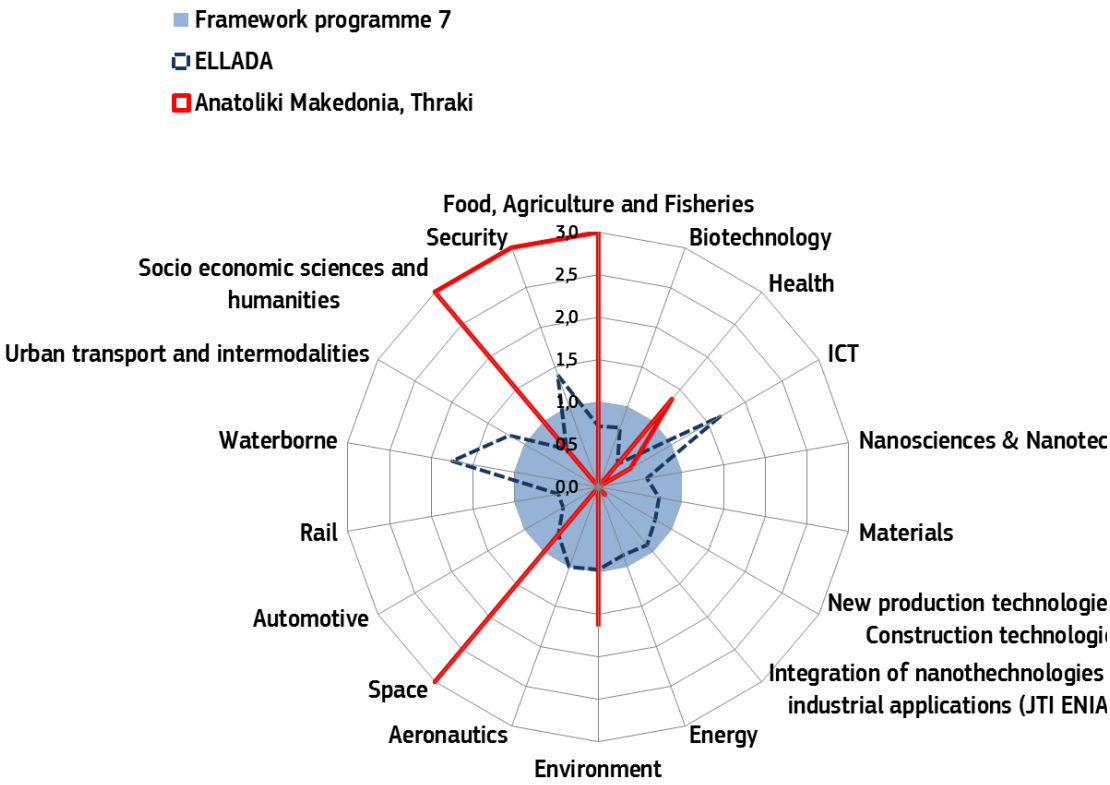
yes partially= Research area only partially included into S3 priority definition (S3 priority definition do not cover the full scope the research area).

Table 7 General assessment of the participation of the region in the FP7 themes and activities and correspondence with specialisation areas of S3

Research area	EC CONTRIBUTION (in Mln€)	S3 Priority
Food, Agriculture and Fisheries	0,48	
Biotechnology	0,00	
Health	1,10	
Information & communication technologies (ICT)	0,51	
Nanosciences & Nanotechnologies	0,00	
Materials	0,00	
New production technologies (incl. Construction technologies)	0,00	
Integration of nanotechnologies for industrial applications (JTI ENIAC Incl.)	0,03	
Energy	0,00	
Environment	0,41	
Aeronautics and Space	0,00	
Space	0,76	
Automotive	0,00	
Rail	0,00	
Waterborne	0,00	
Urban transport and intermodalities	0,00	
Socio economic sciences and humanities	0,19	
Security	0,58	
TOTAL COOPERATION	**4.06**	
TOTAL COOPERATION related to S3 priorities	**0**	

(Source: data: FP7 contracts database-June 2014, processed by JRC-IPTS)

Figure 3 S&T specialisation areas according to the EC contribution received by FP7 participants



(Source : data: FP7 contracts database-June 2014, processed by JRC-IPTS)

Table 8 Budget breakdown among themes (Figure 3 is only the graphical interpretation of this table)

Research area	EL11	EL	FP7
Food, Agriculture and Fisheries	11,8%	3,3%	4,6%
Biotechnology	0,0%	1,5%	2,0%
Health	27,0%	7,0%	20,0%
ICT	12,5%	47,2%	28,5%
Nanosciences & Nanotechnologies	0,0%	1,6%	2,8%
Materials	0,0%	2,0%	2,7%
New production technologies (incl. Construction technologies)	0,0%	1,4%	1,8%
Integration of nanothechno. for industrial applications	0,8%	5,5%	6,2%
Energy	0,0%	6,5%	7,6%
Environment	10,0%	6,1%	6,2%
Aeronautics	0,0%	3,7%	3,6%
Space	18,8%	2,1%	2,8%
Automotive	0,0%	0,5%	1,0%
Rail	0,0%	0,3%	0,6%
Waterborne	0,0%	1,2%	0,7%
Urban transport and intermod.	0,0%	2,5%	2,1%
Socio economic sci and humanit.y	4,7%	1,2%	2,1%
Security	14,3%	6,4%	4,6%
	100,0%	100,0%	100,0%

EU funding users profile

1.5 FP7 beneficiaries profile

1.5.1 Participation profile by type of activity

Figure 4 shows graphically the difference between national (in dark blue) and regional (red line) participation profile by type of participant with the FP7 breakdown taken as the reference (in Base 100). We observe the difference in the distribution at country level and at regional level. **Table 9** complements the figure comparing the breakdown of FP7 contribution among the participant typology for the region, the country and the whole FP7 participants.

Figure 4 Comparison of the EC contribution breakdown by type of participant between FP7 profile (in base 100), national profile and regional profile

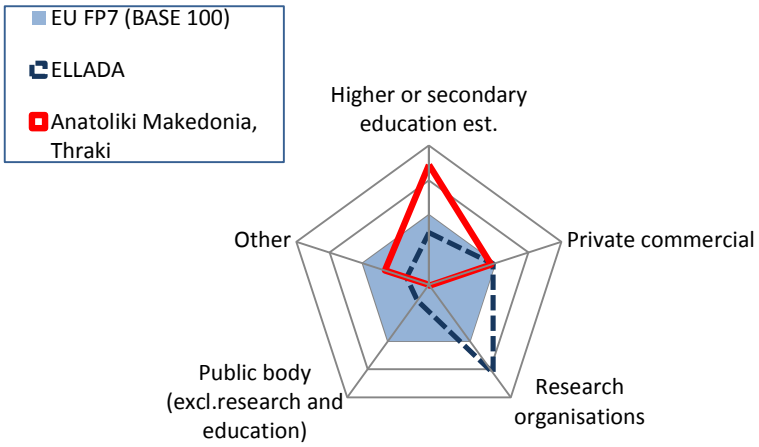


Table 9 Breakdown of the FP7 EC contribution

	% of EC Contribution		
	Anatoliki Makedonia, Thraki	ELLADA	FP7
Higher or secondary education est.	74,9%	32,6%	43,5%
Private commercial	23,1%	23,8%	24,7%
Research organisations	0,4%	42,1%	26,9%
Public body (excl.research and education)	0,0%	0,7%	2,6%
Other	1,5%	0,8%	2,3%
	100,0%	100,0 %	100%

FP7 SME Participation

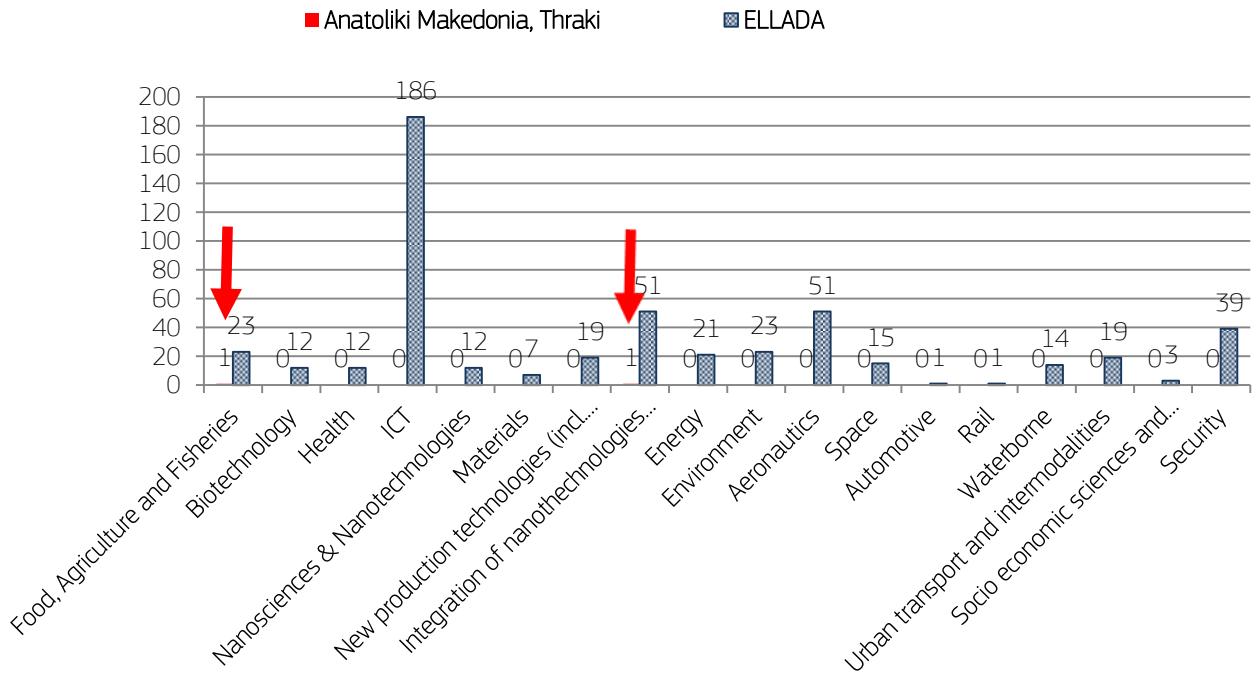
The section shows the participation of regional SMEs in the FP7 cooperation programme and other activities and compares figures with the national level.

Table 10 General indicators about SME participation in the FP7 Cooperation programme

	Anatoliki Makedonia, Thraki	ELLADA	FP7
EC Financial Contribution-COOPERATION	0,04 (1%)	84,44 (12,1%)	2560,42 (9,1%)
Number of SME participation-COOPERATION	2 (9,5%)	354 (14,2%)	9483 (10,9%)
Number of SME coordination-COOPERATION	0 (0%)	28 (10%)	555 (7,1%)

(Source : data: FP7 contracts database-June 2014, processed by JRC-IPTS)

Figure 5 Number of SMEs in FP7 research themes



(Source : data: FP7 contracts database-June 2014, processed by JRC-IPTS)

1.6 1.1 FP7 Main regional collaboration axis and stakeholder analysis

1.6.1 From a territorial perspective

The map below shows the European regions (at NUTS 2 level) collaborating the most with Eastern Macedonia and Thrace in the FP7. **Table 11** shows the list of the first regions collaborating with Eastern Macedonia and Thrace. The figure represents the number of project where at least one participant from Eastern Macedonia and Thrace collaborates with at least one participant from the other region.

Figure 6 Origins of organisations collaborating with Eastern Macedonia, Thrace (EL11) in FP7 thematic activities

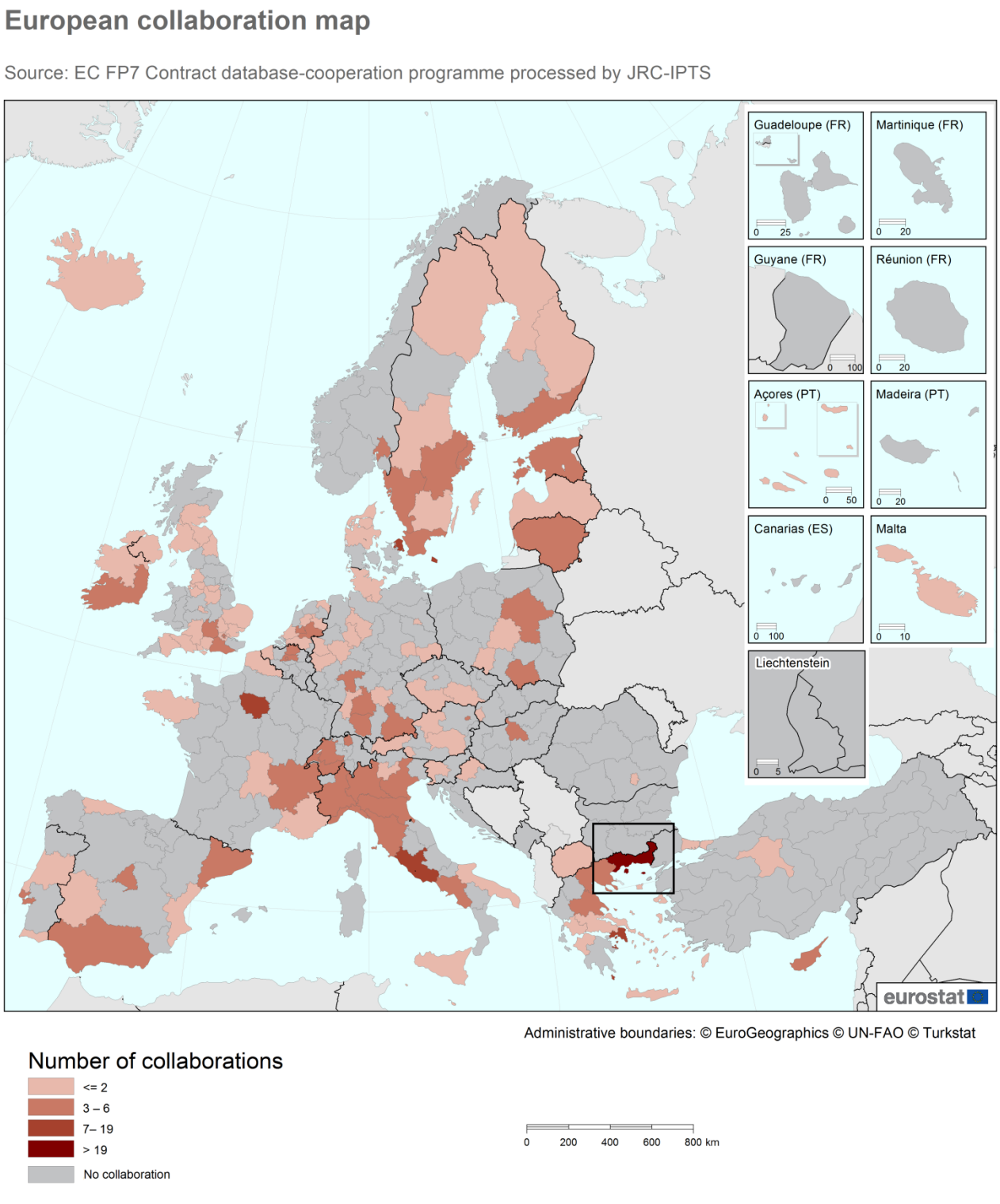


Table 11 The closest EU region from Eastern Macedonia and Thrace (EL11) in the FP7 cooperation programme

Rank	NUTS2 CODE	Name	NB of Collaborations
1	EL11	Anatoliki Makedonia, Thraki	41
2	EL30	Attiki	19
3	FR10	Île de France	13
4	ITE4	Lazio	9
5	DK01	Hovedstaden	9
6	NL31	Utrecht	6
7	HU10	Közép-Magyarország	6
8	ES51	Cataluña	6
9	UKJ1	Berkshire, Buckinghamshire and Oxfordshire	6
10	FI18	Etelä-Suomi	6
11	UKI1	Inner London	5
12	IE02	Southern and Eastern	5
13	DE21	Oberbayern	5
14	CH04	Zürich	5
15	ITC4	Lombardia	5

Structural proximity

The collaboration profile presented in Figure 6 is one way to identify related regions. Another method is to consider structural similarities. **Table 12** presents the regions in EU countries outside Greece that are structurally similar to Eastern Macedonia and Thrace (EL11). This information is taken from the Benchmarking Regional Structure interactive tool on the Smart Specialisation Platform. The lower the Distance Index the closer the region is to the reference region. The elements used to determine the structural distance between regions are based on those that may be suitable for the benchmarking requirement to develop a regional RIS3. The elements included grouped into broad dimensions, as follows:

- Geo-demography;
- Educational level of human resources;
- Technological specialisation;
- Sectoral structure;
- Firm size;
- Openness; and
- Institutions and values.

It allows for the identification of structurally similar regions as when learning lessons through regional benchmarking it is better to compare homogenous regions[8]. In **Table 12** the regions in Greece are not shown as the greatest added value is considered to be identification of structurally close regions outside Greece to allow Eastern Macedonia and Thrace regional actors to identify non-Greek regions that they are less familiar with.

A rationale for developing the structural distance index was to avoid selecting regions for regional benchmarking based on their high performance[8]. However, having selected based on structural similarity a next step could be to introduce performance by selecting a structurally similar region whose success relative to Eastern Macedonia, Thrace could provide lessons.

[8] Further details available in "Regional benchmarking in the smart specialisation process: Identification of reference regions based on structural similarity", S3 Working Paper Series No. 3, available at http://s3platform.jrc.ec.europa.eu/documents/10157/9bee7453-1e96-4079-8d41-c6a5ab2d3e09

Table 12 The nearest structurally similar non-Greek regions to Eastern Macedonia and Thrace (EL11)

Rank	Country	NUTS code	Region name	Distance index
1	Portugal	PT18	Alentejo	0.0233
2	Italy	ITF6	Calabria	0.047
3	Italy	ITF2	Molise	0.0475
4	Spain	ES43	Extremadura	0.0514
5	Italy	ITF5	Basilicata	0.0518
6	Bulgaria	BG32	Severen tsentralen	0.0531
7	Bulgaria	BG42	Yuzhen tsentralen	0.0539
8	Spain	ES42	Castilla-La Mancha	0.0551
9	Hungary	HU33	Del-Alfold	0.0559
10	Italy	ITG1	Sicilia	0.0579
11	Slovenia	SI01	Vzhodna Slovenija	0.0585
12	Romania	RO21	Nord-Est	0.0592
13	Portugal	PT16	Centro (P)	0.0595
14	Romania	RO22	Sud-Est	0.0601
15	Italy	ITG2	Sardegna	0.0611
16	Italy	ITF1	Abruzzo	0.0621
17	France	FR63	Limousin	0.0629
18	Hungary	HU23	Del-Dunantul	0.0632
19	France	FR25	Basse-Normandie	0.0633
20	Poland	PL34	Podlaskie	0.0648

(Source: 2014 Orkestra - Instituto Vasco de Competitividad & S3 Platform (IPTS) available at: http://s3platform.jrc.ec.europa.eu/regional-benchmarking-tool)

1.6.2 From a stakeholder perspective

Table 13 shows the organisations most frequently collaborating with organisations based in Eastern Macedonia and Thrace in the FP7 cooperation programme. **Table 14** shows the leading organisations based in Eastern Macedonia and Thrace in the FP7 cooperation programme.

Table 13 the first organisations collaborating with organisations based in Eastern Macedonia and Thrace (EL11) in the FP7

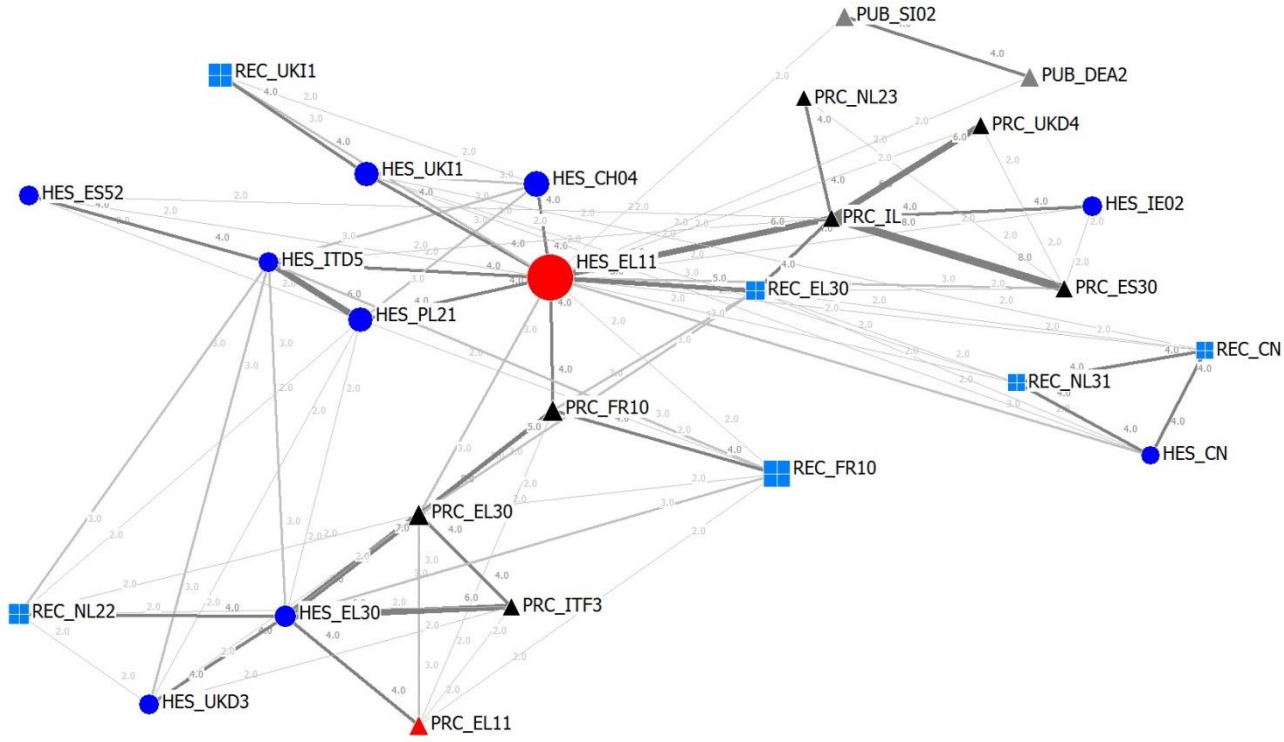
LEGAL_NAME	Theme	TYPE	NUTS 2	PARTICIPATIONS
AGRICULTURAL UNIVERSITY OF ATHENS	Research for the benefit of SMEs	HES	EL30	2
ATEKNEA SOLUTIONS HUNGARY KFT	Research for the benefit of SMEs	PRC	HU10	2
CSEM CENTRE SUISSE D'ELECTRONIQUE ET DE MICROTECHNIQUE SA - RECHERCHE ET DEVELOPPEMENT	Research for the benefit of SMEs	REC	CH02	2
D'APPOLONIA SPA	Research for the benefit of SMEs	PRC	ITC3	2
Federation de l'Industrie Marbriere er de l'industrie Granitiere de la CEE - AISBL	Research for the benefit of SMEs	OTH	DE71	2
RTD TALOS LIMITED	Research for the benefit of SMEs	PRC	CY00	2
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS FAO	Food, Agriculture, and Biotechnology	PUB	ITE4	2
HELLINIKOS GEORGIKOS ORGANISMOS - DIMITRA (HELLENIC AGRICULTURAL ORGANIZATION - DEMETER)	Food, Agriculture, and Biotechnology	HES	EL30	2
REGION HOVEDSTADEN	Health	PUB	DK01	2
TECHNISCHE UNIVERSITAET DRESDEN	Health	HES	DED2	2
UNIVERSITA DEGLI STUDI DI ROMA LA SAPIENZA	Health	HES	ITE4	2
INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS	Information and Communication	REC	EL30	2

	Technologies			
INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM VZW	Information and Communication Technologies	REC	BE24	2
INTRACOM SA TELECOM SOLUTIONS	Information and Communication Technologies	PRC	EL30	2
THALES COMMUNICATIONS & SECURITY SAS	Information and Communication Technologies	PRC	FR10	2
HOGSKOLEN I OSLO OG AKERSHUS	Socio-economic sciences and Humanities	HES	NO01	2
TARTU ULIKOOL	Socio-economic sciences and Humanities	HES	EE00	2
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD	Socio-economic sciences and Humanities	HES	UKJ1	2
UNIVERSIDAD DE OVIEDO	Socio-economic sciences and Humanities	HES	ES12	2
UNIVERSITA DEGLI STUDI DI TORINO	Socio-economic sciences and Humanities	HES	ITC1	2
UNIVERSITA DEGLI STUDI DI TRENTO	Socio-economic sciences and Humanities	HES	ITD2	2
NATIONAL OBSERVATORY OF ATHENS	Space	REC	EL30	2
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH	Marie-Curie Actions	REC	CH01	2

Table 14 the first organisations based in Eastern Macedonia and Thrace (EL11)

LEGAL_NAME	Theme	TYPE	PARTICIPATIONS
DEMOCRITUS UNIVERSITY OF THRACE	Marie-Curie Actions	HES	6
Prisma Electronics ABEE	Research for the benefit of SMEs	PRC	6
DEMOCRITUS UNIVERSITY OF THRACE	Food, Agriculture, and Biotechnology	HES	3
DEMOCRITUS UNIVERSITY OF THRACE	Health	HES	3
DEMOCRITUS UNIVERSITY OF THRACE	Information and Communication Technologies	HES	3
Prisma Electronics ABEE	Marie-Curie Actions	PRC	2
DEMOCRITUS UNIVERSITY OF THRACE	Environment (including Climate Change)	HES	2
DEMOCRITUS UNIVERSITY OF THRACE	Security	HES	2
DEMOCRITUS UNIVERSITY OF THRACE	Socio-economic sciences and Humanities	HES	2
DEMOCRITUS UNIVERSITY OF THRACE	Space	HES	2
MARMARA LASKARIDI ANONYMI VIOMILHANIKI KAI EMPORIKI EMPORIKI ETAIRIA AE	Research for the benefit of SMEs	PRC	2
DEMOCRITUS UNIVERSITY OF THRACE	Research Potential	HES	2
PAPADOPOULOS APOSTOLOS SIA OE	Food, Agriculture, and Biotechnology	PRC	1
PERIFEREIAKI ENOSI DIMON ANATOLIKIS MAKEDONIAS THRAKIS	Food, Agriculture, and Biotechnology	OTH	1
Prisma Electronics ABEE	Joint Technology Initiatives (Annex IV-SP1)	PRC	1
ATHENA RESEARCH AND INNOVATION CENTER IN INFORMATION COMMUNICATION & KNOWLEDGE TECHNOLOGIES	Nanosciences, Nanotechnologies, Materials and new Production Technologies	REC	1
ALFA BETA ROTO A.B.E.E.	Research for the benefit of SMEs	PRC	1
DEMOCRITUS UNIVERSITY OF THRACE	Research for the benefit of SMEs	HES	1
UNION OF RURAL COOPERATIVE OF PERFECTURE OF XANTHI	Research for the benefit of SMEs	PRC	1
ATHENA RESEARCH AND INNOVATION CENTER IN INFORMATION COMMUNICATION & KNOWLEDGE TECHNOLOGIES	Research Infrastructures	REC	1

Figure 7 The most connected organisations[9] with organisations based in Eastern Macedonia and Thrace (EL11)



HES Higher or secondary education est.
REC Research organisations
PRC Private commercial
PUB Public body (excl.research and education)

BE10 Région de Bruxelles-Capitale / Brussels Hoofdstede
CH04 Zürich
CN China
DEA2 Köln
EL30 Attiki
ES30 Comunidad de Madrid
ES52 Comunidad Valenciana
FR10 Île de France
IE01 Border, Midland and Western
IL Israel
ITD5 Emilia-Romagna
ITF3 Campania
NL22 Gelderland
NL31 Utrecht
PL21 Małopolskie
SI02 Zahodna Slovenija
UKD3 Greater Manchester
UKD4 Lancashire
UKI1 Inner London

[9] The size of nodes depends of the Betweenness centrality measure.

Annexes

1. Participation in FP7 cooperation programme

Table 15 Detailed participation figures in FP7 research areas

	Eastern Macedonia and Thrace			Greece			FP7		
		EC contrib. (In €Mln)	Nbr of part.		EC contrib. (In €Mln)	Nbr of part.		EC contrib. (In €Mln)	Nbr of part.
TOTAL FP7		4,06	21		700,03	2 492		**27 902,29**	**85 994**
Health		1,10	3		49,13	149		**5 515,56**	**12 523**
Biotechnology, generic tools and medical technologies for human health	EL11	0,00	0	EL	14,30	39	FP7	**2 377,05**	**4 377**
High-throughput research	EL11	0,00	0	EL	0,58	2	FP7	157,93	306
Detection, diagnosis and monitoring	EL11	0,00	0	EL	4,21	9	FP7	272,30	577
Suitability, safety, efficacy of therapies	EL11	0,00	0	EL	1,39	3	FP7	117,78	204
Innovative therapeutic approaches and interventions	EL11	0,00	0	EL	0,76	4	FP7	457,80	833
Integrating biological data and processes: large-scale data gathering, systems biology	EL11	0,00	0	EL	4,38	12	FP7	647,92	1 190
JTI-IMI (Innovative Medicines Initiative)	EL11	0,00	0	EL	2,98	9	FP7	723,31	1 267
Translating research for human health	EL11	1,10	3	EL	22,99	67	FP7	**2 356,65**	**5 429**
Research on the brain and related diseases, human development and ageing	EL11	0,75	1	EL	4,03	11	FP7	518,12	1094
Translational research in major infectious diseases: To confront major threats to public health	EL11	0,00	0	EL	5,35	19	FP7	764,08	1751
Translational research in other major diseases	EL11	0,35	2	EL	13,60	37	FP7	1 074,45	2584
Optimising the delivery of healthcare to European citizens	EL11	0,00	0	EL	8,47	23	FP7	**399,06**	**1422**
Translating the results of clinical research outcome into clinical practice including better use of medicines, and appropriate use of behavioural and organisational interventions and new health therapies and technologies	EL11	0,00	0	EL	1,64	7	FP7	106,73	361
Quality, efficiency and solidarity of healthcare systems including transitional health systems	EL11	0,00	0	EL	0,78	5	FP7	99,32	375
Health promotion and prevention	EL11	0,00	0	EL	5,89	10	FP7	81,77	323
International public health & health systems	EL11	0,00	0	EL	0,00	0	FP7	86,37	289
Specific international cooperation actions for health system research	EL11	0,00	0	EL	0,15	1	FP7	24,87	74
Other Actions across the Health Theme	EL11	0,00	0	EL	3,37	20	**FP7**	**382,80**	**1295**

Coordination and Support Actions across the Theme	EL11	0,00	0	EL	0,64	9	FP7	46,70	436
Responding to EU policy needs	EL11	0,00	0	EL	1,96	10	FP7	192,51	638
Specific International Cooperation Actions (SICA)	EL11	0,00	0	EL	0,00	0	FP7	49,36	139
Horizontal topics for collaborative projects relevant for the whole of theme health	EL11	0,00	0	EL	0,76	1	FP7	94,24	82
Food, Agriculture and Fisheries, and Biotechnology	EL11	0,48	5	EL	33,78	188	FP7	**1 841,70**	**7847**
Sustainable production and management of biological resources from land, forest, and aquatic environment	EL11	0,00	0	EL	8,55	55	FP7	**452,65**	**2164**
Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection	EL11	0,00	0	EL	7,82	43	FP7	326,56	1557
Optimised animal health production and welfare across agriculture, fisheries and aquaculture	EL11	0,00	0	EL	0,73	12	FP7	126,09	607
Fork to farm: Food (including seafood), health and well being	EL11	0,02	1	EL	8,61	44	FP7	**571,52**	**2304**
The Ocean of Tomorrow	EL11	0,00	0	EL	2,23	8	FP7	70,04	217
Consumers	EL11	0,00	0	EL	1,00	3	FP7	39,78	142
Nutrition	EL11	0,00	0	EL	1,26	7	FP7	149,25	493
Food processing	EL11	0,00	0	EL	1,21	7	FP7	127,13	590
Food quality and safety	EL11	0,00	0	EL	1,58	9	FP7	101,10	467
Environmental impacts and total food chain	EL11	0,02	1	EL	1,33	10	FP7	84,21	395
Life sciences, biotechnology and biochemistry for sustainable non-food products and processes	EL11	0,00	0	EL	10,63	42	FP7	**564,90**	**1832**
Novel sources of biomass and bioproducts	EL11	0,00	0	EL	3,16	15	FP7	110,98	391
Marine and fresh-water biotechnology (blue biotechnology)	EL11	0,00	0	EL	1,45	4	FP7	125,95	413
Industrial biotechnology: novel high added-value bio-products and bio-processes	EL11	0,00	0	EL	1,36	6	FP7	114,61	328
Biorefinery	EL11	0,00	0	EL	1,83	5	FP7	78,68	227
Environmental biotechnology	EL11	0,00	0	EL	2,50	10	FP7	58,30	268
Emerging trends in biotechnology	EL11	0,00	0	EL	0,34	2	FP7	76,38	205
Other activities	EL11	0,46	4	EL	5,98	47	FP7	**252,64**	**1547**
Socio-economic research and support to policies and Cross cuting activities	EL11	0,46	4	EL	5,98	47	FP7	252,64	1547
Information and Communication Technologies	EL11	0,51	3	EL	330,51	965	FP7	**7 874,97**	**23202**

Pervasive and Trustworthy network and service infrastructures	EL11	0,00	0	EL	100,14	298	FP7	1 987,50	5557
Cognitive systems, interaction, robotics	EL11	0,00	0	EL	18,18	36	FP7	615,93	1220
Components, systems, engineering	EL11	0,00	2	EL	20,10	70	FP7	810,22	2398
Digital libraries and content	EL11	0,00	0	EL	34,03	90	FP7	644,08	1790
ICT for mobility, environmental sustainability and energy efficiency	EL11	0,00	0	EL	36,17	120	FP7	842,77	2695
ICT for Health, Ageing Well, Inclusion and Governance	EL11	0,51	1	EL	67,39	166	FP7	883,60	2650
Future and emerging technologies	EL11	0,00	0	EL	33,25	98	FP7	1 466,65	3983
Horizontal Actions	EL11	0,00	0	EL	1,12	12	FP7	64,38	545
ICT for the Enterprise and Manufacturing	EL11	0,00	0	EL	6,67	16	FP7	216,75	523
ICT for Learning and Access to Cultural Resources	EL11	0,00	0	EL	11,23	27	FP7	171,24	495
International Cooperation	EL11	0,00	0	EL	1,66	13	FP7	36,05	307
JTI-ARTEMIS (Embedded Computing Systems)	EL11	0,00	0	EL	0,58	19	FP7	135,81	1039
Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP	EL11	0,03	2	EL	73,30	265	FP7	**3 707,95**	**11548**
Nanosciences and Nanotechnologies	EL11	0,00	0	EL	11,37	36	FP7	771,56	2457
Materials	EL11	0,00	0	EL	13,68	35	FP7	742,04	2226
New production processes	EL11	0,00	0	EL	9,61	39	FP7	490,01	1525
Integration of nanothechnologies for industrial applications	EL11	0,01	1	EL	17,70	68	FP7	594,25	2121
JTI-ENIAC (Nanoelectronics Technologies 2020)	EL11	0,02	1	EL	1,96	28	FP7	468,96	1349
Recovery Package: Public-Private Partnership (PPP) topics within NMP	EL11	0,00	0	EL	18,97	59	FP7	641,14	1870
Energy	EL11	0,00	0	EL	45,46	150	FP7	**2 094,31**	**5422**
Hydrogen and fuel cells	EL11	0,00	0	EL	0,81	3	FP7	23,94	69
JTI-FCH European Hydrogen and Fuel Cell Technology Platform)	EL11	0,00	0	EL	7,11	35	FP7	415,67	1186
Renewable electricity generation	EL11	0,00	0	EL	17,37	33	FP7	473,52	998
Renewable fuel production	EL11	0,00	0	EL	4,22	16	FP7	239,19	508
Renewables for heating and cooling	EL11	0,00	0	EL	0,78	3	FP7	59,28	174
CO2 capture and storage technologies for zero emission power generation	EL11	0,00	0	EL	4,10	17	FP7	145,80	478
Clean coal technologies	EL11	0,00	0	EL	0,00	0	FP7	58,13	130
Cross-cutting actions between activities Energy-5 and Energy-6	EL11	0,00	0	EL	0,00	0	FP7	27,99	84
Smart energy networks	EL11	0,00	0	EL	4,19	22	FP7	261,24	654
Energy efficiency and savings	EL11	0,00	0	EL	5,14	9	FP7	221,38	551
Knowledge for energy policy making	EL11	0,00	0	EL	0,67	5	FP7	17,82	115

Horizontal programme actions	EL11	0,00	0	EL	1,08	7	FP7	150,35	475
Environment (including Climate Change)	EL11	0,41	2	EL	42,55	190	FP7	**1 719,15**	**7131**
Pressures on environment and climate	EL11	0,00	0	EL	10,37	53	FP7	360,13	1587
Sustainable management of resources	EL11	0,19	1	EL	10,57	39	FP7	276,87	1106
Environmental technologies	EL11	0,00	0	EL	7,46	32	FP7	290,21	1404
Earth observation and assessment tools for sustainable development	EL11	0,00	0	EL	2,17	14	FP7	160,60	810
Horizontal activities	EL11	0,00	0	EL	0,25	4	FP7	16,72	152
Coping with climate change	EL11	0,00	0	EL	1,02	4	FP7	146,51	399
Sustainable use and management of land and seas	EL11	0,00	0	EL	2,29	10	FP7	139,29	450
Improving resource efficiency	EL11	0,22	1	EL	2,49	11	FP7	169,03	580
Protecting citizens from environmental hazards	EL11	0,00	0	EL	3,90	10	FP7	86,87	270
Mobilising environmental knowledge for policy, industry and society	EL11	0,00	0	EL	2,03	13	FP7	72,92	373
Aeronautics and air transport	EL11	0,00	0	EL	25,59	138	FP7	**1 004,78**	**3174**
Green Aircraft	EL11	0,00	0	EL	4,65	20	FP7	295,55	827
Time Efficient Air Transport Operations	EL11	0,00	0	EL	0,83	3	FP7	40,45	108
Aircraft Safety	EL11	0,00	0	EL	4,23	17	FP7	150,26	401
Aircraft Operational Cost	EL11	0,00	0	EL	9,79	40	FP7	385,95	1034
Operational Security	EL11	0,00	0	EL	1,30	4	FP7	13,48	45
Promising Pioneering Ideas in Air Transport	EL11	0,00	0	EL	1,10	6	FP7	81,68	307
CROSS-CUTTING ACTIVITIES for implementation of the sub-theme programme	EL11	0,00	0	EL	0,83	13	FP7	35,41	434
JTI-CLEAN SKY (Aeronautics and Air Transport)	EL11	0,00	0	EL	2,85	35	FP7	2,00	18
Space	EL11	0,76	2	EL	14,57	76	FP7	**784,60**	**3203**
Space-based applications at the service of the European Society	EL11	0,00	0	EL	6,50	38	FP7	350,86	1245
Research to support space science and exploration	EL11	0,63	1	EL	4,69	17	FP7	248,28	979
International Cooperation	EL11	0,13	1	EL	2,58	15	FP7	109,56	400
GALILEO/Exploiting the Full Potential	EL11	0,00	0	EL	0,66	5	FP7	48,23	386
GALILEO/Adapting Receivers to Requirements and Upgrading Core Technologies	EL11	0,00	0	EL	0,15	1	FP7	13,94	69
GALILEO/Supporting Infrastructure Evolution	EL11	0,00	0	EL	0,00	0	FP7	13,74	124
Sustainable surface transport (INCLUDING THE 'EUROPEAN GREEN CARS INITIATIVE')	EL11	0,00	0	EL	31,10	170	FP7	**1 203,53**	**5255**
Rail	EL11	0,00	0	EL	2,00	10	FP7	164,54	766
Road	EL11	0,00	0	EL	3,51	15	FP7	287,80	1051
Urban mobility	EL11	0,00	0	EL	1,28	9	FP7	142,53	429

Waterborne	EL11	0,00	0	EL	8,20	39	FP7	184,66	776
Multimodal	EL11	0,00	0	EL	13,17	72	FP7	364,33	1794
Cross cutting activities	EL11	0,00	0	EL	2,94	25	FP7	59,67	439
Socio-economic sciences and Humanities	EL11	0,19	2	EL	8,54	43	FP7	**579,55**	**2766**
Growth, employment and competitiveness in a knowledge society	EL11	0,12	1	EL	2,02	8	FP7	108,37	473
Combining economic, social and environmental objectives in a European perspective	EL11	0,00	0	EL	1,32	9	FP7	117,69	499
Major trends in society and their implications	EL11	0,00	0	EL	0,91	5	FP7	93,80	485
Europe in the world	EL11	0,00	0	EL	0,30	2	FP7	98,91	432
The Citizen in the European Union	EL11	0,07	1	EL	2,48	9	FP7	92,55	397
Socio-economic and scientific indicators	EL11	0,00	0	EL	0,57	3	FP7	23,44	150
Foresight activities	EL11	0,00	0	EL	0,25	1	FP7	15,88	105
Horizontal Actions	EL11	0,00	0	EL	0,69	6	FP7	28,92	225
Security	EL11	0,58	2	EL	44,96	152	FP7	**1 263,49**	**3741**
Increasing the Security of citizens	EL11	0,37	1	EL	6,94	18	FP7	235,78	656
Increasing the Security of infrastructures and utilities	EL11	0,00	0	EL	6,28	25	FP7	248,96	710
Intelligent surveillance and enhancing border security	EL11	0,00	0	EL	6,93	18	FP7	208,72	466
Restoring security and safety in case of crisis	EL11	0,00	0	EL	14,10	44	FP7	289,53	733
Improving Security systems integration, interconnectivity and interoperability	EL11	0,00	0	EL	5,48	17	FP7	74,50	212
Security and society	EL11	0,00	0	EL	1,42	9	FP7	113,39	479
Security Research coordination and structuring	EL11	0,00	0	EL	1,10	10	FP7	70,01	398
Security systems integration, interconnectivity and Interoperability	EL11	0,21	1	EL	2,71	11	FP7	21,80	83
Horizontal Actions	EL11	0,00	0	EL	0,00	0	FP7	0,79	4

2. Success rates: Comparison between national and overall FP7 in FP7 themes and activities

The following table shows a comparison of success rates by FP7 themes and activities between national and FP7 level. Information at regional level is not shown because it is not reliable enough to be considered in the analysis.

: National success rate is above EU average

: National success rate is below EU average

Table 16 Success rates by Themes or activities- Comparison between national and European level

		GREECE			FP7		
FP7 specific programme	**THEMES/ACTIVITIES**	***NB of Participations****	***NB of Retained participations****	***Success Rate***	***NB of Participations****	***NB of Retained participations****	***Success Rate***
COOPERATION	Health	719	131	18,2%	41 361	10 275	**24,8%**
COOPERATION	Food, Agriculture, and Biotechnology	1 104	170	15,4%	35 362	7 465	**21,1%**
COOPERATION	Information and Communication Technologies	6 995	912	13,0%	131 030	21 356	**16,3%**
COOPERATION	Nanosciences, Nanotechnologies, Materials and new Production Technologies	938	220	23,5%	35 451	9 354	**26,4%**
COOPERATION	Energy	630	104	16,5%	17 415	4 072	**23,4%**
COOPERATION	Environment (including Climate Change)	1 241	177	14,3%	31 912	6 825	**21,4%**
COOPERATION	Transport (including Aeronautics)	1 238	249	20,1%	30 340	8 779	**28,9%**
COOPERATION	Socio-economic sciences and Humanities	639	39	6,1%	23 830	2 492	**10,5%**
COOPERATION	Space	249	62	24,9%	8 277	2 397	**29,0%**
COOPERATION	Security	969	149	15,4%	18 826	3 595	**19,1%**
COOPERATION	General Activities (Annex IV)	4	1	25,0%	120	50	**41,7%**
COOPERATION	Joint Technology Initiatives (Annex IV-SP1)	365	135	37,0%	15 299	6 277	**41,0%**
COOPERATION	***TOTAL COOPERATION***	**15 091**	**2 349**	**15,6%**	***389 223***	***82 937***	***21,3%***
IDEAS	European Research Council	1 521	55	3,6%	54 789	5 312	**9,7%**
PEOPLE	Marie-Curie Actions	2 514	482	19,2%	111 266	22 530	**20,2%**
CAPACITIES	Research Infrastructures	344	144	41,9%	10 677	4 564	**42,7%**
CAPACITIES	Research for the benefit of SMEs	2 215	290	13,1%	48 493	8 426	**17,4%**
CAPACITIES	Regions of Knowledge	195	23	11,8%	3 844	746	**19,4%**
CAPACITIES	Research Potential	404	41	10,1%	3 107	362	**11,7%**
CAPACITIES	Science in Society	265	50	18,9%	7 329	1 961	**26,8%**
CAPACITIES	Coherent development of research policies	15	0	0,0%	390	89	**22,8%**
CAPACITIES	Activities of International Cooperation	176	59	33,5%	3 908	1 476	**37,8%**
EURATOM	Fusion Energy	3	3	100,0%	79	65	**82,3%**
EURATOM	Nuclear Fission and Radiation Protection	52	18	34,6%	3 113	1 539	**49,4%**
	TOTAL	**22 795**	**3 514**	**15,4%**	***636 218***	***130 007***	***20,4%***

(Source : data: FP7 proposals database-Feb 2014, processed by JRC-IPTS)

3. List of participants

Table 17 Number of contracts obtained by participants by themes or activities in the FP7

LEGAL_NAME	Org TYPE	Nbr of contracts	Theme/Activity	Specific programme
ALFA BETA ROTO A.B.E.E.	PRC	1	Research for the benefit of SMEs	CAPACITIES
DEMOCRITUS UNIVERSITY OF THRACE	HES	1	Research for the benefit of SMEs	CAPACITIES
MARMARA LASKARIDI ANONYMI VIOMILHANIKI KAI EMPORIKI EMPORIKI ETAIRIA AE	PRC	2	Research for the benefit of SMEs	CAPACITIES
Prisma Electronics ABEE	PRC	6	Research for the benefit of SMEs	CAPACITIES
UNION OF RURAL COOPERATIVE OF PERFECTURE OF XANTHI	PRC	1	Research for the benefit of SMEs	CAPACITIES
ATHENA RESEARCH AND INNOVATION CENTER IN INFORMATION COMMUNICATION & KNOWLEDGE TECHNOLOGIES	REC	1	Research Infrastructures	CAPACITIES
DEMOCRITUS UNIVERSITY OF THRACE	HES	2	Research Potential	CAPACITIES
DEMOCRITUS UNIVERSITY OF THRACE	HES	2	Environment (including Climate Change)	COOPERATION
DEMOCRITUS UNIVERSITY OF THRACE	HES	3	Food, Agriculture, and Biotechnology	COOPERATION
PAPADOPOULOS APOSTOLOS SIA OE	PRC	1	Food, Agriculture, and Biotechnology	COOPERATION
PERIFEREIAKI ENOSI DIMON ANATOLIKIS MAKEDONIAS THRAKIS	OTH	1	Food, Agriculture, and Biotechnology	COOPERATION
DEMOCRITUS UNIVERSITY OF THRACE	HES	3	Health	COOPERATION
DEMOCRITUS UNIVERSITY OF THRACE	HES	3	Information and Communication Technologies	COOPERATION
Prisma Electronics ABEE	PRC	1	Joint Technology Initiatives (Annex IV-SP1)	COOPERATION
ATHENA RESEARCH AND INNOVATION CENTER IN INFORMATION COMMUNICATION & KNOWLEDGE TECHNOLOGIES	REC	1	Nanosciences, Nanotechnologies, Materials and new Production Technologies	COOPERATION
DEMOCRITUS UNIVERSITY OF THRACE	HES	2	Security	COOPERATION
DEMOCRITUS UNIVERSITY OF THRACE	HES	2	Socio-economic sciences and Humanities	COOPERATION
DEMOCRITUS UNIVERSITY OF THRACE	HES	2	Space	COOPERATION
DEMOCRITUS UNIVERSITY OF THRACE	HES	6	Marie-Curie Actions	PEOPLE
Prisma Electronics ABEE	PRC	2	Marie-Curie Actions	PEOPLE

Review and Summary of the RIS3 in the Region of Anatoliki Makedonia-Thrake

Michalis METAXAS[*]

7 November 2014

I. Introduction

This report summarises the state of development of the Research and Innovation Strategy for Smart Specialisation (RIS3) in the Region of Anatoliki Makedonia-Thrake (REMTh) and its underlying process of definition, refinement and implementation. It also assesses its maturity in terms of the RIS3 Assessment Wheel, a tool introduced by the S3 platform for the synthetic representation of the progress made in drafting/designing a RIS3.

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.

II. The Regional RIS3 in Anatoliki Makedonia-Thrake

Although there were clear indications for the necessity of developing regional or national Research and Innovation Strategies for Smart Specialisation since late 2010 [1], the majority of the relevant actors in the Greek Government, either national or regional, were introduced to the concept in autumn 2012, when a team of experts appointed by DG Regio visited them to review and assess the state of development of RIS3s at the national and regional level and provide recommendations. The publication of the outcomes of this technical assistance project in December 2012[10] mark the starting line for the development of RIS3 in Greece and in REMTh. In the sections that follow, we describe what followed this milestone and the achievements until 1 September 2014, the day that the EP preparatory action was launched. A detailed timeline appears in Appendix I.

II.1 History of Development and Current Status

By the time the regional RIS3 elaboration process started, REMTh had rather limited experience on developing and executing research and innovation strategies: the Regional Innovation and Technology Transfer Strategy (RITTS) between 1999-2001, the Regional Innovative Actions programme 'Technogenesis' (2004-2006) and some specific R&D actions in the ROP for the period 2007-2013 are the only past attempts to develop a truly regional research and innovation strategy. Of these, RITTS and Technogenesis were developed regionally following a bottom-up approach that is similar to the concept of smart specialisation while the ROP 2007-2013 were delegated to authorities at the national level. A very noticeable lack of ex-post evaluation results on what actually worked and why, together with a lack of funds—except ERDF and ESF—for a regional R&D&I strategy have been eroding the capacity and the will of the regional stakeholders to elaborate bottom-up, inclusive and context-specific approaches for the last decade [5].

The Region of Anatoliki Makedonia-Thrake has been elaborating a regional RIS3 since early 2013 by following the European Commission guidelines [2] on the subject. Since stakeholder engagement is the most critical aspect of the process, during the first semester of 2013 the Regional Government (RG) and

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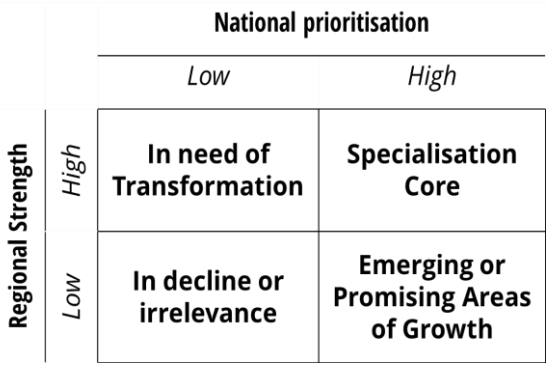
[10] These reports are available online from URENIO's website at http://www.urenio.org/komninos/research-reports/ [Last accessed on 3.11.2014]

the Managing Authority (MA) have jointly organised a series of awareness raising actions to explain the concept to the local stakeholders. A first round of face-to-face meetings with 30 of the regions larger enterprises was carried out from February to June 2013 and a RIS3 workshop was organised in April 2013 to reflect on the recommendations of the DG Regio team of experts. More than 140 people representing all the strands of the triple helix attended this workshop. Organising this workshop was suggested by the second set of guidelines for the preparation of the new Operational Programmes for the period 2014-2020 provided by the Ministry of Development in March 2013, where the first official mention that the Regions should elaborate regional RIS3s was made.

In the summer of 2013, the MA procured a technical assistance project aiming to support the joint elaboration of the regional RIS3 and the new ROP at a cost of €115.000 and in September 2013, the Governor, following a suggestion in [3], established the Regional Innovation and Entrepreneurship Council (RIEC), a 13-member advisory board on issues related to research, innovation, technological development and entrepreneurship[11]. The establishment of the RIEC is considered as the first step towards the development of the governance system for RIS3 in REMTh.

During its inaugural meeting on 12 September 2013, the RIEC adopted RIS3KEY [4] as the framework for analysing the regional context and the potential for innovation and appropriate instruments were developed to collect and analyse relevant data in conjunction with the limited and mostly outdated statistics available through ELSTAT, the national statistics authority. By following the RIS3KEY approach, data collection and analysis focused on answering the questions for the self-assessment and the cross-assessment of the three strands of the triple helix (enterprise, research, regional government). A very thorough and evidence-based assessment of the knowledge supply in the Region was elaborated [6] together with four working documents that assessed the baseline situation in the regional government, agro-food sector, tourism and industry. The last one was supported with evidence from a field survey covering of the region's 39 top performing firms that assessed critical attributes of RIS3: their embeddedness in the regional economy, their connectedness with local, national and global value chains, their R&D intensity, the way they source knowledge and their growth in turnover and employment in the period from 2009 to 2012. These documents were used as the basis for discussions with the regional stakeholders; they were reviewed and updated using the feedback provided in more than 10 meetings carried out in the period from September to December 2013. Although an attempt was made to stimulate entrepreneurial discovery in this process, the feedback was rather limited. The outcome of this first round of bottom-up stakeholder engagement was summarised in the first chapter of the regional RIS3 document, blended with the results of a review of the main strategy documents that were available at the European and the national level; a SWOT analysis was elaborated on the basis of these two processes. The first draft version of the regional RIS3 that was made available at the end of 2013 also included a blueprint of the governance system that was designed after reviewing the two relevant guides prepared by the European Commission's services [2][7].

Figure 8. The ranking quadrant for sectoral priorities.



The dawn of 2014 raised the issues of developing a shared vision and identifying the priorities of the regional RIS3. The RIEC adopted the vision statement included in REMTh's Sustainable Development Strategy (see section 9 in [9]) that had already been endorsed by the Regional Council, the region's top political decision-making body and adapted it to the context of the regional RIS3 by specifying measureable targets.

[11] See https://diavgeia.gov.gr/luminapi/api/decisions/%CE%92%CE%9B%CE%957%CE%9B%CE%92-%CE%9C1%CE%97/document?inline=true

The SWOT analysis that had been conducted earlier had already indicated that the Region should implement a catch-up strategy; therefore, the horizontal priorities that were selected aim to improve the institutional capacity of the Regional Innovation System as a whole and of its individual components, upgrade and retain human capital, supply relevant knowledge to the regional economy, enhance the stakeholders' absorptive capacity, stimulate entrepreneurship and finally, improve the intensity and the quality of inter- and intra- regional linkages, as suggested in OECD's work [8] that has also influenced [2]. On 14 January 2014 the RIEC asked the technical assistance team to elaborate a multi-criteria methodology for the prioritisation of sectoral interventions on the productive system of REMTH by considering the emerging national priorities and the regional strengths, as defined by the evidence that had already been collected and analysed. This approach imposed a framework for making choices, as shown in Figure 8 and provided a ranking of all sectors of economic activity in the Region. Due to the high density of sectors in the top-right and bottom-right quadrants, these two groups of sectors were considered to become the focus of the regional RIS3. A position paper on specific horizontal and sectoral interventions, the latter based mainly on the relevant national strategy documents, was published for public consultation on 14 March and the feedback that was collected lead to the finalisation of priorities on 8 April.

The finalisation of priorities enabled the joint elaboration of the interventions for Thematic Objectives 1, 2 and 3 of the new ROP and Chapters 5 and 6 of the regional RIS3. Both documents were made available for public consultation via the Internet on 29 May and they were officially endorsed by the Regional Council on 14 July 2014.

The latest version of the regional RIS3 document (version 4.2 of 1 August 2014):

- Provides a very thorough and evidence-based assessment of the regional context that feeds a concrete SWOT analysis and justifies the selection of the regions generic strategy regarding RIS3 (i.e., catching up).
- Provides a blueprint for the RIS3 governance system that is in line with the relevant guidelines [2][7]; however, except from RIEC that is still in advisory status, there is no evidence so far for institutionalising the governance system.
- The vision statement adapted for the regional RIS3 is in line with the overall development vision of the Region that has full political endorsement by the Regional Council.
- The horizontal priorities are consistent with the regional context and the generic catch up strategy, being based on the suggestions in [8]. On the contrary, the sectoral priorities are clearly missing the specificity that would be expected after a well-executed entrepreneurial discovery process. There is still large room for improvement here.
- The joint elaboration of the RIS3 policy mix and the new ROP has benefited the latter; funding has been secured, through the new ROP, for the essential activities that would be required to put the regional innovation system in motion including governance. On the contrary, in terms of coordination with the new sectoral programmes, e.g., entrepreneurship & innovation, agriculture, human resources and modernisation of government, only an identification of potential sources of funding was made, waiting for the final versions of these programmes. It is clear that Chapter 5 of the strategy document will have to be reviewed and amended following the finalisation of the sectoral programmes.
- Monitoring and evaluation have been included as indispensable parts of the governance system and funding has been secured through the ROP. There is still a lack in co-ordination between the regional and national RIS3s in terms of defining a common set of result indicators that would be monitored at the national and the regional levels, as suggested by theory [10]. REMTh has declared its intention to apply a Balanced Scorecard approach for monitoring its RIS3. The output and result indicators that have been used in the new ROP, especially as far thematic objectives 1-3 are concerned, create a basis for the monitoring system, but the agro-food sector is not covered. In a similar manner to the action plan, the monitoring systems is still a work-in-progress, waiting for inputs from the national RIS3 and the sectoral programmes to achieve alignment.

III. CURRENT STATUS Assessment

In this section we attempt an assessment of the outcomes of the RIS3 elaboration process on the basis of the latest version of the RIS3 strategy document and the new ROP. Both documents are publicly available in Greek through the MA's website[12]. First, we briefly comment on the assessment criteria mentioned in Annex III of [2] and then we use the RIS3 Assessment Wheel to mark the fifteen critical factors for a successful RIS3.

III.1 Q&A according to the Annex III of the RIS3 Guide

1. Is the strategy based on appropriate stakeholder involvement? How does it support the entrepreneurial discovery process of testing possible new areas?

The strategy was elaborated mainly through *institutional* stakeholder engagement (i.e., the regional government, HEIs/PROs, Chambers and associations, all being represented in the Regional Innovation and Entrepreneurship Council, chaired by a respected entrepreneur). Although the regional government and the managing authority have tried to raise awareness in the enterprise sector, the participation of individual entrepreneurs was not as high as it was sought.

All types of measures to inform the strategy were utilized including surveys, consultations, working groups and workshops, with various degrees of success. In general, a wide consensus has been established regarding the baseline situation and on the main priorities, but the region has not managed to inform the strategy through an entrepreneurial discovery process.

The regional government and the managing authority have led the initiative.

2. Is the strategy evidence-based? How have areas of strength and future activity been identified?

The strategy builds on a sound analysis on the region's existing situation using all available data. Regional specialisation versus Greece and its trends over time has been calculated in terms of GVA, employment, exports, scientific activity using official statistics and primary data collected by the Region. All these have been evaluated in a critical manner and a SWOT analysis was made.

3. Does the strategy set innovation and knowledge-based development priorities? How have potential areas of future activity been identified? How does it support the upgrading of existing activities?

The Region's generic strategy for innovation and knowledge-based development is to catch up with other, more developed, regions. The horizontal priorities that were selected aim to improve the institutional capacity of the Regional Innovation System as a whole and of its individual components, upgrade and retain human capital, supply and disseminate relevant knowledge to the regional economy, enhance the stakeholders' absorptive capacity, stimulate entrepreneurship and finally, improve the intensity and the quality of inter- and intra- regional linkages. This implies that the region aims to be a creative imitator and exploit external knowledge and innovation sourcing and apply it in a creative manner to improve competitiveness through process, organisational and marketing innovations. The lack of inputs from an entrepreneurial discovery process have led to the introduction of generic instruments in support of future entrepreneurial development needs in terms of new product development through technological innovation.

4. Does the strategy identify appropriate actions? How good is the policy mix?

A good balance of horizontal and thematic priorities that reflect the regional economic structure, competences and skills is included.

5. Is the strategy outward looking and how does it promote critical mass/potential?

Benchmarking with other EU regions was used in all aspects of the analysis. Internationalization is a key element of the strategy, both for SMEs and the creative sector in terms of new markets and research collaboration. However, strategic co-operation with other countries / regions was not considered so far. An active INTERREG project is expected to provide insights on interregional collaboration between REMTH,

[12] See http://www.eydamth.gr/programmatiki-periodos-2014-2020/ilektroniki-diavoylefsi/apenerges-diavouleyseis.html

Kentriki Makedonia and the two neighbouring regions in the south of Bulgaria by early 2015. Some sort of value-chain analysis, including benchmarking to other regions/countries, would help identify the critical issues.

6. Does the strategy produce synergies between different policies and funding sources? How does it align/leverage EU/national/regional policies to support upgrading in the identified areas of current and potential future strength?

The strategy and the priorities are fully aware of the national priorities; the Region is waiting for the finalisation of the sectoral programmes in order to be able to plan for their contribution in achieving its priorities.

7. Does the strategy set achievable goals and measure progress? How does it support a process of policy learning and adaptation? How is it to be communicated?

A clear intervention logic is presented for every priority and appropriate output and result indicators have been selected for the part of the RIS3 to be implemented through the new ROP. Baselines and targets have been set only for the ROP-supported part of the RIS3. Alignment to the national RIS3 and its indicators is still pending.

Clear concepts for governance and monitoring systems have been developed. Agility, adaptation and continuous improvement are already embedded into the governance system. More effort has to be put into communicating the strategy, receiving relevance feedback and establishing accountability. Elements of electronic governance have been introduced in 2014, but their interactivity can be improved.

III.2 Assessment Wheel

III.2.i Analysis of the Regional Context

Criterion	Reference in [2]	Explanatory Notes
Regional Assets	*Step 1 (page 18) + Annex I (pages 28-33)*	▪ *regional / national assets' endowment* ▪ *SWOT* ▪ *innovation potential & skills for knowledge based development*

Strengths	Weaknesses
• **A very thorough review of the regional context has been provided (see chapter 1 in the latest strategy document and [6]).** • **The Region has partially compensated the lack of relevant official statistics, especially for the R&D&I performance of enterprises, via primary data collection.** • **A SWOT analysis has been provided based on sound evidence.**	• Only SWOT analysis was used to elaborate generic strategies; time and competences constraints did not allow for exploiting other methods. • The availability of skills, competences and similar intangibles has not been considered.
Mark[13] (0-5):	**4**

[13] This scale is meant to estimate the seriousness of the evidence provided in the process as far as each critical factor is concerned with the following meaning: 0 = no information available on the specific element; 1 = poor; 2 = to be improved, 3 = fair, 4 = strong; 5 = excellent.

Criterion	Reference in [2]	Explanatory Notes
Outward dimension	*Step 1 (page 19) + Annex I (pages 28-33)*	▪ *connectivity - knowledge, trade & skills flows* ▪ *positioning in trans-regional and international value chains* ▪ *trans-regional / international collaboration networks*

Strengths

- **The region's export activity during the last five years has been taken into account.**
- **Research collaboration in terms of academic publications and joint research projects has also been measured.**

Weaknesses

- Prospects for trans-regional co-operation for R&D&I and policy learning were not examined.
- The region's positioning in national or international value chains was not examined.

Mark (0-5): **3**

Criterion	Reference in [2]	Explanatory Notes
Entrepreneurial dynamics	*Step 1 (page 20) + Annex I (pages 28-33)*	▪ *start-ups, clusters, entrepreneurial networks* ▪ *FDI* ▪ *new forms of self-employment, etc.*

Strengths

- **The baseline situation with respect to start-ups, clusters, entrepreneurial networks and FDI has been reviewed and critical comments have been made.**

Weaknesses

- A small sample of the region's enterprises was used to get indications of entrepreneurial dynamics; the evidence so far is not adequate to support sound conclusions.

Mark (0-5): **3**

III.2.ii Governance

Criterion	Reference in [2]	Explanatory Notes
Governance structures	*Step 2 (page 21) + Annex I (pages 34-44)*	▪ *identification of specific bodies and definition of their tasks, roles and responsibilities*

Strengths

- **The strategy document identifies the key stakeholders and their role in the governance in the regional RIS3.**
- **A blueprint of the governance system has been developed.**

Weaknesses

- The governance system is not fully deployed yet; the RIEC still has an advisory role; the top two tiers have not been institutionalised or staffed.
- Delegation of roles and responsibilities among the institutional stakeholders is still pending.

Mark (0-5): **2**

Criterion	Reference in [2]	Explanatory Notes
Broad participation	*Step 2 (page 21) + Annex I (pages 34-44)*	▪ *interactive, consensus-based application of collaborative leadership principles* ▪ *quadruple helix actors (involvement of boundary spanners)*

Strengths

- **The principle of collaborative leadership is embedded into the blueprint of the governance system.**

Weaknesses

- Stakeholder participation was indirect up to now; the focus was having representatives of the key organisations (HEIs, Chambers, etc) on board,

- **All strands of the triple helix have contributed to the strategy elaboration process.**

boundary spanners are limited.

Mark (0-5): **3**

Criterion	Reference in [2]	Explanatory Notes
Management & Communication	*Step 2 (page 21) + Annex I (pages 34-44)*	▪ *use of open forum discussion and citizen dialogue* ▪ *e-governance*

Strengths

- **The MA has fulfilled the role of the management team during the preparatory stage, being the actual leader of the initiative.**
- **An awareness raising campaign seems to have been in place since late 2012.**
- **Tools for electronic communication have been deployed early in 2014.**

Weaknesses

- A well-formulated communication plan is still pending; no evidence of an attempt to exploit social networks to reach and engage citizens.
- The interactivity of the electronic communication tools is minimal.

Mark (0-5): **3**

III.2.iii Shared Vision

Criterion	Reference in [2]	Explanatory Notes
Broad view of innovation	*Step 3 (page 22) + Annex I (pages 45-50)*	▪ *Are social, organisational, service and market innovation considered beside technological and science based innovation?*

Strengths

- **Judging from the contents of Chapter 4 of the RIS3 document, non-technological innovation is the key objective, in line with the regional context.**
- **There is clear evidence of the influence of the theory on the diffusion of innovations in the horizontal priorities.**

Weaknesses

- Social innovation has not been considered.

Mark (0-5): **3**

Criterion	Reference in [2]	Explanatory Notes
Grand Challenges	*Step 3 (page 22) + Annex I (pages 45-50)*	▪ *Societal inclusive, environmental and sustainable economic development*

Strengths

- **Sustainable development and inclusiveness are mentioned in the mission statement.**

Weaknesses

- The measureable targets set in the mission statement focus on economic development.

Mark (0-5): **2**

Criterion	Reference in [2]	Explanatory Notes
Scenario Analysis	*Step 3 (page 22) + Annex I (pages 45-50)*	▪ *risk assessment and contingency plan for possible future changes*

Strengths

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Weaknesses

- No evidence of risk assessment or contingency planning.

Mark (0-5): **0**

III.2.iv Identification of Priorities

Criterion	Reference in [2]	Explanatory Notes
Revision of past priorities	*Step 4 (page 22) + Annex I (pages 51-52)*	▪ *Critical revision of past experiences (from RIS to RIS3)* ▪ *Dynamic identification of actual or potential areas with competitive advantages*

Strengths

- **The self-assessment of the stakeholders explicitly acknowledges very limited capacity to formulate and execute a regional Science-Technology-Innovation strategy.**
- **Capacity building is emphasised for the first three years of RIS3 implementation.**

Weaknesses

- Very limited evidence of a critical review of past experiences, including RITTS & Innovative Actions.
- All similar attempts at the past have not been subject to ex-post evaluations.

Mark (0-5): 3

Criterion	Reference in [2]	Explanatory Notes
Consistency	*Step 4 (page 22) + Annex I (pages 51-52)*	▪ *Alignment with context analysis and harvesting of entrepreneurial discoveries and DAE.*

Strengths

- **Priorities are directly related to the regional context and the national strategy.**

Weaknesses

- The specificity of the sectoral priorities could benefit from a more thorough entrepreneurial discovery process.

Mark (0-5): 3

Criterion	Reference in [2]	Explanatory Notes
Critical Mass	*Step 4 (page 22) + Annex I (pages 51-52)*	▪ *Concentration of resources to the limited number of priorities.*

Strengths

- **Critical mass was explicitly taken into account in prioritisation.**
- **The agro-food sector is the core of the regional specialisation covering the critical mass benchmark in terms of GVA, employment and exports.**

Weaknesses

- The fragmented industrial base of REMTH inhibits the elaboration of specific sectoral interventions.

Mark (0-5): 3

III.2.v Policy Mix

Criterion	Reference in [2]	Explanatory Notes
Roadmap	*Step 5 (page 23) + Annex I (pages 53-58)*	▪ *Including action plan and pilot projects*

Strengths

- **Pilot projects are considered as a means of diffusing innovations and raising awareness.**

Weaknesses

- A rudimentary action plan is presented that discusses only the horizontal priorities.
- No evidence of an attempt to brand interventions (e.g., flagship projects) and therefore promote

them in a more efficient manner to the stakeholders.
- Co-ordination and joint planning with sectoral programmes is still pending.

Mark (0-5): 2

Criterion	Reference in [2]	Explanatory Notes
Balance	Step 5 (page 23) + Annex I (pages 53-58)	▪ Appropriate mix of targeted and horizontal measures.

Strengths
- **There is comprehensive evidence that the new ROP is influenced by the regional RIS3; it contains a balanced mix of horizontal and sectoral measures for TOs 1-3.**

Weaknesses
- REMTH's main focus, the agro-food sector, is to be supported by policy tools that are beyond the control of the region (e.g., OP Agriculture).

Mark (0-5): 3

Criterion	Reference in [2]	Explanatory Notes
Framework conditions	Step 5 (page 23) + Annex I (pages 53-58)	▪ E.g. allowing for support to experimentation, etc.

Strengths
- **A concrete set of actions have been planned for capacity building in the region.**
- **Innovation vouchers are introduced to stimulate the latent potential for innovation and fast experimentation with new ideas.**

Weaknesses
- The majority of the delivery instruments in the new ROP are rather "mature" in terms of planning and administrative burden.
- Limited evidence of an attempt to experiment with new-to-the-Region instruments, including new forms of financing.

Mark (0-5): 3

III.2.vi Monitoring & Evaluation

Criterion	Reference in [2]	Explanatory Notes
Output & Result Indicators	*Step 1 (page 18) + Annex I (pages 28-33)*	▪ *Selection of a limited number of output & result Indicators linked to priorities with clearly identified baselines and targets.*

Strengths
- **A clear intervention logic is presented for every priority and appropriate indicators have been selected for both the RIS3 and the ROP.**
- **Baselines and targets have been set only for the ROP-supported part of the RIS3.**

Weaknesses
- Baselines and targets (and budgets) have not been agreed for the activities covered by the sectoral operational programmes.

Mark (0-5): 3

Criterion	Reference in [2]	Explanatory Notes
Monitoring	*Step 1 (page 18) + Annex I (pages 28-33)*	▪ *Mechanisms, supported by appropriate data collection, to verify how the activities in the RIS3 are delivering the output and result targets.*

Strengths
- **The Balanced Scorecard has been adopted as the framework for monitoring progress; the region is**

Weaknesses
- Monitoring is an essential part of the activities of the Management Unit, i.e. the second tier of the

aware of the importance of alignment with the national RIS3.
- **A budget for monitoring and evaluation has been secured through the ROP.**

governance system that has not been institutionalised yet.

Mark (0-5): 2

Criterion	Reference in [2]	Explanatory Notes
RIS3 Update	*Step 1 (page 18) + Annex I (pages 28-33)*	▪ *Revision of priorities and policy mix as a result of the monitoring exercise.*

Strengths
- **Two distinct phases have been planned for the implementation of the regional RIS3; a mid-term review that is informed by evaluation results is explicitly mentioned in the action plan.**
- **The capacity building actions to be executed within the first phase are expected to improve priority setting during the mid-term review.**

Weaknesses

Mark (0-5): 4

IV. Conclusions

The framework within which local authorities throughout Europe are designing innovation strategies for 2014-2020 has evolved significantly since the period when the programmes currently in place were developed. Smart Specialisation constitutes an innovation in policy making with a shift of emphasis from a linear analysis-strategy-implementation path to a more open, recursive and participatory process. This is having the effect of promoting diffused institutional innovation processes within each region, including new procedures and new stakeholder engagement strategies in a shift of stance from top-down negotiations to a role as enabler of emergent policy processes.

Despite the very good support provided by the European Commission's Joint Research Centre in terms of methodological guidance, dissemination of best practices and policy learning exercises through the S3 platform, REMTH, like many other Regions with low capacity in STI strategy-making in the periphery of the EU, faced significant challenges to adapt to the new procedures, the new approaches, and to the unfamiliar levels of stakeholder engagement. Our description above presents clear evidence that the regional government and its agencies faced these challenges in a proactive manner and given the regional context, did a very good job.

The EP Preparatory Action can be a catalyst for improving the quality of the regional RIS3 and its successful implementation in many ways.

First, it could contribute in building trust among stakeholders, especially entrepreneurs, for the RIS3 process and move the entrepreneurial discovery process forward. Initiating a collective thinking process at a later stage, e.g., by the use of a foresight exercise or similar might also help to gradually compensate for the limited extent of the entrepreneurial discovery process during the design phase and keep the momentum of stakeholder dialogue. JRC might consider participating in such an activity, after helping the Region launching it in a successful manner. The choice of the best tool to support the collective thinking process can also be influenced by JRC on the basis of their experience.

Second, it could help the smooth handover of authority from the RIS3 Task Force to a fully functional governance system.

Third, it could support the confidence of the Managing Authority in their strengths and encourage small-scale policy experimentation by proposing new-to-the-region policy tools that are highly relevant to the regional context and supporting their launch.

Finally, the regional RIS3 would benefit from some technical assistance in finalising the action plan and the monitoring system.

V. References

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APPENDIX I

Timeline for the development of the regional RIS3 in REMTH

4 October 2012	**A Workshop on "Cohesion Policy 2014-2020 and the national strategy on Technological Development and Innovation", jointly organised by the MA and GSRT, launched the RIS3 process.**
November 2012	A RIS3 WG was established with the participation of the Chambers, the public research organisations and the MA.
February-June 2013	A first round of 30 face-to-face meetings with key regional enterprises for awareness-raising.
17 April 2013	Workshop on the regional research and innovation strategies for smart specialisation attended by 140 people..
27 May 2013	First draft of GSRT's proposal for the national agenda on research, technology & innovation.
17 July 2013	Technical Meeting in Athens, organised by DG Regio, aiming to identify the status of RIS3 development by the Regions. The MA proposed the implementation of a pilot action; the proposal was accepted.
August-November 2013	Second round of face-to-face meetings with the industry; a profiling questionnaire was administered to measure, among others, innovation and knowledge sourcing, economic and employment trends and capacity for innovation.
10-12 September 2013	Establishment of the Regional Innovation and Entrepreneurship Council; first inaugural session; establishment of four working groups (clusters, business support services for innovative enterprises, training in education and entrepreneurship and CERN-related issues); endorsement of RIS3KEY as the framework for analysing the regional context.
26-27 September 2013	MA staff attends the peer review workshop of four regional RIS3s in Crete.
22 October 2013	Roundtable in Xanthi on the development of a short-term plan to promote innovative entrepreneurship with the participation of the HEIs and the four regional Chambers.
25-26 November 2013	First co-ordination meeting of the Greek Government and the Regions on RIS3 development followed by a technical meeting with the DG Regio experts group. Both in Athens.
30 November 2013	First version of the regional RIS3 is available, contains chapters 1 & 2.
19 December 2013	Coordination Meeting in Komotini on the development of the regional RIS3 with the participation of GSRT, Ministry of Agricultural Development, Ministry of Development and the Managing Authority of ESF.
14 January 2014	Second version of the RIS3 is available.
8 March 2014	Third version of the RIS3 is available. Draft versions of Chapters 3 & 4 are included.
14 March 2014	An electronic consultation platform is available within the MA's website. A proposal for RIS3 priority setting is made available online and stakeholders are encouraged to provide feedback until 26 March.
8 April 2014	The RIEC endorses the vision statement and the overall priorities of the regional RIS3.
April – May 2014	Joint elaboration of the RIS3 (Chapters 5 and 6) and the ROP (Thematic Objectives 1-3)
29 May–16 June 2014	Electronic consultation on ROP and RIS3. Both documents revised following the feedback collected. The first complete version of the RIS3 (v.4) is available on 26 June.
14 July 2014	The new ROP and the regional RIS3 are endorsed during the 12th session of the

	Regional Council.
1 August 2014	The latest version (4.2) of the Regional RIS3 is available.
10 September 2014	**Kick-off Meeting for the EP Preparatory Action**

Annex 2 – Entrepreneurial Discovery Process Implementing the Entrepreneurial Discovery Process in Eastern Macedonia and Thrace

Bringing together stakeholders from industry, academia and national and regional administrations, this series of four events aimed at identifying potential avenues for innovation activities in the region. Presentations from national and international experts on relevant topics stimulated structured discussions. The results are a set of potential innovative ideas aligned with the RIS3.

This annex contains a description of the methodology of the EDP focus groups, the agendas and summaries of the outcomes of the first four EDP events, focused on wine, meat and dairy products, tourism and marble/non-metallic minerals.

The Implementation of EDP in Eastern Macedonia and Thrace: the structure of the EDP Focus groups

In order to pursue the aims of the project, the JRC, together with the partners in the region, has organised four EDP focus groups, after having individuated the sectors of the region that have potential for smart growth.

The three four groups covered, respectively the sectors of wine (November 2014), dairy & meat (January 2015), tourism (February 2015) and non-metallic minerals (May 2015). Each event lasted between 1 day and 1,5 days. The meetings required an extensive preparation and team work. Whilst the local authorities and Greek consultants engaged with local stakeholders, the IPTS team identified key international experts to invite to the sessions and devised the appropriate methodology.

The focus groups have been organised by combining plenary and parallel sessions; regional, national and international experts have been called to give speeches and to stimulate discussion around selected themes. Each focus group followed a similar template; however the methodological and organisational lessons derived from each event were embedded in the subsequent ones.

The template comprised a combination of plenary and parallel sessions, as indicated in table A1. The former, which were held at the beginning and at the end of the event, included an introduction to the regional RIS3, to the project, one or two presentations from reputable international speakers as well as time for open discussion. The parallel sessions, which were the core of the EDP, covered different segments of the value chain of each sector and included a presentation from a national or international expert in the field and a participatory exercise with different steps.

Table 1 – Template of EDP Focus groups

Plenary introduction • Presentation of the region and the regional RIS3 • Presentation of the project • Presentation from international expert on the sector at stake
1st Parallel sessions covering four different parts of the sectoral value chain • Presentation by a national expert on the specific value chain building block • Participatory exercise to stimulate interaction among stakeholders
2nd Parallel sessions covering four different parts of the sectoral value chain • Participatory exercise to stimulate interaction among stakeholders
Plenary conclusion • Reporting back from the participatory exercise • Presentation from international expert on the sector at stake • Round-table and QA from the public

2 The core of the EDP Focus Groups: methodology of the participatory excercise

In each of the parallel session participants were grouped, trying to achieve a mix of people with the following characteristics:

- Within and outside the region and from different counties.
- From both the public and private research sectors.
- From organisations operating principally in various different part of the value chain
- Having a policy and/or strategic perspective as well as scientific/technological perspective

Each group had a moderator and a rapporteur (tasked with reporting to the plenary the outcomes of the parallel session as well as with conducting other follow up activities).

The exercise comprised 5 tasks and aimed at, broadly speaking, generating and selecting innovative ideas requiring expertise from different sectors, creating partnerships around them and reflecting on their potential development, outlining the first necessary steps for implementation.

Task 1. Individual generation of ideas

In task 1 each participant was asked to reflect and fill-in (succinctly) a fiche with the following info:

- Personal profile (i.e. entrepreneur, private sector, researchers, etc.)
- Problem faced and potential innovative idea to solve it.
- External expertise/Partners needed to implement the idea.

Task 2 Presentation of ideas

In task 2 each participant was asked to present her/his idea to the rest of the group, highlighting also the profile of the expertise needed for its development. To ensure an open and creative environment, ideas were not criticised at this stage.

Task 3 Formation of "idea-partnerships"

In task 3 each working group, building on the outcomes of task 2, created a consolidated list of ideas in which similar or complementary proposals were clustered into one.

Following that, participants were asked to identify the idea(s) to which they were more interested in contributing. Based on that, the group – guided by the moderator- proceeded to organise itself in different sub-groups or "idea-partnership". These comprised (ideally) individuals from different sectors (i.e. research and industry) with similar interests.

Task 4 development of ideas (Phase 1).

In task 4 the "idea-partnerships", within each working group, discussed the idea further, defining it in more depth, identifying the contributions from different

partners, developing the first considerations on framework conditions (legal problems, needs for human capital, capacities, etc.), on financial planning and on the first "next" steps needed.

Task 5 development of ideas (Phase 2)

In task 5 the "idea-partnerships" defined the concrete title, the subsector(s) of interest, a brief project description, a rough estimation of the resources needed, a timeline for the event, and the stakeholder groups involved. The work was conducted under a set of guiding questions and took into account the criteria for funding.

By bringing together stakeholders from different sectors and facilitating dialogue among them, as well as exposing them to international expertise, the events ignited the EDP. The outcomes of the events fed into other activities of the JRC-IPTS preparatory actions and supported the Managing Authority of the region of Eastern Macedonia and Thrace in their RIS3 implementation.

The outputs of each EDP workshops were a set of entrepreneurial ideas, merging different sectors (research and business) and compatible with the local RIS3 strategies. The ideas are compiled systematically in the project website. The outcomes, however, are intended to be broader, and involve facilitating the access to international networks, as we

In the weeks that followed the focus group, several emails were sent in order to inform participants about the further steps of the project and the website was updated with information and news regarding the meeting. These, together with the other activities described in the core report, contributed to sustaining the EDP process beyond the individual workshops.

Entrepreneurial Discovery Focus Group on Wine in Eastern Macedonia and Thrace

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 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)

- 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 summarises 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 bruxel-lensis 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
	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_2
	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	Identification and	Adoption of selected wine	Establishment of relations of

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
(combined outcome of two working groups)	preservation of local wine varieties and related cultural assets	varieties, cultivation and wine making practices and methodologies in order to disseminate this knowledge to all businesses and interested individuals	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

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.

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.

ENTREPRENEURIAL DISCOVERY FOCUS GROUP ON WINE IN EASTERN MACEDONIA AND THRACE

18-19 November 2014

Kouros Hotel, Dramas, Greece

Simultaneous translation will be provided between Greek and English in the plenary sessions and consecutive translation in selected parallel sessions

18 November

14:30 – 15:00	**Registration – Welcome coffee**
15:00 – 16:30	**Introductory plenary session** • **Welcome -** *George Pavlides, Regional Governor of Eastern Macedonia and Thrace* • **Welcome -** *Mark Boden, project leader for the Preparatory Action at the European Commission's Joint Research Centre - JRC-IPTS* • **Introduction to the project –** *Mark Boden - JRC-IPTS* • **Smart Specialisation Strategy for Eastern Macedonia and Thrace: setting priorities** - *Michalis Metaxas – Innovatia Systems* • **Research and innovation in wine in Greece and REMTh in an international context** – *Karel Haegeman - JRC-IPTS* • **Discussion**
16:30 – 17:00	**Coffee break**
17:00 – 18:00	**Plenary session - continued** • **Experiences on marketing and promotion of Greek wine – Key messages for Eastern Macedonia and Thrace -** *Sofia Perpera, Enologist, Director of the Greek Wine Bureau-North America and of New Wines of Greece – Atlanta (US) and Athens (GR)* • **Plenary discussion**
19:00 – 21:00	**Networking dinner**

19 November

08:30 – 09:00	**Registration – Welcome coffee**
09:00 – 09:15	**Welcome –** *Vasilis Pitsinigkos – Managing Authority, REMTh and Mark Boden - JRC-IPTS* **Introduction and overview of the day –** *Elisabetta Marinelli - JRC-IPTS*
09:15 – 10:30	**Plenary presentations in four areas** **1) Research and Technological Needs and Priorities for wine in Greece** - *Stefanos Koundouras – Aristotelian University Thessaloniki – Yorgos Kotseridis – University of Athens*

	2) **Research and innovation focusing on by-products of grapes and wines** – *Marie Shrestha – PROVINO* **3) Research and innovation related to green energy and the environment in the wine sector** – *Cristina Santini – Faculty of Agriculture, Università San Raffaele, Roma, Italy* ***4)*** **Tourism, marketing and networking – Experiences from the European Network of wine cities** – *Carme Ribes – General Secretary – RECEVIN (European Network of Wine Cities)* • **Plenary discussion**
10:30 – 10:45	**Coffee break**
10:45 – 12:40	**Parallel EDP sessions for each of the four areas** **Presentations on national context** ***1)*** **Research and innovation focusing on technological improvements in wine** – *Aspasia Nisiotou – ELGO "DEMETER" – Wine Institute of Athens* ***2)*** **Research and innovation focusing on by-products of grapes and wines** – *Dimitrios Kouretas – University of Thessaly* ***3)*** **Research and innovation related to green energy and the environment in the wine sector –** *Lambros Tsourgiannis – REMTh, Regional Unit of Xanthi and Research Fellow in the Department of Accountancy, School of Business and Economy, Xanthi* ***4)*** **Research and innovation in wine tourism –** *Maria Alebaki – Hellenic Agricultural Organization Demeter* • **Interactive discussion in parallel sessions**
12:40 – 13:00	**Plenary – Reporting back from the parallel sessions**
13:00 – 14:00	**Networking lunch**
14:00 –15:00	**Parallel EDP sessions for each of the four areas – continued**
15:00 – 15:45	**Plenary – Reporting back from the parallel sessions**
15:45 – 16:00	**Coffee break**
16:00 – 17:45	**Plenary presentations (national/international experts) and discussions on framework conditions supporting entrepreneurial discovery in wine: marketing & promotion, networking, access to funding** ***1)*** **Sales and marketing experiences from a Greek wine trader –** *Giorgos Floudas – Trinity Wines LTD* ***2)*** **Support Programmes for the Wine Sector in the Context of the Common Agricultural Policy –** *DG AGRI – Corina-Maria Mocanu* • **Plenary Discussion**
17:45 – 18:00	**Conclusions**

Entrepreneurial Discovery Focus Group on Dairy and Meat Products in Eastern Macedonia and Thrace

INTRODUCTION

Held under the aegis of the European Parliament Preparatory Action "Actual and desired state of the economic potential in regions outside the Greek capital Athens," and building on outcomes and lessons of the November 2014 EDP Focus Group, this event focused on the meat and dairy products sectors in the Region of Eastern Macedonia and Thrace (REMTh) and on selected activities which may contribute to their future development. Organised by the European Commission's Joint Research Centre, the Special Managing Authority of the Operational Programme of the region, and the Regional Council for Innovation and Entrepreneurship, the main aims of this focus group were threefold, namely:

- To encourage interaction between relevant stakeholders in these sectors, going beyond the core value chains to explore and catalyse the dynamics of the entrepreneurial process of discovery;
- To examine the key criteria to identify and then actively pursue relevant projects for the region; and
- Ongoing refinement and dissemination of the focus group approach for its future application both to other key sectors identified under the RIS3 strategy of the region and in other regions.

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 two sectors, the following *a priori* themes for discussion were identified:

- Research and innovation in animal husbandry
- Food processing technologies
- Research and innovation in dairy products
- Organic meat and dairy products and sustainable production.

The primary aim of the preparatory action is to support the region in the refinement and implementation of its RIS3. It seeks to test and optimise the entrepreneurial discovery process (EDP) within selected priority sectors identified in the RIS3 strategy of the region. The EDP focus group approach aims to make important contributions to achieving this aim. The second event has reinforced the impact of the first, enhancing the process and generating further ideas for the region.

In order to explore the broad-ranging nature of the dairy and meat sectors, and their complex and interlinked value chains, a mix of international and national experts were invited to make presentations centred on each of the four themes identified above.

Ideas and opportunities in and around each of these themes were then discussed in four corresponding parallel working groups. This followed an enhanced version of the participatory methodology employed in the first EDP focus group in 2014. As before, this centred on the generation of ideas, the selection of the most feasible for further refinement

in smaller subgroups, taking into account issues for implementation, such as funding. Moderators and rapporteurs were appointed for each group to apply the methodology and report the outcomes, both in summary to the plenary, and in a more comprehensive follow-up report.

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 actively participated throughout the two days in both the plenary and parallel sessions. Building on the experience of the previous focus group, efforts were made to ensure a good level of participation of entrepreneurs from the region. This was very encouraging, but can still be enhanced.

The participatory process has again worked smoothly, successfully taking on board the lessons from the first focus group. More time was allocated for discussion in the parallel groups, and participants were encouraged to take the ideas even further forward. As before, the generation and exchange of ideas was a key element of the success of the meeting. Moreover, a number of interesting linkages between the ideas emerging within and between the different parallel sessions were also evident. The good levels of engagement between the stakeholders must be followed up.

The ideas generated and discussed in this EDP focus group, included both the use of technological and non-technological innovations. These included:

- Creating a Trademark for traditional products from REMTh
- Introducing probiotics in dairy products
- Exploit animal waste for heating and biogas
- Introducing Halal products made in REMTh in order to create a new meat value chain

Selected ideas will be among those proposed to be refined during the forthcoming project development labs.

Once again, this event generated valuable lessons in how to continue to refine the EDP focus group methodology and the overall strategic approach of the project. This also aligns with the second objective of the PA, in generating lessons that can be applied to other regions.

Details of the focus group are also available on the managing authority website.

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 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.

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.

The table below 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 countries with significant Muslim populations, Turkey).	Exploitation of the potential for exports of Hallal-certified meat products in markets with strong Muslim populations.
	Production of certified	Introduction of a private/proprietary quality	Part of the certification scheme would be an

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
	traditional meat products and their promotion via marketing innovations	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.	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, chemicals 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.
	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	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

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
		special groups of consumers.	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 epidimiological 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.

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://philadelpheia.blogspot.gr/, Slow Food Thrace https://www.facebook.com/slowfood.thrace, WWF, Greenpeace,e 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.

AGENDA - ENTREPRENEURIAL DISCOVERY FOCUS GROUP ON DAIRY AND MEAT IN EASTERN MACEDONIA AND THRACE

29-30 January 2015

Komotini, Greece

ARCADIA ***HOTEL***
Panepistimioupoli Komotini

Simultaneous translation will be provided between Greek and English in both

plenary and parallel sessions

29 January

11:00 – 11:30	**Registration**
11:30 – 13:00	**Introductory plenary session** • **Welcome -** George Pavlides, Regional Governor of Eastern Macedonia and Thrace • **Welcome** - Mark Boden, project leader for the Preparatory Action at the European Commission's Joint Research Centre - JRC-IPTS • **Welcome** - Petros Soukoulias, President of the Innovation Council of REMTh • **Introduction to the project** – Mark Boden - JRC-IPTS • **Smart Specialisation Strategy for Eastern Macedonia and Thrace: setting priorities** - Michalis Metaxas – Innovatia Systems • **Research and innovation in dairy and meat in Greece and REMTh in an international context** – Karel Haegeman - JRC-IPTS
13:00 – 13:45	**Lunch break**
13:45 – 16:00	**Plenary presentations in different areas:** 1. **Research and innovation in animal husbandry** **Innovative applications in animal production** Prof. Pascalis Fortomaris, Associate Professor, Head of the Laboratory of Animal Husbandry, Faculty of Veterinary Medicine, School of Health Sciences, Aristotle Univ of Thessaloniki 2. **Food processing technologies** **Exploitation of cheese manufacturing by-products by production of added value products with health claims** Prof. Dimitrios Kouretas, Department of Biochemistry & Biotechnology,

	University of Thessaly **3. Research and innovation in dairy products** **Application of innovative technologies in probiotic dairy foods production** Ioannis Kourkoutas, Assistant Professor, Department of Molecular Biology & Genetics, Democritus University of Thrace **4. Organic meat and dairy products and sustainable production** **Dairy foods, Functional Foods, Health and the Industry** Prof. Eugenia Bezirtzoglou, President of Department of Agricultural Development Lab of Microbiology, Biotechnology and Hygiene, Democritus University of Thrace **5. Value Enhancing Innovations for Feta Cheese** Prof. Dimitris Gousios, Department of Spatial Planning and Regional Development, University of Thessaly **Methodological Outlook of parallel sessions**
16:00 – 16:30	**Coffee break**
16:30 – 18:00	**Parallel sessions – round 1: Presentation on the topic followed by an interactive discussion** **1. Research and innovation in animal husbandry** **Animal breeding and national animal products from a genomic point of view** Anagnostis Argyriou, Researcher, Institute of Applied Biosciences , CERTH **2. Food processing technologies** **Innovations in Processing and Production of Meat and Meat-Products** Prof. Ioannis Amvrosiadis, School of Veterinary Medicine, Faculty of Health Science, Aristotle University of Thessaloniki **3. Research and innovation in dairy products** **Quality and safety of Greek traditional cheeses** Dr George Samouris, Veterinary Research Institute of Thessaloniki, NAGREF **4. Organic meat and dairy products and sustainable production** **Sustainable Low Input Systems for Meat and Milk in Greece: Science-based evidence for innovation** Prof George Arsenos, Lab. Animal Husbandry, Faculty of Veterinary Medicine, Aristotle University of Thessaloniki

18:00 – 18:10	**Conclusions of day 1**
19:00 – 21:00	**Networking dinner**

30 January

08:30 – 09:00	**Registration (continued) – coffee**
09:00 – 09:15	**Introduction –** Vasilis Pitsinigkos, Managing Authority, REMTh & Mark Boden - JRC-IPTS **Overview of the day –** Patrice dos Santos - JRC-IPTS
09:15 – 11:00	**Plenary presentations and discussion on framework conditions supporting entrepreneurial discovery in dairy and meat: marketing & promotion, networking, etc.** **1. Cooperation projects in the field of animal nutrition** Mariana Petkova, Institute of Animal Science Kostinbrod, Bulgaria **2. Marketing tools and experiences in the food industry (FARMInc)** Alessio Cavicchi, University of Macerata, Italy **Plenary Discussion**
11:00 – 11:30	**Coffee break**
11:30 – 13:00	**Parallel EDP sessions – round 2:** Interactive discussion in parallel sessions 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**
13:00 – 14:00	**Networking lunch**
14:00 – 16:00	**Parallel EDP sessions for each of the four areas: continued**
16:00 – 16:30	**Coffee break**
16:30 – 17:00	**Report back to the plenary**
17:00 – 17:30	**Discussion and Conclusions**

Entrepreneurial Discovery Focus Group on Tourism in Eastern Macedonia and Thrace

Introduction

Organised by JRC-IPTS and their partners in the region as part of the European Parliament Preparatory Action "Actual and desired state of the economic potential in regions outside the Greek capital Athens," the Entrepreneurial Discovery Process took place on 11-12 February.

More than 100 stakeholders, mainly coming from the tourism and related sectors in the region of Eastern Macedonia and Thrace and from other Greek regions participated in the event. Opened by the Governor of the Region, George Pavlides, the event combined plenary and parallel sessions centred on expert presentations and the generation and discussion of innovative ideas by stakeholders in relation to four main themes: four season tourism; tourism and cultural heritage; ICT and tourism; and gastrotourism. In addition to introducing the project, presenting elements of the international context, and describing the focus group approach in the plenary sessions, IPTS representatives participated in the four parallel working groups on:

- Four seasons tourism
- Tourism and cultural heritage
- ICT and tourism
- Gastrotourism

A plenary session with presentations by international experts set the scene for each parallel group, which started with a further presentation, usually by a local expert. Each group then generated and subsequently examined several promising ideas, with linkages emerging between, as well as within, the four groups. Rapporteurs provided summaries of the outcomes of each group at the end of the first day and then in the final plenary session. More than 100 participants took part in this focus group event, with around 30% coming from the private sector.

A detailed summary of the outcomes and the ideas is being prepared in collaboration with the rapporteurs.

Subsequent project development workshops, also to be organised under the preparatory action, will endeavour to take selected ideas from this and the previous two focus groups (on wine and on meat and dairy products) forward to develop more concrete projects for possible implementation in the region. In addition, the regional Managing Authority will gradually take over the organisation of the additional focus groups to come, the first one of which will be on marble and zeolite later in Spring.

The focus group event was featured on the local television channel Thrakinet.

OVERVIEW

The workshop on the value chain of tourism was based on the initial approach followed for the set-up of the first two EDP focus groups (wine industry, dairy and meat products) 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 tourism sector, the following a priori themes for discussion were identified:

5) Four seasons tourism
6) Tourism and cultural heritage
7) ICT and tourism
8) Gastrotourism

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 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 tourism, 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 120 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. One key point that differentiated the specific event from the previous

2 EDP focus groups is the participation of a great number of international experts, mainly due to the organisation of the Peer Review in the same day (afternoon) at the same premises.

The generation and exchange of ideas were the 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:

6) Hoteliers
7) Other hospitality stakeholders
8) Restaurant owners
9) Local tourist operators
10) Representatives of other value chains that provide win-win opportunities, i.e. culture and leisure activities, wine and food industries, etc.
11) ICT sector representatives
12) Regional Administration officers

The local 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.

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

- Supporting SMEs in tourism
- Regional touristic strategy – the case of the Baleares
- The selected 4 areas of the EDP.

Totally 10 experts were selected to cover the above issues, 5 international and 5 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. 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 121 participants (excluding JRC/IPTS and MA REMTh staff), 105 of them local/national and 16 international.

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).

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 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, because idea generation took place in Day 1 and discussion on ideas presented (leading to partnership creation) took place in Day 2 respectively. Apart from this issue 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 89 participants (excluding moderators and rapporteurs) representing the following stakeholder groups:

- 37 from industry
- 15 from research and/or academic community
- 37 from public administration (national and/or regional)

It must also be noted that 16 participants from other EU Member States attended the parallel sessions.

The table below 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
4 Seasons Tourism	Managing & Coordinating the touristic product at the regional or local level	The idea is about organising regional organization for managing and co-ordinating the touristic product in REMTh.	Promote a co-operation culture among the elements of the triple helix. "Cluster-support structure" in support and support of local/regional assets (natural; cultural, etc.). Integrated tourism-enterprise support services (cluster-like).
	Extending the season of under-utilised regional assets.	The idea is about organising off-season cultural and athletic events to extend the touristic season. Rehabilitation tourism is included within the specific concept.	Exploitation of existing and upgrading relevant infrastructure and capacity building for athletic tourism. Put existing infrastructure to other uses during the low season. Establish periodic venues targeting specific segments of the touristic market (for example fishing and scuba cup).
	Improve Eco-Tourism and Nature Activities in REMTh	The idea is about improving the infrastructure in support of eco-tourism and nature activities (hiking, climbing, bird-watching, mountain bike, hunting, camping, 4x4 racing, herbal tourism, etc), especially within the boundaries of the Region's four National Parks.	To raise awareness about the richness of local natural assets. Improve infrastructure in National Parks (paths, hides) mainly in support to birdwatching; improve accessibility, mainly fly & drive.
Tourism and cultural heritage	Innovative management of cultural heritage	The idea is about the exploitation of local cultural assets with the implementation of innovative digital tools and applications in order to create new forms/models of business applications within the tourism industry.	To increase level of publicity and awareness on REMTh rich cultural heritage. To promote education among tourism stakeholders on cultural tourism. To add value to REMTh visitors' experience.
	Innovative applications of touristic touring with emphasis on cultural heritage	The idea is about the formation of solid co-operation among the elements of the triple helix for the creation of modern ICT based applications for thematic itineraries.	To improve the capabilities of professional touristic guides. To apply the concept of personalised guides based on specific touristic interests. To establish a Destination Management Organization with the participation of both public and private sector.
ICT and tourism	Digital platform to support	The idea is about the creation of platform to	To create personalized recommendation and itinerary

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
	personalised tourism services	exploit currently available digitised repository and offer innovative services like visit planning & execution, aid/guidance, promotion/advertisements, wherein a provider can plug or make available individual services, with a participatory operating model to support business sustainability.	planning service for tourism, linked with professionals and supporting booking options. To create networked service of digital signage with possible back-end hosted by Regional Authorities and front-end at multiple points of interest, with localisation and advertisement services to support sustainable operation. To develop and host Mobile application for personalised and mass tourism with itinerary recommendations.
	Development of high added value digital tools for key tourism sectors	The idea is about the development of high added value digital tools for hospitality and food/gastronomy businesses & professionals with a range of offered end products and services to support quality personalised experience.	To support smart building management, with multiple targets, including energy efficiency and comfort optimisation for hotel facilities. To create personalised services targeting regular visitors (for example professionals) and supporting visit and preferences data recording and management. To support basic information provisioning tailored to food/gastronomy offerings and used also by hospitality services units
	Establishment of an organisation to offer support for digital business innovation in tourism	The idea refers to a horizontal intervention that will incorporate regional regional-level data recording and management, innovation awards and destination management services.	To offer multi-stakeholder targeting educational support for improving tourism services and acceleration services for innovative business ideas. To manage the idea of REMTh as a touristic destination with support for delivering tourism system analysis. To attract visits, promote offerings, support visit management and offer post-visit services by setting quality targets and priorities.
Gastrotourism	Enhancement the knowledge aspect to support local actors	The idea is about the formation of a regional culinary centre to develop local cuisine capabilities in accordance with key tourism objectives (through a PPP)	To set a Regional Quality Agreement for all the actors of the value chain of agro-food and tourism. To enhance the aspect of collaboration with neighbouring regions. To increase the involvement of citizens within the establisment of gastronony - tourism projects. To develop a platform that might combine local ingredients

Working Group	Idea/Partnership Name	Brief description	Expected results/outcomes
			with recepies towards exchange of information on local cuisine (especially Med cuisine).
	Development of co-operative projects for linking locality, history and gastronomy	The idea is about the creation of a structure to design a gastronomy-tourism strategy that will influence the touristic promotion of REMTh.	To associate history and cuisine - the recreation of ancient EMTh and more recent history and cuisine - Fusion of different cuisines (GR, TR, BG, etc.). The promotion of local dishes associated with local myths, recepies, etc. and connect the above with famous chefs, local events etc. The organisation of a competition of gastronomy city of EMTh with relevant awarding scheme. The development of visitability of destinations of the agro-food value chains

Assessment

This section provides an initial assessment of the outcomes of the 3rd 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. Overall, all participants said that they enjoyed the process and expressed positive comments.

The EDP process was spread over two days. This resulted in 'loosing' some of the participants from one day to another. Focusing the activities on a single working day have the added benefit of retaining the same participants on both days.

The participants did not feel that they had sufficient basis and evidence to perform ranking of individual ideas, especially since some of the ideas are considered either similar or complimentary. Therefore it was considered best to perform an initial clustering of ideas in view of the fact the any ranking before that may fail to incorporate individual creative ideas elements at later stages.

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.

Civil society organisations were again largely missing. This is particularly important given also the sensitivity of the tourism 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://philadelpheia.blogspot.gr/, Slow Food Thrace https://www.facebook.com/slowfood.thrace, WWF, Greenpeace,e etc.).

Tourism cannot be seen in isolation from either productive activities, even if they are not seen as directly related to tourism themselves. Tourism involves primary and secondary value chains of stakeholders and these should be invited to participate in the detailed project development labs.

ICT is seen as the major enabler for further developing tourism in the region. This is particularly so considering the nature of the Regional tourism potential, which is less oriented towards mass

tourism, compared to other regions. Instead individualised, personalised and creative tourism should be supported and service personalisation via innovative ICT tools is seen as a significant enabler to push further the region' potential.

AGENDA ENTREPRENEURIAL DISCOVERY FOCUS GROUP ON TOURISM

IN EASTERN MACEDONIA AND THRACE

11-12 February 2015

Hotel Astir Egnatia, Alexandroupolis, Greece

Simultaneous translation will be provided between Greek and English in the plenary sessions - Parallel sessions will be in Greek

11 February

11:00 - 11:30	**Registration**
11:30-13:00	**Introductory plenary session** • **Welcome -** *George PAVLIDES, Regional Governor of Eastern Macedonia and Thrace* • **Welcome -** *Mark BODEN, project leader for the Preparatory Action at the European Commission's Joint Research Centre - JRC-IPTS* • **Welcome** *- Petros SOUKOULIAS, President of the Innovation Council of REMTh* • **Introduction to the project** *– Mark BODEN - JRC-IPTS* • **Eastern Macedonia and Thrace, its identity and distinctiveness** *- Evanthia TZIMOU, REMTh* • **Research and innovation in tourism in Greece and REMTh in an international context** *– Karel HAEGEMAN - JRC-IPTS*
13:00 – 13.45	**Lunch break**
13.45 – 14.45	**Plenary presentations in four thematic areas:** • **4 seasons tourism** *Experiences from East Marmara Region – Turkey – Devrim SAVLI – East Marmara Development Agency* • **Tourism and cultural heritage** *The potential of tourism and cultural heritage - Dr Angeliki KOTTARIDI, Archaeologist and Director of Emathia's Ephorate for Antiquities* • **ICT and tourism** *Gaming and creative content for tourism – Nikos VOGIATZIS – Corallia, gi-Cluster* • **Gastrotourism** *Gastrotourism – Alessio CAVICCHI - Italy*
14.45 – 15.00	**Methodological approach for the parallel EDP sessions**
15:00 – 15.30	**Coffee break**

15.30 – 17.00	**Parallel EDP sessions in four thematic areas:** • **4 seasons tourism** *Examples of four seasons tourism - Nikos DRAKONAKIS, Managing Director of ETAM SA* • **Tourism and cultural heritage** *The Black Sea Silk Road Corridor - Dimitris KARAVASILIS, General Manager Astir Egnatia Alexandroupolis Hotel* • **ICT and tourism** *Experience from a cross-border project between Greece and Bulgaria: Joint Target Initiative Targeting Cultural Heritage (JTI) - Christos PARTSIAS, Re-gional Development Fund, Region of East Macedonia & Thrace* • **Gastrotourism** *Spanish capital of gastronomy - Pedro PALACIOS - Spain*
17.00 – 17.30	**Plenary reporting and conclusions**

12 February

08:30 - 09:00	**Welcome coffee**
09:00-10:30	**Plenary session** • **Description of the day** • **Case studies** *Supporting SMEs in tourism – experiences from Bulgaria - Krasimira BAKARDZHIEVA, Aspect and Eurekatourism Plus* *Regional touristic strategy of Baleares – Antonio VIADER - Innovation Director at FundacioBIT* • **Q&A**
10:30 – 11:00	**Coffee break**
11:00 - 12:30	**Parallel EDP sessions for each of the four areas** • **4 seasons tourism** • **Tourism and cultural heritage** • **ICT and tourism** • **Gastrotourism**
12:30 – 13:00	**Plenary reporting and conclusions**

Entrepreneurial Discovery Focus Group on Non Metallic Minerals in Eastern Macedonia and Thrace

The workshop on the value chain of non-metallic minerals was based on the same approach that was followed for organising three similar events in the past (wine, dairy/meat products, tourism).

The event gave the opportunity to the participants (representing all 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.

Over the course of the day, the focus group meeting combined plenary and parallel sessions, with interventions by regional, national, and international experts. In the plenary sessions, five international and national experts (from the research and private sectors) were invited to present innovative trends and technologies in the marble value chain, discuss sector-specific research and innovation from the perspectives of sustainability and the environment, preservation of architectural and cultural heritage and product / market opportunities.

To further stimulate idea generation and opportunity identification two parallel working groups were organised, dealing with –respectively-

- WG1: energy and environmental optimisation in marble production,
- WG2: waste management and environmental issues in marble quarries & aggregates

Each working group first attended a topic-specific presentation and then applied a predefined methodology, aimed at identifying innovative ideas aligned with the RIS3. 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 moderately high. More than 50 stakeholders from within the region and beyond participated. The parallel sessions saw active engagement by both invited experts and stakeholders from the region and beyond, which ultimately generated the following (consolidated) ideas.

- Geological and geophysical research & Machinery or equipment for underground grounding
- Energy audit and integrated interventions for energy savings in quarries
- Development and dissemination of know-how for the exploitation of mining & marble by-products
- Creation of a cluster in the marble value chain
- Production of magnesium (too little interest)
- Quarry rehabilitation

AGENDA

5 May 2015

Kouros Hotel, Drama, Greece

Simultaneous translation will be provided between Greek and English in the plenary sessions and consecutive translation in selected parallel sessions

09:00 – 09:30	**Registration – Welcome coffee**
09:30 – 10:30	**Introductory plenary session** • **Welcome -** *George Pavlides, Regional Governor of Eastern Macedonia and Thrace* • **Welcome –** *Vassilios Pitsinigkos, Manager of the Special Managing Authority of the Operational Programme of Eastern Macedonia – Thrace Region* • **Introduction to the project and context of non-metallic minerals in Greece and REMTh** – *Karel Haegeman - JRC-IPTS* • **Smart Specialisation Strategy for Eastern Macedonia and Thrace: setting priorities** – *Yiannis Tolias – Innovatia Systems* • **Methodological approach for the parallel EDP sessions** – *Elisabetta Marinelli - European Commission's Joint Research Centre – IPTS*
10:30 – 10:45	**Coffee break**
10:45 – 12:45	**Plenary presentations in:** **5) Innovative trends and technologies in the marble industry,** *Maria Menegaki, Professor, National Technical University of Athens* **6) Research & innovation, sustainability and environment - Perspectives from Portugal,** *Nelson Cristo, General Manager of Cevalor, Technological Centre for the Portuguese Natural Stone* **7) Innovation in the marble industry, to preserve architectonical and cultural heritage. Perspectives from Spain,** *Francisco Fernández Cortés, Director of Centro Tecnológico del Marmol, Pedra y Materiales* **8) Marble and zeolite: Qualities, reserves and value – Industrial, environmental and agricultural applications,** *Prof. Anestis Fillipidis and Emeritus Prof. Ananias Tsirambidis, Aristotle University of Thessaloniki* ***9)*** **Marble and cultural heritage – Prospects,** *George Karadedos, Emeritus Professor, Aristotle University of Thessaloniki*
12:45 – 13:30	**Networking lunch**
13:30 – 15:00	**Parallel EDP sessions - Presentations on national context** ***5)*** **Research and innovation for energy and environmental optimization of the marble production chain,** *Constantine Laskaridis, Manager, "Lithos" Laboratory, of the*

	Institute of Geological and Mineral Research ***6)*** **Management of marble quarries & aggregates – Waste & environmental impacts**, *Evangelos Kargiotis, Professor, Eastern Macedonia and Thrace Institute of Technology* *Interactive discussion in parallel sessions*
15:00 – 15:20	**Coffee break**
15:20 – 16:30	**Parallel EDP sessions -** *continued*
16:30 – 16:45	**Plenary – Reporting back from the parallel sessions**
16:45 – 17:00	**Summary and conclusions**

Annex 3 - PROJECT DEVELOPMENT LABS

This annex contains a description of the methodology and summaries of the outcomes of the two project development labs (PDLs) organised. These events aimed to further push forward the entrepreneurial discovery process of the region, developing the ideas from the EDP focus groups and assessing the various funding possibilities. The PDLs explored both ERDF funds and H2020 funds, and included technical discussions among experts in public funds, as well as participatory exercises with stakeholders.

1st PROJECT DEVELOPMENT LAB 6 – 7 May 2015, Drama, Greece

1. INTRODUCTION

This report summarises the main outcomes of the first of two Project Development Labs (PDLs), which took place in Komotini on 6-7 May 2015. The Labs aim to support next steps in progressing and sustaining the entrepreneurial discovery process in the region. First the rationale and approach are explained, followed by an overview of the process applied during this first lab and of its main results.

2. RATIONALE AND APPROACH

Over the period of November 2014-May 2015 four focus groups have taken place, aimed at developing the entrepreneurial process of discovery (EDP) in specific thematic areas2. In order to further advance the ideas emerged from those events, two Project Development Labs have been scheduled, aiming to both further sustain the process, keeping EDP focus group participants interested and engaged in the EDP process, and to increase 'absorption capacity' of R&I funds when calls for proposals are launched. In the latter case, initial business ideas should be further developed3 and obtain further support by interested stakeholders, in order to be better prepared for future funding opportunities when they arise. Unlike the EDP focus groups, the labs do not focus on any single thematic area, but operate as two consecutive events, both covering all four of the thematic areas. The first Lab took place on 6-7 May 2015 during a two-day event, the second Lab followed in June.

The methodology for the first PDL underwent several iterations, taking into account the need of the region for an internal meeting between the national and regional administrations. Therefore the first Lab has been designed to be a closed technical workshop that would address the programme-specific issues (including checking the 'fundability') of the ideas collected (i.e., identification of relevant funding sources, applicable state-aid rules, output and result indicators, revision of the EDP-provided budgets and time schedules) and assessing the degree of maturity of each of them in terms of the business and the research aspects. As an outcome, PDL1 envisaged specific suggestions for improvement to be addressed by the stakeholders at a later stage of the process. REMTh's RIS3 Management Unit4 were envisaged to use the results of PDL1 towards completing their Action Plan, in preparing draft calls for proposals, in addressing legal and administrative issues related to such calls, and in aligning them with the planned calls at national level. Finally, this two day exercise had been seen as an opportunity for the members of the Management Unit to learn on-the-job how to develop programme- or funding-aware action plans and be able to replicate the entire process each time a new round of EDP focus groups would be launched.

Detailed instructions were provided to all participants one week in advance of the meeting (30 April 2015), together with the URLs of the documentation that would be referenced during the meeting (texts of Operational Programmes, EU regulations, minutes of the EDP workshops), a fiche that would be used for the discussion, the codification of the information that would be needed to fill the fiche and a copy of the RDI Funding Guide for the region that has been developed by JRC-IPTS as part of the Preparatory Action. Output and result indicators of the Regional and the National Operational Programmes relevant to the regional RIS3 were also collected and distributed during the event.

3. PROCESS AND OUTCOMES

Composition of participants

In addition to JRC-IPTS, the Managing Authority and a group of supporting external experts, participants in the first PDL included representatives of (see full list of Participants below):

- national government agencies in charge of the co-ordination of programme preparation and implementation with extensive expertise on the relevant ESIF regulations including state-aid rules, ex ante conditionalities and the national RIS3;
- regional government directorates whose responsibilities are closely linked to the regional RIS3 priorities;
- regional higher education and research organisations.

Discussion on 'fundability' of ideas

The participants discussed the 44 project ideas generated in the four EDP focus groups (see list of ideas in Annex III) , covering issues such as effectiveness, appropriateness, delivery mechanisms, project selection criteria, fitness to the national RIS3, state aid rules and their implications for launching calls in each of the areas discussed, etc.5 A significant portion of the discussion was also devoted to clusters, since cluster formation projects were suggested in all four EDP focus groups. Representatives of GSRT agreed to share call texts with the regional Managing Authority and the representatives of the state-aid unit in the Ministry of National Economy proposed to check any draft call texts for compliance with state aid rules.

Classification of ideas

A detailed mapping of the delivery instruments that the Managing Authority intends to use in implementing the ROP was presented (see Appendix II). This was then used as a basis for discussing the ideas and to check under which instrument they would fit best. To this end, some ideas were split into several components. The results of this discussion are presented in Appendix III. The participants found that two of the 44 EDP focus group ideas were not sufficiently well defined to be further processed (ideas with reference EDP3WG4P1 and EDP4WP2P3) and that one was incompatible with ESIF regulations (reference EDP2WG2P1). For the remaining 41 ideas, 50 components were identified and linked to three main funding sources: 30 to REMTh's Regional Operational Programme (ROP), 8 to the Operation Programme (OP) Competitiveness, Entrepreneurship and Innovation and 12 to the OP Rural Development (Agri Funds). In terms of ERDF investment priorities, 14 components were classified under 1b, 3 under 2b, 2 under 2c, 3 under 3a, 14 under 3d and 2 under 4b (see Appendix III). Finally, 14 components were classified under Measures 4, 16 and 19 (Community-Led Local Development - CLLD) of the OP Rural Development. In conclusion, a majority of the idea components seems to fit well in the ROP. As expected, due to the significant share of the primary sector in the region, OP Rural Development will be another major funding source.

One indirect benefit of the event is that local research providers, i.e. Higher Education Institutions (HEIs) have become aware of the full range of ideas discussed during the EDP focus groups and were exposed to some implementation issues that might be relevant to them. HEIs could act on this information in planning technology transfer and mobility initiatives.

Additional instruments for 'soft' actions

The remaining of the event was spent on discussing implementation options for two EDP case studies that had both research and entrepreneurial components. These can be seen to demonstrate that although a “best-fitting” instrument had been assigned to them during the previous discussions, alternative and potentially more attractive delivery instruments could also be considered to implement them. The discussion that followed highlighted that although some projects – mainly soft actions in creative tourism – can be funded under the delivery instruments proposed in Appendix III they might create more impact if considered under the perspective of Integrated Territorial Investments (ITI) or Community-Led Local Development (CLLD) or Public-Private Partnerships (PPP). For example, the Managing Authority has recently contracted a consultant to develop an ITI-based pro-

ject called “The Cultural Via Egnatia”. The CLLD instrument cannot be used yet, due to the fact that it is part of the OP Rural Development, which has not reached a final version yet. The participants agreed that all three could be considered as interesting topics for PDL2. Appendix IV presents a list of ideas that could be considered for implementation through ITI or CLLD.

Internationalisation

JRC-IPTS stressed the importance of including an international dimension in the delivery instruments, e.g. by including internationalisation as one of the project selection criteria in a call for proposals. As ERDF rules do not allow to fund directly beneficiaries outside the region, ways should be explored to enable sourcing of knowledge from outside the region, e.g. by outsourcing part of the tasks to parties outside of the region (and if necessary, to identify the “outsourced” partners already in their proposals), to seek for consortium partners that want to collaborate without receiving funding, or through cooperation with other regions.

RIS 3 governance

The critical role of the future RIS3 Management Unit in routing stakeholders’ ideas to the most appropriate delivery instrument was stressed by JRC-IPTS. In order to be able to make full use of all delivery instruments available for implementation of the RIS3, such a Management Unit must be operational. A Governance Working Group with participation of key stakeholders is currently developing a proposal for a governance structure adapted to the region's needs in order to effectively implement the RIS3.

Project development Lab 1 (6-7 May 2015) – agenda

6 May

10:00 – 10:30	**Registration – Welcome coffee**
10:30 – 13:00	**Review of all ideas proposed and separation per investment priority** – *Yiannis Tolias – Innovatia Systems*
13:00 – 13:45	**Light lunch**
13:45 – 18:00	**Grouping of project components & identification of candidate projects**
19:30 – 21:00	**Networking dinner**

7 May

09:00 – 12:30	• **Candidate projects maturity gaps assessment** • **Correlation of candidate projects with funding sources, aid schemes and output indicators / results**
12:30 – 13:00	**Summary report and Next steps**

Project development Lab 1 (6-7 May 2015)
list of participants

1	Pitsinigkos	Managing Authority REMTh
2	Koudoumakis	Managing Authority REMTh
3	Aggelina	Managing Authority REMTh
4	Kesanlis	Managing Authority REMTh
5	Mananas	REMTh
6	Giourka Paraskevi	REMTh
7	Chouridou	REMTh
8	Karel Haegeman	JRC
9	Elisabetta Marineli	JRC
10	Emmanouilidis	JRC Consultant
11	Amanatidou	JRC Consultant
12	Tolias	JRC Consultant
13	Metaxas	JRC Consultant
14	Chatzinikolaou	GSRT, Agro-food Platform
15	Sargianos	GSRT, Materials Platform
16	Botsaris	Democritus University of Thrace
17	Bandekas	Eastern Macedonia and Thrace Institute of Technology
18	Kokkinoplitis	Managing Authority REMTh Consultant
19	Stouraitis	State Aid Unit
20	Mara	State Aid Unit
21	Karapataki	Central Managing Authority
22	Dritsas	Managing Authority "Competitiveness & Enterpreneurship"
23	Manetas	Managing Authority "Rural Development"

2nd PROJECT DEVELOPMENT LAB, 24th of June, Alexandropoulis

Organised by JRC-IPTS and their partners in the region as part of the European Parliament Preparatory Action (PA) "Actual and desired state of the economic potential in regions outside the Greek capital Athens," a second Project Development Lab (PDL) took place in Alexandroupolis in the Region of Eastern Macedonia and Thrace on the 24th June 2015. The envisaged aim of this event was to further develop the concrete project ideas generated and developed in the four previous EDP Focus Groups and the first Project Development Lab, which took place in May 2015.

Furthermore, the PDL2 was also an opportunity to present the pilot pre-calls for projects the region has recently drafted, which embed ideas emerging from the EDP process, organised in cooperation with JRC-IPTS. PDL2 thus aimed to share the calls with stakeholders (business, research, and national and local administration) and receive their feedback as well as to demonstrate how their involvement in the EDP process has fed into the policy process. Around 100 mainly local stakeholders from all sectors participated in the event.

As with previous PA events, proceedings were opened with a welcome by the Governor of the Region, George Pavlides, who again acknowledged the contribution of the JRC. The positive work of the JRC was also acknowledged in the welcoming remarks made by Petros Soukoulias, President of Innovation Council of REMTh. Mark Boden of JRC-IPTS reiterated the aims and approach of the vent and its role in the PA and the RIS3 process.

Georgios Peroulakis, of DG Regio addressed the first plenary session concerning “RIS3 for the Region: Why and which are the next steps?”

Dr. Christos Vasilakos, Senior Researcher at the National Centre for Scientific Research “DEMOKRITOS”, and the former General Secretary for Research and Technology (GSRT) made an informative presentation on the linkages between Regional and National RIS3.

The next session was given over to the successive presentation of each of the draft calls by Kostas Kokkinoplitis of Research & Innovation Strategy Experts, namely:

- Thematic Objective 1 Pilot Calls (R&D&I, Technology Transfer);
- Thematic Objective 3 Pilot Calls (SMEs Competitiveness & Support to Entrepreneurship).

The calls included various forms of support for existing SMEs, targeted at increasing applied research, as well as actions for the promotion and dissemination of results. Mr Kokkinoplitis highlighted that human resource costs are an eligible expenditure. He also presented innovation vouchers for SMEs to cooperate with research centres on new products/process. These would have a maximum value of 20.000 Euros.

The calls include the creation of incubators for high-tech SMEs, which could host newly founded start-ups for two years. For start-ups to be eligible for this incubation, they need to have a reliable plan to ensure viability of one business beyond the ERDF funding period. The calls also make space for regular evaluation of the SMEs performance and for coaching support throughout a 2 year window.

To benefit from the different calls, SMEs need to provide a clear, complete and integrated investment plan, specifying the technological, productive and commercial importance of the product/service in object.

Presentation of the calls was followed by discussion, centred on a number of quite detailed technical questions raised by participants. The issues raised ranged from whether managerial adequacy and efficiency was among the criteria to the compatibility of the calls with State Aid rules, to the specific needs of tourism, as a sector, and academia, as a stakeholder, to whether there would be any mechanisms for proposals to H2020 which passed the thresholds but did not receive funding to subsequently receive ERDF funds.

The regional authority planned to present the calls to each chamber of commerce in the region in the following weeks.

The afternoon session was centred on interactive development of EDP ideas in line with Horizon 2020 funding possibilities. Three of the Greek Horizon 2020 National Contact Points, with areas of responsibility particularly relevant to the EDP ideas were invited by JRC-IPTS to actively participate in PDL2. They started the session with a series of presentations:

- An introduction to H2020 and a specific look into Agro-food – Dr Apostolos Dimitriadis, PRAXI Network – HELP FORWARD (second presentation available here)
- H2020: SME instrument and Spreading Excellence – Dr Vassiliki Kalodimou, PRAXI Network – HELP FORWARD
- H2020: ICT and Tourism - Dr Iraklis Agiovlasitis, National Documentation Centre (NHRF/EKT)

Following the presentations, participants split into four parallel sessions (one for each of the four sets of ideas from the EDP focus groups on wine, meat and dairy, tourism and non-metallic minerals) to interactively explore the links between EDP ideas and H2020. Each group had a rapporteur appointed by JRC-IPTS, charged with preparing a more detailed report on their respective sessions.

The event concluded with positive reactions thanks to the high level of engagement of participants, and acknowledged the progress made.

A final PA event is foreseen for October 2015.

Other presentations available:
Introduction to the Preparatory Action on RIS3 in Eastern Macedonia and Thrace, Elisabetta Marinelli, European Commission, JRC-IPTS

RIS3 Strategy for REMTh, setting priorities & related ROP calls - Vassileios Pitsinigkos, REMTh special managing authority

Project development Lab 2 (24 June 2015) – agenda

09:00 – 09:30	**Registration – Welcome coffee**
09:30 – 11:00	• **Welcome -** *George Pavlides, Regional Governor of Eastern Macedonia-Thrace* • **Welcome -** *Petros Soukoulias, President of Innovation Council of Eastern Macedonia – Thrace Region* • **Welcome** – *Mark Boden, Joint Research Centre, Institute for Prospective Technological Studies* • **RIS3 for the Region: Why and which are the next steps?** - *Georgios Peroulakis, D.G. Regio.G.5 – Greece and Cyprus* • **Introduction to the project and its context** – *Elisabetta Marinelli, Joint Research Centre, Institute for Prospective Technological Studies* • **Linkages of Regional and National RIS3** – *Dr. Christos Vasilakos, Senior Researcher – National Centre for Scientific Research "DEMOKRITOS", former General Secretary for Research and Technology (GSRT)* • **RIS3 Strategy for Eastern Macedonia and Thrace: setting priorities & related ROP calls** – *Vasileios Pitsinigkos, Special Managing Authority of the Operational Programme of Eastern Macedonia – Thrace Region*
11:00 – 11:30	**Coffee break**
11:30 – 13:45	• **Thematic Objective 1 Pilot Calls (R & D & I, Technology Transfer), &** • **Thematic Objective 3 Pilot Calls (SMEs Competitiveness & Support to Entrepreneurship)** *Kostas Kokkinoplitis, Research & Innovation Strategy Experts* This session will involve a presentation and discussion around the first set of Pilot Calls of the Operational Programme of Eastern Macedonia – Thrace Region, which were drafted, based on project-ideas from recent EDP Workshops. Key stakeholders: Entrepreneurs, SME's Business Associations, Chambers, SMEs and Big Enterprises with research activity, HEIs/PROs, Consultants. • **Discussion**
13:45 – 14:30	**Networking lunch**
14:30 – 16:30	**EU funding opportunities – "Horizon 2020" National Contact Points** This session will involve four NCP's from H2020, who will participate to different working groups, guiding stakeholders on other funding sources for their project ideas. • **An introduction to H2020 and a specific look into Agro-food -** Dr Apostolos Dimitriadis, PRAXI Network – HELP FORWARD • **H2020: SME instrument and Spreading Excellence –** Dr Vassiliki Kalodimou, PRAXI Network – HELP FORWARD • **H2020: ICT and Tourism -** Dr Iraklis Agiovlasitis, National Documentation Centre (NHRF/EKT) Following the presentations the audience will split in parallel sessions to explore the links between EDP ideas and H2020.

	Key stakeholders: Entrepreneurs, SME's Business Associations, Chambers, SMEs and Big Enterprises with research activity, HEIs/PROs, Consultants. • **Discussion**
16:30 – 17:00	**Summary - Conclusions and Next Steps**

Annex 4 - Report on Peer Review Event

This annex is a detailed summary of the focused peer review of the Region of Eastern Macedonia and Thrace, organised on 12 and 13 February 2015 in the city of Alexandroupolis. The event brought together invited peers and regional stakeholders, to share experiences, both in the context of the implementation of the REMTh RIS3, and with a view to generating lessons for other regions.

Overview

The Peer Review of the region of Eastern Macedonia and Thrace was held in the city of Alexandroupolis on the 12th and 13th of February 2015. This was the first smart specialisation peer-review event to focus exclusively on one region. With peers and experts coming from regions across Europe, as well as representatives from the Greek General Secretariat for Research & Technology and the National Coordination Authority for the NSRF, an in-depth examination of issues central to the successful implementation of the RIS3 of Eastern Macedonia and Thrace took place.

The event centred on a moderated parallel discussion approach, designed to ensure detailed examination of five core themes selected by the region:

- the RIS3 governance mechanism in the region;
- the development of action plans for the implementation of RIS3;
- human resources mobility and training needs;
- monitoring and evaluation; and state aid rules and
- legislation opportunities and restrictions.

Rapporteurs were appointed for each parallel session and provided summaries in the subsequent plenary sessions.
The second day of the event was opened by Markus Pieper, the MEP behind the launch of the Preparatory Action together with George Pavlides, Governor of the Region.

Parallel Sessions

The examination of the five core themes took place over the course of the peer review event through the organisation of three “working tables” (A, B, C), namely:
The examination of the five core themes took place over the course of the peer review event through the organisation of three “working tables” (A, B, C), namely:

- Tables A1 & A2
    - RIS3 governance mechanism in the region;
    - Monitoring and evaluation;

- Tables B1 & B2
    - Development of action plans for the implementation of RIS3;
    - State aid rules and legislation opportunities and restrictions.

- Table C (two sessions)
    - Mobility of researchers and high-skilled and training needs;

In each of these five sessions, a representative of the region managing authority presented in detail the key issues that needed to be explored. International experts were invited to participate to the parallel discussion most suited to their profile, maximising the benefits of the debate. A representative from IPTS chaired each table discussion and rapporteurs were appointed to provide summaries in the subsequent plenary sessions. Below we report the key points emerged from the parallel session.

Tables A1 & A2

Parallel session A1 focused on the governance of RIS3 implementation. Following a presentation of the proposed governance system by the regional authority, the various peers and experts from regions across Europe offered useful perspectives on the three-tiered approach to governance based on coordination, management and implementation. Particularly relevant, in this respect, were the linkages between national and regional governance.

The discussion explored the proposal to establish "knowledge and innovation communities" to facilitate bottom-up engagement, and the consequent requirements for awareness raising, training and enhancements to the cooperative culture. The parallel session also commented on the working group on governance, which will be set up under the preparatory action.

Parallel session A2 focused on Monitoring and Evaluation. The region set out their proposals and the ensuing discussion examined both the choice and design of the type of indicators to be used and the setting of appropriate (and significantly ambitious) target values. The participants to the table acknowledged that this is one of the most difficult topics for everyone to address.

Tables B1 & B2

The second stream of two parallel sessions (sessions B1 and B2) were related to RIS3 implementation and State aid rules. In session B1, the peers and experts gave a lot of practical input in reply to eight questions prepared by the Managing Authority. Questions related to methodological issues for implementation (What does exactly an action plan include? How to proceed into concrete action plans?), to the right level of granularity in identifying priority areas (and selection criteria for selecting areas) as well as reducing related risks (such as risks related to possible future declining growth rates in selected areas, risk of overspecialisation, etc…), and design issues of calls for proposals (such as project selection criteria and the 'right' level of granularity of call topics). During the discussions, various practical examples from the thematic EDP focus groups were used to clarify the questions. Participants highlighted that "business interest" should be one of the criteria for selecting both projects and priorities, in order to guarantee proper take up and participation in the RIS3 implementation. As for the sustained development of EDP, it was suggested that once an area of interest to a large number of stakeholders is identified, one should ensure that the private sector is able to lead organically the entrepreneurial discovery process, allowing space to experiment flexibly with ideas as well as with different stakeholders. For the same flexibility reason, topics for calls for proposals should not be formulated too specifically. Participants also discussed the need for external partners for S3 priorities success. From within the region it is preferable that a temporary institution outside of the regional authority is tasked with promoting funding opportunities related to smart specialisation. From outside, EMT should try to 'win allies' within Greece but also in the rest of the European Union, to do business with and align priorities, because the relatively small region may not be able to acquire the necessary critical mass to compete globally. Peer Review Summary Report (Eastern Macedonia and Thrace)

In session B2, seven questions were prepared by the Managing Authority and discussed with peers, especially with members of the state aid unit at GSRT and DG COMP, but also some Greek regions. Technical questions were related to the implementation of the new framework (Commission Regulation (EU) No.651/2014 of 17 June 2014 declaring certain categories of the aid with the internal market in application of Article 107 and 108 f the Treaty) in the region, especially on eligible costs, schemes applicable to research and innovation projects of SMEs, state aid regulations regarding collaborative innovation formations (clusters) and aid for process and organizational innovation. During the discussions, DG COMP and national experts on state aid clarified the applicable legislation.

Table C

The working table on human resources mobility (C) included representatives from the local higher education sector (researchers and managers from the Universities and Technical institute) as well as international representatives from the Marie Curie Fellows Association, the Cambridge University International Office, Tecnalia (a research centre in the and the University of Porto.

An ad-hoc working group on international and intersectoral mobility of human resources and their training needs will be set up within the preparatory action and this table served to kick-off this discussion The table agreed that the region should adopt a pragmatic approach to the issue of mobility. This implies, for instance, to start from optons/ideas that are relatively easy to tackle, such as short-terms and informal exchanges across scientific institutions which would have a very low costs (for instance, engaging with international scholars for PhD supervisions of local students, embedding international visits in research projects). The table pointed out that networking and short-term mobility are a key pre-condition to achieve a sustained inflow of international scholars willing to come up for a longer time frame.
The issue of intersectoral mobility was also deemed critical for the region. The table discussed of different mechanisms that could be useful in allowing the research and business sector to engage with each other. These include traditional instruments (such as student placements) or more innovative ones (such as ”student contests” to solve a problem raised by a given firm). It was stressed by different participants that efforts should focus on identifying measures that could offer real and concrete support to firms.

For both inter-sectoral and inter-national mobility, it was highlighted that different training and research needs should be taken into account in order to support different segments of the population (i.e. undergraduate students, PhDs, Post-docs, as well as firms employees who may benefit from ad-hoc training offered by universities.).
Whilst much of the conversation focussed on the higher education sector, Mr Markus Pieper, raised the issue of mobility and needs in relation to vocational training which is an aspect that would also benefit significantly from a good cooperation between the public and private sector.

Annex 5 - Board of Critical Friends

This annex summarises the role and activities of the “Board of Critical Friends” established to provide guidance and to share experience relevant for the preparatory action. It comprises the letter of invitation to participate, which outlines the envisaged role of the friends, the members of the board and the main events in which they participated as a group.

Invitation letter to critical friends (17 October 2014)

Following a request of the European Parliament, the European Commission is carrying out a preparatory action supporting the Greek region of Eastern Macedonia and Thrace (REMTh) in the further development and implementation of its RIS3 (Smart Specialisation Strategy).
The Institute of Prospective Technological Studies of the European Commission's Joint Research Centre (JRC-IPTS) is leading this project. To help ensure this project achieves its objectives, it is envisaged to establish a dedicated advisory group, comprising high profile experts in the fields of regional development and science and innovation policy.

Given your recognised experience in the field of innovation in tourism, a sector which the region is particularly keen to develop, we would like to gauge your interest and availability to participate in this activity.

The main role of the advisory group would be to provide guidance and feedback on project activities and to contribute lessons from relevant professional experience. It is also envisaged that members of this group would participate in key project events to be held mainly during 2015. These include:

- *An advisory group meeting (provisionally to be held in January in an accessible location, such as Brussels, Barcelona or Madrid)*
- *The RIS3 Peer-Review event (to be held in February 2015 in the REMTh)*
- *The final event (to be held in the last quarter of 2015 in the REMTh)*

During these events, members of the group will play active roles in the discussions. In between these events, the group will also be invited to comment on selected key outputs of the project, and to promote the visibility of the project. Furthermore, members of the board will be welcome to join other events of the project. We will provide further details of these in due course.

The JRC-IPTS is planning to cover travel and subsistence costs related to expert participation in these events in accordance with the European Commission rules.

We attach a summary of the project and a presentation of the Smart Specialisation Strategy of the region.

Board of critical friends

- Nerea Anacabe Uriarte, Tecnalia, Spain
- Artur de Rosa Pires, full professor in urban and regional planning, University of Aveiro, Portugal
- Magdalene Häberle, Ministry of Finance and Economics Baden-Württemberg, Germany
- Raquel Ortega Argiles, University of Groningen, Netherlands
- Leyla Radovanova, Ministry of Economy and Energy, Bulgaria
- Javier Revilla Diez, Professor, Institute of Economic and Cultural Geography, Leibniz Universit of Hannover, Germany
- Antonio Viader, Senior Innovation and Growth Advisor, Spain

List of events attended by critical friends

- Meeting with the Board of Critical Friends, Barcelona, 13th of January 2015

The main aim of this meeting was to better acquaint the board of friends with the aims and activities of the project, progress and planning and to obtain the feedback and advice on its further development and implementation.

- In-depth Peer Review Workshop: Region of Eastern Macedonia and Thrace, Alexandroupolis (Greece), 12 & 13 February 2015 (see Annex 4 for details)
- Final event, Brussels, 18 November 2015 (see Annex 9 for details)

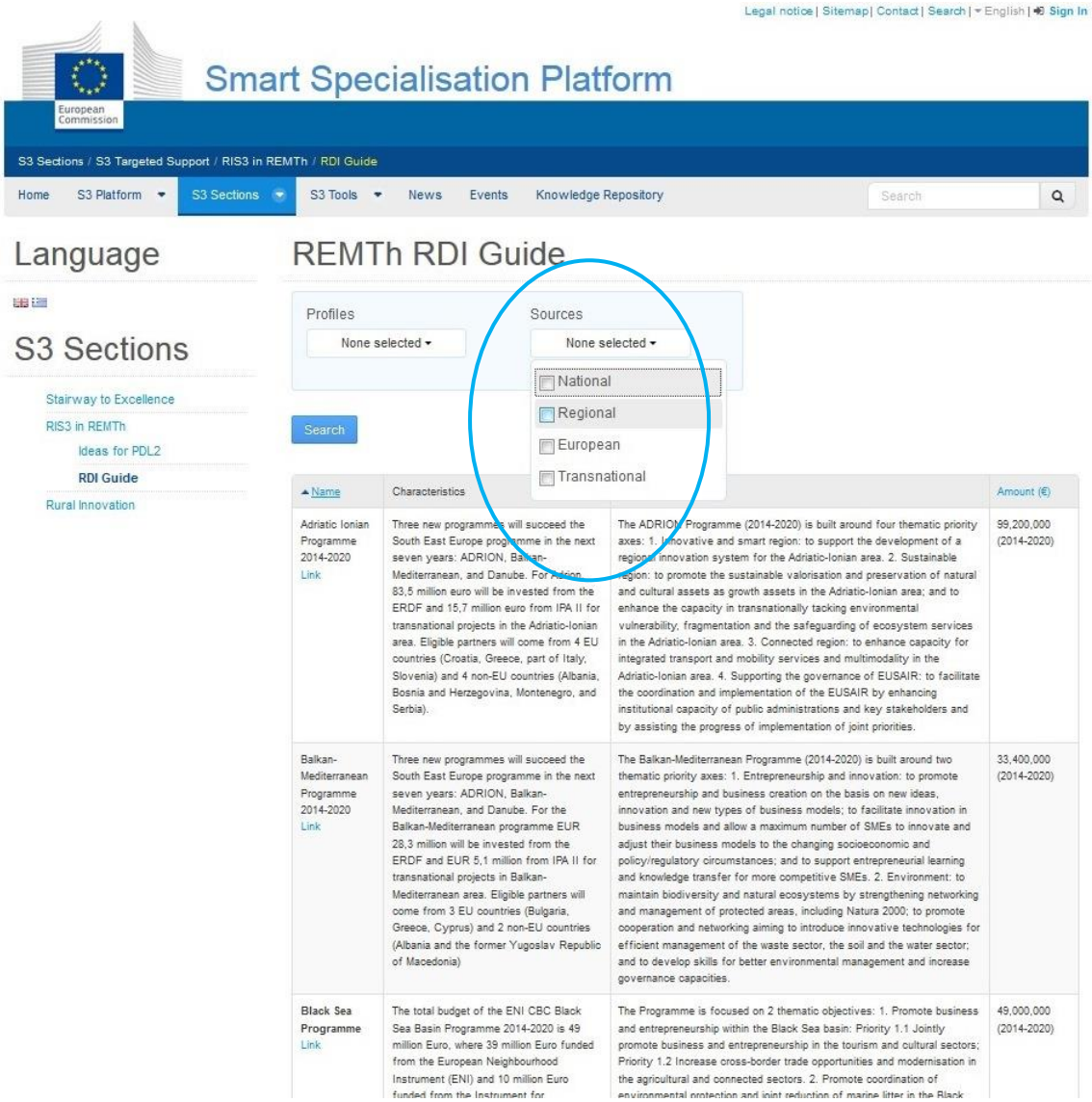
Annex 6: RDI Guide

This annex contains information on the online RDI guide, which provides summary information on the national and regional sources of funding relevant for the implementation of the RIS3 in Eastern Macedonia and Thrace. It aims to be a quick and accessible reference point for all stakeholders, describing the characteristics, indicative actions and financial amounts available under each relevant scheme.

A first edition of a RDI guide that was built with the help of external experts has been further completed, offering an overview of public funds available at regional, national and European level. It aims to be a quick and accessible reference point for all stakeholders, describing the characteristics, indicative actions and financial amounts available under each relevant scheme.

It identifies opportunities offered by ERDF, Horizon 2020, Territorial Cooperation Programmes and other EU instruments. The Interreg V-A - EL-BG - Greece-Bulgaria Territorial Cooperation programme for instance is a 110 million Euro programme earmarked to cooperation opportunities between Eastern and Central Macedonia and Bulgaria, thus constituting an important instrument for supporting the implementation of the RIS3 strategy in the region of Eastern Macedonia and Thrace. A draft version of the guide was presented at the second Project Development Lab to the stakeholders.

By using the filters, the user can select the organisation "profile" (universities, businesses and public actors) to display the national, regional European and/or transnational funding sources available.



NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
Rural Development Programme (RDP)	Measure 1: Knowledge transfer and information actions. The aim is to strengthen the links between applied research and real needs of the agri-food system and forestry, through the creation of connecting links and networking of all stakeholders (research institutions, consultancies, farmers, businesses in the primary, secondary and tertiary sectors, consumers associations, environmental organizations etc.).	Measure 1 includes actions in 3 possible areas of interventions: - Sub-measure 1 - Vocational training and skills acquisition actions. - Sub-measure 2 - Demonstration activities and information actions. - Sub-measure 3 - Short-term exchanges for farm and forestry management, and visits to agricultural holdings.	88888185
Rural Development Programme (RDP)	Measure 2: Advisory services, farm management and farm relief services. This measure promotes the use and setting up of advisory, farm management and farm relief services as well as training services for advisors aiming at (a) improving the sustainable management and economic and environmental management of farm and forestry holdings and SMEs operating in rural areas, (b) education / training of advisors in order to enhance the quality and effectiveness of the advice offered and to ensure the updating of their knowledge and their capacity at regular intervals.	Measure 2 includes actions in 3 possible areas of interventions: - Sub-measure 1 - Use of advisory services. - Sub-measure 2 - Creation of advisory services in the holding as well as forestry advisory services. - Sub-measure 3 - Training advisors Much emphasis is given in providing services with an emphasis on innovation. The advisory service providers act as " innovation intermediaries " focusing on finding innovative ideas, creating partnerships and supporting proposals for innovative projects.	162100920
Rural Development Programme (RDP)	Measure 3: Quality systems for agricultural products and foodstuffs. In order to increase the value of the agricultural	Measure 3 includes actions in 2 possible areas of interventions: - Sub-measure 1 - Support for new participation in quality systems.	54708713

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	product in rural areas and for producers to acquire better access in the market, support for participation of producers in quality systems is promoted. Apart from the introduction of quality systems in Measure 3 it also enhances actions of information and promotion for these specific systems. This measure reinforces newcomer farmers and groups of farmers who will participate in union or national quality schemes for agricultural products and foodstuffs, including certification schemes for agricultural holdings. These systems provide consumers with assurances on the quality and characteristics of the product or the production process used. The measure also aims to support information and promotion activities carried out by producer groups in the internal market, in respect of products covered by union or national quality systems for agricultural products and foodstuffs.	- Sub-measure 2 - Support for information and promotion activities carried out by producer groups in the internal market.	
Rural Development Programme (RDP)	Measure 4: Investment in tangible assets. Measure 4 provides support for investments in order to: (a) improve the economic and environmental performances of agricultural holdings and agribusiness, (b) improve the efficiency of the trading sector and processing of agricultural products, including the creation of small-scale processing and marketing facilities within the framework of short-supply chains and local markets, (c) provide the infrastructure required for the development of agriculture and forestry and (d) support non-profitable	Measure 4 includes actions in 4 possible areas of interventions: - Sub-measure 1 - Investments to improve the performance and sustainability of agricultural holdings. Priority will be given to investments aimed at reducing production costs and increasing competitiveness, mainly through the integration of innovative solutions, both in investment and in management level. - Sub-measure 2 - Investments in processing / marketing and / or development of agricultural products. The objective is to integrate innovation processes and use of new technologies and processes which are environmental-friendly whilst limiting the phenomenon of climate change and reveal the biodiversity; concurrently, the creation of jobs,	1639854472

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	investments necessary to achieve environmental objectives.	the improvement in the quality of life and the protection of human health is deemed decisive. Actions foreseen relate to establishments, modernizations, extensions, relocations, production units and warehouses, merging of units, by-products management units as will be foreseen in the national context, depending on the case of production sectors. - Sub-measure 3 - Investments in infrastructures relating to the development, modernization or adaptation of agriculture and forestry. Actions foreseen relate to the creation and/or improvement of infrastructures in the sector of soil and water resources, with main objective the increase of efficiency of water use in agriculture but also in the increase of competitiveness of agricultural holdings. - Sub-measure 4 - Non-productive investments linked to the achievement of agri-environmental and climate objectives.	
ROP East Macedonia-Thrace	Priority Axis 1: Improving the competitiveness of the local economy Specific Objective 1: Increasing business investments in Research and Innovation to develop new products and services in the priority areas of the Regional Smart Specialization Strategy (RIS3). By implementing SO1 the aim is: - To promote product or interworking or organizational innovation in businesses (new or existing).	Under PA1 / SO 1 the following indicative types of actions are foreseen: - Individual business investments in applied research aimed at product innovation. These actions may relate either to investment plans of individual businesses with sufficient R & I capacity or to business partnerships with academic or research institutions. - Partnerships or collaborations between business groups and academic or research institutions for applied research for resolving problems of common interest (interworking or organizational innovations) or to jointly develop new products. - Supporting initiatives for developing innovations new-into-business through innovation vouchers or other vouchers for creating research portfolio	12084618

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	- Increasing the innovation activities in small businesses and to social economy actors.		
OP Competitiveness Entrepreneurship and Innovation (Restart)	Priority Axis 3: Developing entrepreneurship support mechanisms. Specific objective 3.1: Upgrading and / or developing research and innovation infrastructures to improve the country's innovation capacity to support entrepreneurship. Specific Objective 3.1 aims at upgrading research infrastructures and developing new infrastructures, where necessary, based on participation or interconnection, primarily, to European networks of infrastructures (ESFRI) in connection with the smart specialization strategy and the European Charter for Access to Research Infrastructures (ESFRI) and the development of appropriate structures and monitoring mechanisms and support of the transfer of research results from the labs to the real economy. For leveraging and strengthening the demand for research services, what will be pursued is the opening of use of research infrastructures and their exploitation both by the Public Administration and by the private sector and the industry, aimed at strengthening the competitiveness and innovation at a national and regional level.	Under PA3 / SO 3.1, projects which are considered eligible for funding, among others relate to: - Strengthening major research infrastructures nationwide with an international recognition of their excellence and participation in European infrastructure networks (ESFRI) based on the priorities of the National Highway Research Infrastructures Charter. - Configuration and operation of National Research Infrastructures and monitoring system of their use and exploitation by the private sector and the State. - Strengthening the laboratory facilities for businesses interested in long-term cooperation with them. These laboratories may belong to universities, research centers or generally to the public sector providing scientific and technical services with market conditions. It is likely to interconnect and collaborate with regional nodes of Research Infrastructures in order to obtain a better utilization of investments and outward orientation of research services provided through them. The workshops are centres of competence and the driving power for their development is the practical interest of the domestic and international market, which co-invests and participates substantially in their revenue. - Establishment of an Innovation Development Network which will organize and strengthen the cooperation between Greek businesses with Greek researchers and their access to research infrastructures of the country.	128951388
OP	Priority Axis 3: Developing entrepreneurship	Under PA3 / SO 3.1, projects which are considered eligible for funding,	245533145

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
Competitiveness Entrepreneurship and Innovation (Restart)	support mechanisms. Specific objective 3.2: Expanding infrastructure for broadband services and high-speed networks. Specific Objective 3.2 focuses on strengthening broadband infrastructures and high-speed networks. In particular, actions to be supported relate to the bridging of the digital divide between urban centers and the Greek region, the development of new generation broadband infrastructures based on the requirements for Europe's digital agenda for 2020, and the creation and development of infrastructures for cloud services.	among others relate to: - Bridging Digital Divide & developing new generation broadband infrastructures (NGA). - Strengthening cloud infrastructures (rural phasing). Both categories of actions will be designed and implemented centrally. What is interesting, is the possibility of utilizing mature technologies and cloud infrastructures from businesses and the public sector by developing same structures (and infrastructures) of remote data management (private / public / hybrid).	
OP Human Resources Development, Education and Life Lifelong Learning (DSMB)	Priority Axis 6: Improving the quality and efficiency of the education system. PA 6 sets as priorities the improvement of the quality and effectiveness of education systems as well as the enhancement of the quality of higher education through student support and reinforcement of the human research potential. The latter will contribute to increasing the outward orientation and competitiveness of higher education.	Action foreseen in PA6 are aiming at: - Increasing research work in higher education by strengthening research, technological development and innovation with programs for developing postgraduate studies and entrepreneurial skills, as well as postgraduate and doctoral research. - Strengthening postgraduate and doctoral research programs, especially in areas related to the development needs of the Greek economy and society. - Strengthening the human resources in higher education by enhancing research programs in higher and lower tiers of higher education institutions, with the participation of students and the contingent utilization of collaborations and / or networks with other higher education institutions, research centers and productive institutions.	83463686
OP Human Resources	Priority Axis 7: Developing lifelong learning and improving the relevance of education and	Under PA7 (and more specific in special objective regarding the cooperation of higher education institutions and the market) the	63350351.88

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
Development, Education and Life Lifelong Learning (DSMB)	training with the labor market. PA 7 focuses on developing the system of lifelong learning both in order to strengthen the knowledge, skills and competences of the adult population and the provision of second chance education, and to facilitating mobility of human resources by applying frameworks and systems for recognition of professional qualifications and lifelong counseling. Moreover, an important priority is linking the education and training systems to the labor market, through the strengthening of initial vocational training, technical vocational training and apprenticeships and internships of students in higher education. Of particular interest to the RTDI requirements presents Specific Objective titled "Increasing the number of collaborations between higher education institutions with the business world " which seeks the strengthening of outward orientation of tertiary and the increase of collaborations of higher education institutions in the business world.	following indicative types of actions are foreseen en: - Higher Education Internship Programs. The objective is for students of higher education to gain experience in a real working environment aiming at the better linkage of universities with the business world. The internship will be funded to the extent that is integrated into the University's curriculum. - Entrepreneurship and innovation actions. The objective is to utilize the existing material from the Innovation and Entrepreneurship Units but also producing new material as well as implementing entrepreneurship courses, provision of mentoring to students in entrepreneurship matters and networking with businesses.	
Rural Development Programme (RDP)	Measure 6: Farm and business development Measure 6 is directly linked to the development of small entrepreneurship in rural areas and the creation and preservation of jobs and self-employment in them in the primary, secondary and tertiary sector. Besides the entrepreneurship, other objectives are those of solar rejuvenation and promotion of the	The Measure 6 includes actions in 4 possible areas of interventions: - Sub-measure 1 - Business start-up aid for young farmers. - Sub-measure 2 - Business start-up aid for non-agricultural activities in rural areas. - Sub-measure 3 - Business start-up aid for the development of small farms.	771364296

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	economic development of rural areas in sectors and activities that are compatible with the rural character, the local products and the natural and cultural heritage of selected regions.	- Sub-measure 4 - Investments for the creation and development of non-agricultural activities. The interventions involve the private sector of the economy of rural areas (businesses, farmers), acting however complementary to corresponding public or common interest activities and infrastructures which will be implemented by public bodies or other non-profit organizations and are supported by Measure 7. Also, emphasis will be given in exploiting existing infrastructures and new implementations (e.g. energy savings, implementation of technological and social innovations) in order to reduce the operating costs of businesses, while increasing the effectiveness and targeting of interventions.	
Rural Development Programme (RDP)	Measure 7: Basic services and renovation of villages in rural areas. Measure 7 includes interventions of a public character which aim to make rural areas more attractive, taking into account both "old" and "new" challenges, emphasizing the social integration and supporting the growth potential of rural areas. Relevant interventions relate to small-scale projects, whilst emphasis will be given to exploit existing infrastructures and new applications and solutions (e.g. ICT, energy saving, social innovation, voluntarism) in order to achieve provision of relevant services at lower cost, while increasing the effectiveness and targeting. Generally, what is pursued, is the emergence of the "local identity", either in respect of the cultural and natural heritage of the countryside or to the promotion and marketing of local	Measure 7 includes actions in 6 possible areas of interventions. From these, two are of interest in terms of ICT infrastructures and infrastructures to provide added value services in rural areas: - Sub-measure 3 - Support for broadband infrastructure, including the creation, improvement and expansion, passive broadband infrastructure and provision of access to broadband and e-Government. The interventions will be implemented in connection with the planning and the projects implemented in the period 2007-2013 and the objective is to further cover the "white spots" on the broadband map of the country for the rural areas. Examples of interventions are the creation of broadband infrastructure and facilitation of access to it through appropriate technology options; the upgrade of existing broadband infrastructure and actions of publicity, information and consultation on developing infrastructures. - Sub-measure 4 - Investments for the creation, improvement or expansion of local basic services for the rural population, including leisure and culture, as well as related infrastructures. Example of eligible action is the creation, expansion and modernization of public infrastructures for the promotion and marketing of local agricultural	34718610

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	products. It is noted that the relevant interventions of a public character contribute to stimulating local economic activity, either by acting complementary to corresponding actions of a private character, such as diversification outside of agricultural activities, or by creating demand for rendering specific services from the local economy, such as construction or technical works.	and other products e.g. local / municipal markets, producers' markets.	
Rural Development Programme (RDP)	Measure 9: Setting up producer groups and organizations. Producer groups and organizations help farmers to face jointly market challenges and strengthening the bargaining power - through increasing the volume of traded goods - in relation to the production and marketing including local markets; broaden the number of potential buyers and reduce the cost per producer for collective investments. Therefore, Measure 9 supports the setting up of producer groups and organizations, particularly in the early years when additional costs are incurred.	The Measure includes a sub-measure: Setting up producer groups and organizations in the agriculture and forestry sectors. Actions that may be incorporated include setting up producer groups and organizations in order to jointly address the market challenges, strengthening their bargaining power - through increasing the volume of traded goods - in relation to the production and marketing, the investigation of the number of potential buyers and the reduction of the cost of collective investments per producer.	30403215
Rural Development Programme (RDP)	Measure 16: Cooperation. Measure 16 aims at eliminating the difficulties of integrating the results of significant research effort in the sectors of foodstuffs, biotechnology, water, agriculture, forestry and livestock mainly on small farms in the primary sector. Besides the small size, the main problems they have to	Measure 16 includes actions in 6 possible areas of interventions: - Sub-measure 1 - Establishment for the operation of operational groups of the EIP (European Innovation Partnership) for the productivity and sustainability of agriculture. - Sub-measure 2 - Pilot projects for developing new products, practices, processes and technologies. - Sub-measure 3 - Co-operation between small enterprises in order to	130075566.3

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	overcome relate to the low educational level of employees, the lack of innovative entrepreneurship culture, isolation of rural areas and the lack of links between research and farm businesses and SMEs in rural areas.	organize joint work processes, sharing facilities and resources and for the development and marketing of tourism (agritourism). - Sub-measure 4 - Supporting horizontal and vertical cooperation between actors in the supply chain for creating and developing short supply chains and local markets, and supporting promotion activities in a local context relating to the development of short supply chains and local markets. - Sub-measure 5 - Supporting common action taken to mitigate climate change or adaptation to it, and supporting common approaches to environmental projects and ongoing environmental practices. - Sub-measure 6 - Horizontal and Vertical cooperation for sustainable biomass production.	
OP Competitiveness Entrepreneurship and Innovation (Restart)	Priority Axis 1: Growth of entrepreneurship with sectoral priorities. Specific objective 1.1: Increasing business initiatives and partnerships for the development of innovative entrepreneurship according to the national research and innovation strategy for smart specialization (RIS3 strategy). This particular Specific Objective serves the national policy of the Research and Innovation field for 2020 and focuses on exploiting research, technology and innovation from businesses in order to constitute the key pillar for improving competitiveness and upgrading entrepreneurship and productivity through production , dissemination and integration of new knowledge and innovation in existing and new products, services, production systems and value chains. The nine strategic areas where the actions will be	Under PA1 / SO 1.1, projects which are considered eligible for funding, among others relate to: - Enhancing research and innovation, technological development and demonstration in operating companies. - Enhancing new business initiatives for exploiting knowledge resulting from research activity (spin-offs). - Enhancing the creation and development of clusters or business partnerships, research and educational institutions. - Enhancing short-term business collaborations with university laboratories and research institutions. - Developing business association structures with academic / research centers. - Supporting Greek research teams to participate in European activities of Horizon 2020 and COSME.	536608534

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	implemented (and which have been recognized and recorded in the new development model of the country) are: food and agriculture / food processing, energy, supply chain, cultural and creative industries, environment, tourism, Information and Communications Technology (ICT), health and materials-constructions.		
OP Competitiveness Entrepreneurship and Innovation (Restart)	Priority Axis 1: Growth of entrepreneurship with sectoral priorities. Specific objective 1.2: Increasing the supply of digital services, applications and integrated ICT solutions for businesses. Specific Objective 1.2 aims to highlight the Digital Economy field (electronic communications and ICT) in a key growth pillar, which will contribute to the development of the country, fostering innovation, outward orientation of the domestic digital production, whilst is expected to address and cover the needs and challenges of the ICT sector. In order to enhance ICT services, interventions should be made both to increase the supply (services and infrastructures), and to stimulate the demand for services.	Under PA1 / SO 1.2, projects which are considered eligible for funding, among others relate to: - Development and adaptation of integrated software and digital content solutions. Encouragement is given in creating or upgrading software applications and / or digital content that could exploit innovative and sustainable models of rapid escalation and distribution, such as cloud computing. Supported software applications and / or digital content focus on the ICT value chain. - Enhancing entrepreneurship in new developing and dynamic ICT thematic markets, during the early stages of their appearance, such as machine-to-machine services, contactless transactions, provision of public services via the cloud. - Developing digital entrepreneurship that utilizes open data and big data (e.g. Public). Exploitation of research results that lead to innovative applications that focus on open data or big data.	175270355
OP Competitiveness Entrepreneurship and Innovation (Restart)	Priority 1: Growth of entrepreneurship with sectoral priorities. Specific objective 1.3: Developing entrepreneurship through new innovative ideas, by priority, in the strategic areas of the country.	Under PA1 / SO 1.3, projects which are considered eligible for funding, among others relate to: - Developing new business ideas, exploring their possible uses and their implementation through new products and services. Strengthening and supporting businesses to incorporate a new concept in their production activities for the creation of new products and services.	214388208

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	Specific Objective 1.3 aims to develop new or enhance existing support structures for startup businesses, providing integrated services. Such hubs (e.g. incubators, technology parks) can support the policy of creating new businesses at a faster pace than in the past. Emphasis will be given in supporting young entrepreneurs with advisory services on legal, accounting, trade-export matters etc. from experienced mentors and from highly reliable technical and administrative services. The implementation of SO 1.3 is focusing on fields of expertise upon which competitive advantages will be structured with a global horizon and long-term viability and by priority in sectors of: food and agriculture / food processing, energy, supply chain, cultural and creative industries, environment, tourism, Information and Communications Technology (ICT), health and materials-constructions.	Particular emphasis will be given on the organizational innovation and marketing innovation and in actions of outward orientation. - Incubation infrastructures for new knowledge-intensive business activities and incubators. Strengthening the existing ones or creating new infrastructures for the incubation of new knowledge-intensive business activities and incubators in order to promote innovative and commercial ideas to enhance startup entrepreneurship. - The financial support of business investment. Priority will be given to enhancement either through grants or through financial tools e.g. venture capitals, business angels, investment funds, seed capital, early stage VC, etc., by priority, of businesses operating in the nine (9) priority areas or through other forms appertaining to specific categories of business needs.	
OP Competitiveness Entrepreneurship and Innovation (Restart)	Priority Axis 1: Growth of Entrepreneurship with sectoral priorities. Specific objective 1.4: Upgrading the level of business organization and operation of SMEs, by priority, in the nine (9) strategic areas of the country. Specific Objective 1.4 aims in upgrading SMEs through the increase of investments for their technological and commercial modernization, the adoption of ICT usage, the increase of the degree of standardization and certification of products, the development of quality integrated services.	Under PA1 / SO 1.4, projects which are considered eligible for funding, among others relate to: - Simplification / automization of operational activities through the introduction and / or increase in the use of ICT in SMEs (for example introduction of relationship management systems with suppliers / customers, promotion of electronic transactions (e.g. with suppliers) through the utilization of high speed broadband infrastructures, enhancement of management information). - Certification regarding business operation and products in order to strengthen the feeling of trust and security to businesses and to increase the recognizability of products. - Supporting actions for knowledge acquisition on new products and services by studying the best practices from abroad, developing	285850944

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	At the same time, the "creative imitation" through technology transfer is expected to enhance the capacity of the productive potential and contribute to the increase of competitiveness of SMEs.	cooperation among similar businesses, supporting actions for the organization and the systematic exchange of knowledge and professional experience between SMEs, employment of research potential specialized in a field related to the activity of the business. - Upgrading infrastructures for the installation and operation of modern business activities (e.g. business parks, industrial areas, through the creation of collaborative innovation clusters, exhibition and storage premises.) - Developing laboratory standardization infrastructures and certification of products and services. - Liquidity support for investments relating to the development of new products and services in the 9 areas of national priority.	
OP Competitiveness Entrepreneurship and Innovation (Restart)	Priority Axis 1: Growth of entrepreneurship with sectoral priorities. Specific objective 1.5: Increasing Greek export businesses, by priority, in the nine (9) strategic areas of the country. Specific Objective 1.5 will support the efforts of Greek SMEs to increase their capacity to produce goods and services that have a strong export orientation. This will give a possibility for increased export activity of the Greek economy. The achievement of the above objective relies on the ability of Greek businesses not only to improve their export performance, but to create the conditions for effective integration in international production networks and marketing products and services.	Under PA1 / SO 1.5, projects which are considered eligible for funding, among others relate to: - Supporting businesses seeking opportunities in new markets abroad. Supporting the outward orientation of Greek businesses (primarily on the 9 strategic areas of the country) for penetrating new markets in rapidly developing countries. - Improving service capacity of existing markets. Supporting the outward orientation of Greek businesses to penetrate further in markets which are already active (by priority, on the country's nine priority areas). - Upgrading the image of Greek products abroad. Strengthening businesses for quality assurance and establishment of Greek products and services. - Collaborations, partnerships and / or development of business networks which are similar, complementary or belong to the same value chain. - Strengthening businesses which collaborate on joint activities or infrastructures through co-location and grouped business activities for the exploitation of scale economies.	214388208

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
ROP East Macedonia-Thrace	Priority Axis 1: Improving the competitiveness of the local economy Specific Objective 2: Strengthening the collaborative research between research, academic institutions and businesses in the priority areas of the Regional Smart Specialization Strategy (RIS3). By implementing SO2 the aim is: - Increasing the research results and innovations that are exploited by the productive fabric of the Region - Strengthening the dissemination of research results and innovations.	Under PA1 / SO 2 the following indicative types of actions are foreseen: - Investments of public R & D institutions for joint promotion of (a) their intellectual property rights, (b)their research results, (c) services offered, (d) laboratory or research infrastructures to businesses, inside and outside the Region. - Active technology transfer activities to companies. - Activities regarding the development of small-scale demonstration projects of academic or research institutions. - Investments of public R & D institutions to develop common structures of experimentation with businesses. - Activities encouraging the vesting of intellectual property rights by academic or research institutions in international patent offices. - Companies' investment plans - spin-offs recommended by researchers coming from REMTH'S academic and research institutions	2000000
ROP East Macedonia-Thrace	Priority Axis 1: Improving the competitiveness of the local economy Specific Objective 3: Increasing the availability of digital content in the areas of Regional Administration, Culture and Tourism. By implementing SO1 the aim is to develop digital content with major re-evaluation margins in self-government and in culture - tourism	Under PA 1/ SO 3 the following indicative types of actions are foreseen: - Developing communication systems with other authorities of the local administration (municipalities) and of the decentralized administration. - Completion of the functionality of existing IT systems to add new functions (digital land use applications, digital signatures, electronic information handling, e-invoicing, e-procurement, etc.) or to improve their level of IT maturity to the level of fully digital transactions with citizens. - E-Culture (e.g. electronic tour guide applications, creation and operation of online "virtual museums" that reveal both the cultural heritage and the modern artistic creation, creation and operation of online "virtual tours" in museums, archaeological sites, modern cultural facilities and historic city centers). Digitization of cultural content in order to be tapped into integrated tourism promotion activities. - Digitization and distribution on terms of open access to public data. - Developing interactive systems of Municipalities with their residents	4064326

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
		under the logic of "smart cities".	
ROP East Macedonia-Thrace	Priority Axis 1: Improving the competitiveness of the local economy Specific Objective 4: Increasing New Research-Intensive and Technology Businesses in the priority areas of the Regional Smart Specialization Strategy (RIS3). By implementing SO 4 the aim is: - Creating a supportive services grid and funding innovative start-up businesses. - Enhancing the level of economic exploitation of innovative ideas through their conversion into marketable products / services. - Improving youth entrepreneurship indicators.	Under PA1 /SO 4 the following indicative types of actions are foreseen: - Supporting knowledge-intensive and innovation business investment plans for their establishment and initial operation. - Creating business incubators. To support actions related to investment plans of New Research-Intensive and Technology Businesses, the funding will be made by priority of: - Investment plans belonging to the intervention priorities of RIS3 or which contribute to the improvement of integrated value chains with outward orientation. - Investment plans which present clear evidence as to the commercial exploitation of their results, especially in relation to the export potential. - Investment plans documenting technological innovation maturity and special designs that utilize / integrate mature research results (e.g. 7FP and H2020 research results etc.).	23000000
ROP East Macedonia-Thrace	Priority Axis 1: Improving the competitiveness of the local economy Specific Objective 5: Increasing the efficiency and productivity of SMEs. By implementing SO 5 the aim is: - Reducing the production cost and disposal of SME products and services. - Increasing SMEs' productivity rates.	Under PA1 / SO5 , the following indicative types of actions are foreseen: - Enhancing business investment plans selected by RIS3 process industries for the introduction of key enabling technologies, with an emphasis on promotion and implementation of mature research results (e.g. 7FP and H2020 research results etc.). Key technologies are those selected by the GSRT: ICT, nanotechnology, biotechnology, photonics, advanced materials. - Supporting business investment plans from all sectors for the introduction of interworking, organizational or promotional innovations, with an emphasis in promotion and implementation of mature research results (e.g. 7FP and H2020 research results etc.). - Supporting business investment plans from all sectors for the	16774147.08

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	- Improving the competitiveness of SMEs.	introduction of energy-efficient technologies and use of RES with a focus on exploiting geothermal applications and biomass products.	
ROP East Macedonia-Thrace	Priority Axis 1: Improving the competitiveness of the local economy Specific Objective 6: Increasing the outward orientation of SMEs. With the implementation of SO 6 the aim is: - Creating new or enhanced clusters as a business development catalyst. - Facilitating the entry of REMTH'S SMEs in international (primarily) and domestic value chains.	Under PA1 / SO 6, the following indicative types of actions are foreseen: - Creating Networks and / or Innovation Clusters, in selected value chains resulting from the process of RIS3 for the production and distribution of innovative products / services. - Actions for cooperation between tourism and cultural sectors with sectors that directly affect the tourism product (establishment, transportations, trade, processing) with objective, the enhancement of tourism networks and integrated tourist programs / destinations. - Supporting investment projects of integrated value chains to improve their export performance.	12500000
Horizon2020	SME Instrument The SME Instrument aims to support high growth, highly innovative SMEs with global ambitions that have passed the start-up stage.	The instrument is structured in three phases, with the aim of transforming disruptive ideas into concrete, innovative solutions with a European and global impact. SMEs are recommended to apply for phase 1, but may also apply directly for subsequent phases: Phase 1: Concept and Feasibilty Assessment (6 months). The SME will draft an initial business proposal. The EU will provide €50k in funding and business coaching. Phase 2: Demonstration, Market Replication, R&D Concept to Market-Maturity (1-2 years). The SME will further develop its proposal through innovation activities and draft a more developed business plan. The EU may contribute between €0.5-2.5mil and provide business coaching. Phase 3: Commercialisation. The SME will receive extensive support to help polish its concept into a marketable product and have access to networking opportunities. No funding for this phase.	259700000
Horizon2020	Fast-Track to Innovation (FTI) Pilot	The FTI pilot is the only fully-bottom-up measure in Horizon 2020	400000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	The FTI pilot aims to reduce the time from idea to market and to increase the participation in Horizon 2020 of industry, SMEs and first -time industry applicants. It should stimulate private sector investment, promote research and innovation with a focus on value creation, and accelerate the development of innovative products, processes and services.	promoting close-to-the-market innovation activities that is open to all types of participants. FTI aims to reduce the time from idea to market and to increase the participation in Horizon 2020 of industry, SMEs and first-time industry applicants. FTI also aims to nurture trans-disciplinary and cross-sector approaches. All kinds of innovation actors can work together to develop sustainable innovations addressing societal needs or areas under 'Leadership in enabling and industrial technologies' and, at the same time, create viable business opportunities. This is why FTI projects must be business-driven and clearly demonstrate a realistic potential for quick deployment and market take-up of innovations. On offer is a maximum EU contribution of €3M per proposal with time-to-grant of around 6 months. Proposals for funding must be submitted by consortia comprising between three and five legal entities established in at least three different EU Member States or countries associated to Horizon 2020. Within each consortium there must either be an allocation of at least 60% of the budget to industry participants or the consortium must include a minimum of two industry participants in a consortium of three or four partners, or three industry participants in a consortium of five partners.	
Marie Skłodowska-Curie Actions	Innovative Training Networks (ITN) The Innovative Training Networks (ITN) aim to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and	ITN project proposals may take one of three forms: (1) European Training Networks (ETN) covering joint research training, implemented by at least three partners from in and outside academia. The aim is for the researcher to experience different sectors and develop their transferable skills by working on joint research projects. (2) European Industrial Doctorates (ED). Joint doctoral training delivered by at least one academic partner entitled to award doctoral degrees, and at least one partner from outside academia, primarily	775000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	social benefit. ITN supports competitively selected joint research training and/or doctoral programmes, implemented by partnerships of universities, research institutions, research infrastructures, businesses, SMEs, and other socio-economic actors from different countries across Europe and beyond.	enterprise. Each participating researcher is enrolled in a doctoral programme and is jointly supervised by supervisors from the academic and non-academic sector, where they spend at least 50% of their time. The aim is for doctoral candidates to develop skills inside and outside academia that respond to public and private sector needs. (3) European Joint Doctorates (EJD). A minimum of three academic organisations form a network with the aim of delivering joint, double or multiple degrees. Joint supervision of the research fellow and a joint governance structure are mandatory. The aim is to promote international, intersectoral and multi/interdisciplinary collaboration in doctoral training in Europe.	
Marie Skłodowska-Curie Actions	Individual Fellowships (IF) The goal of Individual Fellowships is to enhance the creative and innovative potential of experienced researchers wishing to diversify their individual competence in terms of skill acquisition through advanced training, international and intersectoral mobility. Support is foreseen for individual, trans-national fellowships awarded to the best or most promising researchers for employment in EU Member States or Associated Countries, based on an application made jointly by the researcher and host organisation in the academic or non-academic sectors.	IF may take one of these two forms: (1) European Fellowships. They are held in the EU or associated countries, being open to researchers either coming to Europe or moving within Europe. They aim to help restart research careers after a break or reintegrate researchers coming back to Europe. (2) Global Fellowships. They fund secondments outside Europe for researchers based in EU or associated countries. There is a mandatory one-year return period. Both options can also include a secondment period of up to 3 or 6 months in another organisation in Europe, where this could boost the impact of the fellowship.	253000000
Marie Skłodowska-Curie Actions	Research and Innovation Staff Exchange (RISE) The RISE scheme will promote international and inter-sector collaboration through research and innovation staff exchanges, and sharing of	This action is meant for organisations such as universities, research centres or companies – that propose a short term exchange to their staff. Proposals should include at least three partners, which can be universities, research institutions, or non-academic organisations. Small and medium-sized enterprises (SMEs) are encouraged to participate.	150000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	knowledge and ideas from research to market (and vice-versa) for the advancement of science and the development of innovation. Support is provided for the development of partnerships in the form of joint research and innovation activities between the participants. This is aimed at knowledge sharing via international as well as intersectoral mobility, based on secondments of research and innovation staff (exchanges) with an in-built return mechanism.	Partner organisations should be from three different countries. At least two of these should be from the EU or associated countries. Partners from elsewhere in the world can also join. If the exchange happens between the EU or associated countries it must be intersectoral. In worldwide partnerships, exchanges within the same sector are possible. Partners get together and propose a joint project. Proposals should highlight networking opportunities, sharing of knowledge and the skills development of staff members. Research staff of any nationality and any career level (postgraduates to experienced researchers) can undertake a secondment. Staff members working in managerial, technical or administrative roles can also be seconded.	
Marie Skłodowska-Curie Actions	Co-funding of regional, national and international programmes (COFUND) COFUND offers additional funding for new or existing regional, national and international programmes to provide an international and intersectoral dimension to research training and career development. Doctoral programmes as well as fellowship programmes for experienced researchers can be supported.	Each proposal funded under the COFUND scheme shall have a sole participant that will be responsible for the availability of the necessary matching funds to execute the proposal. Participants submit multi-annual proposals for new or existing doctoral programmes or fellowship programmes that may be run at regional, national or international level. The evaluation is organised in two different panels: A) Doctoral programmes and B) Fellowship programmes. Support cannot be awarded to researchers who are already permanently employed at the host organisation.	160000000
Erasmus+ Programme	Key Action 1: Mobility of Individuals	This Key Action supports: (1) Mobility of learners and staff: opportunities for students, trainees, young people and volunteers, as well as for professors, teachers, trainers, youth workers, staff of education institutions and civil society organisations to undertake a learning and/or professional experience in another country. (2) Erasmus Mundus Joint Master Degrees: high-level integrated international study programmes delivered by consortia of higher education in stitutions that award full degree scholarships to the best master students worldwide.	1671000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
		(3) Erasmus+ Master Degree Loans: higher education students from Programme Countries can get a loan backed up by the Programme to go abroad for a full Master Degree. Students should address themselves to national banks or student loan agencies.	
Erasmus+ Programme	Key Action 2: Co-operation for Innovation and the Exchange of Good Practices.	This Key Action Supports: (1) Transnational Strategic Partnerships aimed to develop initiatives addressing one or more fields of education training and youth and promote innovation, exchange of experience and know-how between different types of organisations involved in education, training and youth or in other relevant fields. Certain mobility activities are supported in so far as they contribute to the objectives of the project. (2) Knowledge Alliances between higher education institutions and enterprises which aim to foster innovation, entrepreneurship, creativity, employability, knowledge exchange and/or multidisciplinary teaching and learning. (3) Sector Skills Alliances supporting the design and delivery of joint vocational training curricula, programmes and teaching and training methodologies, drawing on evidence of trends in a specific economic sector and skills needed in order to perform in one or more professional fields. (4) Capacity Building projects supporting cooperation with Partner Countries in the fields of higher education and youth. Capacity Building projects aim to support organisations/institutions and systems in their modernisation and internationalisation process. In certain eligible Partner Countries mobility activities are supported in so far as they contribute to the objectives of the project. (5) IT support platforms, such as eTwinning, the European Platform for Adult Learning (EPALE) and the European Youth Portal, offering virtual collaboration spaces, databases of opportunities, communities of practice and other online services for teachers, trainers and practitioners in the field of school and adult education as well as for young people, volunteers and youth workers across Europe and	1671000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
		beyond.	
Erasmus+ Programme	Key Action 3: Support for Policy Reform	This Key Action Supports: (1) Knowledge in the fields of education, training and youth for evidence-based policy making and monitoring in the framework of Europe2020, in particular: (a) country-specific and thematic analysis, including through cooperation with academic networks; (b) peer learning and peer reviews through the Open Methods of Coordination in education, training and youth. (2) Initiatives for policy innovation to stimulate innovative policy development among stakeholders and to enable public authorities to test the effectiveness of innovative policies through field trials based on sound evaluation methodologies. (3) Support to European policy tools to facilitate transparency and recognition of skills and qualifications, as well as the transfer of credits, to foster quality assurance, support validation of non-formal and informal learning, skills management and guidance. This Action also includes the support to networks that facilitate cross-European exchanges, the learning and working mobility of citizens as well as the development of flexible learning pathways between different fields of education, training and youth. (4) Cooperation with international organisations with highly recognised expertise and analytical capacity (such as the OECD and the Council of Europe), to strengthen the impact and added value of policies in the fields of education, training and youth. (5) Stakeholder dialogue, policy and Programme promotion with public authorities, providers and stakeholders in the fields of education, training and youth are necessary for raising awareness about Europe 2020, Education and Training 2020, the European Youth Strategy and other European sector-specific policy agendas, as well as the external dimension of EU education, training and youth policies. They are essential to develop the capacity of stakeholders to concretely	1671000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
		support the implementation of policies by stimulating the effective exploitation of the Programme results and generating tangible impact.	
Erasmus+ Programme	Jean Monnet Activities	The Jean Monnet Activities will support: (1) Academic Modules, Chairs, Centres of Excellence in order to deepen teaching in European integration studies embodied in an official curriculum of a higher education institution, as well as to conduct, monitor and supervise research on EU content, also for other educational levels such as teacher training and compulsory education. These Actions are also intended to provide in-depth teaching on European integration matters for future professionals in fields which are in increasing demand on the labour market, and at the same time aim at encouraging, advising and mentoring the young generation of teachers and researchers in European integration subject areas; (2) Policy debate with academic world, supported through: (a) Networks to enhance cooperation between different universities throughout Europe and around the world, foster cooperation and create a high knowledge exchange platform with public actors and the Commission services on highly relevant U subjects; (b) Projects for innovation and cross-fertilisation and spread of EU content aimed to promote discussion, reflection on EU issues and to enhance knowledge about the EU and its processes; (3) Support to institutions and associations, to organise and carry out statutory activities of associations dealing with EU studies and EU issues, and to publicize EU facts among a wider public enhancing active European citizenship. Jean Monnet Activities also provide operating grants to designated institutions which pursue an aim of European interest; (4) Studies and conferences with the purpose of providing policy-makers with new insights and concrete suggestions via critical independent academic views, and to reflect on current issues of the EU, in particular through the annual major international conference on	11400000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
		highly political subjects with the participation of policy-makers, civil society and top-level academics.	
Erasmus+ Programme	Sport	Actions in the field of sport will support: (1) Collaborative Partnerships, aimed at promoting the integrity of Sport (anti-doping, fight against match fixing, protection of minors), supporting innovative approaches to implement EU principles on good governance in sport, EU strategies in the area of social inclusion and equal opportunities, encouraging participation in sport and physical activity (supporting the implementation of EU Physical Activity Guidelines, volunteering, employment in sport as well as education and training in sport), and supporting the implementation of the EU guidelines on dual careers of athletes; (2) Not-for-profit European sport events, granting individual organisations in charge of the preparation, organisation and follow-up to a given event. The activities involved will include the organisation of training activities for athletes and volunteers in the run-up to the event, opening and closing ceremonies, competitions, side-activities to the sporting event (conferences, seminars), as well as the implementation of legacy activities, such as evaluations or follow-up activities. (3) Strengthening of the evidence base for policy making through studies; data gathering, surveys; networks; conferences and seminars which spread good practices from Programme Countries and sport organisations and reinforce networks at EU level so that national members of those networks benefit from synergies and exchanges with their partners; (4) Dialogue with relevant European stakeholders, being mainly the annual EU Sport Forum and support to Sport Presidency events organised by the EU Member States holding the Presidency of the EU. Other ad-hoc meetings and seminars relevant to ensure optimal dialogue with the sport stakeholders may also be organised as appropriate.	16800000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
The COSME Programme	COSME is the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (SMEs) running from 2014 to 2020 with a planned budget of €2.3bn. COSME will support SMEs in four areas: (1) Improving access to finance for SMEs in the form of equity and debt (2) Improving access to markets (3) Improving framework conditions for the competitiveness and sustainability of Union enterprises (4) Promoting entrepreneurship and entrepreneurial culture	COSME is the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (SMEs) running from 2014 to 2020 with a planned budget of €2.3bn. COSME will support SMEs in four areas: (1) Improving access to finance for SMEs in the form of equity and debt (2) Improving access to markets (3) Improving framework conditions for the competitiveness and sustainability of Union enterprises (4) Promoting entrepreneurship and entrepreneurial culture	2300000000
Interreg Europe	The Interreg Europe programme financed by the European Regional Development Fund (ERDF) aims to improve the implementation of regional development policies and programmes, in particular programmes for Investment for Growth and Jobs and European Territorial Cooperation (ETC) programmes. By co-financing projects and four thematic platforms it allows regional and local public authorities and other players of regional relevance across Europe to exchange practices and ideas on the way public policies work, and thereby find solutions to improve their strategies for their own citizens.	Interreg Europe will run two types of actions: Projects Public organisations from different regions in Europe work together for 3 to 5 years on a shared policy issue. Action plans in the participating regions will ensure that the lessons learnt from the cooperation are put into action. Partners will monitor how far the action plans are implemented. Calls for project proposals are launched throughout the programming period. Get ready for first call for proposals. Platforms A tool for faster and better sharing of knowledge to help policymakers do their job better. Platforms are a space for continuous learning about public policies in the four themes of the programme. Organisations dealing with regional development policies in Europe can find solutions there to improve the way they manage and implement their policies. The main aim is to support local and regional governments to be more effective when planning and implementing policies for the benefit of citizens.	359000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
Creative Europe	Creative Europe is the European Commission's framework programme for support to the culture and audiovisual sectors. Following on from the previous Culture Programme and MEDIA programme , Creative Europe supports Culture sector initiatives, such as those promoting cross-border cooperation, platforms, networking, and literary translation; Audiovisual sector initiatives, such as those promoting the development, distribution, or access to audiovisual works; A cross-sectoral strand, including a Guarantee Facility and transnational policy cooperation.	The Creative Europe programme has two sub-programmes, Culture and Media, in addition to a cross-sectoral strand. In the Culture sub-programme, opportunities exist for: *Cooperation between cultural and creative organisations from different countries; *Initiatives to translate and promote literary works across the European Union; *Networks helping the cultural and creative sector to operate competitively and transnationally; *Establishing platforms to promote emerging artists and stimulating European programming for cultural and artistic works. In the Media sub-programme, opportunities exist for: *Initiatives that aim to promote the distribution of works and the access to markets; *Initiatives for the development of projects or a set of projects (slate funding); *Support for the production of television programmes or video games; *Activities to increase interest in and improve access to audiovisual works; *Activities that promote interests in films, such as cinema networks or film festivals; *Measures that facilitate international co-production and strengthen the circulation and distribution of works; *Activities to build the skills and capacities of audiovisual sector professionals.	1460000000
H2020 Innosup	Horizon 2020 INNOSUP calls for proposals and tenders are elements of a broader action to develop the ecosystem of innovation support to SMEs in Europe.	Generally, the actions are designed to provide opportunities to Member States and regions to enhance their services through collaboration, peer-learning and uptake of new approaches. In addition several actions will focus on the identification, further development and dissemination of skills and expertise among SMEs.	1700000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
		The Enterprise Europe Network present in all European regions and co-financed by them and the Member States is expected to play an important role for catalysing such development processes	
Interreg V-A - EL-BG - Greece-Bulgaria	The Greece-Bulgaria cross-border cooperation area for the programming period 2014- 2020 is identical to the current ETC programme. For Greece it concerns the following NUTS regions: EL11 - Ανατολική Μακεδονία, Θράκη (Anatoliki Makedonia, Thraki), EL111 - Έβρος (Evros), EL112 - Ξάνθη (Xanthi), EL113 - Ροδόπη (Rodopi), EL114 - Δράμα (Drama), EL115 - Καβάλα (Kavala), EL122 - Θεσσαλονίκη (Thessaloniki), EL126 - Σέρρες (Serres). For Bulgaria it concerns BG413 - Благоевград (Blagoevgrad), BG422 - Хасково (Haskovo), BG424 - Смолян (Smolyan) and BG425 - Кърджали (Kardzhali).	Under TO3 (competitiveness - Budget: 17,638,598): To improve support systems tailored for start-ups and existing SMEs, focused on cross-border cooperation; and to expand economic activity in the cross-border area, by encouraging innovation and exchange. Under TO5 (Climate change - Budget: 36,170,149): To reduce impacts from disasters; to valorise CB area cultural and natural heritage; to enhance the effectiveness of biodiversity protection activities; to enhance water and soil management. Under TO7 (Transport and infrastructure - Budget: 29,070,613): to reduce travel times for people and goods; to improve transportation environmental impacts. Under TO9 (Promoting social inclusion, combating poverty and any discrimination - Budget: 20,747,400): To improve access to high-quality health services in the CB area; to increase the capacity of social enterprises in the CB area. Under TO11 (Budget: 6,614,474.00) - To manage and implement the Cooperation Programme effectively and efficiently.	110000000
Black Sea Programme	The total budget of the ENI CBC Black Sea Basin Programme 2014-2020 is 49 million Euro, where 39 million Euro funded from the European Neighbourhood Instrument (ENI) and 10 million Euro funded from the Instrument for Pre-Accession (IPA II) for Turkey's participation. For Greece only Eastern Macedonia and Thrace and Central Macedonia are eligible. Other participating countries to the Programme include: Armenia, Bulgaria, Georgia, Republic of Moldova, Romania, Turkey, Ukraine (and possibly Russian Federation and Azerbaijan).	The Programme is focused on 2 thematic objectives: 1. Promote business and entrepreneurship within the Black Sea basin: Priority 1.1 Jointly promote business and entrepreneurship in the tourism and cultural sectors; Priority 1.2 Increase cross-border trade opportunities and modernisation in the agricultural and connected sectors. 2. Promote coordination of environmental protection and joint reduction of marine litter in the Black Sea basin: Priority 2.1 Improve joint environmental monitoring; Priority 2.2 Promote common awareness-raising and joint actions to reduce river and marine litter.	49000000
Mediterranean Sea	The Cross-Border Cooperation (CBC) under the	1. Business and SMEs development: Support innovative start-ups and	209000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
Basin Programme	European Neighbourhood Instrument (ENI) has a total budget of € 1 billion, out of which one fifth is dedicated to the Mediterranean Sea Basin Programme. For Greece, the cooperation area includes Anatoliki Makedonia - Thraki, Kentriki Makedonia, Thessalia, Ipeiros, Ionia Nisia, Dytiki Ellada, Sterea Ellada, Peloponnisos, Attiki, Voreio Aigaio, Notio Aigaio, Kriti. The following other countries are eligible under the ENI: Algeria, Cyprus, Egypt, France, Israel, Italy, Jordan, Lebanon, Malta, Palestine, Portugal, Spain, Syria, Tunisia, Turkey and United Kingdom (Gibraltar).	recently established enterprises, with a particular focus on young and women entrepreneurs and facilitate the protection of their intellectual property rights and commercialization where applicable; Strengthen and support euro-Mediterranean networks, clusters, consortia and value-chains in traditional (agro-food, tourism, textile/clothing, etc.) and non-traditional sectors (innovative ideas solutions for urban development, eco-housing, sustainable water-related and other clean technologies, renewable energy, creative industries, etc.); Encourage sustainable tourism initiatives and actions aimed at diversifying into new segments and niches. 2. Support to education, research, technological development and innovation: Support technological transfer and commercialisation of research results, strengthening the linkages between research, industry as well as private sector actors; Support SMEs in accessing research and innovation also through clustering. 3. Promotion of social inclusion and fight against poverty: Provide young people, especially those belonging to the NEETS (Not in Education, Employment, or Training) and women, with marketable skills; support social and solidarity economic actors, also in terms of improving capacities and co-operation with public administrations for services' provision. 4. Environmental protection, climate change adaptation and mitigation: Water; Waste; Renewable energy and energy efficiency; Integrated Coastal Zone Management. 5. People to people cooperation as a modality to achieve the above.	
MEDA Programme	The MEDA programme is the main financial instrument of the Euro-Mediterranean partnership. The programme's regional dimension deals with problems common to Mediterranean Partners and emphasises the Partners' complementary nature. There is also a bilateral dimension (e.g. Country Association Agreements).	Support offered through the MEDA Programme applies to three forms of action: The creation of a Euro-Mediterranean free trade zone as well as the economic transition of non-member Mediterranean countries; the programme intends to promote the development of the private sector through the support of economic and social reforms. MEDA seeks, amongst other things to:	173000000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
		- Support local SME - Improve market openness - Increase FDI and domestic investment - Support the consolidation of appropriate economic and social structures In order to obtain long-term economic and social development, MEDA promotes: - A more substantial role played by civil society and social services - The strengthening of human rights, democracy and respect of the environment - The development of transport and energy sectors, as well as cultural exchanges and human resources The programme is also concerned with regional and intra-regional development, through: - The support for the creation of structured aimed at augmenting economic and cultural regional cooperation between and amongst non-member Mediterranean countries and members of the EU.	
Adriatic Ionian Programme 2014-2020	Three new programmes will succeed the South East Europe programme in the next seven years: ADRION, Balkan-Mediterranean, and Danube. For Adrion, 83,5 million euro will be invested from the ERDF and 15,7 million euro from IPA II for transnational projects in the Adriatic-Ionian area.	The ADRION Programme (2014-2020) is built around four thematic priority axes: 1. Innovative and smart region: to support the development of a regional innovation system for the Adriatic-Ionian area. 2. Sustainable region: to promote the sustainable valorisation and preservation of natural and cultural assets as growth assets in the Adriatic-Ionian area; and to enhance the capacity in transnationally	99200000

NAME	CHARACTERISTIC	INDICATIVE ACTIONS	AMOUNT IN EUR
	Eligible partners will come from 4 EU countries (Croatia, Greece, part of Italy, Slovenia) and 4 non-EU countries (Albania, Bosnia and Herzegovina, Montenegro, and Serbia).	tacking environmental vulnerability, fragmentation and the safeguarding of ecosystem services in the Adriatic-Ionian area. 3. Connected region: to enhance capacity for integrated transport and mobility services and multimodality in the Adriatic-Ionian area. 4. Supporting the governance of EUSAIR: to facilitate the coordination and implementation of the EUSAIR by enhancing institutional capacity of public administrations and key stakeholders and by assisting the progress of implementation of joint priorities.	
Balkan-Mediterranean Programme 2014-2020	Three new programmes will succeed the South East Europe programme in the next seven years: ADRION, Balkan-Mediterranean, and Danube. For the Balkan-Mediterranean programme EUR 28,3 million will be invested from the ERDF and EUR 5,1 million from IPA II for transnational projects in Balkan-Mediterranean area. Eligible partners will come from 3 EU countries (Bulgaria, Greece, Cyprus) and 2 non-EU countries (Albania and the former Yugoslav Republic of Macedonia)	The Balkan-Mediterranean Programme (2014-2020) is built around two thematic priority axes: 1. Entrepreneurship and innovation: to promote entrepreneurship and business creation on the basis on new ideas, innovation and new types of business models; to facilitate innovation in business models and allow a maximum number of SMEs to innovate and adjust their business models to the changing socioeconomic and policy/regulatory circumstances; and to support entrepreneurial learning and knowledge transfer for more competitive SMEs. 2. Environment: to maintain biodiversity and natural ecosystems by strengthening networking and management of protected areas, including Natura 2000; to promote cooperation and networking aiming to introduce innovative technologies for efficient management of the waste sector, the soil and the water sector; and to develop skills for better environmental management and increase governance capacities.	33400000

Annex 7 – Human-resources mobility

This annex comprises two reports:

- **Exploring Options for University-Industry Mobility Programmes in REMTh**, prepared for JRC-IPTS by Mr Michalis Metaxas, Innovatia Systems, to serve as a background for the working group on the mobility of human resources.
- **A Roadmap for Improving Human Capital Mobility in Anatoliki Makedonia-Thrake** on the outcomes of the working group on human mobility, prepared for the JRC-IPTS by Dr Yiannis Tolias, Innovatia Systems.

Exploring Options for University-Industry Mobility Programmes in REMTh

Michalis Metaxas*
Final Draft of 2 February 2015

INTRODUCTION AND SCOPE

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 (REMTh) that was launched in September 2014. It examines options for intervention for a University-Industry Mobility Programme (UIMP) in REMTh and proposes a plan of actions for setting up and developing fora for interaction to set up university-industry mobility programmes in the Region.

CONTEXT AND NEEDS ASSESSMENT

The mobility of skilled human capital (job-to-job, occupational, inward/outward. education) is one of the fundamental mechanisms that create direct knowledge flows and indirect knowledge spill overs. This explains why mobility has become a prioritised focus of science, technology and innovation policies; especially in less advantaged regions that apply catching-up strategies (see section 6.6 in [1]).

According to the evidence compiled in [2], the situation in REMTh with respect to mobility-related issues was, at the end of 2013, as follows:

1. The two Higher Education Institutions (HEIs) located in the Region, namely Democritus University of Thrake (DUTh) and Technological Educational Institute of Anatoliki Makedonia-Thrake (TEIKAV), provide undergraduate and graduate courses to a population of approximately 17000 students from all over Greece. This means that their scope, in terms of admissions is national rather than regional. There is no evidence to suggest that local secondary education graduates prefer the regional HEIs to other HEIs.
2. In addition to HEIs, two public research centres, ie the regional branch of ATHENA Research and Innovation Centre, specialising on applied ICT, and the Fisheries Research Institute, constitute an intermediate mobility target between academia and industry. They both diffuse knowledge through collaborative and applied research projects.
3. The evidence that is publicly available suggests that the two regional HEIs have put very limited effort to build relationships with their alumni. The absence of alumni professional career development tracking mechanisms in the regional HEIs inhibits any attempt to assess non-funded mobility. According to the results of two surveys conducted by the Careers Office at DUTh:

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a. 6% of the undergraduate students are enrolled in a Department located in their town of origin (Xanthi, Komotini, Alexandroupolis or Orestiada);

b. 16% of the new graduates work in REMTh;

c. 73% of the new graduates would stay in REMTh if they had a job offer.

4. Using ESF and national funding, both HEIs have established Careers' Offices (DASTAs), Innovation and Entrepreneurship Support Units (MOKEs) and have introduced elective courses on entrepreneurship for their undergraduate students. There is no evidence of a systematic assessment and review of both the outcomes and the impact of these initiatives.

5. Table 1 presents the regional endowment of R&D personnel and researchers according to the latest available data. It is clear that the higher education sector constitutes the main pool of the region's research base.

6. The mobility of researchers between HEIs and the industry is very low, if any, and this is a systemic issue in Greece.

TABLE 1 HEADCOUNT OF R&D PERSONNEL AND RESEARCHERS BY SECTORS OF PERFORMANCE IN REMTH, 2011. (SOURCE: EUROSTAT)

Sector of Performance	Total R&D Personnel	Researchers
Higher Education	3 044	1 994
Business Enterprise	355	128
Government	136	48
Totals:	3 535	2 170

7. The number of co-authored scientific publications with other high-ranking HEIs is very limited. Between 2007 and 2012, DUTh faculty have co-authored 15 papers with their peers in Harvard University, 16 with Oxford, 25 with University of Pennsylvania, 18 with UCL, 17 with Imperial College and 21 with University of Gottingen. FP7 data indicate a strong partnership with Utrecht University (3 joint projects); DUTh ranking versus other Greek organisations (universities, research centres and enterprises) in FP7 participation in the period between 2007 and 2012 is in the range from 13 to 45, with the lower values being the norm.

8. For TEIKAV undergraduate students, one-semester internships are mandatory for graduation. For this purpose, TEIKAV has signed 405 MoUs with enterprises and public sector organisations, 158 of which operate in the Region. Similar non-mandatory programmes in DUTh have faded out upon discontinuation of the ESF funding that supported them.

9. A weak but stable flow of incoming and outgoing researchers through the ERASMUS programme is observed in the period 2007-2012.

10. The internationalisation of the researchers' population in the Region is negligible, with the language being the main barrier.

Table 2 summarises the performance of the regional stakeholders in securing funding for mobility-related funded projects in the period from 2007 to 2013. Although there are no data available to assess the actual intensity of demand for such projects in the Region, it is clear that the performance of the academic sector (first line) was significantly higher than that of the enterprise sector.

TABLE 2 REMTH PERFORMANCE IN MOBILITY PROGRAMMES 2007-2013 (SOURCE: GSRT).

Programme	REMTh Projects	REMTh Budget (€)	Available Budget (€)	Budget: REMTh / GRC (%)
Support for Post-Doctoral Researchers	7	911 000	13 562 000	6.72
Support to enterprises for employing highly qualified personnel	1	151 360	7 140 000	2.12
Support to enterprises for employing R&D personnel	1	110 180	8 584 000	1.28
Totals:	9	1 172 540	29 376 000	4.00

The recently introduced Law 4310/2014[1] addresses some mobility-related issues; Art. 34 addresses inward and outward mobility of researchers between Greek and international public research organisations, and Art. 35 addresses mobility between PROs and enterprises.

To compile the needs assessment, we have reviewed all the relevant strategy documents produced by REMTh in the framework of their preparations for the programming period, including the regional RIS3 and its supporting documentation [2][5] and the ROP. The explicit or implicit needs that can be addressed through mobility schemes are as follows:

1. **The participation of HEI/PRO researchers in global research networks is gradually improving, but from a very low base**. Only 22.37% of the research publications published in the period from 2007 to 2012 was co-authored by an author outside Greece, versus 40% for the national average. DUTh's ranking versus other Greek organisations (universities, research centres and enterprises) in FP7 participation in the period between 2007 and 2012 is in the range from 13 to 45, with the lower values being the norm.
2. **The take-up of Key Enabling Technologies[2] in the Region is very small**. On the supply-side, the region has built considerable absorptive capacity in KET-related disciplines like Environmental Science and Technology, Computer Science, Electrical Engineering, Building Technology and Genetics. However, only two research groups, one in genetics and a second in software engineering, can be considered as internationally competitive in research. On the demand side, very few enterprises can readily perform new product development in KETs mainly in the field of micro-electronics.
3. **The regional stock of scientists and researchers has not been successfully exploited so far as an enabler for the diffusion of innovations in the Region, especially among the enterprise sector**. A survey of 39 regional champions that was conducted in Q4 2013 indicated that innovation sourcing from the regional HEIs/PROs is a rare case; 92.3% of these enterprises have never or have rarely used the knowhow of the regional HEIs/PROs for developing new concepts of products or services, develop process or organisational or marketing innovations. The most prominent modes of innovation sourcing are suppliers followed by customers.

[1] Official Journal of the Hellenic Republic, Volume A, Issue 258 of 8 December 2014

[2] As identified by the European Commission in COM (2009) 512 final of 30.9.2009, ie nanotechnology, micro- and nano-electronics, industrial biotechnology, photonics, advanced materials and advanced manufacturing systems.

4. **Joint ventures and 'creative copying' are the most common approaches to fill knowledge gaps** according to the same survey mentioned above; Hiring young, properly qualified graduates is the third most proffered option, while hiring more experienced, older managers is the fifth.
5. **Apart from collaborative research projects (co-)funded by ERDF, technology transfer between academia and industry is limited to consulting engagements by HEI/PRO staff,** contributing approximately 1.5% of the HEI/PRO research income.
6. **Given the adverse macroeconomic environment, the mid-term outlook for institutional investments in Higher Education and Research is negative.** This suggests that the pool of researchers in HEIs/PROs is not expected to grow, and if the current trend of not replenishing empty positions (e.g., due to retirement) continues, an overall decline is evident.
7. **Due to the high unemployment among young graduates,** which is currently around 50%, **brain-drain is expected to increase, especially for the most talented of them.**

EXPLORING OPTIONS

I.1 MOBILITY IN PERSPECTIVE

Mobility schemes are essential parts of labour policies for the highly skilled [4] and as such, they should be considered in conjunction with the active policy mix at the regional or the national level. Table 3 provides a typology of such policies.

TABLE 3 TYPOLOGY OF LABOUR POLICIES FOR THE HIGHLY-SKILLED (ADAPTED FROM TABLES 8.1 IN [4] AND 6.7 IN [1])

Key Policy Feature		Key Policy Instrument & Examples	
Demand-pull	Targeting Firms	Tax incentives	▪ Tax relief on social contributions for researchers and new hired PhD holders
		Financial incentives	▪ Industrial PhD programmes; ▪ Recruitment of highly qualified workforce; ▪ Workplace development projects; ▪ Learning networks
	Targeting Academia and Public Administration	Job creation in PROs and HEIs	▪ New academic chairs ▪ New research labs ▪ Centres of Excellence
		Research grants	
Demand-push	Improving training and lifelong learning opportunities	Financial Support	▪ Scholarships; No tuition fees.
		Development of national qualifications schemes	
	Encouraging Mobility	Career Development	▪ Supporting PhDs and Post-Docs
		Inward	▪ Return of talent schemes ▪ Research grant portability schemes ▪ Knowledge migrant schemes
		Outward	▪ "Argonaut" support schemes ▪ Sabbaticals, etc.
	Targeting Researchers		▪ Financial incentives (e.g., tax & scholarships) ▪ Improved working & research conditions ▪ Improved work/family balance ▪ Tenure track, recruitment and HEI/PRO promotion systems reform.
	Targeting inactive or underrepresented population		▪ Gap reducing schemes (minorities, women) ▪ Networking Programmes

Key Policy Feature	Key Policy Instrument & Examples	
		▪ Financial incentives (e.g., awards, fellowships, etc)
Matching Supply and Demand	Monitoring and Forecasting Gaps	▪ Data collection and surveys on current and forecasted market needs and education enrollment and graduation trends.
	Information Systems and Skills Frameworks	▪ Information platforms on job opportunities ▪ Development of national qualifications frameworks
	Skills Policy Governance	▪ Joint participation in the design of skills policy agenda and the implementation of STI policies

I.2 WHAT DO WE WANT TO CHANGE?

The context and needs analysis in Sec. 0 indicates that there is potential for mobility-related interventions in many fronts. The following list presents some desirable long-term outcomes that fit to the regional context:

1. **The integration of the regional research base in international research networks is improved**. *Assumption(s)*: The regional research base will be better integrated in international research networks if local researchers build formal and informal relationships with their peers in high-ranking research universities / centres, either by outward or by inward mobility schemes. Better integration results at a medium term more co-authored publications and international collaborations in competitive research project (ie, Horizon2020). At a longer term, a globally connected research base acts as a 'window' on the region, and builds and enhances the image and reputation of the region to the wider world. This can benefit the development of the region in a number of ways; connecting people from all over the world into the region which can act as a vehicle for future cooperation; attracting researchers from around the world who will contribute to the development of new technologies which may result in new, innovative spin out firms being established; act as a lever for international investment as firms grow around areas of international specialism and expertise. *Risks*: Not enough emphasis on high-ranking peers; limited incentives for inward mobility from the perspective of foreign researchers.

2. **Direct knowledge flows improve the absorptive capacity of the regional research base, especially in terms of KETs**. *Assumption(s):* Outward mobility schemes allow regional researchers to expose themselves to KETs by doing research with established groups; inward mobility schemes allow academics, graduate and undergraduate students to get acquainted to KETs. *Risks*: Outgoing researchers could seek employment abroad; additional capital investments might be required to exploit the newly acquired knowledge.

3. **Research teams working on fields of high relevance to the needs of the regional economy are strengthened by new researchers**. *Assumptions*: Increasing the critical mass of researchers in fields/disciplines that are highly relevant to the regional economy would create potential both for knowledge creation and knowledge spillovers in the region. *Risks*: The outlook for new jobs in HEIs/PROs is negative, only project-based jobs might be available. The local knowledge base is not differentiated/complemented by new research perspectives. The operating framework of HEIs/PROs in conjunction with the current funding framework makes it prohibitively difficult to make new tenure or tenure-track appointments and contract-based appointments are rarely attractive to internationally competitive researchers. There are limited mechanisms for a re-alignment of the HEI/PRO knowledge-targets to tailor them better to the regional economy needs.

4. **Internationally competitive research teams are strengthened by new researchers**. Same assumptions and risks as in point 3 above.

5. **Effective, efficient and relevant direct knowledge flows between academia and industry are established**. *Assumptions*: Providing knowledge workers of the enterprise sector with the opportunity to do research in academic/research labs improves their research skills and knowledge and creates potential for exploitation of this knowledge by their employers. Providing young researchers (ie, new PhDs or graduate students) with the opportunity to do research in enterprise R&D labs improves the enterprises' research performance and builds lasting networks with HEIs/PROs; young researchers are exposed to the business environment and acquire entrepreneurial skills. *Risks*: Enterprises cannot afford to lose their knowledge workers for extended periods; young researchers consider the research in enterprise sector as unchallenging; there is a mismatch between supply and demand in terms of knowledge available and knowledge sought and limited mechanisms for driving their re-alignment (see also point 3 above).

6. **Effective, efficient and relevant direct knowledge flows between regional and international enterprises are established**. *Assumptions*: Short-term outward management / senior technical or research staff exchanges provide opportunities for exposure to new management and production processes, familiarisation with the application of supplier-provided technologies / solutions and networking / establishment of informal relationships; all of the above improve the odds for SMEs adopt innovations and to participate in global value chains[3]. *Risks*: Design and co-ordination is difficult, additionality constraints.

7. **Brain-drain of young graduates is reduced**. *Assumptions*: Providing young graduates with the opportunity to acquire work experience greatly improves their employability prospects. *Risks*: Jobs offered do not match the young graduates' expectations in terms of challenges and / or work environment.

8. **Brain-drain of young researchers is reduced**. *Assumptions*: Providing young researchers with the opportunity to put their research skills and knowledge into practice in a research or enterprise environment improves their career prospects. *Risks*: Project-based approaches to the problem are very temporal (see also point 3 above).

DEVELOPING AN ACTION PLAN

An analysis of best practices at the European level [3] suggests that mobility-related interventions need to be carefully designed, having in mind who is being targeted and why. Policy makers should work very closely with their universities, businesses and other stakeholders to ensure there is co-ordination of efforts and policies are customised at the local level; there is not a "one size fits all" approach and success in one region might not be directly replicated elsewhere due to the effects of the local context.

Therefore, the most appropriate means of developing an action plan for addressing mobility-related regional needs is to establish a Working Group on Mobility (MWG) with a mandate for developing an implementation plan for stimulating human capital mobility at the regional and the international level.

[3] See also Art. 14 of Regulation 1305/2013 on the EAFRD for a similar concept for the primary sector.

I.3 SCOPE

A Working Group on Mobility (MWG) is established by the Regional Innovation and Entrepreneurship Council (RIEC) to elaborate an implementation plan for stimulating mobility of human capital across sectors of performance (higher education, government, enterprise), both intra-regionally and extra-regionally, in the context of the regional research and innovation strategy for smart specialisation (RIS3) by considering all sources of funding available to the Region.

I.4 IMPLEMENTATION

The overall approach to elaborate an implementation plan for stimulating mobility of human capital includes the following tasks:

1. A qualitative, through the experience of the participants, assessment of the mobility-related calls and projects of the programming period 2007-2013 in terms of relevance to the regional context, selection and delivery methods, aims and target of support, outcomes and impact.
2. A mapping of the opportunities offered by national and EU programmes for the period 2014-2020 in support of human capital mobility, including an initial assessment of the funds that can be leveraged by the regional stakeholders, given the context and a finalised version of the intervention logic discussed in Sec. I.2 above.
3. Identification of the actions that can be taken by the regional stakeholders, including skills and capabilities development, to maximise adoption and impact of third-party (ie beyond the control of the region) interventions.
4. Identification of mobility-related issues that can be embedded in the calls developed by REMTH's ROP in the current programming period.
5. In the case of the identification of a non-bridgeable gap between regional needs and the available policy instruments in step 2 above, a REMTh-specific mobility project will also have to be developed in close co-ordination with the relevant Managing Authority.
6. Based on the outcomes of steps 1 – 5 above, a coherent multi-annual action plan should be elaborated by the MWG, including: (a) Definition of the broad action lines corresponding to the prioritised areas and the challenges faced within these areas; (b) Definition of delivery mechanisms and projects; (c) Definition of the target groups; (d) Definition of the actors involved and their responsibilities; (e) Definition of measurable targets to assess both results and impacts of the actions; (f) Definition of timeframes; and (g) Identification of the funding sources, targeted to the several groups and projects.

MWG's effort will be supported by:

- Best practices of HR mobility interventions that will be contributed by IPTS/JRC; and
- A special roundtable on HR mobility that will be held during the Peer Review Workshop on 12-13 February 2015 in Alexandroupolis.

I.5 PARTICIPANTS

The MWG will include representatives from the following stakeholders:

1. **Higher Education and Research sectors**: Careers' / Liaison / Technology Transfer / Entrepreneurship Offices; Faculty members or Researchers with previous involvement as beneficiaries in national or European mobility projects. A faculty member of the local Department of Economics or Business Administration specialising in Human Resources.
2. **Government**: Managing Authority of the Regional OP; Managing Authorities of OP "Human Capital, Education and Lifelong Learning 2014-2020" and OP "Competitiveness, Entrepreneurship and Innovation 2014-2020".
3. **Enterprise sector**: Chambers; C-level staff of R&D intensive enterprises; Enterprises with previous involvement (proposers/beneficiaries) in national or European mobility projects.

The MWG Chair will be appointed by the Regional Innovation & Entrepreneurship Council; a facilitator will be appointed by IPTS/JRC.

I.6 WORK PLAN

In terms of scheduling, presents an initial work plan for the MWG activities:

TABLE 4 WORK PLAN OUTLINE.

Date(s)	Main Tasks	Approach
2-10 Feb 15	MWG is formally established; Members are appointed by the relevant stakeholders.	RIEC members propose participants names according to the criteria in Sec. I.5 . RIEC validates selection and appoints WG Chair.
13 Feb 15	Inaugural meeting of the MWG during the Peer Review event in Alexandroupolis.	The facilitator presents a background document on the regional context; MWG members are exposed to the suggestions and the guidance provided by the relevant critical friends.
20 Feb 15	2nd Meeting (1-day event)	The WG's mandate is reviewed and if necessary, updated. The intervention logic for mobility-related actions is elaborated using a Theory-of-Change approach (long-term outcomes, backward mapping, assumptions and risks that trace back to the needs in Sec. 0)
23 Feb 15 - 12 Mar 15	Qualitative assessment of the mobility-related calls and projects of the programming period 2007-2013 (Task 1). Mapping of mobility-related opportunities offered by national and EU programmes for the period 2014-2020 (Task 2)	Task 1: Face-to-face interviews by MWG members of participants/beneficiaries vis-à-vis the intervention logic elaborated during the 2nd meeting. Document repository of past mobility related-calls; assessment of mobility-related policy instruments at the European Level as suggested by the Critical Friends and/or IPTS/JRC. Task 2: Desk research and analysis by MWG members of the documentation of the approved sectoral programmes, also by considering the intervention logic elaborated during the 2nd meeting.
13 Mar 15	3rd Meeting	Task 3: Identification of the actions that can be taken by the regional stakeholders, including skills and

	(1-day event)	capabilities development, to maximise adoption and impact of third-party interventions vis-à-vis the risks associated by the Theory-of-Change mapping. Task 4: Identification of mobility-related issues that can be embedded in the calls developed by REMTH's ROP in the current programming period. Task 5: Assessment of the need for a tailor-made mobility programme for REMTh.
16 Mar 15 - 17 Apr 15	Initial elaboration and iterative optimisation of the action plan, including, if necessary, a tailor-made mobility programme for REMTh (Task 6); Synthesis of the MWG final report to RIEC.	
20 Apr 15	The MWG Chair delivers the final report to the RIEC.	

I.7 OUTCOMES

MWG will deliver to the Regional Innovation and Entrepreneurship Council a report on the outcomes of Tasks 1-6 in Sec. I.4 above by Monday 20 April 2015.

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[3] J. Goddard, *Connecting Universities to Regional Growth: A Practical Guide,* Seville: S3 Platform, September 2011.

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[5] Region of Anatoliki Makedonia-Thrake, *Regional Strategy for Smart Specialisation (RIS3)*, August 2014.

A Roadmap for Improving Human Capital Mobility in Anatoliki Makedonia-Thrake

Yannis Tolias[§]

21 July 2015

I. INTRODUCTION AND SCOPE

A European Parliament Preparatory Action (EPPA) centred on providing support to the refinement and implementation of the RIS3 in the Greek region of Eastern Macedonia and Thrace (REMTh) has been launched in September 2014. The project is implemented by the Institute for Prospective Technological Studies (JRC-IPTS) of the European Commission's Joint Research Centre (JRC), in close cooperation with DG REGIO and the Managing Authority of Eastern Macedonia and Thrace, with the support of selected independent experts.

One of the key activities of the EPPA is to design, test and optimise measures aiming at (i) full exploitation of available technological equipment in the Region to serve regional business needs and opportunities and (ii) establishing a mobility research training programme with a view of adapting skills to the needs of smart specialisation (e.g., entrepreneurship, collaboration, creativity). In this framework, a Working Group ("MWG") was organised to examine and agree on modalities to enhance human capital and human capital mobility within and outside the region, both between research and business and between different research organisations.

The inaugural session of the MWG coincided with the Peer Review event, which took place in Alexandroupolis on 12-13 February 2015. There, in two roundtable meetings on mobility, the MWG members had an opportunity to expose themselves to a number of ideas and best practices shared by an international panel of experts. In a second session on 19 May 2015 that took place in Kavala, the MWG reviewed and verified a prior analysis of the current state of mobility practices within the region, also developed by the EPPA [1] and applied the Theory-of-Change mapping technique to elaborate the intervention logic for mobility-related actions in REMTh. Finally, in a third session on 17 June 2015 that took place in Xanthi, the MWG reviewed the outcomes of its second meeting under the light of a detailed mapping of mobility-related funding opportunities offered by regional, national and European programmes and finalised the Roadmap.

This report, commissioned by JRC-IPTS in the framework of the EPPA, presents the outputs of this process and is organised as follows: section II presents the baseline situation on HR mobility-related issues and summarises the intervention logic developed by the MWG; the Roadmap is described in sections III-V starting with the vision statement, then by elaborating in detail its two pillars and finally by addressing implementation issues. Appendix I lists the MWG participants and contributors and Appendix II provides a methodological review and the author's comments on the process.

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II. THE OPPORTUNITIES AND THE CHALLENGES

Table 5 in the following page presents REMTh's performance in the key smart development indicators, compared to the respective national and European values. With regard to human resources (HSRT), REMTh with 17% occupies the 8th position among Greek regions in terms of the percentage of higher education graduates or candidate graduates of 15-74 years of age (including students at HEIs), which is approximately half of the EU28 average. This means, in practical terms, that the stock of human resources with qualifications that can potentially support innovative activity is very low.

The low stock of human resources with suitable qualifications, combined with the structural characteristics of entrepreneurial activity in the Region, and therefore, employment that is based on low-tech sectors, explains the particularly low R&D expenditure per capita, which is mainly driven by higher education institutions (HEIs). The combination of the limited human resources in R&D and the mostly low-tech industrial base explain the low number of patent applications to the European Patent Office (EPO) per million population, which puts REMTh at the eighth position among Greek regions.

TABLE 5 KEY SMART DEVELOPMENT INDICATORS: REMTH VS GREECE AND EU28 (SOURCE: [2]).

Indicator-Year	*REMTh*	*Greece*	*EU28*
Employment in technology and knowledge-intensive sectors;			
Percentage of total employment - 2008	1.09	2.02	4.40
High-Tech Sectors	n)a	0.23	1.11
High-Tech Manufacturing	10.15	10.00	11.60
Low-Tech Manufacturing	11.22	12.06	18.29
Manufacturing	n)a	1.82	3.29
Knowledge Intensive High-Tech Services	55.25	66.90	66.73
Total Services			
Human Resources in Science and Technology; Percentage of Total Population – 2012	17.0	23.6	30.3
Total R&D personnel by sectors of performance; Researchers (FTEs) – 2011.			
All Sectors	940	24 674	1 628 127
Business	63	4 021	742 583
Government	30	4 370	203 870
Higher Education	842	16 068	662 518
Private, non profit	0	216	19 157
Total R&D personnel by sectors of performance; Researchers (Headcount)–2011.			
All Sectors	2 170	45 239	2 545 346
Business	128	5 858	931 716
Government	48	6 094	254 883
Higher Education	1 194	32 842	1 332 853
Private, non profit	0	445	25 893
Patent applications to the EPO by priority year; Number per million inhabitants – 2009	1.65	6.18	111.42
Total intramural R&D expenditure (GERD);			
Euro per inhabitant – 2011	75.80	125.10	512.40
Percentage of GDP – 2011	0.57	0.67	2.04
Business Sector	0.17	0.23	1.14
Government Sector	0.05	0.16	0.25
Higher Education	0.35	0.27	0.41

Secondary research that was summarised in [1] and verified by the MWG suggests that REMTh faces the following challenges:

1. The participation of HEI/PRO researchers in global research networks is gradually improving, but from a very low base. Only 22.37% of the research publications published in the period from 2007 to 2012 was co-authored by an author outside Greece, versus 40% for the national average. Democritus University of Thrace (DUTh) ranking versus other Greek organisations (universities, research centres and enterprises) in FP7 participation in the period between 2007 and 2012 is in the range from 13 to 45, with the lower values being the norm[4]. The changes in participation rules in H2020, i.e., focus on research excellence and waiving of geographic criteria, will probably have negative influence on the HEI/PRO performance in attracting EU research funding.

2. The take-up of Key Enabling Technologies[5] in the Region is very small. On the supply-side, the region has built considerable absorptive capacity in KET-related disciplines like Environmental Science and Technology, Computer Science, Electrical Engineering, Building Technology, Genetics and Materials Science. The Hephaestus Lab at the Technological Educational Institute of Anatoliki Makedonia-Thrace (TEIEMTh) is a recognized leader in the characterisation of nanoporous materials. However, only two research groups, one in genetics and a second in software engineering, can be considered as internationally competitive in research. On the demand side, very few enterprises can readily perform new product development in KETs, mainly in the field of micro-electronics.

3. The regional stock of 2 000 researchers in HEIs/PROs has not been successfully exploited so far as an enabler for the diffusion of knowledge and innovations in the Region, especially among the enterprise sector. A survey of 39 regional champions that was conducted in Q4 2013 indicated that innovation sourcing from the regional HEIs/PROs is a rare case; 92.3% of these enterprises have never or have rarely used the knowhow of the regional HEIs/PROs for developing new concepts of products or services, or developing process or organisational or marketing innovations. The most prominent modes of innovation sourcing are suppliers followed by customers [2].

4. Joint ventures and 'creative copying' are the most common approaches used by enterprises to fill knowledge gaps according to the same survey mentioned above; Hiring young, properly qualified graduates is the third most preferred option, while hiring more experienced, older managers is the fifth.

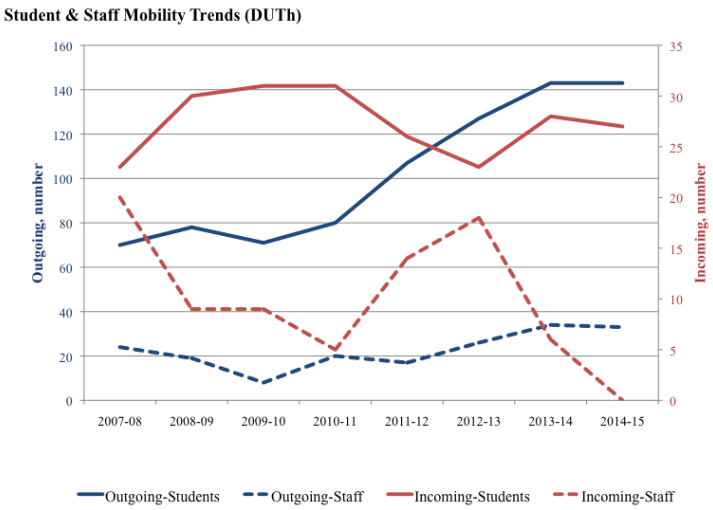
5. Apart from collaborative research projects (co-)funded by ERDF, technology transfer between academia and industry is limited to consulting engagements by HEI/PRO staff, contributing approximately 1.5% of the HEI/PRO research income.

6. One-semester (mandatory) internships for the undergraduate students of TEIEMTh are currently the most prominent modality for intersectoral mobility. For this purpose, TEIEMTh has signed 405 MoUs with enterprises and public sector organisations, 158 of which operate in the Region. TEIEMTh's funding for such activities from 2007 to 2013 was approximately €3mil,

[4] See http://www.researchranking.org/index.php?action=partner&p=dbyH for the full data.

[5] As identified by the European Commission in COM (2009) 512 final of 30.9.2009, ie nanotechnology, micro- and nano-electronics, industrial biotechnology, photonics, advanced materials and advanced manufacturing systems.

or 12% of the total national funding. Similar non-mandatory programmes in DUTh have faded out upon discontinuation of the ESF funding that supported them.



7. There is an increasing stream of outgoing mobility supported by the Erasmus Programme, in terms of both students and faculty members; on the contrary, the trends in incoming mobility are negative (see exhibit).

8. Given the adverse macro-economic environment, the mid-term outlook for institutional investments in Higher Education and Research is negative. This suggests that the pool of researchers in HEIs/PROs is not expected to grow, and if the current trend of not replenishing empty positions (e.g., due to retirement) continues, an overall decline is evident.

9. Due to the high unemployment among young graduates, which was estimated by the Careers' Office at TEIEMTh to be around 30%, brain drain is expected to increase, especially for the most talented of them. This means that most of the 3100 graduates of a HEI student population of 21500 in 2013 will probably leave or have already left the region.

Having considered the above, the members of the MWG consider HR mobility as an opportunity to

- attract talented researchers from other regions to improve both the headcount and the quality of research produced in REMTh;
- expose the regional pool of researchers to cutting-edge research carried out abroad;
- expose the regional pool of enterprises to innovative processes, tools, techniques and organisation methods that will eventually lead to their adoption;
- improve the degree of understanding of business needs by the research sector;
- improve the exploitation of the knowledge and the research results by the enterprise sector;
- provide young (to-be) graduates with the opportunity to put their skills into work in a real-life context;

in order to achieve two major long-term objectives:

LTO1: Improve the research competitiveness of the regional HEIs and PROs, and

LTO2: Improve the competitiveness of the regional enterprises in RIS3 priority sectors.

III. A VISION FOR 2020

III.1 THE RESEARCH LANDSCAPE IN REMTH

Following a series of well-planned and well-executed interventions in line with their research strategies and supported by an appropriate policy framework, the regional HEIs and PROs have managed to retain

a significant part of the researchers that they attracted, to assimilate and exploit the incoming knowledge flows. Several internationally reputable research teams have emerged.

The regional HEIs/PROs are increasingly a choice for students to study and talented researchers to work, thus creating a sustainable pool of talent that is supported by increasing direct research funding and revenues from an extending IPR portfolio, contract research for the benefit of enterprises in Greece and abroad and tuition fees for international students. These sources of revenue help regional HEIs/PROs to support and develop new promising research areas, thus establishing a virtuous cycle.

III.2 The Entrepreneurial Landscape in REMTh

Most of the informal relationships between students or researchers and entrepreneurs have been transformed into formal ones between their institutions and they remain strong over time. Some of the SMEs are outsourcing their R&D&I activities to the local HEIs/PROs under contract research benefit from product or process or organisational innovations. Some other, more sophisticated, SMEs have arranged for their staff to acquire access to very expensive scientific equipment available in HEIs and PROs.

The regional enterprises, helped by highly qualified graduates, have assimilated the knowledge that has been presented to them in various forms of knowledge exchange and have managed to exploit it for improving their competitiveness.

The regional HEIs monitor knowledge and training needs and provide tailor-made courses to the employees of SMEs.

Some of the new graduates that have spent some time in industry as interns, or as industrial MSc/PhD degree students, have identified underserved knowledge niches and have established a dynamic ecosystem of knowledge-intensive firms around the HEI campuses.

All the above have helped the regional enterprise sector to improve its performance in terms of gross margins, export activity and employment.

IV. THE TWO PILLARS OF THE ROADMAP

This roadmap sets out a broad programme of actions to help the region meet the challenges of improving the competitiveness of REMTh's research and enterprise sectors through inter- and intra-regional knowledge exchange, driven by increased mobility of human resources. In making its recommendations, the MWG has identified two action areas, namely:

1. Improve the embededdedness of the regional research and enterprise sectors in global knowledge networks; and
2. Improve the linkages between the regional research and enterprise sectors.

The focus in on two main time horizons:

- Short-term: steps to be taken immediately to develop a baseline from which future progress can be measured. During this phase, quick wins that can be implemented at a low cost will be sought.
- Long-term: steps to be taken or objectives to be achieved in the medium to long term from now to 2020 and beyond.

IV.1 Improve the Embeddedness of Regional Research & Enterprise Sectors in Global Knowledge Networks

IV.1.i Rationale

The regional research base will be better integrated in international research networks if local researchers build formal and informal relationships with their peers in high-ranking research universities / centres, either by outward or by inward mobility schemes. Better integration results at a medium term more co-authored publications and international collaborations in competitive research projects (i.e., Horizon2020).

Talent attraction (inward mobility schemes, fellowships) and retention refers to interventions aimed at enticing individuals with specific skills and attributes to move in to, return to, or remain in the region, thus enriching its knowledge base and creating critical mass.

Outward mobility schemes aim to expose the regional researchers to cutting-edge research, provide them with access to research infrastructure in the European Research Area and provide opportunities for innovation activities anywhere in Europe. Moreover, similar schemes for entrepreneurs and their staff provide opportunities for working with peers and researchers in Europe and expose themselves to innovations or knowledge that can be applicable to their business.

IV.1.ii Approach

Actions to establish the baseline and harness quick wins:

- HEIs & PROs to introduce quotas for inbound researchers in all funded research projects by end 2015.
- HEIs/PROs administration to raise awareness and stimulate participation of their staff in the various instruments of MSCA in close co-operation with the NCPs.
- HEIs & PROs to co-ordinate the submission of 2 MSCA proposals (ITN and/or RISE) in response to forthcoming calls; Enterprise sector to participate in both.
- Post all newly created research positions on EURAXESS.
- Pursue opportunities through LIFE, CoFASP and COST multiannual projects to reinforce international networks, acquire, adopt and disseminate new production technologies in the Region's environmental and agro-food sectors.

Actions for the medium and long term:

- Sustain and improve incoming and outbound student and HEI Staff mobility through Erasmus+ programme. Output targets: 200 students and 30 staff per year outbound; 50 students and 10 staff per year inbound.
- Promote ERASMUS for Young Entrepreneurs and stimulate applications by beneficiaries.
- Promote Marie Skłodowska-Curie Actions (MSCA) within HEIs/PROs and stimulate proposals by faculty/researchers. Focus will be put on Innovative Training Networks (ITN); Research and Innovation Staff Exchanges (RISE) and Individual Fellowships (IF).
- Disseminate support actions for short-term farm and forest management exchanges as well as farm and forest visits (OP Rural Development, Sub-measure 1.3, estimated budget for REMTH €400k) and help its managing authority to match the needs of local farmers to international knowledge providers.
- Promotion of TEIEMTh postgraduate programmes to Middle Eastern & African Students (to be funded by TEIEMTh's own funds).

- Exploit any research funding opportunity (ROP, National and EU / International Projects) to attract new talent by introducing quotas for inbound researchers (see quick wins above). The MWG has identified the following opportunities so far:
    - Improvement of collaborative research between academia and industry within the priorities of the regional RIS3 strategy (ROP/REMTh, Axis 1, special objective 2).
    - Improvement of the quality of tertiary education by empowering HR in research (OP Development of HR, Education and Lifelong Learning, Axis 6, special objective 10.2.ii). Estimated output target for REMTH: 334 researchers (of which 135 women). Estimated budget for REMTh: €6m. Number or inbound researchers to be supported: 30-60.

IV.1.iii Assessment & Review

The following indicators will be used to monitor the mid-term outcomes of interventions within the first action area:

R1.1 Number of publications with international co-authors.

R1.2 Number of patent applications with international co-inventors.

R1.3 Number of international research projects.

R1.4 Number of international innovation projects.

All of the above indicators will be driven mainly by the efforts of HEIs/PROs, with the enterprise sector to contribute to R1.2 & R1.4. Section V.3 below explains how the monitoring will be organised.

IV.1.iv Expected Impact

At a longer term, having connected the research and the entrepreneurial bases of the region to global networks builds and enhances the regional brand to the wider world. This can benefit the development of the region in several ways, including future cooperation, talent attraction, FDI, export activity and others.

Interventions within this area partially contribute to the achievement of both long-term objectives. The relevant impact indicators that have been identified are:

LTO1.1 Research funding to regional HEIs/PROs from non-Greek sources.

LTO1.2 Average number of citations per publication.

LTO1.3 Number of patents granted by international (ie, non-Greek) patent offices.

LTO2.1 Gross Value Added in current prices in RIS3 priority sectors.

LTO2.2 Value of exports in current prices in RIS3 priority sectors.

Section V.3 below explains how the monitoring will be organised.

IV.2 Improve the Linkages Between Research and Enterprise

IV.2.i Rationale

Intersectoral mobility programmes (internships, placements) aim to increase employability, particularly in the case of students, by giving them hands on experience and to lever other types of knowledge

transfer. These effects are more profound if there is good alignment between the research and teaching specialisation of the HEIs and the sectoral specialisation of regional businesses [4].

Spin-off companies are considered highly beneficial for their host regions since they embody all the desirable traits of the knowledge economy and also help retain the human capital that is already present in the region.

Promoting knowledge exchange between universities and local businesses aims to make sure that regional businesses benefit as much as possible from the investments in research embedded in the region, identify and solve common problems and diffuse best practices.

Finally, workforce skills development projects aim to meet the needs of the employer (by meeting a current or future business need); the employee (in terms of their career progression and professional development); and the region (by ensuring the right skills exist to build regional advantage in line with smart specialisation strategies).

IV.2.ii Approach

Actions to establish the baseline and harness quick wins:

- A Joint Technology Transfer & HR Mobility Committee (JTT&HRC) will be established by the four regional public research actors to co-ordinate policy initiatives within institutions, joint projects, shared resources / data and monitoring of TT & mobility through a common set of indicators in all four institutions.
- New procedures to be introduced by HEIs to capture innovation and skills needs from enterprises participating in the student placement programmes by the end of 2015.
- Undergraduate student participation in research projects will be encouraged in voluntary basis.
- A Researchers' Night type of event to be jointly organised by HEIs & PROs in all campuses (autumn 2015).
- A proactive technology transfer roadshow for promoting HEI/PRO intellectual property, mature research outcomes, services and infrastructure to regional enterprises. Provisional name: 2knowUsBeta ('to know us better').
- The main vehicle for funding capacity building in technology transfer and HR mobility will be the Regional Operational Programme (Axis 1, Special Objective 2). Funding: €2m. Output target: 800 regional enterprises co-operating with HEIs/PROs.

Actions for the medium and long term:

- HEIs, in the absence of Life-Long Learning & Vocational Training structures within them, will examine options for providing such services, tailored to the needs of regional enterprises. Developing partnerships between education and business such as *Regional Knowledge Alliances for Education and Life-Long Learning* in order to foster innovation and allow for more targeted curricula with regard to market needs is considered as an option.
- HEIs will introduce Industrial MSc Degrees within existing postgraduate programmes starting in academic year 2016-17. These degrees will be partially funded by ROP innovation vouchers.
- ERASMUS+ KA2 Cooperation for Innovation: Knowledge Alliances. Output and budget targets not set.
- The Mobility Working Group has identified the following sources of funding for interventions related to inter-sectoral mobility:

- Support for demonstration activities and information actions (OP Rural Development, Sub-measure 1.2, estimated budget for REMTH €4mil).
- Support for pilot projects and for the development of new products, practices, processes and technologies (OP Rural Development, Sub-measure 16.2, estimated budget for REMTh €5mil.)
- HEI Students' Placement Programmes (OP Development of HR, Education and Lifelong Learning, Axis 7, special objective 10.4.ii.1). Estimated output target for REMTH: 5100 HEI student placements by 2020. Estimated budget for REMTh: €6m.
- Entrepreneurship and innovation courses in HEIs OP Development of HR, Education and Lifelong Learning, Axis 7, special objective 10.4.ii.2). This programme supports the development of the operation of existing MOKE units at HEIs, aiming to train all types of students in the fields of entrepreneurship and innovation.
- Support the establishment of new, knowledge-intensive start-ups in the regional RIS3 priority areas (ROP/REMTh, Axis 1, special objective 3). Academic spin-offs are included. Budgeted public expenditure: €15m. Estimated public expenditure for academic spin-offs: €2m.

IV.2.iii Assessment & Review

The following indicators will be used to monitor the mid-term outcomes of interventions within the second action area:

R2.1 Number/Value of new HEI/PRO research contracts paid by industry.

R2.2 Number/Value of new collaborative research contracts.

R2.3 Number/Value of new consulting/service provision contracts between HEIs/PROs and enterprises.

R2.4 Number of new HEI/PRO spin-offs.

R2.5 Number of new jobs for PhD holders in enterprises.

R2.6 Number of job offerings to interns/apprentices following internship/apprenticeship.

Section V.3 below explains how the monitoring will be organised.

IV.2.iv Expected Impact

HEIs that are actively promoting and supporting entrepreneurship amongst students and graduates (including spin-offs) are supporting their local and regional economies two key ways; firstly by adding to the pool of businesses in the economy; and secondly, by retaining high skilled individuals in the region.

Workforce development programmes can have a profound effect on the region by exposing people to skills and knowledge they would not otherwise have access to, improving links between universities and business and involving universities in the development of specific key sectors in the regional economy.

The actions within this area are the main driver for the long-term objective of improving the competitiveness of the regional enterprise sector and a secondary driver for the long-term objective of improving the research competitiveness of HEIs/PROs in terms of providing new sources of revenue. The relevant impact indicators that have been identified are:

LTO1.4 Research funding to regional HEIs/PROs from Greek enterprises.

LTO2.1 Gross Value Added in current prices in RIS3 priority sectors.

LTO2.2 Value of exports in current prices in RIS3 priority sectors.

Section V.3 below explains how the monitoring will be organised.

V. IMPLEMENTATION

V.1 DELIVERY

A Joint Technology Transfer & HR Mobility Committee (JTT&HRC) will be established by the four regional public research actors to co-ordinate policy initiatives within institutions, joint projects, shared resources / data and monitoring of TT & mobility through a common set of indicators in all four institutions. Members will be at the level of Vice-Rector of Research or equivalent. All of them are already represented in the Regional Innovation and Entrepreneurship Council, therefore, the setting is consistent with the top tier of the RIS3 Governance Structure in REMTh.

Implementation of mobility-related interventions having HEIs and PROs as beneficiaries will be co-ordinated by the Heads of Research Committees at the two HEIs, and their peers at the PROs. The former are in charge of the Careers, Technology Transfer and Innovation and Entrepreneurship Units within HEIs, which will be the organisational units responsible for executing most of the actions included in this roadmap.

V.2 SOURCES OF FUNDING

A source of funding has been identified for each intervention that has been included in this roadmap. Table 6 summarises the budget per action area and provides a breakdown per group of funding sources.

TABLE 6 SOURCES OF FUNDING (MILLION EUROS)

Action Area	*Improve the Embeddedness of Regional Research & Enterprise Sectors in Global Knowledge Networks*	*Improve the Linkages between Research and Enterprise*	*Totals (M€)*
Own Funding (HEIs/PROs)	0.10	0.15	0.25
ROP/REMTh	0.00	4.00	4.00
National OPs	1.30	15.00	16.30
EU Programmes[(e)]	2.00	1.50	3.50
Totals (M€):	**3.40**	**20.65**	**24.05**

The financial contribution of National OPs should be considered as a best-case scenario, assuming that the regional stakeholders will actually be able to leverage their share of the budget allocated to the Greek less developed regions. Moreover, the quota for incoming researchers was assumed to be 15%. Finally, the contribution of the EU mobility programmes (i.e., MSCA, Erasmus+) was estimated by taking into account 2007-2013 data for similar interventions. They can be considered as conservative, thus describing a worst-case scenario.

V.3 MONITORING PROGRESS

This roadmap has identified ten outcome indicators to be used for monitoring progress (see sections IV.1.iii and IV.2.iii) towards achieving the Long Term Objectives. All of them are related to the third mission of HEIs and PROs as described by the legislation currently in force and therefore they need to be reported by them. The European Commission has provided guidelines for this purpose since 2009 [5], which have to be introduced in the annual reports of all regional HEIs/PROs. The JTT&HRC could consider some type of peer validation in the first years to verify the consistency of collected and reported data.

This roadmap has also identified six relevant impact indicators (see sections IV.1.iv and IV.2.iv). Two of them (LTO2.1-2) are already included in REMTH's RIS3 monitoring system and therefore adequate provisions have been made to collect data and report on them. Three of the remaining (LTO1.1, LTO1.2 and LTO1.4) are directly related to HEI/PRO performance and therefore, they should be monitored by the RIS3 Management Unit on the basis of data provided by HEIs/PROs (LTO1.1 and LTO1.4) or the National Documentation Centre (LTO1.2). The last one, LTO1.3 is also part of the data collected by the National Documentation Centre for all Greek regions and therefore, data availability for REMTh is also guaranteed.

REFERENCES

[1] M. Metaxas, *Exploring Options for University-Industry Mobility Programmes in REMTh*, 2 Feb 2015.

[2] Region of Eastern Macedonia-Thrace, *Regional Innovation Strategy for Smart Specialisation*, 9e, 29 April 2015.

[3] Y.A. Tolias, Knowledge Supply in the Region of Eastern Macedonia-Thrace, 4e, Jan. 2014. (in Greek)
[Available online at: http://www.eydamth.gr/lib/articles/newsite/ArticleID_588/Prosf_gnosis-V4.pdf].

[4] J. Goddard, *Connecting Universities to Regional Growth: A Practical Guide,* DG Regio, September 2011.

[5] European Commission, *Metrics for Knowledge Transfer from Public Research Organisations in Europe*, Report from the European Commission's Expert Group on Knowledge Transfer Metrics, DG Research: Brussels, 2009.

VI. APPENDIX I

MOBILITY WORKING GROUP MEMBERS AND CONTRIBUTORS

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VII. APPENDIX II

METHODOLOGICAL NOTE

VII.1 SUMMARY

The development of the HR Mobility Roadmap in REMTh was based on the work plan that already been drafted through the EPPA [1]. Some modifications were introduced to the initial work plan by the moderator to speed-up the process without losing any essential information. Table 7 summarises the approach as delivered.

TABLE 7 METHODOLOGICAL APPROACH.

Date(s)	Main Tasks	Details/Outcomes
1.2.2015	Open call for interested parties to attend the Peer Review Roundtables on Mobility.	
12-13.2.2015	Inaugural meeting of the MWG during the Peer Review event in Alexandroupolis.	The RIEC Chair presented a background document on the regional context; MWG members are exposed to the suggestions and the guidance provided by the relevant critical friends.
11.5.2015	2nd Meeting is scheduled for 19.5.2015	The invitation and the agenda were sent through official channels by MA/REMTh to all regional stakeholders that participated in the Mobility Roundtables during the Peer Review. The following documents were attached: 1. Exploring Options for University-Industry Mobility Programmes in REMTh [1]. 2. The Peer Review Minutes (Roundtables C1 & C2).
19.5.2015	2nd Meeting (TEIEMTh, Kavala)	The baseline situation, as described in [3], was reviewed and finalised. The participants contributed additional data. The moderator presented and explained the concepts of

Date(s)	Main Tasks	Details/Outcomes
		intervention logic and Theory-of-Change. The intervention logic for mobility-related actions was elaborated by the participants using a Theory-of-Change approach (i.e., backward mapping long-term objectives, outcomes, outputs, inputs, needs and identification of the assumptions in all causal paths).
25.5.2015	2nd Meeting Minutes forwarded to participants for review.	Intervention Logic, assumptions and risks, key performance indicators (KPIs). List of applicable delivery instruments.
26.5.2015 - 5.6.2015	Mapping of mobility-related opportunities offered by national and EU programmes for the period 2014-2020 inline with the agreed intervention logic.	List of funding opportunities for all interventions.
10.6.2015	3rd Meeting is scheduled for 17.6.2015.	The invitation and the agenda were sent through official channels by MA/REMTh. The following documents were attached: 1. The final version of the intervention logic, including risks/assumptions and KPIs. 2. List of applicable delivery instruments. 3. List of funding opportunities for all interventions. 4. A template for the action plan. 5. Moderator's comments and topics to be further discussed.
17.6 2015	3rd Meeting (DUTH, Xanthi)	Action Plan development: ▪ Easy gains, including policy initiatives within HEIs/PROs. ▪ Capacity building tasks. ▪ Projects in support of mobility.
22.6.2015	3rd Meeting Minutes forwarded to participants for review.	
23.6.2015 - 9.7.2015	Final draft preparation in line with feedback provided by the participants.	

VII.2 DETAILS

The regional RIS3 strategy in REMTH has identified improving and retaining human capital and improving the strength and the quality of linkages to other regions as two of the four core horizontal priorities (see chapter 4 and Table 8 in [2]). However, no ESIF (especially ESF) funds are available directly to the Region to support the former, while a minimal budget is available for the latter. Therefore, the Region will have to rely to national and European funds for this purpose, and the establishment of the MWG provided the opportunity to partially address the issue.

Since the outcome of the MWG addresses two of the core horizontal priorities of the regional RIS3, it should be designed as a complement to the RIS3 action plan, adhering to the structure prescribed by the European Commission's RIS3 Guide, thus addressing:

- The definition of the broad action lines corresponding to the prioritised areas and the challenges faced within these areas;
- The definition of delivery mechanisms and projects;
- The definition of the target groups;
- The definition of the actors involved and their responsibilities;
- The definition of measurable targets to assess both results and impacts of the actions;
- The definition of timeframes;
- The identification of the funding sources, targeted to the several groups and projects.

Due to the dependence on out-of-the-Region funding in addressing these two horizontal priorities, the regional stakeholders did not have the opportunity prior to the establishment of the MWG to elaborate what is actually needed for the Region and how the available funding sources would help. The MWG provided the opportunity for designing a mobility-related action plan and transform the regional stakeholders from passive funding opportunity seekers to proactive strategy makers. This had to be done from scratch, with the elaboration of a sound intervention logic being the first priority. The Theory of Change had already been selected in [1] as the applicable approach.

Theory of Change (ToC)[6] is a rigorous participatory process where groups and stakeholders in a planning process articulate their long-term goals and identify the conditions they believe have to unfold for those goals to be met. These conditions are modelled as desired outcomes, arranged graphically in a causal framework. A ToC describes the types of interventions (a single program or coordinated initiative) that bring about the outcomes depicted in the outcomes framework map. Each intervention is tied to an outcome in the causal framework, revealing the complex web of activity required to bring about change. The framework provides a working model against which to test hypotheses and assumptions about what actions will best produce the outcomes in the model. Adherence to the theory of change method keeps the processes of implementation and evaluation transparent so that everyone involved knows what is happening and why. To be clear, every outcome in the theory is explicitly defined. All outcomes should be given one or more indicators of success. As implementation proceeds, organizations collect and analyze data on key indicators as a means of monitoring progress on the theory of change. Indicator data show whether changes are taking place as forecast or not. Using the indicator data program staff can adjust and revise their change model as they learn more about what works and what does not. The ToC approach fits well with the minimum requirements for an action plan as described above.

During the 2nd MWG meeting in Kavala, the participants reviewed and completed the baseline situation (see section II in [1]) and agreed on the needs. They also reviewed the inputs of the Peer Review mobility-related roundtables. Both documents were made available to them earlier. With the

[6] See Weiss, C. H. (1995). *Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families*. In J. Connell, A. Kubisch, L. B. Schorr, & C. H. Weiss (Eds.), New approaches to evaluating community initiatives: Volume 1, concepts, methods, and contexts (pp. 65-92). New York, NY: Aspen Institute; Leeuw, F.L. (2003) "Reconstructing Program Theories: Methods Available and Problems to be Solved", *American Journal of Evaluation* 24 (1) 5-20; Taplin, D.H. and Rasic, M. (2012). *Source Book for Facilitators Leading Theory of Change Development Sessions*. ActKnowledge: New York.

needs information finalised, and following a short presentation on the concept of ToC by the moderator, the participants spent most of the time allocated to the meeting in defining long-term objectives, mid-term outcomes, the preconditions for moving from outcomes to objectives and the most appropriate monitoring indicators. From the moderator's perspective, it is clear that the participants have never used ToC or a similar approach to elaborate an intervention logic in the past. On the contrary, they were prone to discuss specific projects in detail. The moderator had to iterate in many occasions that no specific project and no specific funding opportunity would be discussed before everyone agreed on the intervention logic and the associated indicators. In this sense, the 2nd meeting can be also considered as a hands-on capacity building session.

Figure 1 summarises the outcome of the 2nd meeting. For all of the outcomes and the long-term objectives, appropriate indicators have been agreed and a list of key assumptions has been drafted for each causal path from needs to long-term objectives.

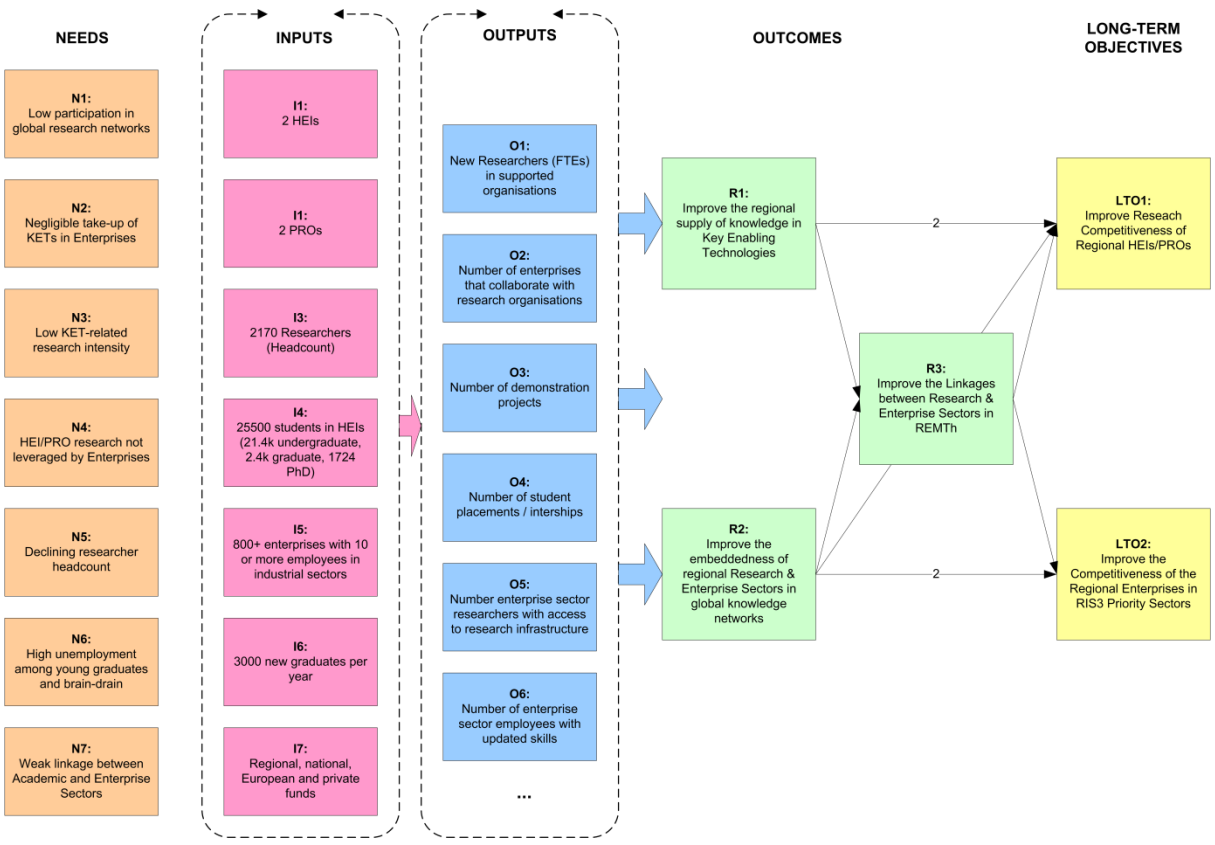

FIGURE 1 INITIAL VERSION OF THE INTERVENTION LOGIC (19 MAY 2015).

The moderator forwarded the minutes of the 2nd meeting to the participants for review on 23.5.2015. A list of applicable delivery instruments was also appended in that document. Minor comments were received that were incorporated in the document. An updated working document was sent to the participants on 5.6.2015, twelve days before the 3rd meeting, that also included all (regional, national

and European) possible sources of funding and their budgets, a template for registering interventions for the mobility roadmap and methodological instructions.

The main objective of the 3rd meeting that was held on 17.6.2015 was to define policy interventions, capacity building interventions and projects in line with the intervention logic and compatible with the available funding sources. For all the above, two time horizons were defined: fast wins / enablers and mid-/long-term actions. Although the participants were asked to submit their draft intervention proposals prior to the meeting, they preferred not to do so, apparently due to not being familiar with the process of transforming an intervention logic to an action plan.

A negative unexpected outcome of the 3rd meeting was dropping Action Area 1 (R1 in Figure 1) from the intervention logic, since the discussion made clear that internal politics in HEIs/PROs would not support any single KET being a priority for further support through focused mobility and research funding. This institutional disability to prioritise activities in support of internal strengths had been identified in [3] (see point 12 in p. 37), but it seems that there is still no cure for this. A positive unexpected outcome of the 3rd meeting was the joint understanding among the participants for the necessity for the co-ordination of their activities in the fields of HR mobility and technology transfer. Beyond these, following a very vivid discussion and some post-meeting feedback, the MWG finally agreed on the action plan that is presented in the main body of this document.

VII.3 Lessons Learned and Follow-up Actions

The points raised below provide the moderator's experience from the entire process of supporting the work of the MWG:

1. Although the research sector, which was over-represented in the synthesis of this working group, has been consistently consulted in the elaboration of the regional operational plans in the past, it seems that it still lacks the capacity to elaborate technically sound plans in support of regional development. The moderator had the opportunity to verify this finding by co-operating both with high-level and mid-level administrative personnel of HEIs and PROs and by examining internal strategy documents of some of the institutions that were made available during the process. There is a big opportunity for improvement in this area and appropriate actions should be taken. The RIS3 process can be considered as a catalyst to drive change.
2. The mobility roadmap that has been agreed through the course of the last three months is both technically sound (this was the moderator's contribution) and realistic (this was the participants' contribution). The attribute of realism is important because delivery and sustainability strongly depend on it. Realism comes at a price: the participants preferred to build on what's available *and* possible, mainly through national funding and addressed some of the opportunities, especially EU funds, with great caution. MSCA COFUND is an example. Although in principle it is very fit for addressing the regional priorities, securing national funding for making it happen was considered as a very obvious risk and therefore it was not included. The decision to drop Action Area 1 that was discussed in the previous section is also evidence of a realistic assessment of the situation.
3. The added value of the work of the MWG, given that most of the action plan will be funded by sources external to the region is straightforward: the participants, and most importantly the HEIs/PROs represented by them, have now a common understanding on how everything fits in REMTh's development narrative and how each project contributes to the greater picture. This creates a potential for making a considerable impact by using the national funds. Most of these

would eventually come to the Region even if the MWG did not existed, but they would be spent in isolated projects aiming just to produce outputs, not outcomes. This added value, if it is actually achieved, it should be attributed to the RIS3 process as a whole and to the EPPA as an enabler.

4. As it is already mentioned at the beginning of section VII.2 , the regional RIS3 strategy in REMTH has identified improving and retaining human capital and improving the strength and the quality of linkages to other regions as two of the four core *horizontal* priorities. In this sense, this roadmap addresses the needs of the entire regional innovation system. Some of the actions will address specific priority sectors (e.g., EAFRD funding for mobility in agriculture and forestry), while others will be horizontal or even evolutionary (funding of the fittest, especially for MSCA and Erasmus+). Being in principle horizontal has also implications for governance: the link of the JTT&HRC with the top tier of the RIS3 governance system is apparent and execution will have to be delegated to the second tier, under strong co-operation with the Heads of Research Committees at the two HEIs, and their peers at the PROs.
5. From this point on, execution matters. The Managing Authority can influence the implementation of the roadmap by using the power of its purse and adding conditionalities directly related to the implementation of policy initiatives and capacity building activities as prerequisites for further funding by the ROP.

ANNEX 8 – RIS 3 GOVERNANCE SYSTEM

This annex comprises two reports summarising the activities and outcomes of the working group on RIS3 governance: the first proposes a RIS3 governance structure, whilst the second assesses the skills required to implement it.

Governance Structure for RIS3 in REMTh

Report D.1

Under the Service Contract 154805-2015 A08-GB

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27th July 2015

Contents

I.A

1. INTRODUCTION

The present report is Deliverable D.1 corresponding to Task 1: 'Report on key issues based on the outcome of the RIS3 peer-review and EDP focus groups' of the Service Contract 154805-2015 A08-GB. In particular, Task 1 refers to the identification and analysis of key issues in the governance of the RIS3 in the Region of Eastern Macedonia and Thrace (REMTh), the ultimate aim being the definition and establishment of the appropriate governance system and mechanisms for RIS3 in REMTh.

The report draws upon the following sources:

- The RIS3 document and particularly section 2 referring to governance (version April 2015);
- The discussion of governance accommodated in a special session during the Peer Review event in Alexandroupolis, 12-13 February 2015;
- The four EDP focus groups (Wine EDP in Drama in November 2014; Meat and Dairy EDP in Komotini in January 2015, Tourism EDP in Alexandroupolis, 11-12 February 2015; Marble EDP in Drama in May 2015);
- The outcomes of the Governance Working Group set up to develop a proposal on the appropriate governance structures and mechanisms for RIS3 in REMTh.

Accordingly the report starts with presenting the current institutions setting as this is prescribed by the relevant legislation in relation to the governance of the region's Operation programme and national RIS3 (section 2). This is followed by the suggested governance structure specifically for RIS3 as this was included in the RIS3 document (section 3) and then continues with the discussions and issues posed in relation to governance during the Peer Review, the EDP focus groups and the PDL events organised within the EP Preparatory Action (section 4). Then, the Governance Working Group mandate, organisation and work is presented in detail in section 5 resulting in the final version of the RIS3 governance system for REMTh that is illustrated in section 5.5. Section 6 proceeds with discussing the creation of the suggested governance system and particular the challenges and risks. It also proposes an action plan and indicative timetable. The report concludes with section 7 summarising the main conclusions.

2. CURRENT INSTITUTIONAL SETTING

2.1 GOVERNANCE OF THE REGIONAL OPERATIONAL PROGRAMME

The institutional setting in relation to the governance of the region's Operational Programme is set by Law 4314/2014 about the implementation and management of development interventions during the programming period 2014-2020. This law essentially integrates the EU Directive 2012/17 of the European Parliament and Council of 13th June 2012 (EE L 156/16.6.2012) into the Greek law.

The law describes the entities comprising the governance of the OP. Namely:

The so-called **Managing Authorities,** as prescribed in Art 4, are the entities responsible for the management and control of the regional operation programmes. . They report directly to the Region's Governorand their main responsibilities include:

- the support of the O.P. Programme Committee by providing the required information and data,
- the preparation and submission of the required implementation progress reports,
- the collection of the necessary data for the monitoring, control, implementation and evaluation of projects and their submission to the Integrated Information System,

- carrying out of the evaluation of the O.P.,
- specialising the O.P. and making recommendations for changes of the O.P. to the Programming Committee,
- carrying out of the necessary information and dissemination activities,
- undertaking the necessary actions in relation to the selection of projects, their implementation, monitoring and auditing, as well as
- Collaborating with the National Coordination Authority and providing all the necessary information.

The **Programme Committee** of the region's O.P. is the main body overseeing the implementation of the region's O.P. and coordinating the bodies involved in the programming, implementation, monitoring and evaluation of region's O.P. The Programming Committee also examines synergies across the various European Structural and Investment Funds (ESIF) co-funding the region's O.P. The Programme Committee includes representatives of all key stakeholders and takes decisions in relation to any corrective actions required for the effective and efficient implementation of the O.P.. The Managing Authority is responsible for supporting the Programme Committee in its operation and implementing its decisions.

The **National Coordination Authority** is the main coordination body connecting the regional and the national levels. It has the status of the Directorate General and reports directly to the General Secretary of Public Investments. Its mission is to link the relevant national and regional authorities with the appropriate European Commission bodies, to coordinate the activities of the relevant bodies set at the national and regional levels and promote the harmonised implementation of the EU and the Greek law. The coordination, synergies and complementarities between the ESIF and other EU programmes like COSME for instance is also the main responsibility of the National Coordination Authority in collaboration with the appropriate General Secretariats of the Greek Ministries.

Verifying the above, the Operation Programme 2014-2020 for REMTh states that the National Coordination Authority coordinates the implementation of the O.P. in relation to synergies among the various ESIF as well as its compatibility to the national and European priorities. Linkage of the region's Managing Authority with the NCA is enabled through participation in the committees and networks set up or to be set up by the NCA with the aim to achieve coordination, harmonisation in implementation, as well as dissemination of experience and good practice.

2.2 GOVERNANCE OF THE NATIONAL RIS3

The national RIS3 governance system as suggested by the General Secretariat for Research and Technology (GSRT) is illustrated in Figure 1 below. The first level (decision-making) consists of the **National RIS3 Council** that is coordinated by the Ministry of Economy, Infrastructure, Shipping and Tourism. It includes representatives (at the General Secretary level) from all the relevant Ministries for the design and implementation of the national RIS3 (such as Ministry of Culture and Education, Ministry of Labour, etc.). The Council also includes a representative of the Association of Greek Regions.

The **Regional Councils** of the 13 Regional of the country are also included in this level, which are responsible for taking decisions in relation to regional RIS3. In this role they are assisted by the **Regional Councils for Research and Innovation** (R&I) [1] as shown in the next level in the same figure.

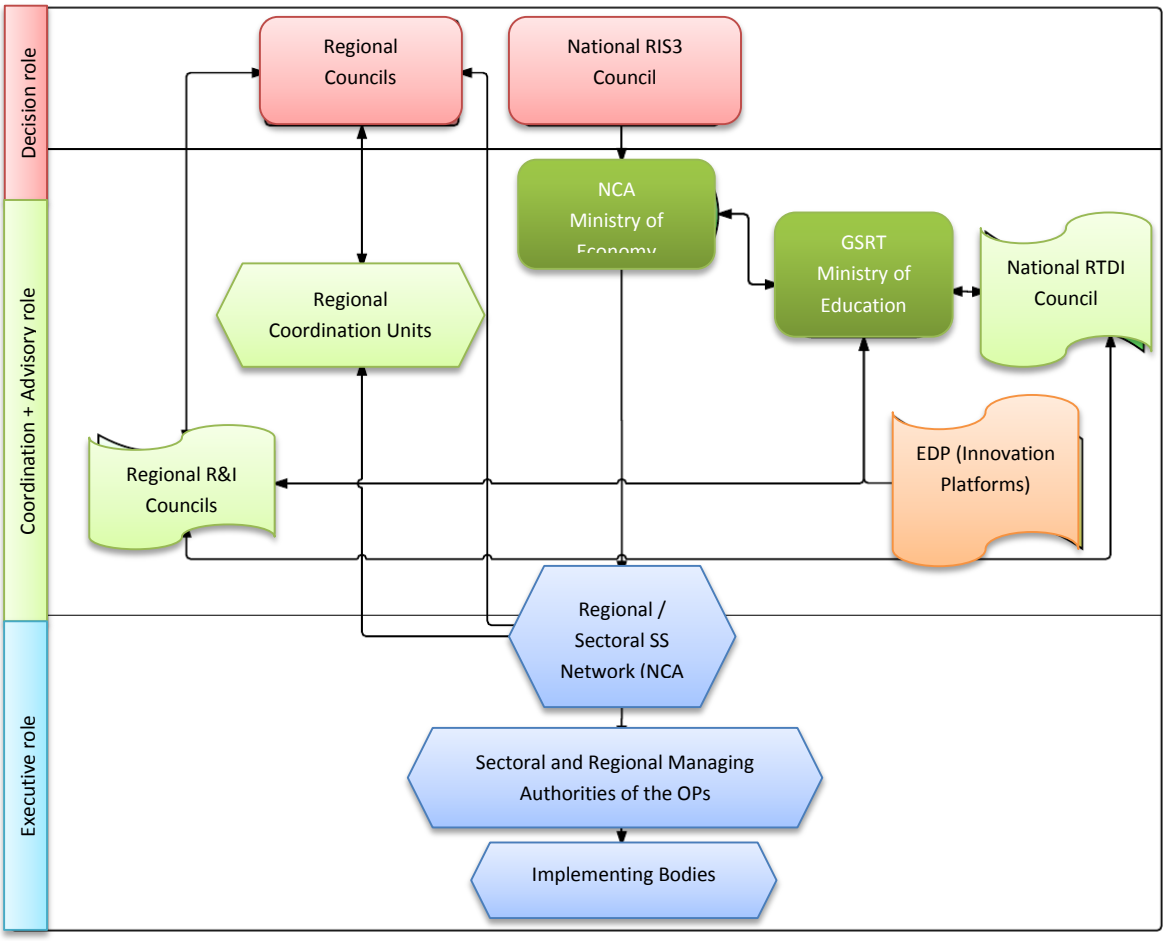
The following level includes bodies and structures that have the coordination role for the national and regional RIS3 as well as their advisory bodies. At the national level these are the GSRT and the National Coordination

[1] The creation and operation of the Regional Council for R&I is prescribed by Law 4310.2014, which is currently being revised.

Authority (NCA) **– assisted by the National Council for Research and Innovation -** , while at the regional level these are the Regional Coordination Units[2] that will be formed assisted by the **Regional Councils for R&I.** This level also includes the EDP mechanism and the innovation platforms set up by GSRT that enable EDP implementation, i.e. the structured consultation mechanisms formed at the national level to provide advice in relation to ideas and areas to support through the national RIS3.

At the third level, the sectoral or regional executive bodies (i.e. Managing Authorities) are coordinated through the Sectoral and Regional Network of OPs for Smart Specialisation (SS). This Network is responsible for the coordination of the Smart Specialisation strategy at the regional and national level in relation to the implementation of RIS3 actions. In this Network are represented the National Coordination Authority, GSRT, and the Sectoral and Regional Managing Authorities. This level also includes the bodies implementing RIS3 actions like research organisations, businesses, etc.

Figure 1: Governance system for Smart Specialisation by GSRT



Source: National RIS3 Document (v.5 2/7/15 – in Greek), p. 140.

In particular for REMTh, as specified in the O.P., the Managing Authority participates in the Smart Specialisation Network. The Managing Authority also has the responsibility to ensure synergies, complementarities and possible economies of scale with the policies and interventions defined in other Greek regions, and thus participates in relevant meetings with other Managing Authorities. Further, the Managing

[2] In the case of REMTh this unit will be called Coordination and Monitoring Team for Research, Innovation & Entrepreneurship (CoMTRIE, see 5.4.2 and 5.4.3).

Authority is in close collaboration with the Directorate for Development Planning of the Regional Authority whose responsibilities relate to regional development planning, the promotion of national strategies and targets, operational programming, monitoring and evaluation of the Region's activities and the development course of the Region overall. [3]

3. PROPOSED GOVERNANCE STRUCTURE AS SUGGESTED IN REMTH RIS3 DOCUMENT

Drawing upon the relevant literature[4] the RIS3 document (v. 9.2 / approved - April 2015) made a first attempt to define the governance system and mechanisms that are deemed necessary for the governance of RIS3 in the region.

As a first step the key actors that would need to get engaged in the governance system were identified. These include:

- academic and research organisations
- a few private business engaged in research and innovation themselves
- SMEs, mostly micro and very small firms of low research/knowledge intensity
- intermediary organisations including mainly chambers and sector-specific SME / professional associations
- the Regional Authorities including the different General Directorates of the Region and associated structures (Managing Authority, Regional development Fund, etc. as well as the Development Agencies)
- societal organisations including NGOs, patient / disabled associations, cultural associations, etc.

The RIS3 document (v. 9.2 / approved) suggested a governance system of three main levels as shown in Fig. 2

1) The **coordination** level that would involve a Regional Coordination Committee which would consist of the members of the Regional Council for Research and Innovation (representing all sectors of the triple helix) complemented by representatives of societal organisations.
2) The **management** level, composed by a team of officials with relevant experience in managing development programmes such as from the Development Planning Directorate of the Region and the Managing Authority. It would also be complemented with officials from other Directorates of the Region depending on the required thematic expertise (e.g., agriculture, environment, etc.)
3) The **documentation** level composed by newly created IENs (Innovation and Entrepreneurship Networks): bottom-up, autonomous, self-organised and self-governed partnerships in each RI3 priority area with participants of the quadruple helix. In the first instance IENs could be created in the agro-food sector, tourism and the emerging areas as well as in cross-sectoral areas like agro-tourism or e-tourism, etc.

The functions of the proposed structures are presented in the following table.

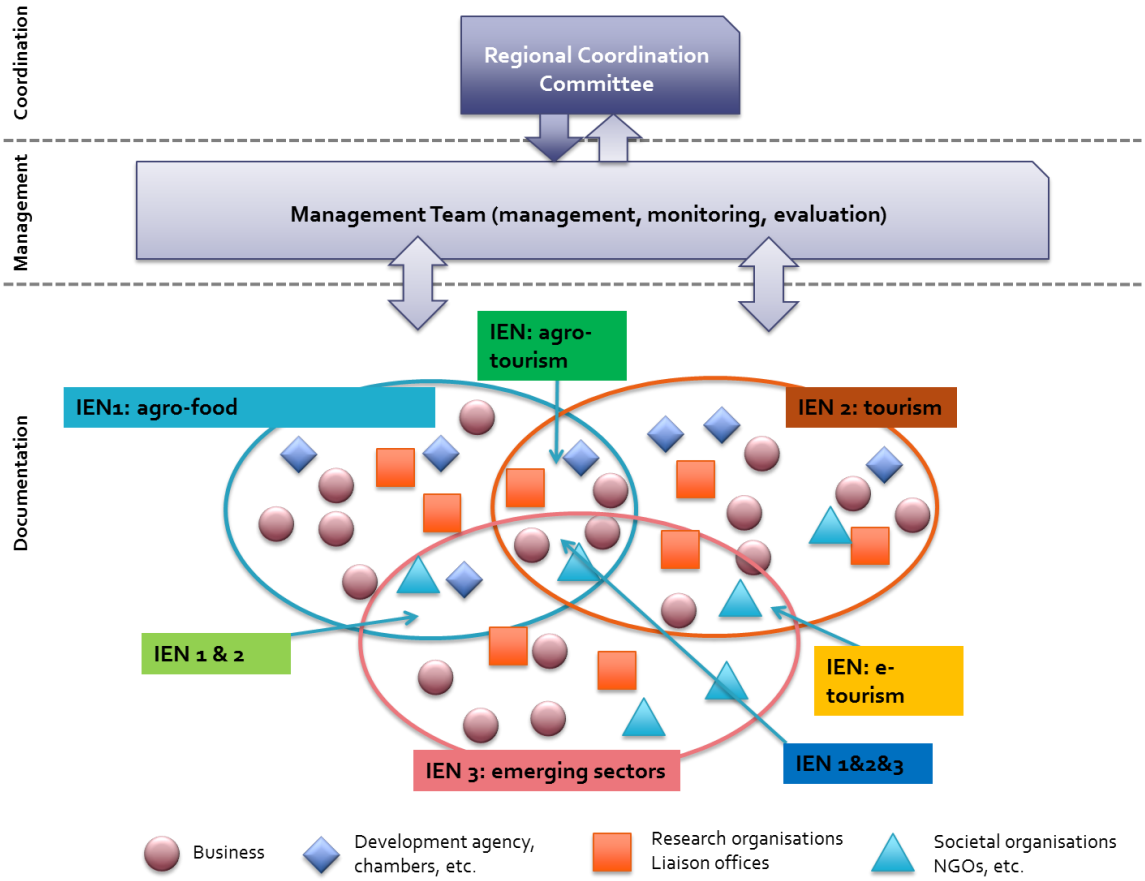
[3] Cf. REMTh Operational Programme 2014-2020 for 'Investments for Development and Employment', Chapter 8, in Greek.

[4] Including Del Castillo, J., Barroeta, B., Paton, J. (2012). Governance and Smart Specialisation. INFYDE Working Paper Series No 9; Foray, D. and Rainoldi, A. (2013). Smart Specialisation Programmes and Implementation. S3 Policy Brief Series No 2/2013. May; OECD. (2011). Regions and Innovation Policy. Paris: OECD Publishing; Reek, W. (2013). RIS3 Governance Guide. JRC/RIS3 Platform. October; Reid, A., Komninos, N., Sanchez, J. Tsanakas, P. (2012). RIS3 Regional Assessment: East Macedonia and Thrace European Commission, DG Regio, I3. December.

Table 1: Functions of the governance structures proposed in the REMTh RIS3 Document

Structures	Functions
Regional Coordination Committee	To make recommendations to the Regional Council about: • integrating and networking the regional actors involved in R&I; • analysing the regional R&I strategies, and the relevant tools for achieving the objectives set; • widening the spectrum of the funding instruments available; • strengthening the regional human resources in research by promoting scientific excellence and supporting participation in regional, national or EU relevant programmes; • supervising the work of the executive level; • the political and institutional support to the lower tiers of the governance system; • the defence of the regional RIS3 before other regional, national or European authorities (neighbouring regions, Ministries, European Commission).
Management Team	• implementation of the action programme under the guidance of the Regional Coordinating Committee and in consultation with the IEN: • collection of data through the monitoring system, their publication and the drawing up of periodic progress reports; • preparation and implementation of the RIS3 action plan; • monitoring and coordination of activities at the third level of governance; • translation of the strategic objectives into operational objectives; • networking with other regions on issues of common interest; • active search for resources from sources other than the Partnership Agreement; • diffusion of results relating to RIS3 activities to region and beyond; • implementation of the EDP aiming at the creation of IENs (see third governance levels) and support of their operation.
Innovation and Entrepreneurship Networks	• generation and further elaboration of ideas that may originate from participatory processes like the EDP, with a view to draw proposals that can be funded under RSI3 or other funding programmes. .

Figure 2: RIS3 governance system as suggested in the approved RIS3 document



4. THE JRC-PREPARATORY ACTION AND THE RIS3 GOVERNANCE IN REMTH

The governance of RIS3 has also been picked up by the JRC_IPTS preparatory actions[5], and many of its activities have tackled it either conceptually or at the ground level. As for the former, governance was directly or indirectly discussed in the following events, summarised in this section.

- Peer Review event
- Entrepreneurial Discovery Process Focus Groups
- Projects Development Labs 1 2

These events fed into the applied work conducted by the governance working group described in section 5.

4.1 RIS3 PEER REVIEW: DISCUSSION ON GOVERNANCE[6]

The Peer Review workshop on Governance addressed, among the others, key questions concerning the design and implementation of an efficient Governance mechanism and structure for RIS3. Representatives from various EU regions and experts joined representatives of regional authorities and independent experts and exchanged experience and views on the subject. The main points of the discussions are reported below.

[5] http://s3platform.jrc.ec.europa.eu/remth

[6] This section draws on the report by C. Emmanouilidis 'Report on REMTh RIS3 Peer Review: Governance'.

- The governance of RIS3 needs to ensure linkages to an effective evaluation system allowing regular feedback loops and corrective actions. It needs to be robust as well as flexible. Referring the structures of the Coordination level, participants noted that it is not uncommon to have an innovation council advising the Steering/Coordination Committee, with the Coordination committee providing high-level strategic inputs and feedback (not operational) to the management / operational levels of the governance system and ensuring synergies between the strategic level to the lower levels of governance.

- It is also important to enable independent advice from people outside the region, i.e. not bound by regional interests and thus avoiding political pressure. Such people could be included in the Coordination Committee and have an advisory role.

- In relation to IENs, participants recognized the bottom-up nature and noted that stakeholders need to be mobilized to get networked in such self-organised informal settings. In this regard, they stressed the important role of an innovation moderator with the aim to raise awareness, and mobilise stakeholders to form IENs, manage their expectations, facilitated discussions and follow up on the ideas formed. The 'innovation moderator' moderated should not come from the government or the regional authorities – however a 'secretariat' should be created within the regional government to ensure and support linkages between the Management Structure and the IENs. In addition, the right motivation has to be identified and strengthened in forming the IENs.

- Another theme of discussion had to do with the required capacities and training to support stakeholders, at all governance levels. Participants noted that it is important to exploit competences not only from the Regional Authorities but also from other, external people who enjoy expertise in certain areas.

- An important area where training becomes imperative relates and identifying and utilizing multiple funding sources beyond regional funds (i.e. H2020, European Territorial Cooperation programme, COSME, etc). Such type of training should also be provided to IENs. At the same time, participants noted a major challenge in training public officials in this area. Characteristically they considered it very difficult as these skills relate to taking risks and anticipating failure; qualities that are in total contrast with the limited room for maneuver that is usually allowed in public services. Thus, the role of external professionals was also mentioned who can be hired by regional authorities, although a certain degree of training would still be needed in order to monitor and follow up such consultancy services. This solution however does not compensate for the risk-averse culture cultivated in the public administration sector, a widely acknowledged issue in Greece.

- In strengthening cooperation between research institutions and universities with businesses several different means were proposed including (a) dissemination of information to companies about research potential in the region, (b) setting up university chairs that focus on entrepreneurship (including young entrepreneurs), (c) appointing technology transfer managers to bridge SMEs and the knowledge production sector, (d) funding of mobility schemes, (e) introducing regional business priorities into the teaching and research agendas

for universities and research centres. Good practice cases in these areas would be useful to consider.

- Participants also noted that it is important to invest in research and innovation with a view to assist enterprises to improve their competitiveness, rather than curiosity-driven research while also ensuring proper monitoring and evaluation based on relevant indicators that will enable showcasing successful cases and further promote the important of research and innovation in society. However, investments are not enough. Increasing the research and innovation capacity in the region is as vital as is strengthening SME participation. The focus should be on smart specialisation priorities, yet taking also into account emerging/promising sectors while internationalisation and mobility should always be facilitated.

- The linkage to the National RIS3 structure was less addressed. National meetings for co-ordinating the regional RIS3 with National RIS3 were proposed, checking set indicators. As a result of the discussion, it was concluded that further elaboration is needed (a) in defining linkages with the national RIS3 structure (b) on how to infuse sufficient neutrality in the steering level of REMTh's governance system (c) on how best to form and motivate the operation of IENs (d) on practical implementation details linking governance with monitoring and evaluation and how these would support balancing robustness with flexibility in the governance system.

4.2 IMPLICATIONS OF EDP FOCUS GROUPS ON GOVERNANCE

The EDP events brought together representatives of the most important sectors in the region and organised structured collaboration into working groups. In this regard they were highly appreciated. At the same time, EDP participants highlighted the importance of following up the ideas and proposals submitted by the research and business communities on the side of the Regional Authority which associates with the need for long-term commitment by all the key stakeholders.

Notwithstanding difficulties with time keeping, the EDP events were quite fruitful in terms of ideas. A total of some 45 ideas coming from the EDP were listed. Participants were assigned to different break-out groups and attention was paid so that representatives from the regional authorities, research and the business communities were present in all break-out groups. Caution was drawn also to achieve such a balance even in the sub-groups created within each group to discuss idea clusters. Thus, the elaboration of the ideas enjoyed both the research and business perspectives apart from the perspective of compatibility to the regional programmes and beyond.

The EDP events made it evident that sector specificities have to be accommodated in the idea generation and elaboration processes. This relates to the types of actions to be supported. For instance the marble or wine sector may offer more opportunities for technological innovation while the tourism sector may be more prone to other types of innovation like organisational or marketing innovation. Differences also exist in the type of businesses belonging to each sector and the degree to which these are acquainted with programmes supporting research and innovation. For instance, businesses in the wine sector may be more knowledgeable of these opportunities, while farmers in the dairy sector may be more distant to such processes. This may also relate to the availability of critical mass of knowledge and resources on the side of businesses to get engaged in the RIS3 procedures.

These factors (knowledgeability and availability of resources) affect the degree businesses may be interested to get engaged in the idea generation as well as to exploit the opportunities offered by RIS3 and other relevant

national or European programmes. The need for mobilisation of the stakeholders was an issue widely highlighted and discussed in the EDP events. The limited collaboration between the different sectors and especially the research and business communities was a repeated issue of discussion.

Reflecting further on this point, for the EDP to continue, it would need some sort of steering and structuring while also mobilising stakeholders to get actively engaged. This would be difficult to achieve in a totally bottom-up way as a self-organised informal network. Thus the IEN structures proposed in the governance system are very relevant in this regard provided each can be steered by an active and interested organisation (such as chamber, cooperative, business association, etc.)

Civil society organisations were largely missing from the EDP events. This reflects the limited awareness and thus interest on the side of society in research and innovation generally. This is hardly a regional problem. Lack of demand for innovation has been a problem in relation to the Greek research and innovation performance for decades. However, it has to be dealt with and the EDP offers a valuable opportunity in attracting societal organisations which are not missing from the region. It is also encouraging that the Regional Authorities have been involving societal organisations (in relation to culture, environment, the disabled, etc.) in the preparation phase of the Operation Programme. It is expected that IENs will also play a major role here in the mobilisation and engagement of societal organisations.

4.3 IMPLICATIONS OF PDL EVENTS ON GOVERNANCE

The first PDL was more focused on the technicalities of possible calls for proposals (like funding sources, corresponding tools, etc.). Attendants comprised officials from several directorates of Greek ministries as well as the Regional Authority. The degree of complexity became evident when translating the EDP ideas into appropriate content for possible calls for proposals and defining the specifications for each call. This complexity refers not only to the variety of directorates at both regional and national level that have to be involved which largely defines whether an action will be funded at the regional or national level. It also refers to the fact that most of the EDP ideas had to be broken down to specific component to fit the thematic objectives of the O.P., thus making it difficult to identify a specific EDP idea after its de-composition.

In addition the 1st PDL suffered from the non-existent yet Management Structure for RIS3. Notwithstanding, it is believed that the RIS3 Management Structure will include some of the officials from the Managing Authority and the Regional Authority' directorates that did take part in PDL1. Thus, this opportunity for engaging the RIS3 Management Structure was not eventually lost. This illustrates the need to be responsive and agree on a feasible, flexible and effective governance system that builds on existing structures and fits with the existing institutional framework in order not to be self-discarded.

In PDL 2 the RIS3 governance system was referred to by a number of speakers. The Governor himself highlighted the importance of creating a clear, distinctive and flexible governance system for RIS3 in the region supported by a clear and comprehensive monitoring and evaluation system with specific indicators. In addition, a number of issues were raised concerning the practical elements of governance, for instance which organisation is to be responsible for launching calls for proposals, as well as in relation to the fact that this is a transition period since significant changes are expected in Law 4310/2014 setting the main structures governing the national research and innovation system including the Regional Research and Innovation Councils. As a result it becomes evident that it is important to set in place the RIS3 governance system for the region as soon as possible, which however, cannot be considered as final given the upcoming changes in Law 4310/2014.

The afternoon session of PDL2 provided another chance to continue discussions on specific ideas originated in the EDP process. However, the fact that these discussions were only allowed to last an hour (at the end of the event) combined with the fact that the discussions were placed within the frame of Horizon 2020 did not act in

favour of exploiting this opportunity to support the creation of bottom-up self-organised networks that could play the role of IENs. In compensation to this, it was highlighted that the EDP did not conclude with the four events that had been organised. Speakers clearly stated that it was important to continue organising EDP events in other sectors of importance for the Region. This would provide a valuable opportunity to continue building networks among stakeholders in view of preparing and submitting proposals under R.O.P. or equivalent national programmes and thus creating the Innovation and Entrepreneurship Networks (IENs) in the third RIS3 governance level.

5. THE GOVERNANCE WORKING GROUP

5.1 MANDATE, SYNTHESIS AND OPERATION

In order to further work on and finalise the proposal on the governance system and mechanisms presented in the RIS3 Document (v. 9.2 / April 2015) a working groups was set up. The aim of this working group was to refine the suggested governance system and conclude on a complete proposal on governance structures and mechanisms for RIS3 in REMTh. The core task of this working group was the detailed analysis of the potential of current, planned and possible alternative governance mechanisms, and their constituent structures, processes and actors, to provide appropriate support to the implementation of the RIS3 in the current programming period.

After consultation with the Regional Authorities the working group comprises[7]:

- 6 representatives from academia and research in the region
- 7 representatives from the Regional Authority of the Region
- 2 from businesses, and
- 1 from a societal organisation representing needs of the disabled[8].

The working group operation was set through working meetings and in-between commenting on text prepared by the group moderator. The issues to be discussed in each meeting were set to be the following.

[7] For the detailed list of the participants in the 1st meeting of the Governance Working Group please refer to Annex I.

[8] It has to be noted that a cultural organisation was also invited to participate in the working group. However, no representative was able to attend the meetings. Yet, they remained in the mailing list till the end of the working group tasks. Thus they are informed of the purpose as well as outcomes.

First meeting

- Further elaboration of the governance system
- Finalisation of the structures and mechanism
- Knowledge management principles to be applied within and across the different governance levels

Second meeting

- Identification of the entities to be included in each governance level and priority area
- Definition of the profiles and criteria for selection of the people to staff each structure

Third meeting

- Required qualifications and skills for each structure
- Education and training needs for the people to staff the proposed governance structures

The first two meetings were face-to-face meetings that took place in Komotini. The third meeting was replaced with several discussions that took place via telephone and e-mail with officials of the Managing Authority and the Directorate of Development Planning of REMTh. This was decided because these two regional bodies were the main recipients of this type of information as well as those that would be responsible for taking action. Thus, there was no need to organise a third face-to-face meeting with the total of the working group members.

The working group had its first meeting 24th April 2015 in Komotini, at the premises of the Managing Authority. A presentation made by the group moderator introduced the audience to the aims and mandate of the working group and reminded them of the wider policy framework for the group's operation which is the vision and priorities of the region as set in the RIS3 document. Drawing on international literature, the presentation also introduced the audience to what governance is (covering both the system and process perspectives), and its central role in the RIS3 as well as the importance of representing all sectors of the quadruple helix, and the success factors on governance (collective leadership, ownership, trust, social learning, etc.).

Participants were asked early in the process about the expectations and challenges they could foresee in carrying out the tasks assigned to the working group so as to cross institutional boundaries and identify common interest to start building trust among each other. This took almost half of the meeting. With the common understanding of the problems and interests in mind then the discussion focused on a slightly newer version of the governance system and mechanisms based on the first attempt described in the RIS3 document which is presented below.

5.2 The structure of the RIS3 Governance System discussed in the WG

The version of the governance system that was presented to the working group for discussion evolved from the one presented in the RIS3 document. In particular, the strategic level was added to clarify that the Regional Coordination Committee was accountable to the strategic level rather than part of it.

Table 2 below shows the addition of the strategic level as well as the further elaborations of the responsibilities in the rest of the governance levels.

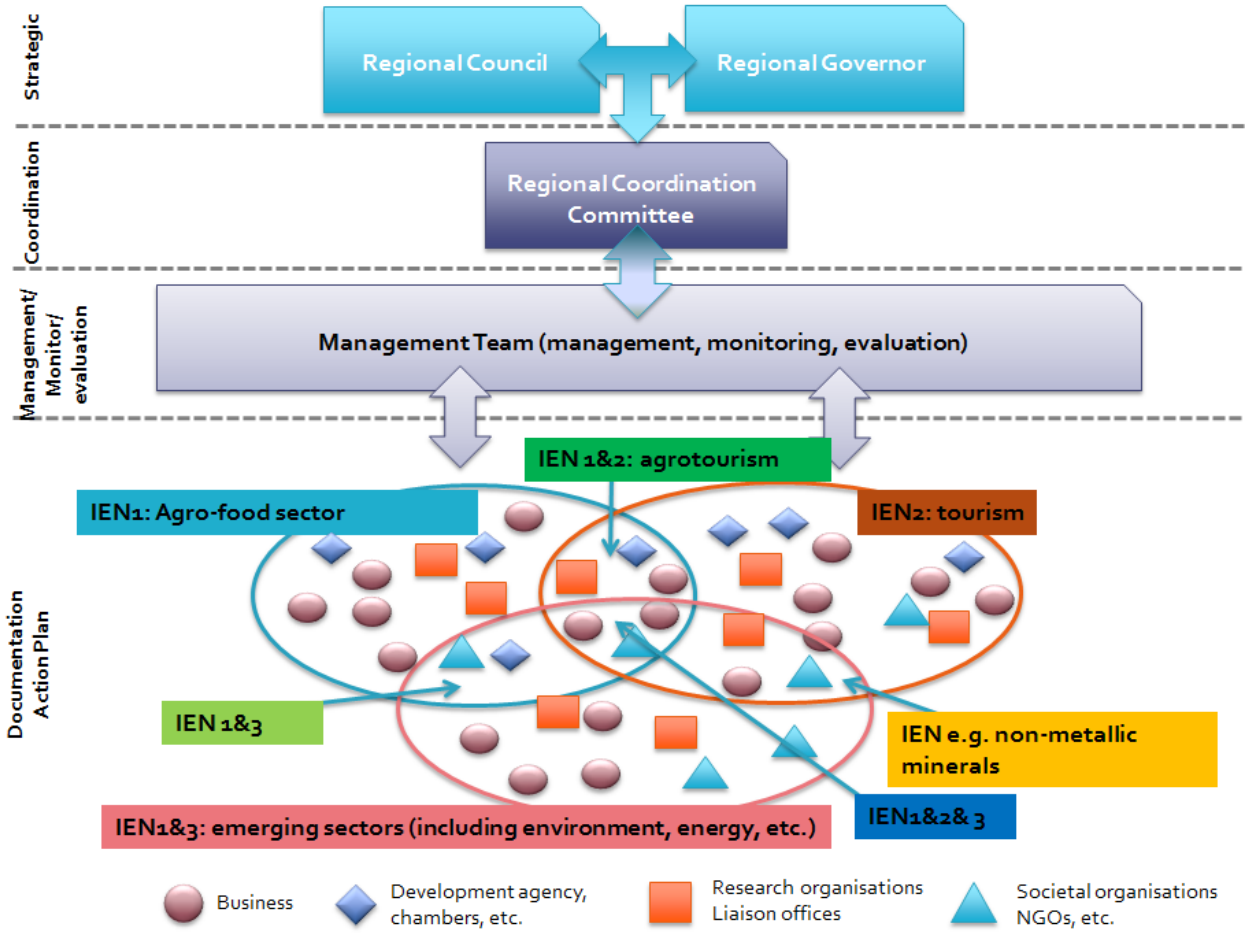
Table 2: Additions and further elaboration of the Functions of the RIS3 governance structures as presented at the start of the Governance Working Group

Structures	Functions
Regional Council and Governor	The strategic level includes the supreme authorities of the region i.e. the Regional Council and the Governor, their responsibility being the development and approval of the regional development strategy (including RIS3). This is carried out within the framework of the national policy and strategy for research and innovation and in collaboration with the relevant national and European entities (ministries, Structural Funds, etc.). It is at this level that the overall policy framework is shaped that underlines the room for manoeuvre of the lower levels of governance. This level also connects the regional dimension with the national and European dimension in research and innovation policy.
Regional Coordination Committee (RCC)	a. Advice towards the Regional Governor and the Regional Council about a) the networking of regional actors involved in research and innovation, b) analysis of the strategies for research and innovation development in the region and of the tools for the RIS3 implementation, c) access to funding sources and integration of research organisations in the regional economy, d) exploitation and strengthening of the research capacity and support of participation of the research community in national, regional or European programmes[9]; b. Guidance and supervision of the work of the Management within the framework of RIS3 and uptake of appropriate corrective actions; c. Representation of RIS3 vis a vis other regional, national and European actors (neighbouring regions, Ministries, European Commission, etc.). The RCC is accountable to the Governor and the Regional Council. Members in the RCC would have to be highly esteemed and knowledgeable of research and innovation policies and issues and should ensure representation of all the four sectors of the quadruple helix. Initially it was considered to assign the role of the RCC to the Regional Council for Research and Innovation.
Management Team (MT)	The Management Team was perceived to also include RIS3 actions' evaluation and monitoring tasks. Thus, the Management team was to include two sub-teams, i.e. one for the management and another for the evaluation and monitoring. Thus, the Management Team was to consist of public officials from Dir. of Development Planning as well as the Managing Authority with experience in programme design and management. The members coming from Dir. of Development Planning were to be responsible for the programme management while the members coming from the Managing Authority would undertake the programme monitoring and evaluation tasks. The Management Team would be accountable to the RCC, and then the Governor and the Regional Council. It would report to the RCC as well as the Governor, monitoring and evaluation results which may also include recommendations for corrective actions that will have been decided in consultation with the RCRI.
Innovation and Entrepreneurship	The IENs were thought to assist the Management Team in the preparation of the RIS3 action plan. IENs were to be created in the specific RIS3 priority areas as informal

Networks (IENs)	networks of actors, with an advisory role, interested in forming ideas for proposals that could be integrated in regional, national or other funding programmes. This could be done through the EDP with the help of the Management Team.

Figure 3 below illustrates the first version of the RIS3 governance system that was presented at the start of the working group discussions.

Figure 3: The first version of the RIS3 governance system presented at the start of the working group



I.B

5.3 WORKING GROUP GENERAL COMMENTS ON THE PROCESS: EXPECTATION, AND CHALLENGES

Participants perceived governance as a coordination mechanism of resources, structures and personnel through multi-layered structures and processes oriented towards activating and accelerating innovation generation in society within a flexible and regularly informed framework. Governance should address problems in a collective manner through the coordination of multiple partners in various levels and sectors.

The workshop participants acknowledged the importance of creating a RIS3 governance system in a bottom-up way as well as of including all the sectors of the quadruple helix in the governance system. Wide consultation is not a new practice in the region since it has also been recommended in the Structural Funds guidelines for a

number of years. However, this process does not usually reach beyond the 'usual suspects' (policy, research, and businesses through their collective associations, i.e. chambers, etc.) leaving aside societal organisations. Further, it certainly cannot facilitate breaking the boundaries across the different sectors and strengthening collaboration since it is usually carried out on line within a specific timeframe and without providing feedback to those who participated on how their comments were integrated in the policy outcome.

Taking part in a working group instead, in order to set the governance system of RIS3 in the region was highly appreciated as a bottom-up approach that would not only result to a jointly agreed governance system but could also be the starting point of effective communication and collaboration across and within the regional authorities, academia, business as well as societal organisations.

At the same time, it was highlighted that efforts should be spent not only on overcoming shortcomings of the past but also on better communicating RIS3 to market actors. The governance system should be supported by clear objectives, and be simple, realistic, effective, flexible, non-bureaucratic, sustainable, compatible with existing legislation and in synergies with existing structures and institutions. It should allow for close interaction and engagement of stakeholders building trust and collaboration while retailing balance between flexibility and effectiveness. It should integrate monitoring and evaluation accompanied by the right feedback loops so as to improve and adjust to changes deemed necessary. Overall, the governance system should aim at mobilising and engaging the total spectrum of stakeholders in implementing RIS3 towards social cohesion and regional development while balancing principles like trust and flexibility with robustness and effectiveness.

The discussion then focused on the challenges that the governance group members could identify in view of the above expectations. The major challenge was to communicate RIS3 to potential users and beneficiaries. In this regard, the group members appreciated the Entrepreneurial Discovery Process (EDP) that was being carried out for several months and further stressed that expectations had now been created, and the momentum was built to further mobilise users and market actors in exploiting RIS3.

They also noted that this needs long-term commitment and effective and targeted dissemination of results and success cases in order to persuade potential users that it is worthwhile to engage in the implementation of RI3, despite the shortcomings of the past. Adding to these it was acknowledged that not much could be improved at regional level in generic issues such as red tape, payment delays, or difficulties in getting loans or tax certificates in an era of financial crisis.

The group members highlighted that the participants in the RIS3 governance system have to realise their own responsibility to disseminate the knowledge and experience they gain to others in their departments and organisations. This will ensure continuity and thus stability of commitment and is relevant for all the structures in all the government levels. Each one of the participants will have to be effective 'multiplier' and 'communicant' of the effort within their organisation and to others in their sector. Further, it would be feasible to create groups within the organisations as well as networks of organisations that will be responsible to provide feedback in relation to the RIS3 governance.

Group members also noted that commitment is retained as long as stakeholders regularly see progress on the road towards the agreed vision for the development of the region, and they see positive results and feel ownership of the whole plan. Besides events and other activities of engagement showing good will this requires 'thinking out of the box'.

At the same time, while the private sector faces a series of problems due to the financial crisis, the academia and research sectors face shortages of public funds and reduction of personnel within a highly uncertain context of development. This becomes more problematic given the high dependence of the majority of academic and research institutions on public sector funding. This is another major challenge that has to be

considered. This, however, can also be seen as an opportunity to bridge the two areas (research and businesses) by providing incentives for new knowledge production combined with the need for business growth.

As another challenge, group members agreed that the existing institutional framework and risk-adverse environment are counter-productive. For instance, the regional authorities do not have full authorisation to issue calls for proposals in the area of research and innovation (OT 1). This needs to be delegated to the national level and specifically the General Secretariat of Research and Technology under the Ministry of Culture, Education and Religious Affairs.

5.4 WORKING GROUP COMMENTS TO EACH SPECIFIC GOVERNANCE LEVEL

5.4.1 Strategic level

Participants found the strategic level and the structures included at this level appropriately described. However, they were critical about assigning the role of the Regional Coordination Committee to the Regional Council for Research and Innovation. Although this referred to the Coordination level the solution suggested affected the strategic level. In particular, it was acknowledged that the existing legislation (law 4310/2014) assigned an advisory role to the Regional Councils of Research and Innovation (RCRI). This advisory role would be addressed to the Governor and the Council (strategic level) as well as the coordination level of the governance system. Thus, the ***RCRI should be included between the strategic and the coordination level of the RIS3 governance.***

5.4.2 Coordination level

After discussing the role and mandate of the coordination structure to be created at the regional level, the group members came to the conclusion that this role should mainly be assigned to the Dir. Development Planning of the Region. In fact, this was not uncommon practice judging from the governance systems being formed at the time in other Greek regions.

At the same time, it became evident in the group discussions that the Managing Authority has to act in coordination and close collaboration with the Dir. Development Planning for the managing, monitoring and evaluation of the RIS3 actions. In addition, the Dir. Development Planning was expected to be heavily involved in the management of the RIS3 especially in terms of coordination. Thus, the group came to the conclusion that it would make sense to ***merge the coordination and management levels into one and operationalise it with the creation of a Coordination and Monitoring Team for Research, Innovation and Entrepreneurship (CoMTRIE) replacing the Management Team initially defined.***

The creation of Thematic Groups is also advised within the CoMTRIE to utilise thematic expertise located in the other Directorates of the Regional Authority like the Dir. for Agricultural Economy and Veterinary or Industry and Energy, etc.

The role of independent 'critical friends' was also noted as important by some group members for both the strategy and the coordination levels. These should be people outside the region so that they can provide independent advice to both CoMTRIE and the Regional Council for Research and Innovation.

5.4.3 Management level

As noted above the Management level is merged with the coordination level and the Coordination and Monitoring Team for Research, Innovation and Entrepreneurship (CoMTRIE) is created undertaking the coordination and monitoring of RIS3 and its actions. Furthermore, it was decided to remove the word 'management' from the title of CoMTRIE because the management and auditing of the RIS3 actions are defined by ESIF regulations and guidelines and are exclusively under the responsibility of the Managing

Authority. It is noted that CoMTRIE will not absorb the total of human resources of neither Dir. Development Planning nor the Managing Authority. CoMTRIE will be created following a decision from the Governor by utilising part of the total resources of these two bodies (it is estimated to need the full-time equivalent of 5-6 people)

5.4.4 Documentation level

Although the bottom-up nature of the IENs was highly appreciated by the group members, they found they are the most difficult structure to create. The major challenges that were mentioned were the lack of collaboration between the different academia and industry as well as the lack of such a bottom-up tradition in setting up the regional strategy in the past.

The members noted that a lot of efforts need to be made in mobilising academic, research, industrial and societal actors to participate in IENs. This requires trust building and persuasion by showing how stakeholders' views and ideas expressed in the EDP events have been taken into consideration in building the RIS3 measures as well as following good practices in keeping them informed and engaged in following and responding to RIS3 calls for proposals.

Organisation of raising awareness in local industry about the research capacity of the institutes of the region would be useful as well as networking events, exhibitions and shows in order to bring research closer to the local society. The research institutes can set up regular dissemination events in an annual basis supported also by the publication of end-of-year reports. Such cross-boundary events should be regularly supported by regional and other relevant funds while they should be underlined by a multi-lingual and multi-cultural approach.

At the same time, the mission of the academic and research community needs to consider local needs, challenges and priorities in their education and research agendas with a view to respond to them. This may motivate the business community to directly fund research activities in the region rather than wait for the next round of available public grants.

IENs ought to be self-organised informal networks. However, in the current context of indifference and lack of communication and collaboration within and across the different sectors (academia, business, and society) support is needed for their creation and initial operation. This would be provided by CoMTRIE also utilising available funds under the Technical Assistance of R.O.P. More specifically it was decide to explore the possibility to launch calls for proposals for the creation of such networks in three specific sectors as a pilot, i.e. agro-food, non-metallic minerals and tourism.

The specific calls could further be informed by certain ideas about the content and supporting environment for IENs developed in other parts of the EP Preparatory Action for REMTh. For instance, it was recommended that the Region foresees the formation of IENs not only in the RIS3 Governance structure, but critically also in the ROP planning and clearly interfacing with the regional Digital Agenda Community (DAC), i.e the IEN created in the ICT sector. The proposers of IEN/DAC should foresee in their plan the path from the initial partially funded IEN, to the longer term and eventually self-financed IEN operation. Further, the operation of IENs requires a high level of integration, at least with respect to the sharing and disseminating sector-level information and knowledge. Thus, it was suggested that every IEN can be integrated in a single regional Virtual Platform (VIP), which can be operated by the DAC/ICT IEN and shall offer a knowledge pool for relevant information, but also for pushing forward the regional enterprise sector offerings, needs and business propositions.[10]

[10] Christos Emmanouilidis (2015) D1. Report based on quantitative analysis tools to prepare a preliminary assessment of the industry sector in REMTh and Ex-Ante Preliminary Assessment of ICT Enablers.

The role of IEN Coordinator can be assigned to any entity (chamber, business association, cooperative, research centre, etc.) or a partnership of those based on certain criteria. These include access and good communication with potential beneficiaries, eligibility for getting support from the R.O.P., availability of relevant capacities and experience in action planning, communication, encouragement, coordination, team building, organisation of discussions, events, etc., and ability to cover the region in geographical terms in relation to awareness and information campaigns.

5.5 THE RESULTING RIS3 GOVERNANCE SYSTEM FOR REMTH

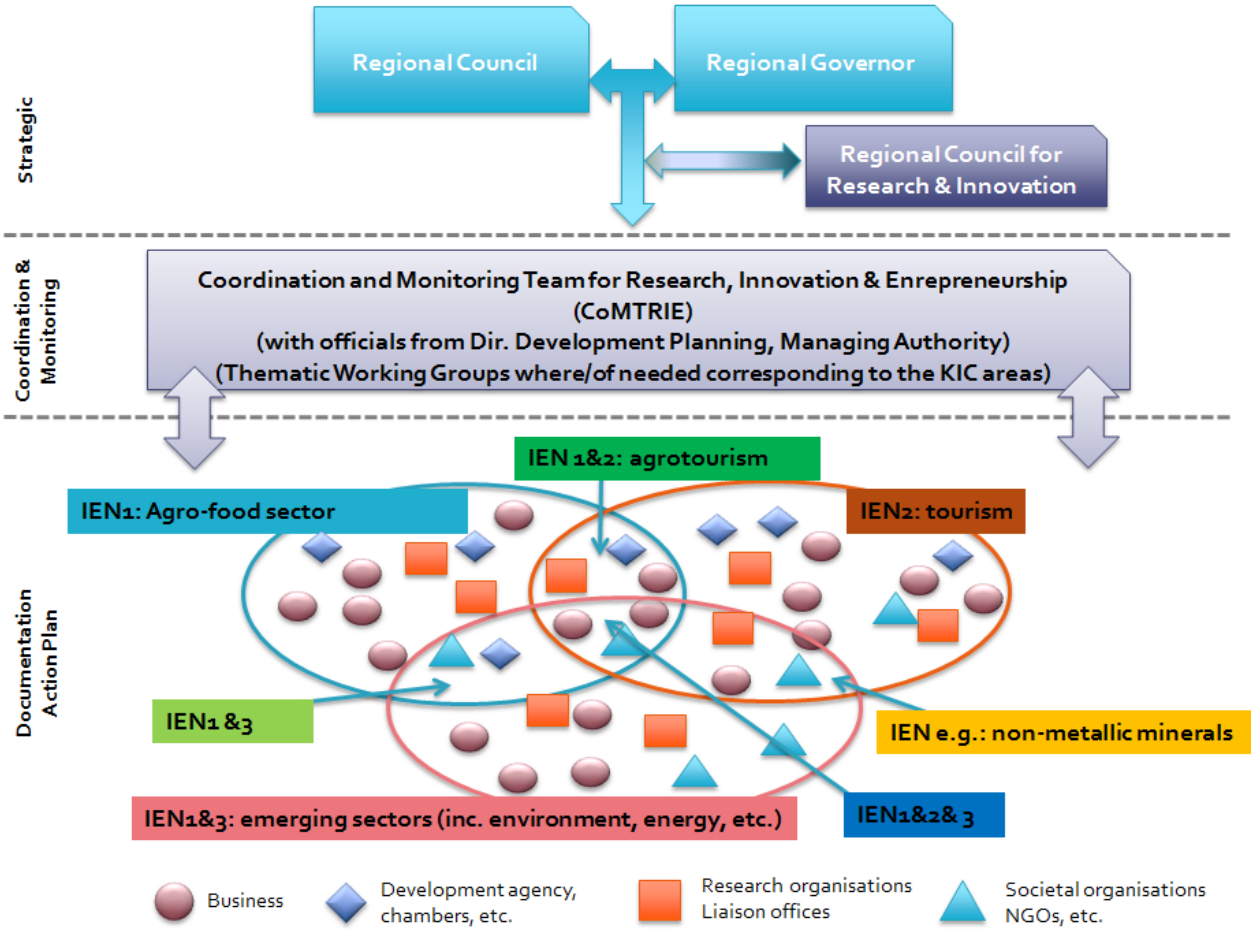
Based on the above remarks the RIS3 governance structures and functions were changed as summarised in Table 4 and illustrated in

Figure 4.

Table 3: Final version of the Functions of the RIS3 Governance Structures for REMTh

Structures	Functions
Regional Council, Governor and Regional Council for Research and Innovation	The strategic level includes the Regional Council and the Governor which are supported by the Regional Council for Research and Innovation (RCRI). The RCRI is to be created following the provisions of Law 4310/2014. The Governor and RCRI can also be supported by advisors external to the region to ensure 'neutrality' and 'objectivity' to the degree possible.
Coordination and Management Team for Research, Innovation and Entrepreneurship (CoMTRIE)	CoMTRIE will be responsible for • preparation of the regional strategy in relation to research and innovation to be approved by the Governor and Regional Council; • coordination of actions across the regional, national and EU levels; • translation of strategic into operational objectives, preparation of RIS3 and associated actions in consultation with the 3rd level (IENs); • support of the RCRI and consultation with RCRI in issues of its responsibility; design and implementation of corrective actions; • representation of the RIS3 at the regional, national and EU levels; • networking/collaboration with other regions on issues of common interest; • search of funding in regional and national sources and beyond; preparation of applications addressing the region as the beneficiary in collaboration with other relevant teams of the Regional Authority; • launch of calls (directly or indirectly through intermediary organisations like Development Agencies, etc.); • collection of monitoring data and preparation of progress reports and identification of issues that need attention by the Governor and the Council and in consultation with RCRI; • assistance for the creation and operation of IENs at the documentation level and coordination of their actions; • assignment and supervision of evaluation and impact assessment studies of RIS3 actions; • dissemination activities in relation to RIS3 and the implementation of EDP. The above responsibilities will be shared among officials from the Dir. Development Planning of the Region and the Managing Authority. The management and control of RIS3 actions will be the responsibility of the relevant (Sectoral or Regional) Managing Authority depending on the financial instrument utilised and will follow the ESIF regulations and Monitoring and Control System valid in each programmatic period.
Innovation and Entrepreneurship Networks (IENs)	IENs will be informal networks of stakeholders to that will assist the CoMTRIE in the preparation of actions to be integrated in the RIS3 or other national or European programme. As a pilot phase, IENs in the agro-food sector, non-metallic minerals and tourism can be created through launching relevant call for proposals under the R.O.P Technical Assistance.

Figure 4: The resulting RIS3 Governance System for REMTh



6. THE WAY FORWARD

6.1 FEASIBILITY OF A SUCCESSFUL IMPLEMENTATION OF THE PROPOSED RIS3 GOVERNANCE STRUCTURE

As already noted above creating the suggested RIS3 governance system faces several challenges. These range from a counter-productive institutional environment with delays, to the lack of communication and collaboration among the different stakeholders in the region and the possible risk of skills and resources shortages in the Regional Authority. The challenges discussed in the working group were translated to risks as illustrated in the table below. Certain possible solutions were thought of by the main body responsible.

Table 4: Possible risks and associated solutions in creating the suggested RIS3 Governance System for REMTh

Main risks / related impacts	Risk likely-hood (*)	Risk Impact (*)	Solution	Responsible body
Need to create a new RCRI due to revised Law 4310/2014	5	2	Validity of the 'old' RCRI until the new RCRI is fully operational	Governor's office
Need for extra human resources in the Managing Authority	3	3	CoMTRIE will combine existing resources from Dir. Development Planning and the Managing Authority; additional resources may be used from other Directorates; Possible use of external experts	Dir. Develop-ment Planning + Managing Authority + other relevant Directorates in Region
Insufficient funds from the R.O.P Technical Assistance / Inability to cover needs in training and HR and create IENs	1	4	Utilisation of supplementary resources like ESF or O.P. for Life-long Learning or relevant European programmes	Dir. Develop-ment Planning + Managing Authority
Lack of culture of collaboration / IEN's do not get started properly or fade out after some time	3	4	Organise a stakeholder event before the launch of a call for proposals for a thematic IEN; Start with a relatively easy thematic area, where some collaboration already exists (e.g. wine and cooperation with the European Association of wine cities)	CoMTRIE
Limited mobilisation of the Governance WG members in the dissemination of the results, action plan and collaboration spirit	3	3	Identify 'innovation champions' or 'pilots' per thematic area; Have a thematic coordinator in the region responsible for animating stakeholders to engage, to collaborate, or even to set up small first collaborations to gain trust and to show potential added	CoMTRIE

value

(*) The scale (1-5 lowest to highest) for risk impact/likelihood scoring is as follows:

	Qualitative Descriptions of 5-Point Scale	
Score	Impact	Likelihood
1	Negligible, very low	Very unlikely, improbable, rare
2	Low, minor	Unlikely, remote
3	Moderate	May happen, occasional, possible
4	High, critical	Likely, probable
5	Extreme, catastrophic	Almost certain or imminent

6.2 TOWARDS A ROADMAP FOR IMPLEMENTATION

Notwithstanding the above challenges and risks, the working group also identified the immediate steps to take in order to create the suggested RIS3 Governance System. These are mentioned in the following table that also suggests which body should be responsible for taking the action and within which timeframe.

Table 5: Suggested Action Plan and Timetable for creating the RIS3 Governance System

Action	Responsible body	Indicative Timetable
Presentation of the RIS3 Governance System and Action Plan to the Governor	Managing Authority	08/2015
Creation of RCRI (based on revised Law 4310/2014)	Governor's Office	12/2015
Creation of CoMTRIE	Governor's Office Relevant Regional Directorates and Managing Authority	02/2016
Needs analysis in training and human resources	Relevant Regional Directorates and Managing Authority	04/2016
Training activities	Relevant Regional Directorates and Managing Authority	05/2016
Pilot call for the creation of IENs in the three sectors (agro-food, non-metallic minerals and tourism)	Managing Authority	05/2016
Call for the creation of IENs in the rest of RIS3 sectors of importance	Managing Authority	06/2016

Communication / dissemination of the governance results and spirit of collaboration to stakeholders / mobilisation of stakeholders	All members of the Governance working group	constant

7. CONCLUSIONS

The Governance working group was set up to define a simple, flexible, realistic and non-bureaucratic, effective and informed governance system for RIS3 in REMTh. Based on the first draft as suggested in the RIS3 document (v. 9.2/approved – April 2015) the group worked towards this direction. The resulting system builds on existing regulations and structures while also retaining flexibility and thus aspiring to be effective. The new structures proposed to be created, the IENs, refer to the third level, documentation, which is in essence oriented towards actively engaging potential beneficiaries in the preparation of RIS3 relevant calls and actions. Their creation and initial operation can be supported financially through the R.O.P. Technical Assistance. The dynamic and momentum created in engaging stakeholders through the EDP focus groups will also act in favour of this step.

In relation to the other bodies included in the governance system, the strategic level is covered with entities that already exist (pending changes to the formation and composition of the RCRI). At the coordination/management level, the CoMTRIE can easily be created following the Governor's decision and drawing upon the resources and capacities of the two main relevant services of the region, i.e. the Development Planning Directorate and the Managing Authority. Additional resources may need to be found however in case the full time equivalent of 5-6 people is not currently available.

The resulting governance structure respects existing laws and regulations; particularly Law 4314/2014 and 4310/2014 setting in place the role of the RCRI and the specific obligations and responsibilities of the Managing Authority. It also builds on existing structures i.e. the Region's Directorates and the Managing Authority and follows the mandates of these units, including the laws and regulations that have to be followed for actions co-funded by the ESIF. Linkage of this governance structure with the administration of ERDF as well as the other ESIF is ensured through the Managing Authority who will be part of the CoMTRIE but will retain their responsibilities in relation to the R.O.P management.

The creation of the suggested governance system faces several types of challenges that have been identified by the working group alongside possible solutions. This is encouraging in deciding the next steps to take. Also encouraging is the determination of the Region to create the suggested RIS3 governance system. This has led to an action plan identifying specific actions to be taken by specific bodies within an indicative timeframe. That will probably need to be complemented by additional steps identified as the process is under way to get to full implementation; yet it is an important starting point.

II. ANNEX I: GOVERNANCE WORKING GROUP MEMBERS

Name	Organisation	Sector
1. Christos Emmanoulidis	Athina Research Centre	Academia/Research
2. Christos Parashoudis	Thrakon Amnos	Business
3. Dimitrios Bandekas	TEI Eastern Macedonia & Thrace	Academia/Research
4. Dimitrios Naziris	Thrakon Amnos	Business
5. Dimitris Kyriazidis	TEE_Eastern Macedonia	Academia/Research
6. George Stampoulis	TEE_Eastern Macedonia	Academia/Research
7. George Tsakiris	Regional Authority	Policy
8. Konstantinos Kaloudis	Regional Authority	Policy
9. Michael Ragousis	'Perpato'	Societal organisation
10. Panagiotis Koudoumakis	Regional Authority	Policy
11. Pantelis Botsaris	Dimokrition University of Thrace	Academia/Research
12. Paraskevi Chouridou	Regional Authority	Policy
13. Paraskevi Giourka	Regional Authority	Policy
14. Petros Soukoulias	Regional Council for Innovation and Ent	Academia/Research
15. Vasilis Pitsiningos	Regional Authority	Policy
16. Yiannis Kessanlis	Regional Authority	Policy
17. Stamatios Kouroudis	Thrakika Ekkokistiria	Business
18. Anastasios Karkantzalos	Nestos Agricultural Cooperative	Business
Invites but not attended		
19. Kuriakos Kampakas	Organitechnical	Business
20. Efterpi Stantsiou	Lukeio Ellhnidwn	Society (culture)

Report on Training Needs

Report D.5

Under the Service Contract 154805-2015 A08-GB

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Research Fellow
Manchester Institute of Innovation Research
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2nd September 2015

Contents

II.A

3. INTRODUCTION

The present report is Deliverable D.5 corresponding to Task 3.a. 'Identification of training needs for a sustainable implementation of RIS3'. As specified in the Service Contract 154805-2015 A08-GB, training needs should be identified at two levels:

- at the governance level, with a focus on: ability to manage and follow-up the RIS3 process, run participatory events, understanding of funding streams, effective design of calls, etc.
- at the level of funds-applicants, with a focus on the capacity of applicants to engage with international actors, place their project against the appropriate international background, identify scientific and technological needs and the opportunity to fulfil them within the region, the country or internationally.

The report draws upon the following sources:

- Report 'D. 1 Governance Structure for RIS3 in REMTh_report final_July 2015.docx' that analytically describes the Governance Structure for RIS3. This was the collective product of the Governance Working Group;
- Report 'Governance WG_Results_26 June_suppl rev_July2015.pptx' (in Greek) that was sent to the members of the Governance Working Group for approval on 27th July 2015[11];
- The discussions that were held in the Governance Working Group; and
- The points recorded in relation to training needs during the discussions in
    - the Peer Review event in Alexandroupolis, 12-13 February 2015,
    - the four EDP focus groups (Wine EDP in Drama in November 2014; Meat and Dairy EDP focus group in Komotini in January 2015, Tourism EDP focus group in Alexandroupolis, 11-12 February 2015; Marble EDP focus group in Drama in May 2015) and
    - the two Project Development Labs (Komotini, 6-7 May 2015 and Alexandroupolis, 24th June).

The report starts by briefly introducing the governance structure of RIS3 as agreed by the members of the working group. The following section presents the required expertise and competences for each of the governance structures proposed. The information included in this section can serve as a basis for assessing existing human resources and further deciding for actions to cover identified needs either in training or in ensuring access to additional human resources. The conclusion section highlights certain risks and challenges that have to be taken into consideration in covering the needs in human resources for governing and implementing RIS3 in REMTh.

2. THE RESULTING RIS3 GOVERNANCE SYSTEM FOR REMTH

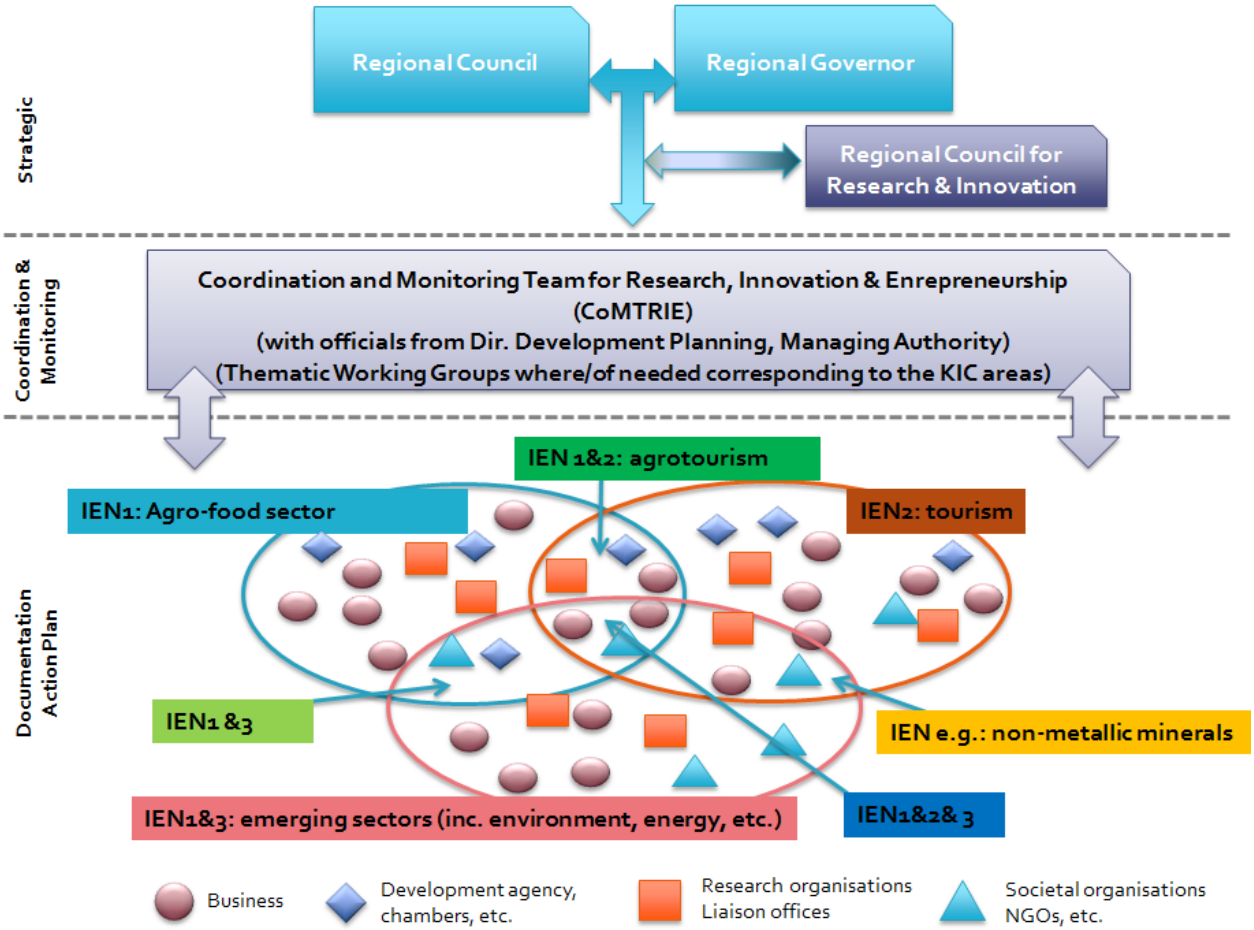
The governance system for RIS3 in REMTh consists of three levels: a) Strategic, b) Coordination and Monitoring, and c) Documental and Action Plan. The structures included in each level along with their responsibilities are described in the following table 3 and Figure 4.

[11] No comments or rejections were received.

Table 6: Final version of the Functions of the RIS3 Governance Structures for REMTh

Structures	Functions
Regional Council, Governor and Regional Council for Research and Innovation	The strategic level includes the Regional Council and the Governor which are supported by the Regional Council for Research and Innovation (RCRI). The RCRI is to be created following the provisions of Law 4310/2014. The Governor and RCRI can also be supported by advisors external to the region to ensure 'neutrality' and 'objectivity' to the degree possible.
Coordination and Management Team for Research, Innovation and Entrepreneurship (CoMTRIE)	CoMTRIE will be responsible for • preparation of the regional strategy in relation to research and innovation to be approved by the Governor and Regional Council; • coordination of actions across the regional, national and EU levels; • translation of strategic into operational objectives, preparation of RIS3 and associated actions in consultation with the 3rd level (IENs); • support of the RCRI and consultation with RCRI in issues of its responsibility; design and implementation of corrective actions; • representation of the RIS3 at the regional, national and EU levels; • networking/collaboration with other regions on issues of common interest; • search of funding in regional and national sources and beyond; preparation of applications addressing the region as the beneficiary in collaboration with other relevant teams of the Regional Authority; • launch of calls (directly or indirectly through intermediary organisations like Development Agencies, etc.); • collection of monitoring data and preparation of progress reports and identification of issues that need attention by the Governor and the Council and in consultation with RCRI; • assistance for the creation and operation of IENs at the documentation level and coordination of their actions; • assignment and supervision of evaluation and impact assessment studies of RIS3 actions; • dissemination activities in relation to RIS3 and the implementation of EDP. The above responsibilities will be shared among officials from the Dir. Development Planning of the Region and the Managing Authority. The management and control of RIS3 actions will be the responsibility of the relevant (Sectoral or Regional) Managing Authorities depending on the financial instrument utilised and will follow the ESIF regulations and Monitoring and Control System valid in each programmatic period.
Innovation and Entrepreneurship Networks (IENs)	IENs will be informal networks of stakeholders to that will assist the CoMTRIE in the preparation of actions to be integrated in the RIS3 or other national or European programmes. As a pilot phase, IENs in the agro-food sector, non-metallic minerals and tourism can be created through launching relevant call for proposals under the R.O.P Technical Assistance.

Figure 5: The resulting RIS3 Governance System for REMTh



3. REQUIRED EXPERTISE AND COMPETENCES

3.1 STRATEGIC LEVEL

The body that needs to be created at the strategic level is the Regional Council for Research and Innovation (RCRI). The responsibilities of this body are prescribed by Law 4310/2014. According to the suggested modifications of Law 4310/2014 the RCRI should be responsible for making suggestions to the Regional Governor and the Regional Council in relation to:

a) networking and linking of the regional actors in research and innovation such as public research organisations, technological organisations, businesses, etc.

b) analysis of strategies for the development of research and innovation in the region in collaboration with the General Secretariat for Research and Technology and the implementation of coordinated actions between the national and regional level;

c) definition of criteria and eligibility conditions for research proposal evaluation;

d) access to funding sources for potential beneficiaries and integration and linking of the research organisations in the regional economy;

e) exploitation of the research capacity of the region and support of the employment of young graduates at national, EU and international levels through measures such as:

   i. support of research organisations for acquiring the necessary equipment needed for the full exploitation of the available research capital;

   ii. support for research infrastructure to ensure non-discrimination access on a transparent basis;

   iii. support for organising workshops and conferences facilitating knowledge transfer and promotion activities as well as dissemination activities of research results in the production sectors of the country, or in other countries and international markets;

   iv. identifying the needs and possibilities for support of the research capacity of the public research organisations that are located in the regional and are eligible for funding.

As also specified in Law 4310/2014 the RCRI should consist of 11 members, six of which should be professors in Higher Education Institutes of researchers in public Research Organisations supervised by the Ministry of Culture, Education and Religious Affairs. The rest five members should come from chambers or professional associations, cultural organisations, local authorities, or the production sector of the region. All members of the RCRI should hold an MSc or equivalent degree, they should be widely recognised in their field and enjoy long research and working experience in areas of research and innovation. Their office time will be four years and the selection process includes the creation of a selection committee (consisting of 2 professors, 2 senior researchers of a local or a foreign organisation, and 1 representative of the production sector of the region) and the launch of an open call for applications.

Besides the legal requirements in relation to the qualifications of the potential members of the RCRI it is important that the candidates enjoy a comprehensive understanding of the national and international research and innovation landscape and are also familiar with participatory approaches in policy-making. They should also have experience in effectively communicating and collaborating with local stakeholders so that they can achieve their engagement.

A regional council similar to the one that is proposed to be created already exists in the region since 2013 (called Regional Council for Innovation and Entrepreneurship). This council consists of local, highly esteemed individuals and has been quite effective in fulfilling its aims. This is an indication that the required competences already exist in the region.

3.2 COORDINATION AND MONITORING LEVEL

The main structure at this level is the Coordination and Monitoring Team for Research, Innovation and Entrepreneurship (CoMTRIE). This team is to be created by decision of the Governor and will draw upon available human resources mainly from the Dir. Development Planning of the Region and the Managing Authority. It is estimated that it requires the full time equivalent of 5-6 people. CoMTRIE should also be able to draw on additional human resources from the other directorates of the Regional Authority depending on the sectoral and thematic expertise that may be needed.

Based on the responsibilities of CoMTRIE as specified in Table 1 above, the Coordinator should enjoy the following expertise/competences:

- knowledge of issues related to research, innovation and entrepreneurship;
- coordination of research, innovation and entrepreneurship actions at EU, national and regional levels;
- strategic planning in relation to research and innovation at regional level;
- access and links to potential beneficiaries i.e. the academic, research and business communities;
- knowledge of research, innovation and entrepreneurship programmes at EU, national and regional levels; and
- knowledge of English as working language.

The members of CoMTRIE should enjoy knowledge and experience in:

- regional development planning in relation to research, innovation and entrepreneurship (RIS3);
- operational planning, drafting and following up of RIS3 action plans;
- knowledge of EU, national and regional programmes relevant for the implementation of the regional RIS3;
- launch of calls for proposals, collection of related data, preparation of progress and monitoring reports;
- project monitoring and evaluation skills;
- access, communication and encouragement of potential beneficiaries;
- organisation and implementation of workshops, and information, awareness and dissemination activities at the regional level in relation to the regional RIS3;
- knowledge of English as working language; and
- use information technologies in provision of training, organising events, conferences, etc.

3.3 LEVEL OF DOCUMENTATION AND ACTION PLAN

The structures included in the third level are the so-called Innovation and Entrepreneurship Networks. These should be informal networks of stakeholders (including potential beneficiaries i.e. the academic, research, and business communities). As a pilot phase, as mentioned above, the creation and operation of IENs in three sectors (agro-food sector, non-metallic minerals and tourism) will be supported by the Regional Operational Programme of REMTh.

IENs should be run by a coordinator who should enjoy the following competences and expertise:

- Access and links with potential beneficiaries
- Eligibility for funding through RIS3 depending on availability of funds
- coordination of partnerships, good communication and collaboration skills,
- skills in mobilisation, and organisation of discussions and workshops, and
- capacity to cover the whole region (geographically) in information campaigns and dissemination activities.

The role of IEN coordinator could be undertaken by a representative of a specific organisation (like a development agency or a chamber or other professional organisation) or a partnership of those depending on the interest and competences in the relevant organisations in the sector in question.

As for the members of IENs, these should be representatives of potential beneficiaries from the academic, research and business communities in the specific sector that the IEN addresses. These should be characterised by:

- Interest in developing collaboration with counterparts and/or organisations from the academic, research or business communities;
- Good collaboration and communication skills; and
- Overall awareness of funding opportunities;

4. REFLECTIONS ON TRAINING NEEDS

Based on the above discussion of the required qualifications for each governance level it is at the two lower levels that training needs should focus on, more specifically for staffing the CoMTRIE and IENs.

CoMTRIE would be staffed with existing public officials from Dir. Development Planning of the Region and the Managing Authority. Officials from Dir. Development Planning enjoy experience in strategic coordination and operational planning, while they regularly consult the regional stakeholders in drafting the development strategy of the region and organise information and awareness events. Officials in the Managing Authority on the other hand have experience in drafting, implementing and monitoring action plans in relation to regional development programmes, and launching calls for proposals, while they also enjoy close links to local stakeholders and experience in organising events. Thus there is complementarity across the two regional services (Dir. Development Planning and Managing Authority) in terms of the required competences and expertise.

However, the area of research, innovation and entrepreneurship is rather 'new' to existing officials both in terms of definition of regional strategies, and coordination of policies and actions at EU, national and regional levels as well as implementation and monitoring of relevant actions. It is characteristic that the launch of calls, and monitoring and evaluation of funded actions was delegated until now to the General Secretariat of Research and Technology (GSRT) at the national level. Accordingly knowledge of relevant programmes at EU, national and regional levels also needs strengthening. The 'opening up' of the regional RIS3 to the rest of the EU in searching for alternative funding sources also presupposes good knowledge of at least English as a working language and IT skills.

Thus, it is deemed necessary to train the CoMTRIE staff in the total of the areas mentioned above (section 3.2) focusing on the area of research, innovation and entrepreneurship.

Referring to IENs, as noted in the previous section, it is important that the members, apart from being interested in, are also competent in establishing collaborations with the research and business communities as well as local authorities and societal organisations. As their responsibility is to help CoMTRIE prepare action plans for support through RIS3, or other national or EU relevant programmes it is also important that they have overall knowledge of possible funding opportunities and their requirements.

Based on the general lack of such knowledge and limited collaboration across the different stakeholders in the region it is imperative that the training of IEN members covers all the points noted in the previous section (3.3).

Furthermore as IEN members are potential beneficiaries of regional programmes they should be trained on how to identify their scientific and technological needs and appropriate funding opportunities, as well as seek and establish necessary partnerships at national or international level.

Training seminars with the content suggested herewith and addressed to the specific governance structures could be organised by utilising the Technical Assistance budget of the R.O.P or relevant ESF funds at national level.

Annex 9 – Final events

This annex summarises the main outcomes of the two final events of the preparatory action. The first, held in Xanthi on the 21st of October 2015, took stock of the achievements of the preparatory action and reflected on the key challenges for the future. The event was conceived as a way to listen to the concerns of stakeholders, in order to reflect on how to best support local development and resilience in times of uncertainty, as now faced by the region. The second, held in Brussels on the 18th of November 2015, drew together wider stakeholders and experts to review the outcomes and future prospects for work on other lagging regions.

Final Event: Outcomes of the Preparatory Action on Eastern Macedonia and Thrace and the way ahead - Xanthi, 21st October 2015 - Summary Report

Main Outcomes

The event held in Xanthi on the 21st of October 2015 was the first of two concluding events envisaged for the European Parliament Preparatory Action on the Region of Eastern Macedonia and Thrace. The second one has been scheduled to take place in Brussels on the 18th of November 2015.

The primary aim of this event was to take stock of what the project has achieved whilst reflecting on the key challenges for the future. The event was conceived as a way to listen to the concerns of stakeholders, in order to reflect on how to best support local development and resilience in times of uncertainty, as now faced by the region.

A welcome was given by the Governor of the region, in which he underlined how RIS3 has the potential for change in the region, thereby stressing the importance of the Preparatory Action and of the continuation of this process. This further emphasised the importance of high level political commitment to the process. Following further welcome remarks by the Head of the Regional Council for Innovation and Entrepreneurship, JRC-IPTS, and DG REGIO, the event was split into three main sessions. In the first, JRC-IPTS presented the main aims and perceived outcomes of the Preparatory Action, the challenges ahead for RIS3 implementation, as well as outlining the outlook for the day. The Special Managing Authority (MA) of the Regional Operational Programme presented their view of the outcomes, which was very much in line with the IPTS presentation.

Dr Yiannis Tolias, engaged by JRC-IPTS as a local expert, then set out the main outcomes and next steps of the working group on mobility. Similarly, Dr Effie Amanatidou, also working on behalf of JRC-IPTS, set out the main outcomes and next steps of the working groups on governance. A brief question and answer session followed.

The second session was a round-table discussion, reflecting first on the activities of the past years and then on future developments. The event finished with a short session of concluding remarks by Dr Mark Boden (DG JRC-IPTS), Mr Georgios Peroulakis (DG REGIO) and Vasileios Pitsinigkos (REMTh MA).

The event attracted approximately 40 stakeholders, representing various agencies of the regional and the national government, higher education institutions and public research organisations, chambers of commerce, associations of employers.

There was a remarkable consensus, among participants, as to the positive contribution and achievements of the preparatory action. These include: the basis for the first calls to be launched under OP, the development of a number of potentially fruitful research and innovation based projects and collaborations, a deeper understanding of RIS3 and increased trust among stakeholders, together with momentum in the entrepreneurial discovery process. From a methodological point of view the Preparatory action has enhanced capacity for handling participatory policy processes, and provided the basis of a more widely applicable methodological approach. Also important are the various legal, administrative and technical barriers to RIS3 implementation that have been identified. Compounded by the fragile economic situation, efforts to address these challenges need to ensure that the work conducted so far translates into an optimal management of RIS3 and related ERDF resources.

The issues arising in the round-table discussion are set out below.

A look at the past: achievements of the European Parliament Preparatory Action

The discussion started with a **review of the EDP process** (EDP focus groups and Project Development Labs). It was generally agreed that the Preparatory action achieved the following:

- **Mobilisation of a critical mass of researchers and business people (600+ people)**. It was commonly acknowledged that the EDP events managed to mobilise a significant part of the research and business communities in the region. The business community was especially surprised by this success and stressed that, for the first time, they felt that the public administration was seriously interested in their work. It was also the first time that the interaction was managed in such a systematic, structured and constructive way.
- This in turn created high **expectations on the side of stakeholders**, which is in itself remarkable given the current pressures on the business community.
- Overall there was appreciation of the **business community** of the opportunities the EDP offered to create **links with the research world**. As a side effect of the EDP focus groups, there is already some concrete evidence of **network formation**. For instance in Drama a network of accessible local wineries was formed and is seeking appropriate research bodies to form collaborations. Similarly, the EDP event on Marble also had an impact in changing people's mind-sets from surviving the present to thinking about the future.
- Learning how to apply the EDP methodology was also deemed relevant. It was widely acknowledged that the EDP is a continuous process and the Managing Authority already

progressed with organising further EDP focus groups (they led the organisation of the marble event, and have since organised two further workshops).
- Stakeholders also stressed that EDP process has to be in synergy and not incompatible with the ESIF regulations.

The round table also appreciated the work conducted under the **governance and human resources working groups**. The following points were made:

- The **Managing Authority expressed its commitment to implementing the suggested RIS3 governance system**. The governance system is now at the stage of being formally approved and the new structures are to be in place shortly. In this context, it is important to stress that the coordination across the regional and national levels is very important for governance and implementation of RIS3. The process has been hindered partly due to the pending reform of Law 4310/2014, which establishes the Regional Councils for Innovation and Entrepreneurship. Nevertheless, as the previous version of the Law is still valid, the region can go ahead based on the current legal framework and react to changes along the way.
- Stakeholders appreciated the formation of a specific proposal for human resources mobility that was jointly agreed by representatives of the academic and business communities. Implementation of this proposal is underway with the establishment of a common unit across the academic institutions of the region that will be responsible for mobility activities.

Finally, some **more general points** were raised:

- **Networking** with other regions, experts and critical fiends was highly appreciated as it allowed exchanging experiences, good practices, tested methodologies, etc.. The suggestion was made to include more representatives from the business sector among critical friends.
- The Preparatory action served as an **accelerator in understanding public subsidies, investments**. This knowledge did not exist in the Regional Authorities in the past as they were not directly involved in designing and managing research and innovation support measures.
- The Preparatory action allowed an **early and timely debate on technical and administrative aspects between the region and national bodies**. It also boosted effective communication with the Ministry of Education and Research.

A look at the future: challenges of RIS3 implementation

Whilst acknowledging the achievements, the round table discussion pointed out several areas that still need attention. Specifically:

- There are persisting **incompatibilities that need to be resolved between the European Agricultural Fund for Rural Development (EAFRD) and the European Regional Development Fund (ERDF).**
- There are pending issues in the implementation and management of public subsidies that inevitably affect RIS3 measures as well.
- Further clarification is needed on how best to **translate EDP results into calls for proposals** as well as in designing monitoring and evaluation indicators for RIS3. The region is willing to learn from other peers how to tackle these issues.
- It is necessary to set up an on-going mechanism for incorporating ideas for proposals not collected through the previous EDP focus groups, as the **EDP is an on-going process** and its understanding needs continuous refinement.
- In general stakeholders appreciated the need of becoming more proactive. For instance, **chambers** could potentially help businesses in identifying their needs as well as in training and in finding collaborators. They could also produce more systematic intelligence on businesses' activities. At the same time, the **research institutions need to create bridges** to cross the gap in communicating and collaborating with industry.
- **Business associations and chambers need to take a more proactive role in EDP implementation.** In this regard, a toolbox offering advice and guidance would be useful.
- The **EDP was carried out to some degree detached from the overall context of the financial crisis.** To this end the following exercise should take into serious consideration the existing framework including measures like capital controls, heavy taxation and difficulties in access to finance. These are likely to affect RIS3 implementation seriously.
- Despite the positive results a **'common language' between the research community and businesses has not been established yet**. The added value of the EDP needs to be evaluated also in relation to the resulting ideas for proposals. In particular, one should explore whether the ideas that emerged through the EDP are different from those enabled though the running O.P.

As a final remark there was a positive attitude towards a follow-on activity about the implementation of the suggested actions in governance and mobility and of the EDP as a whole. People in the region expressed their willingness to continue to work and share experiences with other regions not only to receive feedback but also to provide first-hand knowledge now that the first round of implementation is a reality.

RIS3@ REMTh FINAL EVENT

IN EASTERN MACEDONIA AND THRACE

21 October 2015

Elisso Hotel, Xanthi, Greece

Vasilissis Sofias 9, Xanthi 671 00, Greece

Simultaneous translation will be provided between Greek and English

09:00 – 09:30	**Registration – Welcome coffee**
09:30 – 09:40	**Welcoming remarks by the region**
09:40 – 10:30	**REMTh Preparatory Action – Taking stok** • New challenges for RIS3 – *Mark Boden, JRC-IPTS* • Re-cap of the study + Outlook of the day – *Elisabetta Marinelli, JRC-IPTS* • Main outcomes of the focus groups and development labs and proposal for next steps - *Vasileios Pitsinigkos, REMTh Special Managing Authority* • Mobility working group and proposal for next steps – *Yiannis Tolias, Innovatia System* • Governance working group main outcomes and next steps – *Effie Amanatidou, Manchester University*
10:30 – 11:15	**Round table – Implementing the RIS3 under uncertainty – a look at the past year** **Moderator:** Yiannis Tolias **Rapporteur:** Effie Amanatidou
11:15 – 11:45	**Coffee break**
11:45 -13:30	**Round table – Implementing the RIS3 under uncertainty – a look at the future** **Moderator:** Effie Amanatidou **Rapporteur:** Yiannis Tolias
13:30 – 14:00	**Conclusions and way forward** Concluding panel of Mark Boden (JRC-IPTS), Vasileios Pitsinigkos (REMTh MA), Peroulakis Georgios (DG REGIO), Evita Agalianou (DG REGIO)
14:00 – 15:30	***Networking lunch***

Final Event: Outcomes of the Preparatory Action on Eastern Macedonia and Thrace and the way ahead - Brussels, 18 November 2015

Overview

The final event of the European Parliament Preparatory Action carried out by JRC-IPTS, in collaboration with DG REGIO, to support the refinement and implementation of the RIS3 of the Greek region of Eastern Macedonia and Thrace (REMTh), successfully took place at the Museum of Natural History in Brussels on Wednesday 18 November 2015.

High-level participants included the Governor of the Region, the Deputy Minister of Economy and Development of Greece, two MEPs, European Commission Directors and Heads of Unit, and various regional and national stakeholders from Greece. The event looked back at the achievements and impacts of this preparatory action and at the implications for future work in REMTh and other lagging regions across Europe.

Introduction

The introductory panel was composed of Charlina Vitcheva, Director, DG REGIO.G - Smart and Sustainable Growth and Southern Europe, Markus Pieper, Member of European Parliament, Alessandro Rainoldi, Head of Unit, Joint Research Centre of the European Commission, Knowledge for Growth Unit, and George Pavlides, Regional Governor of Eastern Macedonia and Thrace. The opening remarks all set a positive tone, emphasising the achievements of the preparatory action in the region, as well as the strong potential for further work.

There had been some uncertainty at the inception of the preparatory action, but the subsequent sustained engagement and motivation of the stakeholders in the region, particularly the Managing Authority, were key elements of its eventual success. The preparatory action had built trust, fostered collaboration and strengthened both technical and administrative capacities in the region. It had enhanced understanding among all participants of the realities of RIS3, shifting from conceptual perspectives to hands-on implementation.

Mark Boden, Project Leader of this Preparatory Action, gave an overview of the project and presented its main objectives, outcomes, impacts, barriers and challenges encountered.

Its primary aims were to support refinement & implementation of RIS3 of REMTh and to generate lessons/a model for other regions. Its main impacts and outcomes were:

- building trust;
- co-developing and sustaining stakeholder commitment;
- spanning boundaries between stakeholder communities;
- fostering participatory capacity building and learning;
- and also a number of concrete projects, ideas and partnerships.

Following this introductory session and overview of the project, three consecutive expert panel sessions reviewed the issues arising.

Implementing the RIS3 under uncertainty

The **first Panel Discussion**, "implementing the RIS3 under uncertainty," was moderated by Elisabetta Marinelli. The panel members were: Panagiotis Koudoumakis (REMTH Special Managing Authority for the Regional Operational Programme), Evita Agalianou (DG REGIO – Greece and Cyprus), Antonio Viader (Senior Innovation and Growth Advisor and Board of Critical Friends), Theodora Kouloura (Hellenic Fertilizers – ELFE), Ioannis Firbas (Director General - National Coordination Authority for ESIF) and Ioannis Kourkoutas, Democritus University of Thrace

Participants were asked to answer both general and specific individual questions (*What do you take home, in your professional capacity, from the activities of the Preparatory Action? What did it achieve and what should it have achieved?*). A number of important issues arose:

- the significance of having a strong and appropriate governance mechanism in the region.
- the development of a toolbox for the implementation of RIS3 in REMTh, which helps translate theory into practice, particularly in a region with less innovation experience.
- trust-building among participants, which was further emphasised as one of the key success factors of this preparatory action, particularly in enhancing collaboration opportunities.
- state aid which was identified as a key issue by several panellists, especially the need for clarity in the use of funding instruments.

RIS3 in lagging regions – Lessons for the future

The **second Panel Discussion** was chaired by Karel Haegeman. The panel comprised Vassilis Pitsinigkos (REMTh Special Managing Authority for the Regional Operational Programme), Magdalene Haberle (Ministry of Finance and Economics Baden-Württemberg and member of the Board of Critical Friends), Roberta Dall'Olio (ERVET Emilia Romagna), Marek Przeor (DG REGIO, Competence Centre), and Stelios Kakoulidis(Thrace Group Ltd.).

As in the first session, participants were each asked both general and specific questions (*Considering that the preparatory action also aimed to develop a model for RIS3 implementation for other lagging regions, what do you see as the most important lesson that is relevant to other lagging regions?*). The main lessons cited by the panellists reaffirmed those of the previous panel and included:

- the importance of a RIS3 toolbox available for other regions, not only less developed ones (for instance, governance and adaptation mechanisms).
- trust building, addressing social aspects. The bottom-up approach to drive the design and implementation of a RIS3 can be seen as a booster of mutual trust between stakeholders.
- the crucial role of entrepreneurs, particularly since the ultimate objective is to create sustainable jobs, based on local knowledge and skills (RIS3 to deliver for the welfare of the community). Research Centres and Universities should be partially driven by business needs.
- emphasis by panellists on the active role of the critical friends, especially for mutual learning, with regional stakeholders and representatives and experts external to the region.
- simplification of legal aspects of different organisations that manage funds, which was identified as a common issue that still remains to be tackled.

Conclusions

The **concluding panel** was chaired by Alessandro Rainoldi, and included Alexis Charitsis, Deputy Minister of Economy and Development of Greece, George Pavlides, Regional Governor of Eastern Macedonia and Thrace, Sabine Bourdy (DG REGIO Greece and Cyprus) and Colin Wolfe, Head of Unit of DG REGIO Competence Centre.

The concluding panel reiterated the strong consensus that the Preparatory action had a highly positive outcome.

However, it is clear that the changes engendered by the preparatory action need to be sustained over the longer term, through an ongoing Entrepreneurial Process of Discovery (EDP) and the launch and follow up of fruitful concrete projects.

To support this, further administrative and legal clarification and review are still required. Inter alia, the complexities of state aid and structural funds need to be fully addressed. The role and engagement of entrepreneurs also need to be further strengthened and maintained.

It was highlighted that S3 is also a tool for peripheral and lagging regions, facing economic uncertainty. RIS3 is not merely an ex-ante conditionality but also a smart strategy to address societal issues and business growth.

Alessandro Rainoldi officially closed the event thanking all participants for a very fruitful exchange of ideas.

LIST OF PARTICIPANTS

Last name / επίθετο	First name / όνομα	Affiliation name / Οργανισμός
Papademetriou	Alkis	Drama Chamber
dos Santos	Patrice	European Commission - JRC-IPTS
HAEGEMAN	Karel	European Commission - JRC
KALPAKA	ANNITA	EUROPEAN COMMISSION
Peroulakis	Georgios	Commission
Fulop	Kata	University of Cambridge
KOURKOUTAS	IOANNIS	DEMOCRITUS UNIVERSITY OF THRACE
KOKKINOPLITIS	KONSTANTINOS	RISE
BOURDY	Sabine	European Commission - DG Regional Policy
Valero	Susana	European Commission
Eleftheriadis	Emmanouil	European Parliament
BAZOTI - MITSONI	GEORGIA	PERMANENT REPRESENTATION OF GREECE TO EU
Andreev	Svetlozar	Committee of the Regions
Etayo	Oihane	Committee of the Regions
Konsta	Eleni	Joint Research centre
SAKELLARIOU	EFTHYMIOS	PERMANENT REPRESENTATION OF GREECE TO THE EU
Papadimoulis	Dimitrios	European Parliament
Roussanov	Pavlin	European Parliament
VASALOU	ANNA	EUROPEAN PARLIAMENT
Guimarães	Rui	Marie Curie Fellows Association
SPYRAKI	MARIA	European Parliament
YANNOUSSIS	GEORGIOS	European Commission
Kesanlis	Ioannis	Managing Authority of the Operational Programme of REMTh
Gampfer	Robert	European Commission, JRC
Kalodimou	Vasiliki	FORTH/PRAXI Network
ORTEGA ARGILES	RAQUEL	UNIVERSITY OF GRONINGEN
Rosa Pires	Artur	University of Aveiro, Portugal
Radovanova	Leyla	Ministry of Economy
Hobjila	Doru	European Committee of the Regions
STAVROPOULOS	ELEFTHERIOS	GREEK PERMANENT REPRESENTATION TO THE EU
Papadimoulis	Dimitrios	European Parliament
Emmanouilidis	Christos	ATHENA Research and Innovation Centre
KOUDOUMAKIS	PANAGIOTIS	Managing Authority of REMTh
Caruso	Anna Maria	DG Regio
Sroda	Szymon	Polish National Contact Point for EU Programmes
GEORGIOS	YANNOUSSIS	European Commission
Stavropoulos	Eleftherios (Terry)	Greek Permanent Representation to the EU
Janik	Agnieszka	European Parliament
Viader	Antonio	Growth and innovation advisor
KAKOULIDIS	STYLIANOS	THRACE GROUP
Stancheva	Stela	Varna Free University, Bulgaria
Marinelli	Elisabetta	IPTS
Haeberle	Magdalene	Ministry of Finances and Economics Baden-Wuerttemberg
Panagiotakou	Mersia	European Commission
Sluijters	Willebrord	European Commission
Nascimento	Susana	Joint Research Centre - European Commission
Androulakis	Nikos	European Parliament
Papazoglou	Nikolaos	European Parliament
RAINOLDI	Alessandro	EU

KOULOURA	THEODORA	HELLENIC FERTILIZERS AND CHEMICALS S.A.
Rodriguez Guillén	David	Rodriguez Guillen
Boden	Mark	EC-JRC-IPTS
De Marzo	Cinzia	European Commission - DG GROW
RADUTA	MARIAN	European Commission
MITROPOULOU	GRIGORIA	DEMOCRITUS UNIVERSITY OF THRACE
PITSINIGKOS	VASILEIOS	REMTh SPECIAL MANAGING AUTHORITY
STOURAITIS	EVANGELOS	MINISTRY OF ECONOMY, DEVELOPMENT AND TOURISM
VITCHEVA	Charlina	EU
PIEPER	Markus	EP
AGALIANOU	Evita	EU
FIRBAS	Ioannis	GR
PRZEOR	Marek	EU
DALL'OLLIO	Roberta	Italy
Charitsis	Alexis	GREECE
GARCIA GOMEZ	ANTONIO	DG Regional and Urban Policy - European Commission
MAKRYGIANNI	ANTIGONI	European Parliament
Edwards	John	European Commission S3 Platform
ANGELOPOULOS	PETROS	HELLENIC PERMANENT REPRESENTATION
Chiozza	Enrica	European Commission DG JRC
fulop	kata	University of Cambridge
Agalianou	Evita	European Commission
Epitideios	Georgios	European Parliament

RIS3@ REMTh FINAL EVENT IN BRUSSELS

18 November 2015 - Brussels, Belgium

Simultaneous translation will be provided between Greek and English

Museum of Natural Sciences, rue Vautierstraat 29 / 1000 Brussels

12:00 – 13:00	**Welcoming lunch**
13:00 – 14:00	**Opening session – Welcoming remarks** • Charlina Vitcheva, Director, DG REGIO.G - Smart and Sustainable Growth and Southern Europe • Markus Pieper, Member of European Parliament • Alessandro Rainoldi, Head of Unit, JRC-IPTS, Knowledge for Growth Unit • George Pavlides, Regional Governor of Eastern Macedonia and Thrace **Setting the scene - Overview of the project: Objectives, main outcomes, impacts, barriers and challenges encountered** • Mark Boden –– JRC-IPTS, Project Leader of the REMTh Preparatory Action **(Moderator)**
14:00 – 15:00	**Panel Discussion – Implementing the RIS3 under uncertainty. Participants**: **Presentation of the questions for discussion**– Elisabetta Marinelli (chair/moderator) • Panagiotis Koudoumakis, REMTh Special Managing Authority for the Regional Operational Programme • Evita Agalianou, DG REGIO – Greece and Cyprus • Antonio Viader, Senior Innovation and Growth Advisor, Board of Critical Friends • Theodora Kouloura, "Hellenic Fertilizers – ELFE" • Ioannis Firbas, Director General - National Coordination Authority for ESIF • Kourkoutas Ioannis, Democritus University of Thrace
15:00 – 15:30	**Coffee break**
15:30 – 16:30	**Panel discussion Implementing RIS3 in lagging regions – lessons for the future** Presentation of the questions for discussion– Karel Haegeman (chair/moderator) • Vassilis Pitsinigkos, REMTh Special Managing Authority • Magdalene Härberle, Ministry of Finance and Economics Baden-Württemberg, Board of Critical Friends • Marek Przeor, DG REGIO • Roberta Dall'Olio, ERVET Emilia Romagna • Stelios Kakoulidis - Thrace Group Ltd.

16:30 – 17:15	**Concluding panel** • Alessandro Rainoldi, HoU – IPTS Knowledge for Growth Unit **(Chair)** • Alexis Charitsis - Deputy Minister of Economy and Development of Greece • George Pavlides – Regional Governor of Eastern Macedonia and Thrace • Sabine Bourdy – DG REGIO Greece and Cyprus • Colin Wolfe, HoU – DG REGIO Competence Centre

Annex 10 – Publications

This annex lists the recent and forthcoming publications authored or co-authored by JRC-IPTS arising from work carried out in relation to the preparatory action.

Policy briefs:

- Mark Boden, Elisabetta Marinelli, Karel Haegeman, Patrice Dos Santos, *Bridging thinkers and doers: first lessons from the Entrepreneurial Discovery Process in Eastern Macedonia and Thrace,* Smart Specialisation Policy Brief No.14/2015, EUR 27349 EN, Publications Office of the European Union, Luxembourg.
- Implementing an Entrepreneurial Discovery Process (EDP): towards an EDP cycle (*forthcoming)*
- Capacity building for RIS3 – the working groups in governance and human resources mobility in Eastern Macedonia and Thrace (*forthcoming)*
- It is also envisaged to publish a summary of the main outcomes of the preparatory action in the Policy Brief format

Book chapters:

- Marinelli *et al.,* Implementing the Entrepreneurial Discovery Process in Eastern Macedonia & Thrace, In: Routledge book publication on the entrepreneurial process of discovery (*forthcoming*)

Articles in ISI journals:

- C. Santini, E. Marinelli, M. Boden, A. Cavicchi, K. Haegeman*, Reducing the distance between thinkers and doers in the entrepreneurial discovery process: An exploratory study,* Journal of Business Research, In Press. Online available at: http://www.sciencedirect.com/science/article/pii/S0148296315004890

Conference presentations:

- C. Santini, E Marinelli, M. Boden, A. Cavicchi, K. Haegeman, P. dos Santos, *Bridging thinkers and doers – lessons for management and policy from the JRC-IPTS experience in Entrepreneurial Discovery Process*, paper presentation at the 5th GIKA conference, 2015, Valencia.

- K. Haegeman and T. Könnölä, *Excellence in Cohesion: Exploring Synergies between Smart Specialisation Strategies and Knowledge and Innovation Communities,* abstract accepted for presentation at the 2015 EU-SPRI Conference, 10-12 June, 2015, Helsinki. Abstract: http://euspri-helsinki2015.org/abstracts/pdf/3A3_EU-SPRI_Helsinki_2015_General_Haegeman.pdf

Annex 11 – Case studies

This annex contains a series of eight case studies which develop ideas generated during the EDP focus groups and explored further during the PDL workshops. These case studies take into account opportunities for sources of funding beyond ERDF. They also identify the role of ICT as Key Enabling Technologies, as well as relevant international networking platforms and consortia.

EDP1WG1P2 - Vineyard network with GIS tools

Disclaimer – this fiche provides some indications as to which funds could be relevant to ideas identified during the Entrepreneurial Discovery Process in the regions of Eastern Macedonia and Thrace, beyond those provided by the ROP. It is provided to stimulate further the development of the idea. However, it must be intended as exploratory and non-exhaustive.

Title	**EDP1WG1P2 - Vineyard network with GIS tools**
Short Description	Development of a network for collecting and management of data on wine grape cultivation. 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.
PDL2 Participants	During the PDL2 3 participants from the research community were interested in this idea. The exclusive participation of researchers should be compensated in the further development of the project. It is essential that participants from the private sector get involved and issues related to commercialisation be considered.
Under which TOs of the ROP does this project fall?	There are two main approaches to address this project from the ROP perspective. • The first one would lead to a collaborative research project under TO 1b (Specific Objective 1 "Stimulate private-sector investments in research and innovation for the development of new products or services in RIS3 priority sectors") between 2-3 major wine producers and 1-2 HEIs/PROs to design, build, operate in a pilot phase and validate the system including the data collection and dissemination platform. A regional agency could also join the project as the end-user/owner of the data platform. This project should also set the technical and interoperability requirements to be used by other parties interested in joining the system in the future. In a second step, through TO 3d (specific objective 5, i.e., introducing mature process or organisational innovations for productivity improvements) the system could be deployed to a wide population of wine makers or vine growers. • The second one would consider the development of the interactive platform as a public-sector information infrastructure under TO 2c (Specific Objective 3 "Promote the supply of public-sector digital content in the fields of regional administration, culture and tourism") that would aggregate information through pre-specified interfaces; provide open data to any interested

	party. The deployment of the data collection infrastructure within vine growers / wine makers could be achieved through a series of projects for individual wine producers through TO 3d (Specific Objective 5, i.e., introducing mature process or organisational innovations for productivity improvements).
Knowledge and actors required	• There will be need for an organisation (e.g. Regional Authority and/or association of producers) to assume overall 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 to complement the task force of the action.
How can ICT, as a key enabling technology, enhance this idea	The ICT dimension includes in the first instance the creation of a platform and oriented software for the collection of data regarding the vineyard network. Data should cover soil, climate, etc. As a second phase, agricultural robot vehicles should be created to facilitate precision agriculture. More detailed ICT aspects include: GIS tools and exported services, GIS content provisioning, sensors, integrated sensing, data transmission, collection and management, application development and service provisioning based on available geo-data.
International dimension.	In PDL2, the stakeholders involved in discussing this project considered that no international participation was needed as the key expertise to implement the idea was available in the region. Whilst this may be true at the technical level, opening up to international actors, at least for certain aspects of the project, is critical to expand the idea, towards its more operational business aspect. Furthermore, it is also essential to access to other funding sources (including the ones described below). The project consortium could include firms and universities in neighboring areas which share similar soil characteristics, as well as stakeholders in other wine growing areas in Europe and beyond. The European Commission has set up in 2012 the Agriculture and Innovation Partnership which is precisely a networking platform in which people in the industry can share information and concerns. Examples of projects related to climate change and which could have links to this idea: • E-VitiClimate (train teachers and trainers on different viticultural techniques to help producers adapt to climate change) • LIFE VINEYARDS4HEAT (V4H) (aims to demonstrate the feasibility of an integral governance strategy to mitigate climate change, Vineyards Virtuous Circle (VVC))
Which specific parts of the idea could be funded under	This idea includes a significant ICT part that, should the project develop internationally, could be relevant to Horizon 2020. It must be stressed, however, that H2020 require an extremely high level of technological innovation which may not be guaranteed in this idea. With this caveat in

H2020?	mind, within H2020, the following streams should be explored: • SME instrument, which supports close-to-market activities, with the aim to give a strong boost to breakthrough innovation. In the case of SMEs using ICT as enabling technologies to bring breakthrough and commercially competitive products to the market, a relevant planned call is: SMEinst-01-2016-2017 - Open Disruptive Innovation Scheme (for which the idea would need a very high level of innovation). As this idea has the potential to change the way firms interact and plan, another relevant call is SMEInst-12-2016-2017: New business models for inclusive, innovative and reflective societies would be more appropriate. • Fast Track Innovation, which also promotes close-to-market activities • Calls under the societal challenge *"Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy"* could also prove relevant. The draft work programme for 2016-2017 is available here. • ICT-Leadership in Enabling and Industrial technologies, especially in relation to data integration or data incubation activities (relevant planned call: ICT-14-2016-2017: Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation); and as (a small) part of Large Scale Pilot action expected to exhibit substantial visibility, mobilisation, and commercial and technological impact in terms of agricultural networks (relevant planned call: ICT-15-2016-2017: Big Data PPP: Large Scale Pilot actions in sectors best benefitting from data-driven innovation Relevant examples of FP7 and H2020 projects in either precision agriculture or wine farming, which may provide ideas or contact include: • INNOVINE - FP • FUTURE FARM - FP • WINETWORK – H2020 • AGINFRA project – FP7 **(**this latter appears particularly important as it aims at developing a shared infrastructure and computationally empowered services for agricultural research data)
Which other EU sources of funding could be relevant? For which elements of the project?	**COSME -** could help in supporting access to finance, access to market and entrepreneurship training. The **European Investment Fund (EIF)** could also provide a variety of financial instruments to support innovative SMEs. **ERASMUS+** and **Marie Skłodowska-Curie actions** could be taken into account, in a future development of the project, for, respectively, entrepreneurial and scientific mobility related to the project. ERASMUS+ can also be used for cooperation between institutions on exchanging best practices and innovative idea on education and vocational training.
Which other national sources of	A small or medium scale pilot to design, build, operate and validate the system as described can be also considered for funding through OP Rural Development under Measure 16 ("Collaborative Actions") /Submeasure

funding could be relevant? For which element of the project?	16.2 ("Pilot Projects for the development of new products, practices, processes and technologies"). In this case, deployment would have to be funded by the ROP (TO 3d, Specific Objective 5, i.e., introducing mature process or organisational innovations for productivity improvements).
Which other transnational sources of funding could be relevant? For which element of the project?	Broadening the remit of the project internationally, would allow to take into account also the following sources of funding: This project contains elements of interest to the **Adrion Interreg (Adriatic Ionian) programme.** Specifically for the priorities • 1b (*Promoting business investment in R&I, developing links and synergies between enterprises, research and development centres and the higher education sector*, etc.) • 6d (*Protecting and restoring biodiversity and soil and promoting ecosystem services, including through Natura 2000, and green infrastructure*) At the business level, if links and opportunities with Bulgaria were exploited, this idea could benefit from actions under **the "Greece-Bulgaria 2014-2020" Territorial Cooperation,** especially for investment priorities • 3a – Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators • 3b - Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes To the extent that the proposed idea can support green growth and a more sustainable use of resources, **INTERREG-MED** could provide relevant opportunities under priority 1: • 1 - Promoting Mediterranean innovation capacities to develop smart and sustainable growth. This axis promotes actions such as The development of clusters and networks, development of models and tools, transfer of knowledge, awareness-raising and capitalisation activities. The **ENI CBC Med ("Mediterranean Sea Basin" Programme)** may also directly or indirectly be relevant in its following thematic objectives: • Business and SMEs development which can provide support to innovative start-ups for commercialization as well as strengthen and support euro-Mediterranean networks, clusters, consortia and value-chains in traditional (agro-food, tourism, textile/clothing, etc.) and non-traditional sectors. • Support to education, research, technological development and innovation which can provide support to technological transfer and commercialisation of research results, strengthening the linkages between research, industry as well as private sector actors and support SMEs in accessing research and innovation also through clustering
Which other regional sources of	Not applicable

funding could be relevant? For which element of the project?	
Key barriers for the development of the idea	Whilst no major barriers were mentioned during PDL2, a prerequisite to implement the project idea is to secure the commitment of 2-3 (vertically integrated) wine producers to actively participate in the development of the project and provide specific need information.
Steps forward	As for the strict regional dimension, the following steps are suggested: 1. Since this project idea was conceived by researchers, the interest of business partners should be investigated, preferably through the intermediation of the institutions' TTOs. An agreement on the minimum project outcomes should be established. 2. Training needs, at the research, entrepreneurial and business level should also be explored and a plan be made to meet them. 3. The regional administration to appoint a relevant agency to operate the data collection/dissemination platform. 4. The above partners to select the most appropriate path to project implementation from those discussed above. 5. The ROP Managing Authority should provide support for fine-tuning the project proposals in line with the relevant calls. In broadening up the idea internationally, the proposal needs to be enriched distinguishing elements that are of strictly regional interest from those that can have further international scope. This is an issue of strategic importance. The EDP ideas need to be grounded in the local context, but need to keep an eye to the future and to the international arena.

EDP1WG4P2 - Wine gastronomy - cultural tourism

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Title	**EDP1WG4P2 - Wine gastronomy - cultural tourism**
Short Description	Creation of tourist product "Wine-Gastronomy/Cultural Tourism". The idea is related to branding regional wines. The main 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.
PDL2 Participants	During the PDL 2 participants were interested in this idea: one coming from the Regional Authority and one from the research community. However, this idea requires the collaboration of all stakeholders across sectors: public, private and research. The realisation of this idea would require the mobilisation of companies and organisations in the wine and tourism sectors to take part in the system that would support this application in order to promote their products, events, etc. Collaboration would be crucial among wine making and gastronomy schools with the ICT department of the ATHENA research centre.
Under which TOs of the ROP does this project fall?	This project is in essence a collaboration between private and public sector stakeholders to introduce a unique (integrated) touristic offer and therefore falls under Thematic Objective 3d, Specific Objective 6 (“Improve the outward-looking character of SMEs”) of the ROP. Small scale projects to develop and demonstrate some technological aspects in support of project activities could be funded through TO 1b (Specific Objective 2 “Improve the linkages between research/academia and the industry in RIS3 priority sectors” and then become mainstream through TO 3d (Specific Objective 6 “Improve the outward-looking character of SMEs”) projects above. The project’s development could benefit in an indirect manner from relevant activities in support of tourism promotion through TO 2c (Specific Objective 3 “Promote the supply of public-sector digital content in the fields of regional administration, culture and tourism”); however, only public organisations are eligible for funding under TO 2c.
Knowledge and actors required	It is natural that for the specific partnership to be effective, actors of every link of the value chain need to contribute along with cultural heritage, food industry based on local tastes, natural resources, local identity translated into interactive tools and techniques for attracting tourists.: 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. The involvement of tourist organisations was acknowledged as critical for the success of the partnership.

	As part of the CHORD (**C**ultural **H**eritage: Exploiting **O**pportunities for **R**ural **D**evelopment) project, a Cultural Heritage Poles Study (2008) was conducted which aimed to investigate and highlight the cultural resources, which are available to the Region of East Macedonia and Thrace, and promote them as pillars of cultural and touristic development. In this report a set of potential synergies were identified, one of which relates to wine and food. The wine production on the region is significant and the quality of the products is high level, as the prizes on wine contests have shown. Unfortunately, those enterprises are small or family-based and they can't promote their products in a wider level. At that time it was proposed to create a unique quality protocol and a trade mark of the products, to support small or family based enterprise in their wine promotion. In parallel it was proposed that those products would be connected to the festivals and folklore celebration of the region, in order to be established to the regional conscience and consequently to visitors. Stakeholders involved: Unions of wine producers of the region – Region of East Macedonia and Thrace – cultural clubs and NGOs of the region
How can ICT, as a key enabling technology, enhance this idea	ICT can contribute towards: - product traceability and linkage with local history and culture to support branding - supply chain integration - B2B, B2C and marketing - developing wine clusters, building on similar examples in various countries which have been successful in raising the overall sector potential, especially counting on ICT contribution. End to end contribution (from the vineyard to the customer) can be more effective through clustering (see related idea on wine clusters developed in the same EDP focus group). Examples of relevant European ICT projects: • Digital Agenda for New Tourism Approach in European Rural and Mountain Areas (Interregional Cooperation Programme INTERREG IVC (financed by ERDF))
International dimension	Participants to PDL2 highlighted that no expertise from outside the region was needed to implement this project. However, as noted also in other cases, expanding the remit of the idea - that is keeping its local elements, but framing them as part of a bigger project and envisaging the participation of international actors- can increase funding opportunities and the long-term impact of the project. Learning from and building upon other similar experiences is critical and the projects and consortia identified below, provide examples that may serve as inspiration: • RECEVIN – The European Network of wine cities (the network also announces funding opportunities on their site and a possibility to look for partners to jointly develop proposals) • URBACT Network of gastronomic cities • Marketing European Wine (Resources for Micro Producers – under

	Life Long Learning) • VINEST (CIP co-financed), the network of small European wine areas (Since 1998), and the Secret Wine Tours (under DG Enterprise - Support to transnational thematic tourism) • Spanish Capital of Wine (www.capitalespanoladelagastronomia.es) More generally, the European Commission Agriculture and Innovation Partnership can also offer networking opportunities in relation to rural development and this idea. The Enterprise Europe Network (Tourism and Cultural Heritage Sector Group) can also support in looking for necessary partners abroad, through matchmaking.
Which specific parts of the idea could be funded under H2020?	The research component that would be eligible for funding under Horizon 2020 would be the creation of an application providing personalised information about local wine products, touristic attractions, restaurants, etc. This would, however, require a high-level of innovation and internationalisation in order to be eligible. Potentially the following streams of funding could be explored: • SME instrument, which supports close-to-market activities, with the aim to give a strong boost to breakthrough innovation. As this idea has the potential to change the way firms interact and plan, another relevant call is SMEInst-12-2016-2017: New business models for inclusive, innovative and reflective societies would be more appropriate. This call aims to highlight that with new business models, less innovation-oriented sectors can change. The key to this is that the idea to be proposed should have an EU dimension. • Fast Track Innovation, which also promotes close-to-market activities • The "Industrial Leadership" sub-section programme LEIT ("Leadership in Enabling and Industrial Technologies"), could also be relevant through its "**Innovation Actions**" – which support the development of innovative Information and Communications Technologies (ICT) products, tools, applications & services for the cultural and creative sectors. A relevant forthcoming call is: ICT-21-2016: Support technology transfer to the creative industries and "**Coordination and Support Actions**", which focus on non-research activities such as disseminating results and promoting the use of ICT-driven innovation thanks to a sustainable network of 'multipliers'. • Funding under the societal challenge "Europe in a changing world - Inclusive, innovative and reflective societies" may also prove useful, as it also covers issues related to the transmission of European cultural heritage, uses of the past, 3D modelling for accessing EU cultural assets. A relevant forthcoming call is: CULT-COOP-06-2017: Participatory approaches and social innovation in culture • For institutional players that implement innovation policies, the following could be useful: INNOSUP-05-2016-17: Peer learning of innovation agencies The Guide on EU funding for the tourism sector (2014-2020) of DG Grow

	covers the most important EU funding programmes (2014-2020) for the tourism sector, i.e. private and public entities promoting tourism destinations or developing tourism services: http://ec.europa.eu/enterprise/newsroom/cf/itemdetail.cfm?item_id=7843. Examples of relevant projects under FP7 include: • Ernst ERANET – European Research Network on Sustainable Tourism – FP7
Which other EU sources of funding could be relevant? For which elements of the project?	COSME is the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises is particularly relevant for this idea, thanks to the Tourism Action Plan. This can be helpful in the development and/or promotion of sustainable transnational thematic tourism products; the development and/or promotion of niche products exploiting synergies between tourism and creative industries at European level (e.g. European Route around high-end products) ; transnational public and private partnerships developing tourism products targeting specific age groups; capacity building schemes whereby managers, destination managers, entrepreneurs. As well as these specific tourism aspects COSME can support SMEs in their access to finance. The Creative Europe programme should also be explored, as it supports several cultural activities under the culture sub-programme to the extent that cultural-tourism activities would be framed as part of European networks of cultural and creative organisations (http://ec.europa.eu/programmes/creative-europe/). The **ERASMUS+** programme should be explored in its ability to provide funding for skills creation, indeed the programme has been used in the past to fund training programmes in the tourism sector (see for instance the HECTOR Programme - HEritage and Cultural Tourism Open Resources for innovative training schemes).
Which other national sources of funding could be relevant? For which element of the project?	The project activities in **rural areas** are eligible for funding under the CLLD approach through OP Rural Development (Measure 19 "Community-Led Local Development", Submeasure 19.2 "Support to CLLD projects' implementation"). Nation-wide partnerships with essentially the same objectives are also eligible for funding through OP Competitiveness, Entrepreneurship & Innovation under TO 3d (Specific Objective 1.5 "Increase the exports of Greek enterprises in the 9 national priority areas"). Through TO 6c (Specific Objective 3.5 "Develop and promote economic activities based on the natural and cultural capital with focus on tourism", project category 3), the OP Competitiveness, Entrepreneurship & Innovation supports the application of innovative methodologies for sustainable development in areas with strong natural beauty and/or cultural inheritance. The project activities are complementary to these. The European Social Fund could also be relevant for training purposes, for

	instance in developing skills for training rural people in tourism activities (see e.g. the project "Cooking with Local Produce" funded in France by ESF).
Which other transnational sources of funding could be relevant? For which element of the project?	The **Adrion Interreg (Adriatic Ionian) programme** should be explored as its Priority Axis 2 *Sustainable Region* tackles the following: • Conserving, protecting, promoting and developing natural and cultural heritage; • Promote the sustainable valorisation and preservation of natural and cultural assets as growth assets in the Adriatic-Ionian area; The **"Greece-Bulgaria 2014-2020" Territorial Cooperation** programme places strong emphasis on touristic activities and preservation of cultural and natural areas, in particular in thematic objectives 3 and 6 • Enhancing the competitiveness of small and medium sized enterprises, the agricultural sector (for the EAFRD) and the fisheries and aquaculture sector (for the EMFF) • Preserving and protecting the environment and promoting resource efficiency The **INTERREG-MED** is also a potential source of funds worth exploring, as its third priority axis refers to protecting and promoting Mediterranean natural and cultural resources The Black Sea Basin Cross-Border Cooperation Programme, under measure 1.2 supports the Creation of tourism networks in order to promote joint tourism development initiatives and traditional products Relevant transnational projects: Digital Agenda for New Tourism Approach in European Rural and Mountain Areas
Which other regional sources of funding could be relevant? For which element of the project?	Not applicable
Key barriers for the development of the idea	During the PDL2 the sub-group members noted that the activation and mobilisation of possible companies and organisations to take part might be an obstacle, as would be combination of local gastronomy and wines. Overcoming the lack of cultural tradition to *collaborate* among actors in the region is hence a priority for the realisation of this idea.
Steps forward	From a strict regional perspective and with a focus on ERDF it is suggested that the ROP MA should promote the submission of 2-3 collaborative project proposals in the first call for ROP's specific objective 6, monitor and evaluate their development and mainstream the project approach at a later call. In general, the proposal needs to be enriched with distinguishing elements that are of strictly regional interest and others that can have further international scope. It is critical to understand that the Entrepreneurial Discovery Process should not be seen as an exclusive pre-condition to access ERDF funds and further funding sources should be

	explored. Proper planning covering training, finance and business implementation should be undertaken. Finally and at an even broader level, it appears that the region and its stakeholders are willing to invest and develop the tourism sector. A comprehensive strategy should be developed, linking together different related ideas from all EDP focus groups.

EDP2WG3P2 Sustained and Integrated Promotion of Local, Traditional Fermented Food Systems from authentic microbial cultures

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Title	**EDP2WG3P2 Sustained and Integrated Promotion of Local, Traditional Fermented Food Systems from authentic microbial cultures**
Short Description	The idea refers to the 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. 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 commercialisation of the final outputs/products.
PDL2 Participants	The Dairy/Meat participatory session attracted six people, of which four were researchers (DUTH & TEIEMTh) and two from the enterprise sector. Four of them (the researchers) had previous exposure to Framework Programme projects as participants, and one of them had also experience in proposal writing for FP projects.
Under which TOs of the ROP does this project fall?	According to the rationale provided during PDL2, this project idea describes a new family of dairy products that is very close to market. Therefore, in principle, it falls under TO 3d (specific objective 5 "Improve efficiency and productivity of SMEs"), in the sense of exploiting off-the-shelf technology for new product development.
Knowledge and actors required	At least the following actors would need to be involved: - Research Institutes, Universities; - Local small and medium scale producers (animal breeders) & manufacturers of dairy products; - Public Bodies – Regional Administration of Agriculture and other similar bodies.
How can ICT, as a key enabling technology, enhance this idea	ICT and data management/processing support for animal and animal feeding genomics and predictive analytics
International	The project idea, at this stage is described focusing mainly on local

dimension	competences and funds. Placing the idea in the broader international landscape by networking with stakeholders that faced similar challenges and exploring potential opportunities may prove useful. It is suggested that the proponents of this idea get in touch with the European Agriculture Innovation Partnership (EIP-AGRI) for support in identification of partners and funds and for participation in key networking activities.
Which specific parts of the idea could be funded under H2020?	The participants agree that this idea is a project that would apply existing knowledge in the region to a market context that is trendy right now. The end product is very close to the market, and therefore the relevance of this idea with H2020 is minimal. Nevertheless, should the idea develop in such a way as to introduce significant innovation, the following H2020 streams should be explored: • SME instrument, which supports close-to-market activities, with the aim to give a strong boost to breakthrough innovation. A relevant call would be: SMEInst-07-2016-2017: Stimulating the innovation potential of SMEs for sustainable and competitive agriculture, forestry, agri-food and bio-based sectors • Fast Track Innovation, which also promotes close-to-market activities • Calls under the societal challenge *"Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy"* could also prove relevant. Examples of FP7 projects include: • BIAMFOOD - Controlling Biogenic Amines in Traditional Food Fermentations in Regional Europe
Which other EU sources of funding could be relevant? For which elements of the project?	COSME **-** could help in supporting access to finance, access to market and entrepreneurship training, depending on what is most required for the implementation of this project idea. COSME for instance also funds Enterprise Europe Network, which helps SMEs find business and technology partners all around Europe, and understand EU legislation, two things that might be of key importance for implementing this idea. The European Investment Fund (EIF) could also provide a variety of financial instruments to support innovative SMEs.
Which other national sources of funding could be relevant? For which element of the project?	The OP Competiveness, Entrepreneurship and Innovation can also support the implementation of this project through TO 3c (Specific Objective 1.4 "") if the applicants are established dairy manufacturers with adequate research and quality control capabilities. Smaller dairy manufacturers that have not adequate research and quality control capabilities would have to collaborate with some R&D performers

	for improving their capacity to apply the technological part of the project idea for new product development and get funding for doing so by OP Rural Development through Measure 16 "Collaborative Actions" /Submeasures 16.2 "Pilot Projects for the development of new products, practices, processes and technologies" and/or 16.3. "Co-operation among small enterprises to develop joint work practices and joint use of facilities and resources"
Which other transnational sources of funding could be relevant? For which element of the project?	The Cooperation programmes covering Greece-Bulgaria and the Balkan-Mediterreanean may all provide relevant resources under its TO3 Enhancing the competitiveness of small and medium-sized enterprises, the agricultural sector (for the EAFRD) and the fisheries and aquaculture sector (for the EMFF). Under this TO there are actions in support of entrepreneurship and the exploitation of new ideas, as well as supporting SMEs to grow and engage in innovation.
Which other regional sources of funding could be relevant? For which element of the project?	None
Key barriers for the development of the idea	As reported during the EDP workshop on meat and dairy, 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.
Steps forward	In terms of ERDF, the project idea is eligible for funding in the regional cases mentioned above. Interested stakeholders will need to wait and prepare for the relevant calls and apply accordingly. However, as we are speaking of an idea which is fairly close to the market, it is critical that the business dimension of the project be further developed, paying particular attention to the possibilities offered by international SMEs network and the funding opportunities in support of SMEs internationalization (including transnational ones). In this respect, it appears relevant to explore synergies with projects related to the valorization of local tourism and gastronomic products, especially those explored in fiche EDP1WG4P2 - Wine gastronomy - cultural

	tourism. Furthermore, it appears valuable to better reflect on the potential international dimension that this project could have, as well as explore the potential innovation activities linked to it.

EDP2WG4P3 Energy Production from Animal Waste

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Title	**EDP2WG4P3 Energy Production from Animal Waste**
Short Description	The idea is about the production of biogas (and other forms of energy) from animal waste and its exploitation. The idea's main goal is the implementation of an environmentally friendly alternative method for energy production.
PDL2 Participants	This idea was elaborated by all six WG participants, of which four were researchers (DUTH & TEIEMTh) and two from the enterprise sector. Four of them (the researchers) had previous exposure to Framework Programme projects as participants, and one of them had also experience in proposal writing for FP projects.
Under which TOs of the ROP does this project fall?	As discussed in PDL2, this project is based on mature technological inputs that can be readily exploited. However, securing the necessary quantity of animal waste to achieve adequate capacity for an energy-producing plant requires the collaboration of many small farms. Therefore, in principle, this project falls under TO 3d (Specific Objective 5 "Improve efficiency and productivity of SMEs"). The project cannot be considered under TO 4 of the ROP since the two priorities defined there are related to the promotion of geothermic energy (TO 4a/specific objective 7) and the reduction of the carbon footprint of public buildings (TO 4c/specific objective 8).
Knowledge and actors required	Different partner groups include animal farmers, environmental/energy technical companies/professionals and energy producers.
How can ICT, as a key enabling technology, enhance this idea	The following uses can be considered: ICT-enabled simulation, optimisation and LCA decision support. Sensing and automation support in energy production, management and distribution
International dimension	Whilst the participants to the events noted that there was sufficient expertise in the region, it is useful to broaden the remit of the project, by reflecting on potential international partners. This, coupled with a stronger focus on the innovation component of the idea, may increase the available funding opportunities. The **EU Biofuels technology platform** is a reference point for networking and information. Within the platform it is possible to navigate through a database of projects and events, which can be useful in further defining or

	expanding the idea. A useful European meeting point for networking is the European Innovation Platform on Agriculture and innovation.
Which specific parts of the idea could be funded under H2020?	This idea describes an application project with very limited research inputs, mainly in the fields of improving conversion efficiency, scaling down the plants or designing a mobile facility (i.e., on a truck trailer). Therefore, this idea's relevance to H2020 is minimal. Nevertheless, should the idea develop further in terms of its R&D and innovation component, the majority of relevant H2020 calls would fall under: **Societal Challenges – Secure Clean and Efficient Energy** The **SME instrument** and the **Fast Track Innovation**, which supports close-to-market activities, should also be explored. More concretely, participants could look into the SMEInst-07-2016-2017: Stimulating the innovation potential of SMEs for sustainable and competitive agriculture, forestry, agri-food and bio-based sectors, focusing on Creating added value from waste and by-products generated on farm and along the value-chain Examples of FP7 projects include: • SUSMILK: Re-design of the dairy industry for sustainable milk processing • REUSEWASTE: "Recovery and Use of Nutrients, Energy and Organic Matter from Animal Waste" • ORION – organic waste management • ANIMPOL - Novel biotechnological approaches for utilizing carbon containing wastes to make high added value products • ADAW - Anaerobic Digestion for Animal Waste project
Which other EU sources of funding could be relevant? For which elements of the project?	The LIFE+ programme, under its Environment Action may have relevant calls for this project, especially in relation to the so called "Traditional Project", defined as best-practice, demonstration, pilot or information, awareness and dissemination projects.
Which other national sources of funding could be relevant? For which element of the project?	The OP Competitiveness, Entrepreneurship and Innovation can support the project idea through TO 4b (Specific Objective 3.3 "Improve energy efficiency in the operation of enterprises and their facilities"), only in the case of proposals from meat producing or dairy firms since there is a sectoral focus in the eligibility criteria. The OP Rural Development can support joint initiatives for reducing the CO2 footprint in the primary sector through Measure 16 ("Collaborative Actions") / Submeasure 16.5. ("Support for joint actions to mitigate climate change")
Which other transnational sources of funding could be relevant? For	The **Balkan Mediterrenean Territorial Cooperation Programme**, in thematic priority 2, aims at, among other things, promoting cooperation and networking aiming to introduce innovative technologies for efficient management of the waste sector, the soil and the water sector.

which element of the project?	The **Greece-Bulgaria 2014-2020** Territorial Cooperation, in priority 6f – Promotes innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector and with regard to soil, or to reduce air pollution. Examples of trans-regional collaboration on similar topics, based on previous INTERREG projects includes: 1) Agrogas (not available in English) 2) Biogaia
Which other regional sources of funding could be relevant? For which element of the project?	Not applicable
Key barriers for the development of the idea	Securing adequate quantities of animal waste for guaranteeing adequate energy production capacity is the major issue that can inhibit the application of this project idea.
Steps forward	For what the ROP funds are concerned the following is suggested: 6. Large, vertically integrated, meat processing or dairy enterprises wishing to exploit animal waste for producing energy will probably have to wait for the relevant calls of OP Competitiveness, Entrepreneurship and Innovation and apply for funding individually. 7. Smaller meat processing or dairy enterprises or farmers would seek to form joint ventures and apply for funding through the ROP or OP Rural Development, respectively. To keep costs down, project consortia will have to be local, i.e., at the municipal or prefectural level. At the broader level, it appears valuable to better reflect on the potential international dimension that this project could have, as well as explore the potential innovation activities linked to it. This idea should also be connected to energy related ideas developed in other EDP focus groups, such as 'Energy from wine', and 'Integrated interventions for energy efficiency in quarries and marble processing facilities'.

EDP2WG4P3 Energy Production from Animal Waste

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Title	**EDP2WG4P3 Energy Production from Animal Waste**
Short Description	The idea is about the production of biogas (and other forms of energy) from animal waste and its exploitation. The idea's main goal is the implementation of an environmentally friendly alternative method for energy production.
PDL2 Participants	This idea was elaborated by all six WG participants, of which four were researchers (DUTH & TEIEMTh) and two from the enterprise sector. Four of them (the researchers) had previous exposure to Framework Programme projects as participants, and one of them had also experience in proposal writing for FP projects.
Under which TOs of the ROP does this project fall?	As discussed in PDL2, this project is based on mature technological inputs that can be readily exploited. However, securing the necessary quantity of animal waste to achieve adequate capacity for an energy-producing plant requires the collaboration of many small farms. Therefore, in principle, this project falls under TO 3d (Specific Objective 5 "Improve efficiency and productivity of SMEs"). The project cannot be considered under TO 4 of the ROP since the two priorities defined there are related to the promotion of geothermic energy (TO 4a/specific objective 7) and the reduction of the carbon footprint of public buildings (TO 4c/specific objective 8).
Knowledge and actors required	Different partner groups include animal farmers, environmental/energy technical companies/professionals and energy producers.
How can ICT, as a key enabling technology, enhance this idea	The following uses can be considered: ICT-enabled simulation, optimisation and LCA decision support. Sensing and automation support in energy production, management and distribution
International dimension	Whilst the participants to the events noted that there was sufficient expertise in the region, it is useful to broaden the remit of the project, by reflecting on potential international partners. This, coupled with a stronger focus on the innovation component of the idea, may increase the available funding opportunities. The **EU Biofuels technology platform** is a reference point for networking and information. Within the platform it is possible to navigate through a database of projects and events, which can be useful in further defining or

	expanding the idea. A useful European meeting point for networking is the European Innovation Platform on Agriculture and innovation.
Which specific parts of the idea could be funded under H2020?	This idea describes an application project with very limited research inputs, mainly in the fields of improving conversion efficiency, scaling down the plants or designing a mobile facility (i.e., on a truck trailer). Therefore, this idea's relevance to H2020 is minimal. Nevertheless, should the idea develop further in terms of its R&D and innovation component, the majority of relevant H2020 calls would fall under: **Societal Challenges – Secure Clean and Efficient Energy** The **SME instrument** and the **Fast Track Innovation**, which supports close-to-market activities, should also be explored. More concretely, participants could look into the SMEInst-07-2016-2017: Stimulating the innovation potential of SMEs for sustainable and competitive agriculture, forestry, agri-food and bio-based sectors, focusing on Creating added value from waste and by-products generated on farm and along the value-chain Examples of FP7 projects include: • SUSMILK: Re-design of the dairy industry for sustainable milk processing • REUSEWASTE: "Recovery and Use of Nutrients, Energy and Organic Matter from Animal Waste" • ORION – organic waste management • ANIMPOL - Novel biotechnological approaches for utilizing carbon containing wastes to make high added value products • ADAW - Anaerobic Digestion for Animal Waste project
Which other EU sources of funding could be relevant? For which elements of the project?	The LIFE+ programme, under its Environment Action may have relevant calls for this project, especially in relation to the so called "Traditional Project", defined as best-practice, demonstration, pilot or information, awareness and dissemination projects.
Which other national sources of funding could be relevant? For which element of the project?	The OP Competitiveness, Entrepreneurship and Innovation can support the project idea through TO 4b (Specific Objective 3.3 "Improve energy efficiency in the operation of enterprises and their facilities"), only in the case of proposals from meat producing or dairy firms since there is a sectoral focus in the eligibility criteria. The OP Rural Development can support joint initiatives for reducing the CO2 footprint in the primary sector through Measure 16 ("Collaborative Actions") / Submeasure 16.5. ("Support for joint actions to mitigate climate change")
Which other transnational sources of funding could be relevant? For	The **Balkan Mediterrenean Territorial Cooperation Programme**, in thematic priority 2, aims at, among other things, promoting cooperation and networking aiming to introduce innovative technologies for efficient management of the waste sector, the soil and the water sector.

which element of the project?	The **Greece-Bulgaria 2014-2020** Territorial Cooperation, in priority 6f – Promotes innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector and with regard to soil, or to reduce air pollution. Examples of trans-regional collaboration on similar topics, based on previous INTERREG projects includes: 1) Agrogas (not available in English) 2) Biogaia
Which other regional sources of funding could be relevant? For which element of the project?	Not applicable
Key barriers for the development of the idea	Securing adequate quantities of animal waste for guaranteeing adequate energy production capacity is the major issue that can inhibit the application of this project idea.
Steps forward	For what the ROP funds are concerned the following is suggested: 8. Large, vertically integrated, meat processing or dairy enterprises wishing to exploit animal waste for producing energy will probably have to wait for the relevant calls of OP Competitiveness, Entrepreneurship and Innovation and apply for funding individually. 9. Smaller meat processing or dairy enterprises or farmers would seek to form joint ventures and apply for funding through the ROP or OP Rural Development, respectively. To keep costs down, project consortia will have to be local, i.e., at the municipal or prefectural level. At the broader level, it appears valuable to better reflect on the potential international dimension that this project could have, as well as explore the potential innovation activities linked to it. This idea should also be connected to energy related ideas developed in other EDP focus groups, such as 'Energy from wine', and 'Integrated interventions for energy efficiency in quarries and marble processing facilities'.

EDP3WG2P1 Innovative management of cultural heritage

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Title	**EDP3WG2P1 Innovative management of cultural heritage**
Short Description	The idea is about the exploitation of local cultural assets with the implementation of innovative digital tools and applications in order to create new forms/models of business applications within the tourism industry. The proposed idea would contribute: (a) to increase the level of publicity and awareness on REMTh's rich cultural heritage, (b) to promote education among tourism stakeholders on cultural tourism and (c) to add value to REMTh visitors' experience.
PDL2 Participants	3 WG participants expressed interest in the idea.
Under which TOs of the ROP does this project fall?	Stakeholders of the enterprise sector can obtain project funding through the ROP under TO 3d (Specific Objective 6 "Improve the outward-looking character of SMEs"), which explicitly supports, among others, collaborative projects across the tourism value chain. They will benefit from the digitization of cultural assets by public-sector organisations that will be offered as reusable open data through projects funded by TO 2c (Specific Objective 3 "Promote the supply of public-sector digital content in the fields of regional administration, culture and tourism"). For an examples of project about digitalisation of cultural assets through structural funds see the e-Paveldas project
Knowledge and actors required	The following key partners are needed to implement the idea: - Regional/local bodies that are responsible for the management of cultural heritage assets - Entrepreneurs from the creation industries - ICT companies and social media experts - Social groups/organisations that can support the idea by implementing new forms of social innovation.
How can ICT, as a key enabling technology, enhance this idea?	ICT usage can enhance the idea in numerous ways: • Digital heritage tools (for museum, exhibition spaces, archaeological sites etc) • Educational, e-learning and gaming tools • Digital and creative tools offering media and 3D-rich experience • Multi-lingual and speech-enabled support • Digital content creation and dissemination platforms • Geospatial and time-based navigation, tourism recommender systems, itinerary planning and guidance support tools • Linkage with social digital tools
International dimension	The original fiche of PDL2 highlighted that no international stakeholders were needed to implement this project. However, as noted also in other cases, expanding the remit of the project, envisaging the participation of international actors can increase funding opportunities as well as broadening the impact of the project. It is recommended to link to the wider community on research management related to cultural heritage, specifically to the JPI Cultural Heritage, grouping national research funding actors in this area. For now, Greece is not a full member but only an observer.

Which specific parts of the idea could be funded under H2020?	The working groups did not identify, during PDL2, the specific parts of the idea that could be funded under H2020. This is partly due to the fact that the idea itself is defined very broadly. As the links to H2020 depend largely on how the idea is further specified, it is only possible to give a broad indication of what H2020 can offer. • The "Leadership in Enabling and Industrial Technologies" could be relevant through its **"Innovation Actions"**, which supports, among other things, the development of innovative Information and Communications Technologies (ICT) products, tools, applications & services for the cultural and creative sectors and its **"Coordination and Support Actions"**, which focus on non-research activities such as disseminating results and promoting the use of ICT-driven innovation thanks to a sustainable network of 'multipliers'. In particular the following two forthcoming calls should be useful: ICT-20-2017: Tools for smart digital content in the creative industries and ICT-21-2016: Support technology transfer to the creative industries, which focusses on the development of new products by SMEs and ICT-36-2016: Boost synergies between artists, creative people and technologists • Funding under the societal challenge "Europe in a changing world - Inclusive, innovative and reflective societies" may also prove useful, as it also covers issues related to the transmission of European cultural heritage, uses of the past, 3D modelling for accessing EU cultural assets. The following call appears particularly relevant: CULT-COOP-08-2016: Virtual museums and social platform on European digital heritage, memory, identity and cultural interaction, which supports synergies between virtual and traditional museums and cultural institutions, as well as allowing for a pilot for a new new virtual international museum pilot. • Funding under the SME instrument may also be relevant: SMEInst-12-2016-2017: New business models for inclusive, innovative and reflective societies A more detailed description of the links between H2020 and development of cultural heritage is available here. Relevant international projects, which may provide inspirations or networking indications, include: • 3D-Icons: 3D Digitisation of Icons of European Architectural and Archaeological Heritage • CHESS : Cultural Heritage Experiences through Socio-personal interactions and Storytelling. • PATHS : Personalised Access to Cultural Heritage Space
Which other EU sources of funding could be relevant? For which elements of the project?	COSME should be relevant for this idea, thanks to the Tourism Action Plan. This can be helpful in the development and/or promotion of sustainable transnational thematic tourism products; the development and/or promotion of niche products exploiting synergies between tourism and creative industries at European level (e.g. European Route around high-end products) ; transnational public and private partnerships developing tourism products targeting specific age groups; capacity building schemes whereby managers, destination managers, entrepreneurs. As well as these specific tourism aspects COSME can support SMEs in their access to finance. The Creative Europe programme should also be explored, as it supports several cultural activities. The different streams of funding, however, generally demand a transitional dimension which is lacking in the current formulation of

	the idea. The Erasmus + programme should be explored in its ability to provide funding for skills creation, indeed the programme has been used in the past to fund training programmes in the tourism sector (see for instance the HECTOR Programme (Heritage and Cultural Tourism Open Resources for innovative training schemes).
Which other national sources of funding could be relevant? For which element of the project?	The principal funding source for this project idea is expected to be OP Competitiveness, Entrepreneurship and Innovation (TO 2b, Specific Objective 1.2 "Increase the supply of digital services, applications and integrated ICT solutions for enterprises"). Projects within this specific objective support ICT-enabled innovations in enterprises.
Which other transnational sources of funding could be relevant? For which element of the project?	The interreg Adrion should be explored as its Priority Axis 2 *Sustainable Region* tackles the following: • Conserving, protecting, promoting and developing natural and cultural heritage; • Promote the sustainable valorisation and preservation of natural and cultural assets as growth assets in the Adriatic-Ionian area; The Greece-Bulgaria Cross-Border-Cooperation programme places strong emphasis on touristic activities and preservation of cultural and natural areas, in particular: • in thematic objectives 3 (Enhancing the competitiveness of small and medium sized enterprises, the agricultural sector (for the EAFRD) and the fisheries and aquaculture sector (for the EMFF), which will allow for the development of tourist development strategies, integrated tourist destinations and actions for the increase in international visibility • Investment priority 6c Conserving, protecting, promoting and developing natural and cultural heritage, which will fund activities to improve the preservations status and increase in carrying capacity of cultural and natural sites. The Interreg Mediterranean is also a source of funds worth exploring, as its third priority axis refers to protecting and promoting Mediterranean natural and cultural resources The Black Sea Basin Cross-Border Cooperation Programme, under measure 1.2 supports the Creation of tourism networks in order to promote joint tourism development initiatives and traditional products Relevant examples of transnational projects include: DANTE: Digital Agenda for New Tourism Approach in European Rural and Mountain Areas E-CREATE: Cultural Routes, Entrepreneurship and Technology Enhancement
Which other regional sources of funding could be relevant? For which element of the project?	Not applicable
Key barriers for the development	Inflexibility of antiquities ephorates and cultural authorities in working with private-sector stakeholders; weak existing collaboration between regional

of the idea	stakeholders; difficulties in meeting work planning time constraints due to external factors.
Steps forward	The project-idea is defined very broadly. It points, together with other ideas described in fiches EDP1WG4P2 - Wine gastronomy - cultural tourism,, EDP3WG3P2 Development of high added-value digital tools for key tourism sectors, to the need of developing further a comprehensive strategy for the tourism sector. Stakeholders across the tourism value chain should elaborate a comprehensive approach to the promotion of the regional cultural heritage, in which, this project is only a means to a wider end. Within this broader and more comprehensive strategy, due attention should be paid to plucking into international networks, which also allow access to transnational and EU funds. With these caveat in mind, and for what the regional opportunities for the digitalization of cultural assets, the following steps are suggested: 10. The ROP calls for digitalising cultural assets should be launched first; clear and specific provisions should be included regarding the open status of data and terms for reusability. 11. The ROP managing authority needs to take into account that that local needs may not be eligible under SO 1.2 of OP Competitiveness, Entrepreneurship and Innovation when issuing their calls under TO3d(SO6)

EDP3WG3P2 Development of high added-value digital tools for key tourism sectors

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Title	**EDP3WG3P2 Development of high added-value digital tools for key tourism sectors**
Short Description	The idea is about the development of high added value digital tools for hospitality and food/gastronomy businesses & professionals with a range of offered end-products and services to support quality personalised experience. The expected outcomes are: ▪ The support of smart building management, with multiple targets, including energy efficiency and comfort optimisation for hotel facilities ▪ The creation of personalised services targeting regular visitors (for example professionals) and supporting visit and preferences data recording and management ▪ The support of basic information provisioning tailored to food/gastronomy offerings and used also by hospitality services units
PDL2 Participants	10 WG participants expressed interest in the idea
Under which TOs of the ROP does this project fall?	Stakeholders of the enterprise sector can obtain project funding through the ROP under TO 3d (Specific Objective 5 "Improve efficiency and productivity of SMEs"), which explicitly supports, among others, the adoption of off-the-self technologies in their business processes. Knowledge-intensive start-ups aiming to implement some of the digital services in the project description can get funding and support through TO 3a (Specific Objective 4 "Increase the number of New Knowledge- or Technology-Intensive Firms in RIS3 priority sectors").
Knowledge and actors required	The following key partners are essential to implement the idea: • Engineering/technical companies and professionals • ICT contributors (academic/research and private organisations) • Regional/local producers of food / gastronomy products.
How can ICT, as a key enabling technology, enhance this idea	The following uses of ICT can be considered to support the development of the idea: • Integrated solutions for facilities sensing, monitoring and management, with smart energy and HVAC management and digital services and media control • Supply chain linkage with local producers and one-stop solution for accessing information, making purchases and bookings • Information collection, management and personalised

	recommendation support for hotel residents • Multi-lingual and speech-enabled support • Ubiquitous e-menu services support and facility integrated e-menu provisioning, integrated with a network of local producers, chefs and other providers • Advertising and digital signage support • Linkage with social digital tools
International dimension	As the idea refers mainly to adopting off-the-shelf technologies to very local needs, international collaboration may be of specific importance. Examples of relevant collaborations include: • DANTE project, developing a Digital Agenda for New Tourism Approach in European Rural and Mountain Areas • The Digital Tourism Network • UNESCO Chair in ICT to develop and promote sustainable tourism in World Heritage Sites
Which specific parts of the idea could be funded under H2020?	As the idea refers mainly to adopting off-the-shelf technologies to very local needs, it does not – as such – provide many opportunities for international collaborations and hence, access to other EU funding streams. Nevertheless, there is some potential for the following H2020 call, within the SME instrument: SMEInst-12-2016-2017: New business models for inclusive, innovative and reflective societies. This call focusses on new ways in which technology can be applied in non-technology intensive sectors to create organizational change and promote social engagement.
Which other EU sources of funding could be relevant? For which elements of the project?	As the idea refers mainly to adopting off-the-shelf technologies to very local needs, it does not – as such – provide many opportunities for international collaborations and hence, access to other EU funding streams.
Which other national sources of funding could be relevant? For which element of the project?	The principal funding source for this project idea is expected to be OP Competitiveness, Entrepreneurship and Innovation (TO 2b, Specific Objective 1.2, "Increase the supply of digital services, applications and integrated ICT solutions for enterprises"). Projects within this specific objective support ICT-enabled innovations in enterprises. Knowledge-intensive academic spin-offs aiming to implement some of the digital services in the project description can get funding and support through OP Competitiveness, Entrepreneurship and Innovation, TO 1b (Specific Objective 1.1 "Increase enterprise initiatives and collaborations to develop innovative entrepreneurship in line with the national RIS3").
Which other transnational	As the idea refers mainly to adopting off-the-shelf technologies to very local needs, it does not – as such – provide many opportunities for international collaborations and hence, access

sources of funding could be relevant? For which element of the project?	to other EU funding streams.
Which other regional sources of funding could be relevant? For which element of the project?	Not relevant
Key barriers for the development of the idea	Difficulties in collaborating with regional Educational Academic Institutions. Identification and attracting of individually skilled personnel for the development of the idea
Steps forward	As the project fits within the national and regional OPs, the following is advised. 12. The OP Competitiveness, Entrepreneurship and Innovation is the principal source of funding for this project idea. Interested stakeholders will have to wait for the relevant calls. 13. In developing its call under TO3d (SO5) the ROP managing authority should take into account that certain local needs would not be eligible under SO 1.2 of OP Competitiveness, Entrepreneurship and Innovation.

EDP4WG1P4 Cluster for marble value chain

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Title	**EDP4WG1P4 Cluster for marble value chain**
Short Description	A marble cluster would help across the different elements of the value chain. First, it would help to capitalise the uniqueness of the regional marbles and create/promote a strong regional brand. This would support exports and growth in international markets. The regional brand/cluster could be used to promote the marble tradition in cultural tourism initiatives and to undertake joint R&D efforts to optimise processes and explore new product development. Expected outcomes include more exports, improved profitability as well as more sustainability.
PDL2 Participants	5 WG participants expressed their interest in the idea (3 enterprise, 1 NGO, 1 Government).
Under which TOs of the ROP does this project fall?	The activities within this project fall under TO 3d (Specific Objective 6 "Improve the outward-looking character of SMEs") of the ROP that explicitly supports collaborative projects or cluster-like schemes to promote export activity of regional enterprises.
Knowledge and actors required	See table 1 in annex
How can ICT, as a key enabling technology, enhance this idea	Clustering is a large- scale intervention. Potentially all identified ICT enablers from table 1 in annex are applicable here.
International dimension	The idea lacks an international dimension, which should be added to ensure business sustainability, access further sources of funds as well as develop both R&D and tourism networks. The following two organisations offer important networking opportunities: • European Innovation Partnership on Raw-Materials • Kic on raw materials
Which specific parts of the idea could be funded under H2020?	Within this broadly defined idea, participants explored five activities that could be considered for H2020 funding: (a) Linking regional marble production to traditional uses of marble over the centuries; (b) environmental certification; (c) quarry restoration; (d) establishing a "good practice" label in production and sales and (e) strategic impact. • In general, proponents of this idea should follow closely the calls under H2020 societal challenge 12. Climate action, environment, resource efficiency and raw materials • The Horizon2020 Innosup activities, which support the

	development the ecosystem of innovation support to SMEs in Europe may prove relevant to the development of the cluster. In particular: ○ Players of the private sector and the academic/research ecosystem/stakeholders should explore INNOSUP-01-2016-2017: Cluster facilitated projects for new industrial value chains ○ Institutional players that implement innovation policies, should explore the opportunities offered by the call: INNOSUP-05-2016-2017: Peer learning of innovation agencies
Which other EU sources of funding could be relevant? For which elements of the project?	To the extent that the Marble cluster would also deal with aspects related to cultural tourism we refer the reader to the fiche on "EDP1WG4P2 - Wine gastronomy - cultural tourism" and on "EDP3WG2P1 Innovative management of cultural heritage".
Which other national sources of funding could be relevant? For which element of the project?	The regional stakeholders might want to consider extending the geographical coverage of the project activities by collaborating with their peers all over Greece and securing funding under OP Competitiveness, Entrepreneurship and Innovation (TO 3d, Specific Objective 1.5 "Increase the exports of Greek enterprises in the 9 national priority areas", Materials).
Which other transnational sources of funding could be relevant? For which element of the project?	The Interreg Balkan-Mediterrenean in its Priority Axis 1 "Entrepreneurship Innovation" supports the organisation of umbrella associations for SMEs. Proponents of the idea should explore to what extent they could fit under this call. Synergies should be sought in cooperation with Bulgaria, as the Territorial Cooperation Programme between Greece-Bulgaria supports the creation of clusters and SMEs networks under its investment priority 3d (Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes). The multilateral cross-border cooperation "Mediterranean Sea Basin Programme" has – amongst its priorities- to Strengthen and support euro-Mediterranean networks, clusters, consortia and value-chains (priority 1). Furthermore, to the extent that the Marble cluster would also deal with aspects related to cultural tourism we refer the reader to the fiche on "EDP1WG4P2 - Wine gastronomy - cultural tourism" and "EDP3WG2P1 Innovative management of cultural heritage".
Which other regional sources of funding could be relevant? For which element	Not applicable

of the project?	
Key barriers for the development of the idea	One of the main obstacles for the realization of this project is the cultural resistance to collaboration with other local, national or international actors. The concept of "cluster" needs to be spelled out in more detail. In particular, as several sources of funds available require not only sub-regional collaboration, but national and international one, the cluster-concept needs to be better integrated to international networks in the marble and stone industry. Furthermore, the different scopes of the clusters (R&D, tourism, etc.) need to be clarified and engagement sought with international actors under these different activities.
Steps forward	14. The regional stakeholders in the marble value chain should first commit themselves in working together at the regional level and draft a plan for jointly promoting their products abroad. They should clarify the remit of the cluster (R&D, Innovation, Marketing, Tourism) as well as understand the role they want it to play internationally. 15. Following this reflection, the second step should be **financial planning**. This would require, among the others, a more in depth understanding of the funding sources available. The option of forming a Greek Marble Cluster (and get funding from OP CEI) should be evaluated in terms of added scope and value versus the regional-only option. Furthermore, the national contact points and managing authorities of the different EU and transnational projects should help assess thoroughly the other opportunities. 16. The third step would be the definition of an **implementation plan**, in line with the strategic idea of the cluster and the financial resources available.

ANNEX: Table 1. Cross Mapping of Non Metallic Minerals Enterprise and Relevant Knowledge Sectors (Source: C. Emmanouilidis, 2015)

Processes	ICT enablers usage	Supported Function	Benefits / Prospects	Other Knowledge Synergies
Primary				
Quarry Processes **Site Selection - Quarry Design** **Geotechnical Study** **Drilling / Blasting** **Excavation, Loading, Hauling, Dredging** **Cutting** **Polishing / Finishing** **Screening** **Classification / Separation** **Drainage Management** **Crushing** (Hebhoub et al., 2011) (Aliabdo et al., 2014) **Environment Protection** **Site Restoration** (Simón-Torresa et al., 2014) **Orders Management**	Sensing Technology (machinery sensing, remote sensing) and Monitoring Systems (integrating sensing, data processing and condition assessment) (Francioni et al., 2015, Koruyan et al., 2012) (Abellán et al., 2014) Secure Computing and Networking UAV (unmanned aerial vehicles) (Francioni et al., 2015) TLS (terrestrial laser scanning) (Francioni et al., 2015, Abellán et al., 2014) DTP (digital terrestrial photogrammetry) (Francioni et al., 2015) Satellite imaging (Koruyan et al., 2012) Imaging, Photogrammetry & Laser Scanning support software suites (Francioni et al., 2015, Koruyan et al., 2012, Abellán et al., 2014, Hofmann et al., 2011) Geotechnical information systems and Geodata (Francioni et al., 2015) Stress/geological and kinematic	Quarry / Slopes Risk Monitoring & Assessment (Koruyan et al., 2012, Abellán et al., 2014) Machinery Condition Monitoring Environmental Monitoring & Protection (Koruyan et al., 2012, Eco-Stone, 2012) Quarry Equipment Operation and Maintenance Performance Monitoring (Eco-Stone, 2012) Geodata and Geodata-related Services Availability for Improved Planning of Access to Raw Material Quarry Data Management and Provenance, supporting Product Traceability and Quality Assurance (Hofmann et al., 2011) Quarry Stone & Quality	Quarry Performance Enhancement Improved Sustainability and Environmental Efficiency (Gazi et al., 2012) (Hanieh et al., 2014) (Henriques and Catarino, 2015) (da Fonseca et al., 2013, Eco-Stone, 2012) Risk and Accidents Reduction / Occupational Health Improvement (Ersoya and Yesilkaya, 2014, Abellán et al., 2014) Waste Management and Valorisation (Rajgor and Pitroda, 2013) Improved Reliability and Reduced Maintenance Costs Product and Product Data Provenance to Business and	Physico-Chemical Measurements / Analysis (Aliabdo et al., 2014) (da Fonseca et al., 2013) (Hofmann et al., 2011) Surveying Geology, Geotechnical Engineering & Mining Stress / Kinematics Environmental Engineering / Sensing (Eco-Stone, 2012) Sustainable Value Business Mapping / Modelling (Hanieh et al., 2014) (Henriques and Catarino, 2015) B2B Business Collaborations Maintenance and Asset Management Energy Modelling and Management (Hanieh et al., 2014, Eco-Stone, 2012)

HR training and management **Other Business Processes** **Site Restoration**	simulation (Francioni et al., 2015) Environmental and sustainability information systems (Hanieh et al., 2014, Eco-Stone, 2012) Multi-facet data modelling and GIS mapping, including 3D mapping (Francioni et al., 2015) Reporting Automation & Quarry Management Information System LCA tools (Eco-Stone, 2012) CAD/CAE Tools (Eco-Stone, 2012) Computerised and Mobile Maintenance Management System Tracking and auto-identification technologies (e.g. with RFID sensing). ICT and Automation in Quarry Wastewater Treatment	Characterisation Support H&S Management (Ersoya and Yesilkaya, 2014) HR Training (Henriques and Catarino, 2015) Reporting Lifecycle Management (Eco-Stone, 2012) (Hanieh et al., 2014) On Demand Production	Customers - Marketing and Quality Assurance Impact Lean Production Improved Physical Assets Utilisation Improved Resources Utilisation	
<u>Loading and Transportation</u> **Load Out** **Weighing** **B2B Processes** **Transportation**	Automation in Load Out / Weighing Tracking Automation ICT in Logistics and Fleet Management (Inventory and SCM processes) optimization B2B Customer Order Management ICT-enabled, Augmented Support	Cranes / Loading Machinery Monitoring Logistics Planning, Tracking and Optimisation Supply Chain Optimisation Inventory Control HR management/	Load Out Management and Time Reduction Inventory Reduction Shipping Costs Reduction Performance Monitoring, Management and Improvement	Logistics Supply Chain Management Automation Optimisation & OR Education and training (Henriques and Catarino, 2015)

	/ Training (Henriques and Catarino, 2015) ICT-enabled Product Provenance Support	technology enhanced training (Henriques and Catarino, 2015) Loading & Transportation Data Management and Provenance, supporting Product Traceability and Quality Assurance		
Processing				
Unloading & Crane Loading **Block / Slabs Cutting** **Tile /Countertop Cutting, Carving** **CNC / Waterjetting / Sandblasting / Sawing** **Crushing** (Hebhoub et al., 2011) (Aliabdo et al., 2014) **Sorting & Packaging** **Shaping / Treating / Aging / Resin Processing** (Engin, 2013) **Collecting, Managing and Processing of Powder/Slurry Waste** (Hebhoub et al., 2011) (Aliabdo et al., 2014) (André et al., 2014) (Rana et al., 2015) (da Fonseca et al., 2013)	Sensing Technology for Condition Monitoring Sensing Technology of Occupational H&S and for Environmental Protection Tracking Automation and Warehousing Imaging for Inspection and Quality Control / Defect Detection / Characterisation (Skarlatos and Bakolias, 2010) Automation including Imaging for Slab Classification Physico-chemical measurements and analysis data management and decision support (Careddu et al., 2014) ICT-enabled Product Provenance Support Web-based B2B and B2C functions / orders and purchases Performance and Energy	Production Management Maintenance and Operations Management Product Classification and Sorting (Skarlatos and Bakolias, 2010) Automation in Handling, Loading, Conveying, Transporting Inventory Management Product Data Provenance and Quality Assurance (Hofmann et al., 2011) (Skarlatos and Bakolias, 2010) H&S, Risk Management HR management/ technology enhanced training Process Planning	Production Performance Improvement Enhanced Quality Assurance (Skarlatos and Bakolias, 2010) Improved Resources Utilisation Enhanced Physical Assets Utilization Improved Health and Safety and Risk Management Efficient Waste Management (Careddu et al., 2014) (Rana et al., 2015) (Eco-Stone, 2012) Enhanced Sustainability and Environmental Protection (Gazi et al., 2012)	Manufacturing and Production Management Asset and Maintenance Management Physico-Chemical Measurements / Analysis (Aliabdo et al., 2014) (Rana et al., 2015) (da Fonseca et al., 2013) (Engin, 2013) (Hofmann et al., 2011) (Sounthararajan and Sivakumar, 2013) Civil Engineering & Architecture Energy Modelling and Management (Hanieh et al., 2014) Environmental Engineering / Sensing

(Rajgor and Pitroda, 2013) (Sounthararajan and Sivakumar, 2013) (Amit and Singh, 2013)	Efficiency Monitoring Systems (Eco-Stone, 2012) Automation and Monitoring in Waste Crushing Automation in Waste/Slurry Recovery, Disposal and Management/Re-purposing ICT-enabled, Augmented/ Mobile Support / Training (Henriques and Catarino, 2015) CAD/CAM software for Marble Components Production (Eco-Stone, 2012) Software for Process Planning Optimisation ICT-enabled B2B and B2C product promotion with VR and personalized IT solutions and regional branding support (linkage with heritage / natural resources) Production Line Automation with Software-Supported Optimization	Energy Efficiency (Gazi et al., 2012) (Eco-Stone, 2012) Environmental Protection and Sustainability (Henriques and Catarino, 2015) (Rana et al., 2015) (Eco-Stone, 2012) Improved B2B and B2C business chains Waste Recovery, Disposal and Management/Re-purposing (André et al., 2014) (Hebhoub et al., 2011) (Aliabdo et al., 2014) (Careddu et al., 2014) (Rana et al., 2015) (Domopoulou et al., 2014) (Sounthararajan and Sivakumar, 2013) Wastewater Treatment Production Processes Optimisation On Demand Processing	(Hanieh et al., 2014) (Henriques and Catarino, 2015) (Rana et al., 2015) (Eco-Stone, 2012) (Amit and Singh, 2013) Energy Efficiency (Gazi et al., 2012, Eco-Stone, 2012) Transparency Opportunities from Waste Management Business Chains (Amit and Singh, 2013)	
Retailers, Product End Use & Waste Resources Processing				
Integration of wholesaler-Retailer-End User Chain	ICT B2C / B2B solutions for procurement, aided by Information System and Imaging	End Use Supply Chain Integration	Streamlining B2B and B2C relationships	Civil Engineering & Architecture

Building / Construction Use **Energy - Efficient Product Utilisation in Building / Construction** **Reclaim and recycle construction waste (Uygunoglu et al., 2014)**	Repository (includes CBIR) Automation and Monitoring in Building / Construction Use ICT Tools for Re-cycling and Re-use Optimisation ICT-supported Logistics in Waste Collection and Management Wireless Networking and Auto-Identification Technology Computer & Networking Security	Web-based Product Preview and e-Procurement Digital Product Data Integration in End Use Software Suites (e.g. for architecture/building - BIMs, 3D modeling etc). Re-purposing of Waste for other use (e.g. other construction / cement material) (Uygunoglu et al., 2014) (Domopoulou et al., 2014)	Enhanced Product Personalisation Improved Efficiency in End-Use Waste Re-cycling / Re-use (Uygunoglu et al., 2014)	Business / Management Supply Chain Management Physico-Chemical Measurements Technology (Aliabdo et al., 2014) (Hofmann et al., 2011) (Domopoulou et al., 2014)
Other Processes				
Site Restoration and Re-Use **Industrial Heritage & Museums**	Augmented Reality / Virtual Reality for experience enhancement Mobile Guidance and Content Support Web Store for Bookings and Gifts Multimedia & Narratives Platforms Support ICT-supported Learning Miniature Museum Gifts/3D gifts Wireless Networking and Auto-Identification Technology Privacy Preserving / Secure Computing and Networking	Restored quarries and mills as industrial heritage museums with multiple functions Improved Visit Experience Learning Experience	Value-Adding Tourism Services New Business Opportunities Regional Human Capital Valorisation / Employment Multi-Use for Functions, Events, etc	Museum Management / Museology Industrial Heritage Education and Training Tourism Management

EDP4WP1P3 Development and Diffusion of know-how on reusing quarry and marble processing residues and scrap

Disclaimer – this fiche provides some indications as to which funds could be relevant to ideas identified during the Entrepreneurial Discovery Process in the regions of Eastern Macedonia and Thrace, beyond those provided by the ROP. It is provided to stimulate further the development of the idea. However, it be intended as exploratory and non-exhaustive.

Title	**EDP4WP1P3 Development and Diffusion of know-how on reusing quarry and marble processing residues and scrap**
Short Description	The processing/management of marble debris and residues might include debris recycling, uses of by-products in areas like 3D printing, or in the construction industry (manufacture of synthetic marble, or chippings), or in organic cleaning of urban waste as soil improver / fertilizer or even production of new materials. Expected outcomes include a reduction of unprocessed waste or residues and more added value for quarries and marble processing plants.
PDL2 Participants	4 WG participants expressed interest in the idea (2 researchers, 2 government)
Under which TOs of the ROP does this project fall?	The activities within this project fall under TO 1b (Specific Objective 1 "Stimulate private-sector investments in research and innovation for the development of new products or services in RIS3 priority sectors") of the ROP.
Knowledge and actors required	This idea would require the collaboration of the private sector for recording their needs, and the research institutes for exploring and suggesting innovation-oriented solutions offering comparative advantages in an international market.
How can ICT, as a key enabling technology, enhance this idea	Some alternative ways of using ICT in support of this idea: • Sensing Technology for Condition Monitoring • Sensing Technology of Occupational H&S and for Environmental Protection • Tracking Automation and Warehousing • Imaging for Inspection and Quality Control / Defect Detection • Physico-chemical measurements and analysis data management and decision support • Web-based B2B and B2C functions / orders and purchases • Automation and Monitoring in Waste Crushing • Automation in Waste/Slurry Recovery, Disposal and Management/Re-purposing • ICT-enabled, Augmented/ Mobile Support / Training • E-training for quarry and marble processing residues and scrap management
International dimension	External know-how is needed to cover the regional lack of expertise in advanced, marketable, attributes of marble products. It can be sourced in Greece (i.e., Attica) or abroad (Spain, Portugal). Some examples of international cooperation include: • The European Technology Platform Sustainable Mineral Resources

	(ETP-SMR) • MIPOLARE - Post-mined polluted landscapes reclamation by means of valorisation of different residues, including marble mud (Funded under LIFE09 ENV/ES/000439) • ProMine - Main objectives of the project include the development of new, high value, mineral-based (nano) products and the establishment of a new, cross-platform information group between the European Technology Platform on Sustainable Mineral Resources (ETP-SMR) and other platforms. More in general, the proponents of the idea should familiarise themselves with the European Innovation Partnership on Raw-Materials, which offers information and networking opportunities as well as with the KIC on raw materials.
Which specific parts of the idea could be funded under H2020?	The participants agreed that this idea could lead to H2020 funding if the eco-efficient reuse of raw materials and/or the production of synthetic marble with advanced attributes were considered, both with a perspective of developing marketable end products. It must be noticed, however, that H2020 requires a very high level of innovation/ • Proponents of this idea should follow closely the calls under H2020 societal challenge 12. Climate action, environment, resource efficiency and raw materials. • As there is a strong market orientation for the idea, potentially, the H2020 Fast Track to Innovation scheme could be explored. • Potentially, the "Industrial Leadership" sub-section programme ICT LEIT ("Leadership in Enabling and Industrial Technologies could also be relevant in terms of skills diffusion in a virtual enviornment. The project could look at the call "ICT-22-2016: Technologies for Learning and Skills" as part of a large scale pilot. • Potentially, SME instrument could also be useful. Provided the adequate technology readiness level is reached, the following two calls should be taken into account: (1) SMEInst-11-2016-2017: Boosting the potential of small businesses in the areas of climate action, environment, resource efficiency and raw materials (2) SMEInst-02-2016-2017: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs. In the latter case, to focus should be on material aspects and the processing technologies. Examples of FP7 projects include: • SUSTAMINING – Project aiming at the development of a new methodology for selective exploitation according to demand, application of non-destructive geophysical methods, waste reducing production, etc. •
Which other EU sources of funding could be	COSME - could help in supporting access to finance, access to market and entrepreneurship training.

relevant? For which elements of the project?	The European Investment Fund (EIF) could also provide a variety of financial instruments to support innovative SMEs. The LIFE programme, under its environment sub-programme, could prove useful, as the project could potentially be shaped into being a "Pilot", "demonstration" or "Best-practice" projects. Relevant examples of projects funded by life are RECYSLURRY and QUARESE.
Which other national sources of funding could be relevant? For which element of the project?	Some of the activities within this project are also eligible for funding through OP Competitiveness, Entrepreneurship and Innovation, TO 1b (Specific Objective 1.1 "Increase enterprise initiatives and collaborations to develop innovative entrepreneurship in line with the national RIS3") under the Materials-Construction technology focus.
Which other transnational sources of funding could be relevant? For which element of the project?	The Greece-Bulgaria Territorial Cooperation should be explored as, under investment priority 3d it supports the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation activities. Furthermore, under investment priority 6f it promotes innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector and with regard to soil, or to reduce air pollution The multilateral cross-border cooperation "Mediterranean Sea Basin Programme" tackles, in priority 2, the Promotion of environmental sustainability at the Basin level, pursued through the preservation of natural common heritage, the reduction of risk factors for the environment, the improvement of energy efficiency and the promotion of the use of renewable energy sources.
Which other regional sources of funding could be relevant? For which element of the project?	Not applicable
Key barriers for the development of the idea	The main obstacles to be overcome are the lack of an integrated organisation in managing quarry and marble processing residue/scrap in the Region. In this sense, the proposal to create a marble cluster (see fiche EDP4WG1P4 Cluster for marble value chain) is a necessary complement to this project-ideas
Steps forward	17. The interested stakeholders should address their research proposals either to the ROP or to OP CEI. As well as explore, with NCPs and other relevant managing authorities, the opportunities offered by the afore-mentioned funds. 18. The ROP Managing Authority might want to fine-tune their calls so that international research consortia would be easier to be

	organised and operate. 19. The proposal should be developed in terms of financial and implementation plans, and the idea should be further specified and placed within the international background.

Annex 12 – Tools for Innovation Monitoring (TIM)

This annex summarises the outcomes of preliminary exploration of potential added value of the collaboration spotting tool TimBrowser. Still under development, this tool generates a graphic description of scientific networks across fields, allowing the identification of key actors across sectors.

What is it?

TIM is a suite of software to monitor innovation and technological development. TIM uses data related to innovation (e.g. publications and patents) to visualise the dynamics of innovation at various levels (technologies, organisations, countries…). The tools are currently being developed by JRC, based on an original concept by CERN. It is currently in beta version, and is expected to be available for wider use in the course of 2016.

How can it be used for RIS3?

Spotting potential partners for collaboration
The tool can:

- Visualise countries, regions or organisations most active in publishing and/or patenting in specific areas.
- Identify and visualise the collaborations between (organisations in) a certain country or region and (organisations in) countries or regions in the rest of Europe or the world, in a specific area.
- Visualise the most active organisations in a country or region in a certain area, and their (inter)national collaborations on the topic.
- Spot the key players in research around the world on a given topic, and find an organisation in the region or country that has good collaborations with those key players outside.

Spotting research topics in a specific area
The identification of the precise research topics in a specific area can be done through two methods:
- Exploring the graphs presented by TIM on keywords, subject categories, automatic keywords or patent classification.
-Analysis of the specific documents (articles + patents) that can be retrieved through TIM.

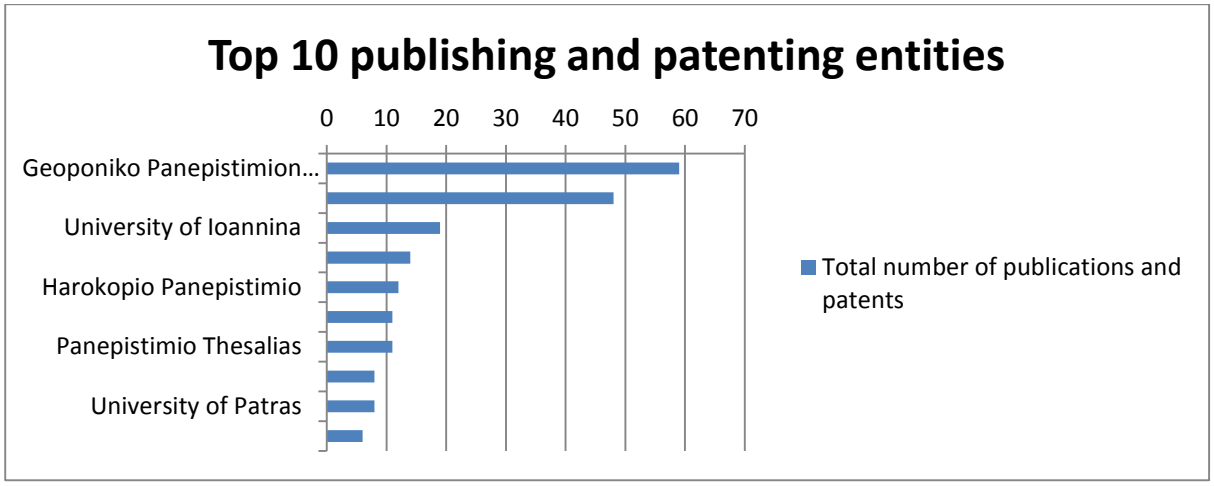
Spotting current collaborations of regional organisations
TIM can also be used to visualise and identify which organisations are collaborating most with other organisations that belong to a region on a specific topic.

Analysis of leading regions
The tool can also be used to identify leading regions in Europe in terms of publishing and patenting in a given area, and the collaborations between organisations within them.

Examples from Eastern Macedonia and Thrace

TIM may especially be relevant for thematic areas or innovative business ideas that have a strong research component. The use of the tool was tested for some ideas in the area of wine, which was the subject of the first EDP focus group.

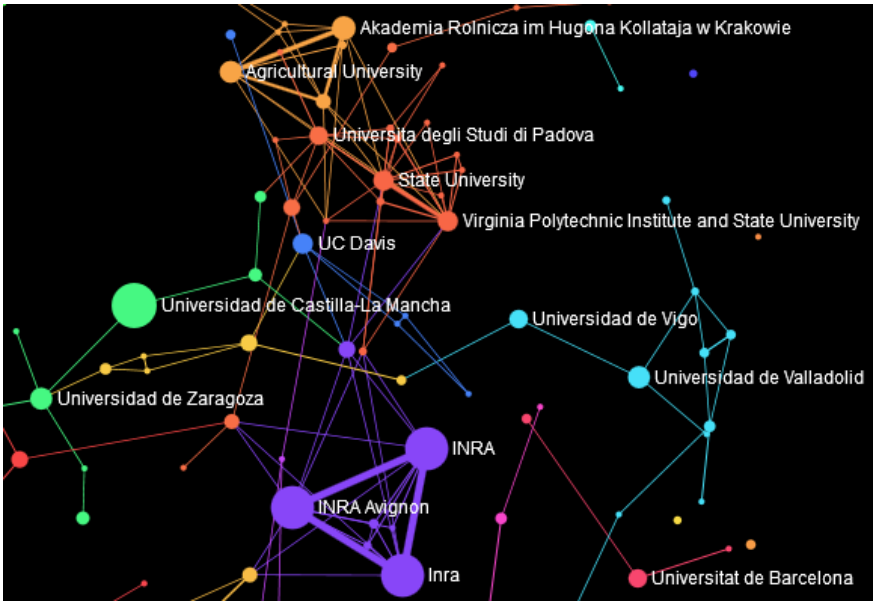
Collaboration patterns of a specific organisation in the area of wine



Global collaboration landscape for research related to a specific business idea

One of the ideas for innovation coming up from the EDP focus group on wine related to the research and exploitation of local wine grape varieties through identification of the varietal potential of each variety and of ways to enhance this initial potential during all stages of wine production. The graph below shows part of the global actors and their collaborations in the area of wine grape varieties.

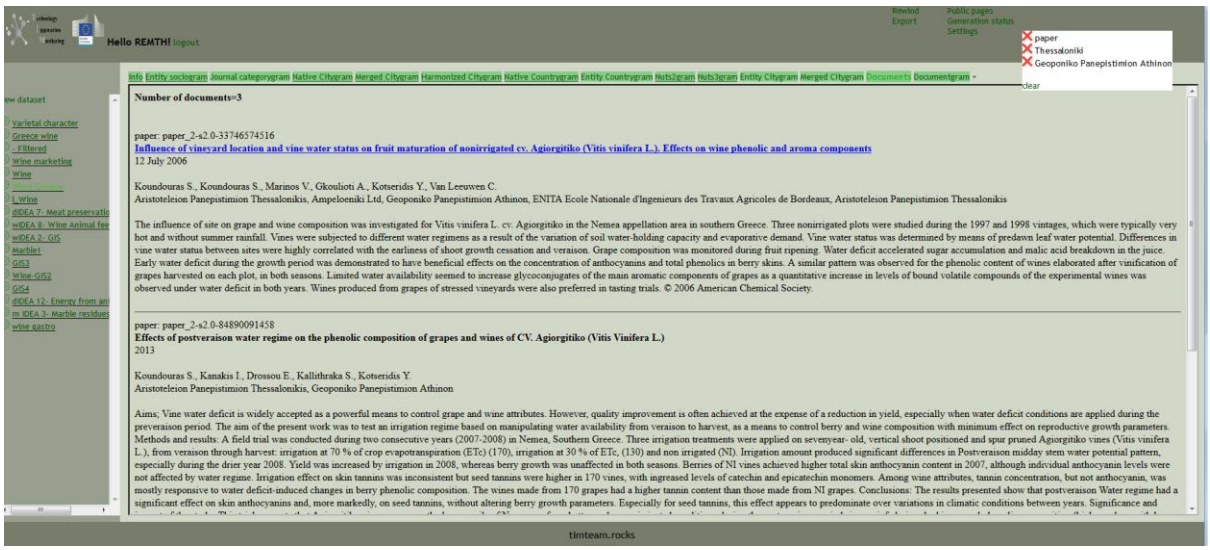
The nodes correspond to the names of the entities publishing or patenting in the wine grape varieties domain. The size of the node corresponds to the number of documents for each entity (for 2000 to 2014). The edges represent co-publications or co-patents and the thickness of the edge corresponds to the number of co-occurrences. The different colours represent clusters of organisations that tend to publish and patent more among themselves than with the others.



Visualisation of joint publications and patents related to wine grape varieties

Publications search

Publications and patents can be retrieved in TIM. For example, below is the list of publications, extracted by TIM for a search relating to wine, limited to publications from Greece and then filtered for the city of Thessaloniki.



Conclusions

The potential applications of TIM look promising for supporting the development of international collaborations in research for a particular region or organisation, as well as for a more general analysis on the innovative strengths of regions in Europe. TIM can be used to explore a Technological Field, detect knowledge gaps or, when an idea is more mature, detect where the knowledge is and with whom to collaborate. Once the tool is further developed it can be further tested for REMTh and for other regions.

Annex 13: Evaluation of the Preparatory Action

A short evaluation exercise was foreseen to reveal the main outcomes of the preparatory action (e.g. results, success or failure factors, lessons learnt, actions proposed for Greek and other lagging EU regions). A number of evaluation activities have been undertaken and their outcomes are summarised in this annex.

Evaluation of the preparatory actions' activities

The AA has foreseen the organisation of a short evaluation exercise to reveal the main outcomes of the preparatory action (e.g. results, success or failure factors, lessons learnt, actions proposed for Greek and other lagging EU regions). While the outcomes of the preparatory action are reported and reviewed in the formal deliverables, events and web-based dissemination activities, a more objective perspective has been sought through follow-up contact with event participants.

In particular:

1) A survey was sent to all national and international experts invited to the four Entrepreneurial Discovery Focus groups. The following questions were asked to the 28 invited experts (of which 15 replied):

1. *Do you think the event was useful in stimulating the interaction between the research and private sector in broad terms?*
2. *Do you think the structure of the event was effective in generating creative thinking?*
3. *Do you think the event was useful in stimulating innovative entrepreneurial ideas for the region? (Please note, that the ideas should be innovative for the region, rather than on the EU or global levels).*
4. *Do you think the event was useful in opening up networking opportunities both at the national and international level?*
5. *Was the logistic organisation of the event satisfactory?*

The results can be summarised as follows:

- The methodology developed and implemented in the EDP focus groups has been evaluated positively in terms of its ability to generate critical and entrepreneurial thinking.
- Several respondents suggested that a higher participation of the private sector would probably have enhanced the outcomes by ensuring a stronger market-viability of each proposal.
- All 15 (out of 28) respondents were all positive about the capacity of the events to stimulate public/private interaction. Respondents were generally positive about the networking opportunities offered by the EDP Focus Groups, although they highlighted that opportunities for international networking were limited.
-
- The evaluation in terms of logistical organisation was also very positive.
- Finally, respondents were given the opportunity to provide extra comments. Among the suggestions were:
    - the production of an "EDP Manifesto" highlighting the key lessons from the experience;
    - to narrow further the sectoral target of the working group;
    - make available more preparatory material for stakeholders; and
    - devise better ways to identify the more engaged entrepreneurs.

2) A second survey was sent to the three H2020 national contact-points that participated in the second project development lab. The following questions were asked:

1. *Which tables-discussion did you participate to?*
2. *Where stakeholders engaged in the discussion? How? (Please if you saw different behaviours in different tables, let us know)*
3. *Why do you think stakeholders were highly (or poorly) engaged?*
4. *What do you think were they main strengths of the methodology?*
5. *What do you think were they main weaknesses of the methodology?*
6. *Do you have any suggestions for improvement?*

The feedback from the National Contact Points on PDL2 centred on the following issues:

- A wide-spread feeling that the project-based discussion was too short and may have been better placed in the morning of the event.
- Lack of shared understanding among participants on the need to focus on H2020. This partly reflects the fact that stakeholders in the region seem to be more inward-focussed. In the participatory exercises they had difficulties to identify opportunities outside their region and to see the advantages of international networking. It also suggests some weaknesses in communication and the sharing of expectations in planning and promoting the event. Overall, experience reflects the difficulties – but also the necessity - to bring together institutions and people that have not interacted before.
- Many participants were active and engaged. As a minimum, the exercise should have served to further diffuse understanding of the importance of innovation, international partnership and networking among regional stakeholders.

3) The final event in Xanthi was organised, in itself, as an evaluation workshop, giving stakeholders the opportunity to express their views on the exercise reflecting on how to support local development and resilience in times of uncertainty, as now faced by the region. The main outcomes were as follows (see also Annex 9 for further details):

- The event attracted approximately 40 stakeholders, representing various agencies of the regional and the national government, higher education institutions and public research organisations, chambers of commerce, associations of employers.
- There was strong consensus, among participants, as to the positive contribution and achievements of the preparatory action. These include:
    - the basis for the first calls to be launched under OP,
    - the development of a number of potentially fruitful research and innovation based projects and collaborations,
    - a deeper understanding of RIS3; and
    - increased trust among stakeholders, together with momentum in the entrepreneurial discovery process.
- From a methodological point of view the Preparatory action has enhanced capacity for handling participatory policy processes, and provided the basis of a more widely applicable methodological approach.

The event also pointed out the importance of the various (legal, administrative and of other nature) barriers to RIS3 implementation that hinder RIS3 implementation (as discussed in the main body of the Final Report) and identified the key actions that stakeholders need to undertake to ensure that the RIS3 deploys its potential.

4) A third survey was sent to participants to the final event in Brussels. Whilst the event in itself provided space to discuss the preparatory action as a whole, the survey aimed at validating the results of the event and identifying any gaps that had not been discussed sufficiently during the day. The following questions were asked.

1. What do you consider to be the main impact of the preparatory action on Eastern Macedonia and Thrace? (please indicate the most relevant one)

- *Engagement of stakeholders*
- *Enhanced understanding of RIS3 and entrepreneurial discovery process*
- *Basis for concrete innovation activities – projects and collaborations*
- *Understanding of funding processes and options*
- *Supporting capacity building in relevant domains*
- *Other impacts or comments (please specify - including any negative impacts or issues you felt have been neglected- free text)*

2. What do you consider to be the main lesson of the preparatory action for other EU regions? (please indicate the most relevant one)

- *Development of tools and processes applicable or adaptable for other regions*
- *Enhanced understanding of RIS3 and entrepreneurial discovery process*
- *Understanding of funding processes and options*
- *Other lessons or further comments (please specify- free text)*

3. Do you think the final event covered the key outcomes and impacts of the preparatory action?

- *Yes*
- *No – are there elements that were omitted or should have been examined further? (free text)*

4. Do you have any further advice, comment or suggestion for future lines of activity building on this preparatory action, including any issues you feel have not so far been taken into account? *(free text)*

The six responses received[1] identify:

- The *Engagement of stakeholders* as the most significant outcome of the preparatory action for the region;
- The *Development of tools and processes applicable or adaptable for other regions* as the most relevant impact for other areas in Europe.

The comments in the free-text questions were encouraging and pointed out to the need to keep supporting the region during the implementation phase and try to increase as much as possible the involvement of the private sector.

[1] As of 4/12/2015.

Annex 14 – ICT capacities

This annex is based on the following three reports, each exploring aspects of the potential of ICT, as a key enabling technology, for the development of Eastern Macedonia and Thrace:

- Report based on quantitative analysis tools to prepare a preliminary assessment of the industry sector in REMTh and Ex-Ante Preliminary Assessment of ICT Enablers
- Report on the main lessons learned and the innovative ideas proposed during the EDP workshops
- Report on REMTh's Industry sector mapping to support R&D collaboration between industry, manufacturing and the scientific community

D1. Report based on quantitative analysis tools to prepare a preliminary assessment of the industry sector in REMTh and Ex-Ante Preliminary Assessment of ICT Enablers

Dr Christos Emmanouilidis

ATHENA Research and Innovation Centre

Final report, 6/8/2015

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Introduction

The Region of East Macedonia - Thrace (REMTh) is the target of a European Parliament Preparatory Action (EPPA) launched in September 2014 and aimed at providing support towards implementing its RIS3 Strategy. This is a project undertaken and implemented by the Institute for Prospective Technological Studies (IPTS) of the European Commission's Joint Research Centre (JRC), with the cooperation of DG REGIO and active support and involvement of REMTH's Managing Authority and the support of independent experts.

Two key actions of the EPPA is to provide support for the regional entrepreneurial discovery process (EDP) and further elaborate it by means of organizing Project Development Labs (PDL).

The report, commissioned by IPTS/JRC in the framework of the EPPA, presents a preliminary assessment of the industry sector participating in the EDP process, taking into account the outcomes of the peer review and the EDP processes. It comprises a high level view of the expected Information and Communication Technologies (ICT) contribution, as highlighted by the Digital Agenda for Europe and relevant specified ex ante condititionalities and is reflecting upon the instrumental role that the EDP process prepares the ground for such contribution and support sustainability beyond the duration of the preparatory action.

Digital Agenda and Growth Priorities

Among the keys to appropriately designing and implementing a regional RIS3 is the Digital Growth, identified among the ex ante conditionalities. In terms of ERDF investment priorities, it places emphasis on " developing ICT products and services, e-commerce and enhancing demand for ICT", as well as on "strengthening ICT applications for e-government, e-learning, e-includision, e-culture and e-health"[1].

The Digital Agenda for Europe as part of the overall Europe 2020 strategy for smart, sustainable and inclusive growth includes 101 specific policy actions across 7 domains: digital single market; interoperability and standards; trust and security; fast and ultra-fast internet access; research and innovation; digital literacy, skills and inclusion; and ICT-enabled benefits for EU society. This combined set of actions is designed to stimulate a virtuous circle of investment in and usage of digital technologies[2].

The Digital Growth ex-ante conditionality for the regional 2014-2020 programs states:

"*2.1 Digital growth : A strategic policy framework for digital growth to stimulate affordable, good quality and interoperable ICT-enabled private and public services and increase uptake by citizens, including vulnerable groups, businesses and public administrations including cross border initiatives. ..... The ex ante conditionality aims therefore to foster the development and implementation of national and regional digital growth measures, to assess their consistency with the Digital Agenda for Europe's goals and exploit national/regional assets in the spirit of smart specialisation*".

It is recognised that "A*ny Smart Specialisation Strategy must be inter-related with local and regional 'digital agendas', whether a region or Member State struggles to provide services in*

[1] Part I of Regulation (EU) No 1303/2013 of the European Parliament and the Council of 17 December 2013 laying down common provisions on the ERDF, the ESF, the CF, the EARFD and the EMFF and laying down general provisions on the ERDF, the ESF, the CF and the EMFF and repealing Council Regulation (EC) No 1083/2006, O.J., L 347, 20.12.2013, p. 320

[2] Tzamaloukas, K. et al., (2013),"Development of strategic development framework for Thematic Objective 2 "Strengthening of access, use and quality of ICT", RC ATHENA on behalf of GSPI-SES

terms of austerity, tries to create the conditions to foster regional innovation and growth, or endeavours to attract new investment". Essentially, ICT is seen as a key pillar for a region's specialisation strategy[3].

Figure 1. Greece Digital Growth Strategic Targets

At the national level, the Strategy for Digital Growth is outlined in Figure 1 and adopts the 7 domains mentioned earlier.

The progress towards EU's Digital Agenda is monitored through the Digital Economy and Society Index (DESI). The latest scores for Greece are disappointing, as the country only ranks

JRC, [3] The Digital Agenda Toolbox: available at:

http://publications.jrc.ec.europa.eu/repository/bitstream/JRC88896/ipts jrc 88896 print final.pdf

26th out of the 28 EU member states, achieving an overall score of just 0.36[4] (Figure 2). In fact Greece is a low performer on all aspects of the Digital Agenda, ie connectivity, human capital digital skills, use of internet (though improved in 2015), integration of digital technology (the relevant digital scoreboard index where Greece scores relatively higher but with significant catching up needed to exploit possibilities offered by on line commerce and cloud-based applications) and digital public services, which has seen a rather significant improvement in the 2015. In the latter case, the country climbed from the far low ranking of being only 27th among 28 countries, to 21st, still remaining much worse compared to the EU average in most of the digital public services indicators.

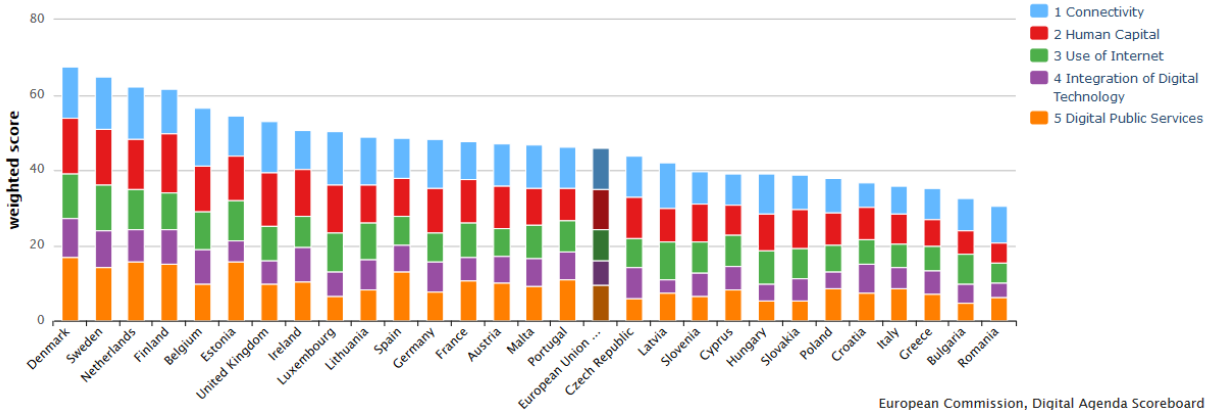

Figure 2. Greece Digital Performance According to DESI Index

Recognising the importance of ICT for growth and in order to support regional and national authorities to raise ICT leverage on RIS3 and Operational Programmes (OPs), the JRC offers the Digital Agenda for Europe (DAE) Toolbox[5]. This Toolbox, developed through a synergy between DG CNECT, DG REGIO and JRC, provides guidance for the fulfilment of the DAE-related ex-ante conditionalities that will form the basis for using European Regional Development Funds (ERDF) for ICT investments. The main recommendations are clustered around 3 categories of interventions:

[4] https://ec.europa.eu/digital-agenda/en/scoreboard/greece

[5] http://s3platform.jrc.ec.europa.eu/dae-toolbox

ICT as enabling infrastructure. It includes Broadband infrastructure - Next Generation Networks (NGN), H2020 R&D / e-Infrastructure for R&D, Cloud Computing and Key Enabling Technologies (KETs).

ICT applications, services and products. It comprises eHealth, Active and healthy ageing, eGovernment, Intelligent transport systems, Smart cities, Smart grids, Open data portals, Digitisation of cultural heritage to boost innovation, Language resources, as well as Network and information security.

ICT take up. It comprises Innovation vouchers, Web entrepreneurs and start-ups, Digital skills, ICT in education, Living Labs, Innovation procurement, Music rights management infrastructure, as well as A safer Internet for children.

Outline of the EDP outcome

Four EDP workshops have taken place with the support of the EPPA, focusing on regional priority areas. These were as follows:

- 18-19 November 2014: Wine
- 29-30 January 2015: Dairy and Meat
- 11-12 February 2015: Tourism
- 5 May 2015: Non Metallic Minerals

The EDP process provided stimulus to regional stakeholders to actively participate and contribute to shaping up the regional roadmap of investment interventions in each of the aforementioned sectors. Each workshop comprised introductory presentations regarding the research and innovation potential in the sector, including explicit or implicit ICT contribution to it, as summarised in Table 1.

Sector	EDP workshop and ICT
Wine	***There were no explicit presentations on ICT contribution to the sector*** Some of the EDP introductory presentations had implicit references to ICT

	contribution. Specifically, the following presentations had such implicit input: Experiences on Marketing and Promotion for Greek win - Social Media Marketing - Reference to use of modern technology in existing winery infrastructure in the region (although without explicit reference to ICT) Research and Technological Needs and Priorities for wine in Greece - Analytics and tracebility for wine and distillates authentication - Vineyard applications on the quality and expression of varietal potential / vineyard environment monitoring Research and innovation focusing on technological improvements in wine - - Data management and simulation, e.g. simulation in spontaneous fermentation; clustering and analysis of molecular variance for identification of molecular patterns
Dairy and Meat	***There were no explicit presentations on ICT contribution to the sector*** Some of the EDP introductory presentations had implicit references to ICT contribution. Specifically, the following presentations had such implicit input: Animal breeding and national animal products from a genomic point of view - Genomics, DNA sequencing (high troughput) and DNA traceability - Traceability Marketing tools and experiences in the food industry - Web platforms for stakeholders engagement - Web-based training and blended learning - Gaming and role playing - Product traceability Sustainable Low Input Systems for Meat and Milk in Greece: Science-based evidence for innovation - Farm animal digital imaging - Data integration from farming to production Innovations in processing and production of meat and meat products - Introduction of innovative production and packaging technologies (no explicit reference to ICT) Innovative applications in animal production - robotics - new technological applications on performance monitoring and improvement - software for least cost feed formulation - gene to farm information technologies support (optimisation of use of genomic data, sequencing and other digital support tools)
Tourism	***Several introductory presentations had explicit ICT orientation. These were as follows:*** Regional touristic strategy of Baleares - Destination management technology: Technological solutions for local tourism

	actors (e.g. beds, marina moorings, bars/restaurants) Experiences from East Marmara Region - Information integration / consolidation (GIS) - Web-based statistics and indicators - Industrial tourism Innovative initiatives and projects unfolding in tourism sustainability - Smart cities applications, analytics/intelligence and big data: services to businesses and tourism stakeholders - Tourism stakeholders integration with ICT tools and infrastructure ICT and tourism: gaming and creative technologies & applications - Creative industries innovation cluster - Gaming and digital content technologies and apps for tourism - Global digital distribution channels - Exploitation of unique sale advantages - Multiple business drivers: gaming organisations, marketing/advertising, government/public sector, education/corporate, content developers and content engine developers. - Multi-device distribution: online, mobile, hbbTV, PC/consoles - Serving general and thematic tourism - Example applications: virtual tours, infotainment, search, recommendations and booking support, digital signage, proximity and context-based applications
Non Metallic Minerals	***There were no introductory presentations with specific ICT focus.*** Some of the EDP introductory presentations had implicit references to ICT contribution. Specifically, the following presentations had such implicit input: Innovation in the marble industry - Geotechnical information systems, Geodata and Geostatistics and 3D mapping for resources exploitation optimisation, employing modeling, simulation, GIS and remote sensing/mapping techniques (e.g. GPR, ERT, seismic techniques) - Modelling and monitoring employing non-destructive testing (NDT) in quarries - NDT techniques for characterisation, diagnosis and conservation support of architectural heritage Innovative trends and technologies in the marble industry - Digital imaging to identify/locate drilling targets - Aerial digital photogrammetry photogrammetry and 3d mapping/modelling - Software support tools to support design for quarries (geo-physical modelling, performance modelling, environmental modelling) - Use of NDT techniques to support drilling sites identification / localisatio - Real time on-site remote sensing for supporting mining processes (process monitoring, clinometers, crack meters, borehole extensiometers) - Innovative CNC machinery in marble processing to deliver personalised products and artefacts - 3D printing technologies employing waste from marble processing - Site restoration and repurposing / ICT-supported industrial heritage Research & innovation, sustainability and environment

	- Digital mapping / 3D mapping- - Sensing and measurements for quality characterisation - Automation and lean production in quarries and processing plants

Table 1. EDP Workshops and ICT - orientation of introduction presentations

Overall, the ICT orientation of the presentations in the four workshops varied depending on the sector. The tourism workshop included the most clearly visible and direct ICT-orientation in the introduction presentations. This is due to the very high maturity of ICT contribution in the sector globally. Nonetheless, the unexplored ICT-enabled innovation potential in the region is likely to be very high.

The non-metallic minerals sector included introductory presentations with distinct ICT contribution, primarily associated with the user of digital support technologies either on quarrying, production and processes machinery, especially targeting non-destructive testing and evaluation, or in software tools to support modelling and geotechnical / geophysical mapping.

The other two sectors, namely wine, as well as dairy & meat did not comprise presentations with direct ICT-orientation for innovation potential. However, some of the highlighted innovations can naturally benefit from the introduction and use of ICT technologies and tools, as seen in Table 1

The introductory sessions highlighted the direct and indirect impact that ICT-enabled innovation may have in the sectors of interest and served as stimulus for the workshop discussions that followed. The specific mapping of these sectors with respect to the knowledge synergies and ICT contribution for each one of the contributed ideas are further analysed in a forthcoming deliverable, analysing the EDP outcome as part of the first stage of the PDL process (D3- 1st Report on REMTh's Industry sector mapping to support R&D collaboration between industry /manufacturing and the scientific community, ie "Project Development Labs" - Task 2b - Part 1).

Lessons for EDP Process Sustainability

The EDP process for the selected priority areas of interest provided a valuable basis for the identification of the sector needs and the consequent formation of synergies aimed at implementing research and innovation project plans through a bottom-up approach. The stakeholders, who are prospective beneficiaries of the regional research and innovation investment interventions, have had the opportunity to put forward their own needs and agenda. The regional authorities have had the opportunity to collect expressions of interest for interventions and this to refine the RIS3 strategy and the ROP planning to align better with the enterprise sectors needs.

The EPPA project has offered the stimulus for initiating a bottom-up EDP process. Attracting stakeholders that might form a successful and profitable business chain or even a wider sector chain/cluster ecosystem requires more permanent stimulus, which ideally would only be of financial nature at the initial stage. Specifically, the following recommendations can be made:

1. The contribution of ICT as a key supporting pillar and enabling technology for scaling up the business innovation potential in priority sectors needs to be highlighted by the development of a **Regional Digital Growth Agenda**. Such a regional agenda may be broken down to **sector - specific Digital Growth Agenda priorities,** which should be established and maintained by vertical sector-specific communities and a horizontal ICT-specific **Digital Agenda Community** (**DAC**). To be more effective in identifying the ICT priorities per sector and in the Region as a whole, a DAC should contain a mix of expertise. Specifically, enterprise sectors representative may offer the vertical (sector) objectives; ICT experts from enterprise and academia may offer insight as per the type of informatics solutions and infrastructure which are either necessary or advisable in reaching the stated targets; and governmental, as well as non-governmental participation may offer the perspective, capacity and needs of the official regional governance structure and societal needs respectively. Individual investment interventions, as well as more holistic interventions (e.g. clustering) should be required to positively incorporate ICT innovation elements, as one of the criteria to support scalability and sustainability.

2. When considering both the EDP and the Peer Review process, the base level of the enterprise and knowledge sector in a priority area of entrepreneurial activity can be supported by the formation of sector-specific interest groups. It was generally concluded that the relevant community groups can be energised to become a **Innovation and Entrepreneurship Network** (**IEN**), as elaborated further during the stakeholders consultations regarding RIS3 Governance in the region of East Macedonia-Thrace. These can gradually raise the bottom-up directed fertilisation of ideas and formation of synergies, to influence and benefit from the regional smart specialisation strategy. Experience from relevant communities at the EU level (e.g. KICs or Knowledge and Innovation Communities) shows that communities often need an initiation stimulus, so as to kick-start their contribution to the RIS3 process. It is therefore recommended that the Region foresees the formation of EINs not only in the RIS3 Governance structure, but critically also in the ROP planning and clearly interfacing with the regional DAC. An applicable instrument could call for stakeholder proposals to form an EIN in a priority or emerging area of interest and a horizontal DAC group. Importantly, the proposers of such an EIN/DAC should foresee in their plan the path from the initial partially funded EIN/DAC formation, to the longer term and eventually self-financed EIN/DAC operation. An EIN/DAC which has established itself in an innovation-oriented and successful sector should be expected to operate without minimal or no state funding at all in the medium to long term. Importantly, in order to support. More on the potential of establishing EINs can be found in the relevant EPPA report on the Governance structure recommendations[6].

3. A priority or emerging sector can benefit from the formation of a EIN group, but eventually, operating in a extrovert and globally - looking manner, requires a high level of integration, at least with respect to the sharing and disseminating sector-level information and knowledge. It is therefore suggested that every EIN can be integrated in a single regional **Virtual Platform** (**VIP**), which can be operated by the DAC and shall offer a knowledge pool for relevant information, but also for pushing forward the regional enterprise sector offerings, needs and business propositions. The platform may also support brokering services between relevant

[6] Amanatidou, E., 2015, "Governance Structure for RIS3 in REMTh", July 2015

stakeholders at the level of information and knowledge exchange, with the potential to become the seed for a future **business digital marketplace**. Such a marketplace will include technology, services, knowledge, business, financing demands and offers and may act as catalyst for the sector growth.

4. A preliminary assessment of the potential of the sector to grow to the level of a cluster with interfaces with other related business sectors is needed to investigate, analyse and potentially establish the need to set up such a cluster. A guarded approach to cluster formation is preferred to the riskier upfront cluster determination, unless the sector exhibits a clear maturity level at a large scale. In the former case, the regional authorities can foresee such a **preliminary study for a few selected sectors of interest**. Clearly, cluster formation for each priority sector is not a recommended path to follow, however, if the analysis demonstrates a clear sustainable cluster potential, or if the sector is sufficiently mature to embark on clustering, the region could foresee the facilitation of the **cluster formation and operation**, through the ROP funds. Overall, clustering is recommended only as a two stage process (a) through an initial feasibility study (b) through the actual cluster formation for intervention priorities for which evidence is provided for clear and sustainable potential. For the second stage, if appropriate, the path to follow could foresee wider cross-regional or cross-border cluster synergies. For example, a more sustainable cluster may be formed in tourism, or wine, if cross-border synergies are forged and a similar case may apply in other priority sectors.

5. While the four sector introductory talks included explicitly or implicitly pointers to ICT innovation contribution for each sector, it is of interest for the better exploitation of the regional innovation potential to provide stakeholders stimulus for the take up of such relevant opportunities. A preliminary analysis focusing on the EDP ideas, as elaborated further at the Project Development Labs (PDL) phase, is provided in Deliverable 5, *Methodology for the participatory part of the PDLs in order for stakeholders to make the most of IT tools in their collaboration and enabling business internationalisation.* Thus, further recommendations for each one of the EDP/PDL ideas outcomes, regarding ICT adoption are provided.

D2. Report on the main lessons learned and the innovative ideas proposed during the EDP workshop stream that the contractor has participated

Highlighting the mapping of the industry and knowledge sector and their application in RIS3

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ATHENA Research and Innovation Centre

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1 Introduction

The Region of East Macedonia - Thrace (REMTh) is the target of a European Parliament Preparatory Action (EPPA) launched in September 2014 and aimed at providing support towards implementing its RIS3 Strategy. This is a project undertaken and implemented by the Institute for Prospective Technological Studies (IPTS) of the European Commission's Joint Research Centre (JRC), with the cooperation of DG REGIO and active support and involvement of REMTH's Managing Authority and the support of independent experts.

Two key actions of the EPPA is to provide support for the regional entrepreneurial discovery process (EDP) and further elaborate it by means of organizing Project Development Labs (PDL).

The report, commissioned by IPTS/JRC in the framework of the EPPA, constitutes a preliminary assessment of the industry sector of non metallic minerals (lime/marble) in REMTHh with a view to identify ICT Enablers and their potential applicability and impact for product, process and overall business innovation in this important regional sector.

It offers a high level overview of issues regarding the sector at EU national and regional level, highlighting key innovation thrust and detailing potential ICT contribution across four main sector-related process activities, across the business chain.

In this sector, some opportunities exist for improving efficiency, streamlining and better networking businesses and exploiting relevant data value chains, with the introduction of a range of ICT enablers. This deliverable outlines these opportunities and cross-examines them in relation to the EDP process, in order to identify lessons learnt, regarding the proposed innovative ideas of the industry and knowledge sector in REMTh and their application for the RIS3.

2 The Marble Sector Landscape in the EU

The EU Strategic Innovation Partnership on Raw Materials has published a Strategic Implementation Plan in 2013[7], highlighting overall challenges, intervention priority areas and specific actions, considering both technology and non-technology pillars. Technology pillars include production technologies, covering the whole production lifecycle from excavation and mining to processing and recycling, whereas non-technology pillars are relevant to improving framework conditions, targeting the knowledge and information infrastructure base, improving workforce knowledge and skills and enhancing cooperation along wider value chains.

Focusing on the non-metallic minerals sector, it comprises primarily the production of cement, ceramics, glass, and lime. According to EUROSTAT the non-metallic minerals sector in the EU comprised 102.3 thousand enterprises in 2010, employing 1.3 million persons which, which amounts to 1.0 % of all the persons employed in the non-financial business economy and 4.5 % of the total number of persons employed in manufacturing. It generated 64.3 billion of value added, equivalent to 1.1 % of the non-financial business economy total and 4.0 % of the manufacturing total.

When considering cement, lime and plaster, Spain is the largest producer with just over a quarter of EU's total value added, with Romania featuring as the most specialized producing country. The broader sector is characterized by a very strong presence of SMEs, which comprise over twice as many jobs and value added compared to large enterprises. [8]

The processing of raw material in this sector involves **energy-intensive processes** and raises issues linked to **environmental protection and sustainability**. They are considered to be of high importance for the EU for a number of reasons:

- Their output includes a vast range of products, from construction products, to consumer goods, such as glass, tableware and decorative goods.

[7] Strategic Implementation Plan for the European Innovation Partnership on Raw Materials, 2013.

[8] Source: EUROSTAT: Key size class indicators, manufacture of other non-metallic mineral products

- Industry is characterised by a mix of large enterprises, medium-sized companies and SMEs, especially in parts of the lime industry and ceramics
- Sector-related products accounted for roughly 5% of the EU outputs until 2006.
- Employment figures from 2013 indicate the more than 1 million people are employed in the sector.

Energy consumption is among the prime concerns for lime production, **accounting for roughly 50% of total production costs**. Furthermore, investment in production machinery is very costly. Considering the scale of investment, any interventions aimed at enhancing efficiency in this sector should take a longer term view and target higher performance in terms of machinery and physical assets utilization, as well as resources utilization.

The innovation pace in the sector is relatively low. Involving heavy machinery for quarries work, but also partially in processing, is linked also to heavy demands in powering all involved physical machinery assets. Furthermore, being energy consuming, relevant production processes tend to produce significant CO2 emission and thus environmental footprint. When considering the whole quarry, environmental issues are raised in several ways beyond CO2, from stone processing waste management, to whole area restoration needs, considering the large-scale soil removal of the excavation process.

The EU has introduced guidelines on establishing the **Best Available Techniques** (BAT) in the sector, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the production of cement, lime and magnesium oxide (9.4.2013 Official Journal of the European Union L 100/3). These techniques deal with:

- Environmental management systems
- Noise
- Monitoring
- Energy consumption
- Consumption of limestone
- Selection of fuels
- Dust emissions

- Gaseous compounds
- PCDD/F emissions
- Metal emissions
- Process losses/waste

The main thrust of innovation in the EU industry is considered to be in line with expectations to involve recommended BATs. Specifically, the lime/marble sector **innovation push** is centered around the increased **use of wastes** as an alternative to raw materials and fuels, the **development of new products** targeting energy and CO2 efficient buildings and **adaptation to climate change**[9].

3 Non-Metallic Minerals and Marble in Greece and REMTh

In Greece, the sector is ranked high among the export-oriented national sectors. Specifically, it has risen from 47th to **31st highest from 2013 to 2014 in terms of overall export value**[10] with the industry having repositioned itself to exports, following the heavy decline of the national construction sector in recent years[11]. Marble total production in volumes was just below 10 million tonnes in 2011, as reported by the same source. Noticeably, **just over 10% of this tonnage is converted to directly tradable products, whereas the rest is considered waste**. This highlights a great need for devoting effort not only towards the actual marble and marble products processes, but also towards the waste produced both in the primary activity (quarries) as well as during processing.

Despite the crisis, the sector remained dynamic, supported by a strong-redirection of production towards exports, exploiting some of the unique qualities of the national product (colour, physico-mechanical properties). The largest export markets are in China, Middle East and USA, with EU being a smaller comparatively speaking market. The total export value at

[9] Source: http://ec.europa.eu/growth/sectors/raw-materials/industries/non-metals/index_en.htm

[10] Source: Hellenic Statistical Authority (EL.STAT.)

[11] Source: Hellenic Statistical Authority (EL.STAT.) and YPEKA ministry

national level was exceeding 210m€ in 2012, with approximately half of it being directed towards China. At the same time imports were at the level of 30 m€ (Figure 3)[12]. On the downside, exports towards China primarily relate to unprocessed marble, with the processing done in China. Therefore, exports are at the low end of the marble value chain.

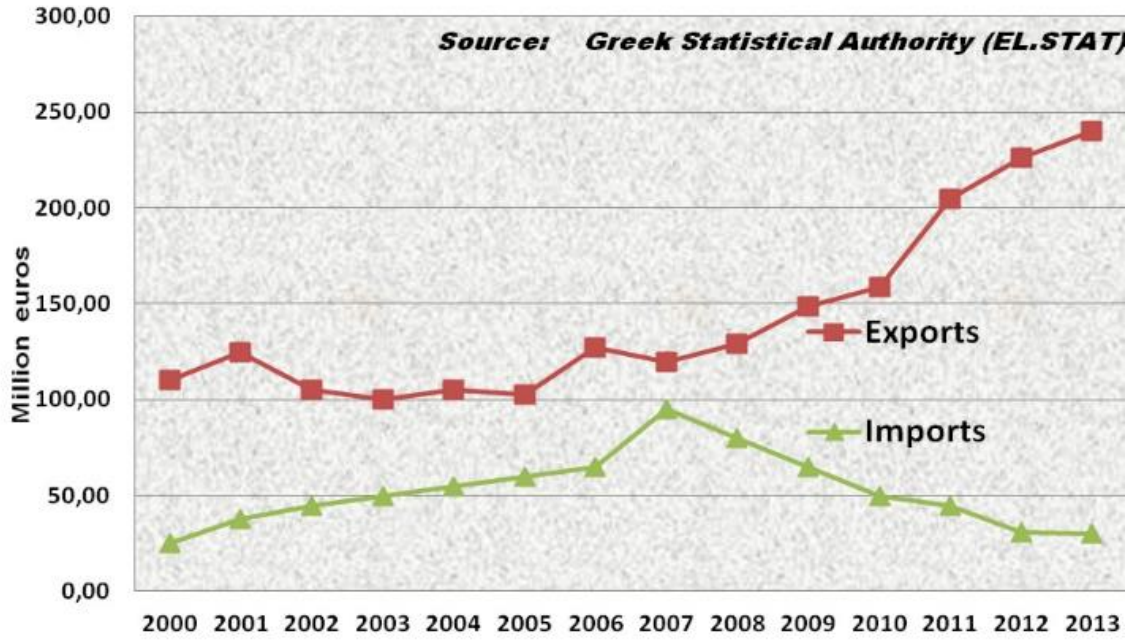

Figure 3. Marble Exports and Imports Trends in Greece

The Region of East Macedonia-Thrace is among the top performers in the sector at the national level, with strong quarries presence primarily in the areas of Drama and Kavala (including Thassos) and processing industries closely linked to them. The latest figures from 2014 point to more than 50 actively operating quarry sites in the region, employing between 4.000 - 5.000 people.

Having the largest share at national level, REMTh also has the largest share in marble waste, specifically over 75% of the national waste, with no other region exceeding 10% (Figure 4)[13].

[12] Source: Tzeferis, P.G., (2013), The mining/metallurgical industry in Greece. Commodity review for years 2012-2013

[13] Source: YPEKA, Current Status on Waste Management, 2013

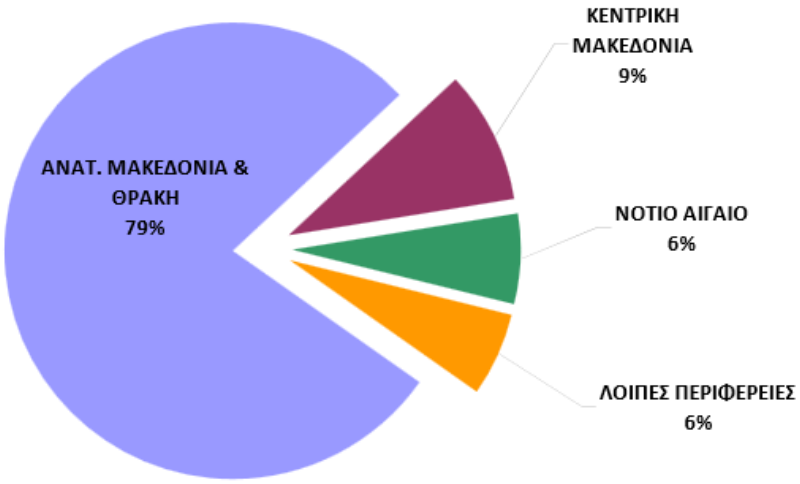

Figure 4. Marble Waste in REMTh and Other Greek Regions

The next section looks into the innovation prospects in the non-metallic minerals production sector in the Region of East Macedonia - Thrace, focusing on marble production, with a view to identify opportunities for **ICT-enabled innovation**.

4 Cross mapping of non metallic minerals enterprise and knowledge sectors

The present analysis is a result of a high level overview of relevant literature and industrial practice, regarding the Non-Metallic Minerals sector in Europe, Greece and the Region of East Macedonia - Thrace, with the view to pinpoint potential usage of ICT tools as innovation enablers. While it is by no means neither exhaustive nor precluding other possible innovation opportunities, it offers a broader perspective on the ICT-enabled opportunities for improving product, process and overall business efficiency in the sector.

It is followed by two further deliverables which take into account the EDP output on Non-Metallic Minerals: the first seeks to take into account generic competence mapping included in this report in order to tailor it to the prospective ideas / partnerships of the EDP process, by first identifying key lessons learn and second to make an initial assessment of the ICT needs and opportunities which may facilitate the further elaboration of the ideas in the forthcoming project development labs.

The industry associated with marble mining and processing is typically viewed as **heavy industry** with limited use of ICT across the business process stages, from the initial mining to the final integration of marble-related processed products or by-products to final end use. When considering the **whole lifecycle** of stone and marble industry products and by products for the built environment, one can consider three main processing phases and one additional parallel area of activities:

- **quarrying**, where the original mining and initial stone cutting process takes place
- **processing**, where the stone is further cut and processed
- **end use** in construction, both for processed stone or stone by-products
- **other**, wherein activities deal with heritage aspects of quarry sites, marble processing and marble products or art

Each of these phases have specific business processes needs and technical process characteristics, while also involving additional processes, including relevant supply chain integration issues.

From the ICT perspective, the flow of data and information, from the field level of data generation and control actions, up to the level of providing actionable decision support or enabling intra or inter-business transactions and collaboration, would constitute opportunities for introducing technological innovation. **Improved data value chain integration can bring opportunities for closer co-operation and more efficient business processes across stakeholders operating within the marble production business chain.**

In most cases, ICT may enable more efficient intra-organisation and B2B processes, while when considering end use, B2C opportunities also emerge. Finally, the social dimension of other possible interventions, such as site restoration and re-purposing of quarries after the end of their useful life, fully or partially, can create additional business and valorisation opportunities beyond what is strictly viewed as the typical marble value chain, including industrial heritage valorisation prospects.

When considering the marble mining and processing industry sector, the introduction of ICT technologies is an innovation enabler, which can achieve higher impact within a multi-disciplinary perspective, facilitating the integration of different knowledge and competences contributions. From mining and risk management, to production planning and logistics, from environmental monitoring to waste management, re-use and re-purposing and from different marble types products to diverse customer end - use, bringing together the necessary knowledge, production and process competences is either necessary or at least likely to be more effective.

A high-level cross-mapping of industry and knowledge sector potential synergies, having also ICT as adopted enablers is seen in Table 2. Methodologically, this follows the main identified marble production processes (primary, processing, end use, other) and places potential ICT contribution according to the author's perception of such potential, whereas citing relevant literature for processes, ICT usage, supported function, expected benefits/prospects and other knowledge supply synergies. It does not seek to offer an exhaustive literature and/or innovations review, but merely a stimulus towards wider penetration of ICT innovation in the sector.

Table 2. Cross Mapping of Non Metallic Minerals Enterprise and Relevant Knowledge Sectors

Processes	ICT enablers usage	Supported Function	Benefits / Prospects	Other Knowledge Synergies
Primary				
Quarry Processes **Site Selection - Quarry Design** **Geotechnical Study** **Drilling / Blasting** **Excavation, Loading, Hauling, Dredging** **Cutting** **Polishing / Finishing** **Screening** **Classification / Separation** **Drainage Management** **Crushing** (Hebhoub et al., 2011) (Aliabdo et al., 2014) **Environment Protection** **Site Restoration** (Simón-Torresa et al., 2014)	Sensing Technology (machinery sensing, remote sensing) and Monitoring Systems (integrating sensing, data processing and condition assessment) (Francioni et al., 2015, Koruyan et al., 2012) (Abellán et al., 2014) Secure Computing and Networking UAV (unmanned aerial vehicles) (Francioni et al., 2015) TLS (terrestrial laser scanning) (Francioni et al., 2015, Abellán et al., 2014) DTP (digital terrestrial photogrammetry) (Francioni et al., 2015) Satellite imaging (Koruyan et al., 2012) Imaging, Photogrammetry & Laser Scanning support software suites (Francioni et al., 2015, Koruyan et al., 2012, Abellán et al., 2014, Hofmann et al., 2011) Geotechnical information systems and Geodata (Francioni et al., 2015) Stress/geological and kinematic	Quarry / Slopes Risk Monitoring & Assessment (Koruyan et al., 2012, Abellán et al., 2014) Machinery Condition Monitoring Environmental Monitoring & Protection (Koruyan et al., 2012, Eco-Stone, 2012) Quarry Equipment Operation and Maintenance Performance Monitoring (Eco-Stone, 2012) Geodata and Geodata-related Services Availability for Improved Planning of Access to Raw Material Quarry Data Management and Provenance, supporting Product Traceability and Quality Assurance (Hofmann et al., 2011)	Quarry Performance Enhancement Improved Sustainability and Environmental Efficiency (Gazi et al., 2012) (Hanieh et al., 2014) (Henriques and Catarino, 2015) (da Fonseca et al., 2013, Eco-Stone, 2012) Risk and Accidents Reduction / Occupational Health Improvement (Ersoya and Yesilkaya, 2014, Abellán et al., 2014) Waste Management and Valorisation (Rajgor and Pitroda, 2013) Improved Reliability and Reduced Maintenance Costs Product and Product Data Provenance to	Physico-Chemical Measurements / Analysis (Aliabdo et al., 2014) (da Fonseca et al., 2013) (Hofmann et al., 2011) Surveying Geology, Geotechnical Engineering & Mining Stress / Kinematics Environmental Engineering / Sensing (Eco-Stone, 2012) Sustainable Value Business Mapping / Modelling (Hanieh et al., 2014) (Henriques and Catarino, 2015) B2B Business Collaborations Maintenance and Asset Management Energy Modelling and Management

Orders Management **HR training and management** **Other Business Processes** **Site Restoration**	simulation (Francioni et al., 2015) Environmental and sustainability information systems (Hanieh et al., 2014, Eco-Stone, 2012) Multi-facet data modelling and GIS mapping, including 3D mapping (Francioni et al., 2015) Reporting Automation & Quarry Management Information System LCA tools (Eco-Stone, 2012) CAD/CAE Tools (Eco-Stone, 2012) Computerised and Mobile Maintenance Management System Tracking and auto-identification technologies (e.g. with RFID sensing). ICT and Automation in Quarry Wastewater Treatment	Quarry Stone & Quality Characterisation Support H&S Management (Ersoya and Yesilkaya, 2014) HR Training (Henriques and Catarino, 2015) Reporting Lifecycle Management (Eco-Stone, 2012) (Hanieh et al., 2014) On Demand Production	Business and Customers - Marketing and Quality Assurance Impact Lean Production Improved Physical Assets Utilisation Improved Resources Utilisation	(Hanieh et al., 2014, Eco-Stone, 2012)
<u>Loading and Transportation</u> **Load Out** **Weighing** **B2B Processes** **Transportation**	Automation in Load Out / Weighing Tracking Automation ICT in Logistics and Fleet Management (Inventory and SCM processes) optimization B2B Customer Order Management ICT-enabled, Augmented Support / Training (Henriques and Catarino, 2015)	Cranes / Loading Machinery Monitoring Logistics Planning, Tracking and Optimisation Supply Chain Optimisation Inventory Control HR management/ technology enhanced	Load Out Management and Time Reduction Inventory Reduction Shipping Costs Reduction Performance Monitoring, Management and Improvement	Logistics Supply Chain Management Automation Optimisation & OR Education and training (Henriques and Catarino, 2015)

	ICT-enabled Product Provenance Support	training (Henriques and Catarino, 2015) Loading & Transportation Data Management and Provenance, supporting Product Traceability and Quality Assurance		
Processing				
Unloading & Crane Loading **Block / Slabs Cutting** **Tile /Countertop Cutting, Carving** **CNC / Waterjetting / Sandblasting / Sawing** **Crushing** (Hebhoub et al., 2011) (Aliabdo et al., 2014) **Sorting & Packaging** **Shaping / Treating / Aging / Resin Processing** (Engin, 2013) **Collecting, Managing and Processing of Powder/Slurry Waste** (Hebhoub et al., 2011) (Aliabdo et al., 2014) (André et al., 2014) (Rana et al., 2015)	Sensing Technology for Condition Monitoring Sensing Technology of Occupational H&S and for Environmental Protection Tracking Automation and Warehousing Imaging for Inspection and Quality Control / Defect Detection / Characterisation (Skarlatos and Bakolias, 2010) Automation including Imaging for Slab Classification Physico-chemical measurements and analysis data management and decision support (Careddu et al., 2014) ICT-enabled Product Provenance Support Web-based B2B and B2C functions / orders and purchases	Production Management Maintenance and Operations Management Product Classification and Sorting (Skarlatos and Bakolias, 2010) Automation in Handling, Loading, Conveying, Transporting Inventory Management Product Data Provenance and Quality Assurance (Hofmann et al., 2011) (Skarlatos and Bakolias, 2010) H&S, Risk Management HR management/ technology enhanced training	Production Performance Improvement Enhanced Quality Assurance (Skarlatos and Bakolias, 2010) Improved Resources Utilisation Enhanced Physical Assets Utilization Improved Health and Safety and Risk Management Efficient Waste Management (Careddu et al., 2014) (Rana et al., 2015) (Eco-Stone, 2012) Enhanced Sustainability and Environmental Protection (Gazi et al., 2012)	Manufacturing and Production Management Asset and Maintenance Management Physico-Chemical Measurements / Analysis (Aliabdo et al., 2014) (Rana et al., 2015) (da Fonseca et al., 2013) (Engin, 2013) (Hofmann et al., 2011) (Sounthararajan and Sivakumar, 2013) Civil Engineering & Architecture Energy Modelling and Management (Hanieh et al., 2014) Environmental Engineering / Sensing

(da Fonseca et al., 2013) (Rajgor and Pitroda, 2013) (Sounthararajan and Sivakumar, 2013) (Amit and Singh, 2013)	Performance and Energy Efficiency Monitoring Systems (Eco-Stone, 2012) Automation and Monitoring in Waste Crushing Automation in Waste/Slurry Recovery, Disposal and Management/Re-purposing ICT-enabled, Augmented/ Mobile Support / Training (Henriques and Catarino, 2015) CAD/CAM software for Marble Components Production (Eco-Stone, 2012) Software for Process Planning Optimisation ICT-enabled B2B and B2C product promotion with VR and personalized IT solutions and regional branding support (linkage with heritage / natural resources) Production Line Automation with Software-Supported Optimization	Process Planning Energy Efficiency (Gazi et al., 2012) (Eco-Stone, 2012) Environmental Protection and Sustainability (Henriques and Catarino, 2015) (Rana et al., 2015) (Eco-Stone, 2012) Improved B2B and B2C business chains Waste Recovery, Disposal and Management/Re-purposing (André et al., 2014) (Hebhoub et al., 2011) (Aliabdo et al., 2014) (Careddu et al., 2014) (Rana et al., 2015) (Domopoulou et al., 2014) (Sounthararajan and Sivakumar, 2013) Wastewater Treatment Production Processes Optimisation On Demand Processing	(Hanieh et al., 2014) (Henriques and Catarino, 2015) (Rana et al., 2015) (Eco-Stone, 2012) (Amit and Singh, 2013) Energy Efficiency (Gazi et al., 2012, Eco-Stone, 2012) Transparency Opportunities from Waste Management Business Chains (Amit and Singh, 2013)
Retailers, Product End Use & Waste Resources Processing			

Integration of wholesaler-Retailer-End User Chain **Building / Construction Use** **Energy - Efficient Product Utilisation in Building / Construction** **Reclaim and recycle construction waste (Uygunoglu et al., 2014)**	ICT B2C / B2B solutions for procurement, aided by Information System and Imaging Repository (includes CBIR) Automation and Monitoring in Building / Construction Use ICT Tools for Re-cycling and Re-use Optimisation ICT-supported Logistics in Waste Collection and Management Wireless Networking and Auto-Identification Technology Computer & Networking Security	End Use Supply Chain Integration Web-based Product Preview and e-Procurement Digital Product Data Integration in End Use Software Suites (e.g. for architecture/building - BIMs, 3D modeling etc). Re-purposing of Waste for other use (e.g. other construction / cement material) (Uygunoglu et al., 2014) (Domopoulou et al., 2014)	Streamlining B2B and B2C relationships Enhanced Product Personalisation Improved Efficiency in End-Use Waste Re-cycling / Re-use (Uygunoglu et al., 2014)	Civil Engineering & Architecture Business / Management Supply Chain Management Physico-Chemical Measurements Technology (Aliabdo et al., 2014) (Hofmann et al., 2011) (Domopoulou et al., 2014)
Other Processes				
Site Restoration and Re-Use **Industrial Heritage & Museums**	Augmented Reality / Virtual Reality for experience enhancement Mobile Guidance and Content Support Web Store for Bookings and Gifts Multimedia & Narratives Platforms Support ICT-supported Learning Miniature Museum Gifts / 3D gifts Wireless Networking and Auto-Identification Technology Privacy Preserving / Secure Computing and Networking	Restored quarries and mills as industrial heritage museums with multiple functions Improved Visit Experience Learning Experience	Value-Adding Tourism Services New Business Opportunities Regional Human Capital Valorisation / Employment Multi-Use for Functions, Events, etc	Museum Management / Museology Industrial Heritage Education and Training Tourism Management

The way to read this table is as follows:

The column "Processes" points at the non-minearals processing stage, ie, primary (quarrying), secondary (processing), end use and additional (ie not belonging directly to the primary marble processing lifecycle).

The column "ICT enablers usage" refers to the different ICT technologies and tools which are applicable for each processing stage. For example, in the primary stage sensing technology (machinery sensing, remote sensing) and monitoring systems (integrating sensing, data processing and condition assessment) can be employed to monitor process or production machinery safety or efficiency, while other technologies such as UAVs, TLS, DTP can be employed to produce geospatial data to be handled by geotechnical information systems.

The marble industry function which can be supported by the introduction of such enables is listed under the column "Supported Function". For example, the monitoring enablers listed in the previous column support functions such as Quarry / Slopes Risk Monitoring & Assessment, Machinery Condition Monitoring, Operation and Maintenance, as well as Environmental Monitoring & Protection, while Geodata and Geodata-related Services can support Improved Planning of Access to Raw Material.

The way the support function can benefit by the introduction of such ICT enablers is listed in the "Benefits/Prospects" column. For example, the aforementioned enablers when applied for quarry and equipment monitoring can lead to Quarry Performance Enhancement, Improved Sustainability and Environmental Efficiency, as well as Risk and Accidents Reduction, Occupational Health Improvement and Waste Management and Valorisation.

Finally, ICT technologies are enablers, which are applicable in synergy with other knowledge fields. These are listed under the column " Other Knowledge Synergies". Specifically, in the examples earlier mentioned, the ICT enablers together with Physico-Chemical Measurements / Analysis, Surveying, Geology, Geotechnical Engineering & Mining and Environmental Engineering / Sensing can jointly contribute to bringing the foreseen benefits.

5 EDP Process and Innovative Ideas

The EDP Process was clustered around two main areas of potential interventions, namely:

1) **Research and innovation for energy and environmental optimisation of the marble value chain;**
2) **Management of marble quarries and aggregates: waste and environmental impacts.**

Specifically, the following ideas proposed during the EDP process, fall under the first category of ideas:

Research and innovation for energy and environmental optimisation of the marble value chain

EDP4WG1P1 Geological and Geophysical Research in Marble Quarries; Underground Mining Equipment: To identify promising, in terms of quality, marble reserves and to support the transition to underground marble mining. Link to Table 1: Primary Section.

EDP4WG1P2 Integrated interventions for energy efficiency in quarries and marble processing facilities. Perform energy audits; implement "fast wins" by training employees; optimise processes and for minimum power consumption; replace inefficient equipment; introduce renewable energy sources at quarries; introduce environmental management systems. Links to Table 1: Primary and Processing Sections.

EDP4WG1P3, EDP4WG2P1 Development and Diffusion of know-how on reusing quarry and marble processing residues and scrap. Process / management of marble debris and residues. This might include e.g. debris recycling, uses of by-products in areas like 3D printing, or in the construction industry (manufacture of synthetic marble, or chippings) or use in organic cleaning of urban waste as soil improver / fertilizer or even production of new materials. Link to Table 1: Primary Section.

EDP4WG1P4 Clustering across the marble value chain: Capitalise the uniqueness of the regional marbles to create a strong regional brand and promote it to international markets. Integrate the regional tradition of marble processing with cultural tourism initiatives. Undertake joint R&D efforts to optimise processes and explore new product development. Link to Table 1: Clustering may involve wide-ranging activities across all 4 areas (Primary, Processing, End Use, Other).

The proposed ideas, which were relevant to the management of marble quarries and aggregates: waste and environmental impacts were as follows:

EDP4WG2P1 (see also EDP4WG1P3)

EDP4WG2P2 Restoration of marble quarries. Explore novel ideas for quarry restoration, (apart from standard ones like tree planting), such as creating leisure areas, open theatres, and others. Link to Table 1: Other processes.

EDP4WG2P3 Planning / coordination of access to the raw material. Introducing a reinforcing cycle of planning of access that would enable better use of scarce sites and sources, which would be combined with incentives on restoration (like with guarantees) and change of land-use for the purpose of restoration. This would lead to better and smoother exploitation of marble sources and sites. Link to Table 1: Primary Section.

6 Lessons and Recommendations

The proposed ideas can in general benefit from the adoption of the Best Available Technologies in the sector. A detailed analysis with respect to each contributed idea and the relevance of ICT innovation to it was performed as part of the PDL-1 process and is presented in " D3. 1st Report on REMTh's Industry sector mapping to support R&D collaboration between industry /manufacturing and the scientific community, ie "Project Development Labs" - Task 2b - Part 1" for the selected priority sectors. Specifically, while the EDP process aim was to identify, following a bottom - up approach, potential ideas and synergies leading to business innovation, further elaboration of the EDP results was planned as part of the PDL process.

In some cases, ICT and other competence and knowledge domains may already be visible elements in the stakeholders planning. In other cases the PDL process can be utilized to trigger such additional synergies, in order to increase the impact potential of possible new endeavours. Whereas it is not the intention of the present report to prescribe potential multi-disciplinary synergies, acknowledging their potential, as suggested by the proposed Industry and Knowledge Sector Synergies mapping, can serve in the direction of triggering more inter-

disciplinary interventions and achieve improved integration of efforts along the extended marble sector value chain. While focusing on the non-metallic minerals in this report, a further processing of ideas during PDL1 and PDL2 phases offers the opportunity to trigger such extended synergies.

Although the breadth of potential ICT usage in the sector is significant **the baseline of ICT innovation adoption is unclear** and a further study, with enterprise participation, is required to establish it**.** Significant automation, sensing and hardware-integrated software solutions are currently integrated in employed machinery operating in quarries or marble production/processing facilities. However, this is typically proprietary and hard to integrate with external or additional information systems, with the exception of few cases of information systems employed for managing quarries or production facilities. Generally speaking, investors are likely to be rather conservative in making investment decisions, considering that among the prime concerns are requirements for operating under harsh overall operating conditions. The financial downturn of Greece has only made entrepreneurs more risk averse, albeit directing them also to look into export markets. Performing the expected function is high on the agenda, given the associated operational risks, however, leaving space for further process efficiency optimisation.

The extent of data value chain integration in the sector is perceived as limited. The overall capacity to produce higher added value products and services is linked to the adoption of the recommended Best Available Technologies. For some of them, especially for Environmental Management Systems, Monitoring, Energy Consumption and management of various types of waste and emissions, the ability to measure, transmit, store, manage and exploit what is measured is likely to be of critical importance for innovation success.

While this generally holds for the broader non metallic-minerals sector, focusing specifically on marble, additional ICT adoption opportunities exist. Among the EDP process goals was to offer the opportunity for a first level mapping of the demand (or expectations) for business innovation, including knowledge competences for achieving such innovation. Considering the low baseline for data value chain integration in the sector, a sensible target for the RIS3 and associated ROP intervention targets could be to offer stimulus for advancing this level of

integration. Depending on the targeted beneficiary this could be achieved in multiple ways, which may be taken into account by REMTh's MA in the ROP detailed design, as well as in the Evaluation and Monitoring criteria and procedures:

Governmental beneficiaries. Prioritising the development of open geodata repositories to facilitate improved planning for resources. Encourage environmental, physico-chemical and other sensing, data collection, processing and management and make available data in open digital platforms, which may serve involved stakeholders.

Private sector beneficiaries. Provision of incentives for investment plans which incorporate aspects of data value chain management and seek to enlarge and enhance business chain integration. End to end seamless access to resources and product information, from the quarry site, till the retailer which offers customisation options to individual customers can be facilitated with relevant ICT platforms.

Knowledge production sector beneficiaries. Provide stimulus to the knowledge production sector to demonstrate a better alignment of offerings to the sector demands (e.g. through relevant innovation or services vouchers, human capital mobility, etc).

Collaborative projects. In Research and Innovation actions, plan for improved capacity and exploitation of the potential to offer services, knowledge transfer or joint projects with private sector stakeholders. These may include research and innovation actions of relatively High Technology Readiness Level and joint private-public endeavors, through networking or competence centers to form a more distinct critical competence mass with the right mix of private entities and knowledge production organisations, such as educational institutions and research centres, with links also outside the region.

Each of the aforementioned potentially targeted interventions carries significance in raising the overall innovation and business performance capacity of the sector. Nonetheless, it is the right mix in stirring activities in all of them together that is likely to produce a more lasting impact, leading to longer term sustainability.

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D3. 1st Report on REMTh's Industry sector mapping to support R&D collaboration between industry /manufacturing and the scientific community, ie "Project Development Labs" - Task 2b - Part 1

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7 Introduction

The Region of East Macedonia - Thrace (REMTh) is the target of a European Parliament Preparatory Action (EPPA) launched in September 2014 and aimed at providing support towards implementing its RIS3 Strategy. This is a project undertaken and implemented by the Institute for Prospective Technological Studies (IPTS) of the European Commission's Joint Research Centre (JRC), with the cooperation of DG REGIO and active support and involvement of REMTH's Managing Authority and the support of independent experts.

Two key actions of the EPPA is to provide support for the regional entrepreneurial discovery process (EDP) and further elaborate it by means of organizing Project Development Labs (PDL).

This report, commissioned by IPTS/JRC in the framework of the EPPA aims to reflect upon the key contribution of ICT to regional growth. In tandem with the EDP and PDL processes, it seeks to highlight opportunities by ICT-driven innovation in REMTh's priority areas along with other competence and knowledge areas. It includes an outline of the EDP outcome with respect to ICT contribution towards the proposed ideas, as processed after the first stage of the Project Development Lab process and before further stakeholders engagement during the second stage.

Specifically, the document looks into the ideas proposed during the EDP workshops, as further analysed during PDL1, so as to highlight already proposed or potential ICT contribution and elaborate the planning towards RIS3-related ROP interventions.

8 Methodology

The methodology of the analysis was as follows:

1. each one of the ideas put forward during the EDP was examined, as elaborated during the first stage of the PDL process (http://s3platform.jrc.ec.europa.eu/ideas-for-pdl2)
2. The results of "D2. *Report on the main lessons learnt and the innovative ideas proposed during the EDP workshop stream that the contractor has participated*" were taken into account
3. Linkage with overall ICT-enabled innovation opportunities, as identified in "*D1. Report based on quantitative analysis tools to prepare a preliminary assessment of the industry sector in REMTh*" was established
4. Identification of existing ICT contribution, as proposed at the EDP process
5. Highlighting additional opportunities to incorporate ICT enablers

9 EDP and PDL1 Outcome in Relation to ICT-enabled Innovation

Having considered the overall landscape with respect to the Digital Research Agenda (*D1. Report based on quantitative analysis tools to prepare a preliminary assessment of the industry sector in REMTh and Ex-Ante Preliminary Assessment of ICT Enablers*) and the more detailed analysis of the potential for ICT-driven innovation in the marble sector (*D2. Report on the main lessons learnt and the innovative ideas proposed during the EDP workshop stream that the contractor has participated*), the focus of this report is on the first stage Project Development Lab (PDL) process, comprising a summary of lessons learnt and the innovative ideas proposed and highlight the mapping of the industry and knowledge sector in REMTh and their application for the RIS3 with respect to the sectors needs and potential for ICT-driven innovation.

The objective is to pinpoint potential ICT contributions, either explicitly expressed during EDP, or even if they were not part of the consideration, during the EDP workshops, so as to highlight the prospects for exploiting such opportunities. The potential ICT contribution could then be further triggered in and after the second stage of the PDL process and the consequent RIS3 implementation through the formation of relevant Innovation and Entrepreneurship Networks (IENs) and by seeking to participate and benefit from the implementation of the ROP. To this end, each resulting EDP idea is cross-examined to include prospective ICT contribution potential.

Specifically, for each idea, the main required knowledge/competence synergy, as initially mapped by the EDP process is provided, together with the potential ICT innovation contribution, as suggested by the present study, taking into account the EDP discussions and current opportunities and specifically the *D2. Report on the main lessons learnt and the innovative ideas proposed during the EDP workshop stream that the contractor has participated* for the non-metallic minerals sector [14]. An aggregate ICT priority characterisation is provided, essentially providing a rough indication of the importance of specific ICT contributions indicated in the "Suggested ICT" column in achieving each specific idea's objectives.

[14] The outline of the EDP outcomes are made available through the corresponding JRC EPPA reports and relevant content was recorded by M. Metaxas, Y. Tolias, E. Amanatidou, Y. Kesanlis and C. Emmanouilidis.

9.1 Wine

The wine sector comprises a rich business and multi-disciplinary knowledge landscape. Wine sector clustering experiences in Italy, Australia, Chile, Spain, USA and other countries have in many cases adopted ICT as a key innovation driver[15][16].

Climate soil & water	Viticulture	Wine science	Production & distribution	Consumer
Climate change Sustainability Irrigation and water resources Efficient water use Salinity Root zones Soils Rootstocks Canopy management Agrochemicals	Sustainable production Viticultural management Reproductive biology Grapevine genetics Water relations Agrochemicals Vine physiology and nutrition Berry development and metabolism Flower and fruit set Fruit quality, flavour and aroma Pests and diseases Pathology Abiotic stress Waste management	Wine microbiology Wine chemistry Grape and wine analysis Metabolomics and systems biology Yeast and fermentation Wine quality Authenticity Trouble shooting and problem solving	Winemaking technology Process engineering and development Processing aids Micro-, small- and pilot-scale winemaking Efficient manufacturing (lean, environmental and carbon) Effective packaging Project management Distillation technology Sustainable production Waste management	Wine quality Sensory science Consumer preferences Consumer science Wine and health Wine marketing Regulatory
Rapid Analytical Techniques				
Risk management and modelling				
Information, communication and knowledge technologies management and dissemination				
Global markets and economic modelling				
Sustainability, LCA analysis and Management				

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Table 3. Wine Value Chain Enterprise and Knowledge Mapping

(adapted from www.wineinnovationcluster.com)

The inner wine sector supply chain includes business activities in grapegrowing, winemaking, logistics/distrbution, retailing and consumption. Each one of the aforementioned activities have their own additional business interfaces. For example, grapegrowing inputs come from seedings, rootstocking, fertilisers and chemicals and involves land management, viticulture practice, irrigation and harvesting. Core winemaking activities include the grapes collection, crushing, winemaking, blending, laboratory testing and storing, supported by wine making recipes, bottling, labeling, packaging, storage and waste management. Retailing includes storage, merhandising and waste returns management. At the consumer end, apart from the individual consumer, business-level consumption (restaurants, entertainment, etc) are also considered.

The wine sector receives vertical knowledge contributions from climate soil & water science and engineering, viticulture and overall wine science and technology, as well as from production, distribution and consumer - oriented management. Horizontal contributions are made through analytical techniques, Risk management and modelling, information, communication and knowledge technologies, global markets and economic modelling, as well as sustainability and lifecycle analysis and management [17] (Table 3). The sector is increasingly benefitting from the **introduction of ICT solutions throughout the business value chain**. This includes ICT to support precision viticulture mechanisation, monitoring and vineyard system management, mapping and geo-spatial information systems usage, to production and production technologies support, information systems for decision support, logistics, as well as B2B and B2C solutions, Furthermore, businesses benefit from data, services and supply chain integration, whereas traceability support, product lifecycle management solutions, sustainability and lifecycle analysis support and data value chains exploitation opportunities are offering further innovation potential.

During the EDP process of REMTh's EPPA several ideas were put forward and discussed among participants. Only a few of the contributed ideas incorporated ICT innovation elements. They are summarised in Table 4. Each idea is accompanied by the knowledge mapping produced as a

[17] Source: http://www.wineinnovationcluster.com

result of the EDP focus group and further supplemented by suggested ICT contribution, as part of the present report.

ID	Idea	Knowledge Mapping	Suggested ICT	ICT Priority (L/M/H)*	TO2[18]
	WG1: Research and innovation focusing on technological improvements in wine.				
EDP1WG1P1	Local wine grape varieties 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.	Specialised molecular biologists, plant pathologists and viticulture specialists for collection and description (both ampelographic and molecular). Nursery facilities to assure the propagation and delivery of the planting stock. Laboratories specialised in grape and wine chemical analysis will be needed for the definition of the varietal character (for both existing and promising varieties). Tasting panels must be assembled and trained. Viticulture and oenology experts to plan and implement experimental protocols and evaluate the results to maximise varietal potential. Grape growers and wine producers in the region will participate by providing vineyards and wineries for experimental	ICT Contribution not explicitly foreseen	N/A	N/A

[18] reference to ICT-oriented thematic objective 2: (a) refers to networking access infrastructure; (b) refers to Digital Growth - oriented application and services development for e-commerce and e-businesses; and (c) refers to ICT applications and services for e-government, e-learning, e-inclusion, e-culture and e-health.

		implementation (experimental vineyard blocks, micro-vinifications).			
EDP1WG1P2	Vineyard network with GIS tools. 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	Organisation (e.g. Regional Authority and/or association of producers) to assume overall 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 to complement the task force of the action.	ICT Contribution explicitly foreseen: GIS tools and exported services GIS content provisioning Sensors Integrated sensing, data transmission, collection and management Application development and service provisioning based on available geo-data	H	2a, 2b
EDP1WG1P3	Indigenous microbiota for local wines 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 characteristics and performance in experimental and pilot plant scale fermentations. The wines will be examined through chemical, sensory, microbiological and molecular analyses.	Local grape and wine producers constitute the final beneficiaries. Research activities will be based on research institutes of domains relevant to the action proposed	ICT contribution not explicitly considered. Some potential lies with the use for data management/mining & pattern recognition techniques for data analytics.	L	2a, 2b

EDP1WG1P4	Prevention of Dekkera Brettanomyces bruxellensis 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.	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	ICT contribution not explicitly foreseen. Some potential may exist in viticulture mechanisation monitoring and vineyard system management, mapping and geo-spatial information systems usage	L	2a, 2b
	WG2: Research and innovation focusing on by-products of grapes and wines				
EDP1WG2P1	Energy from wine 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.	- A research organisation to assess the energy producing efficiency of the grape/wine/tsipouro byproducts 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.	ICT contribution not explicitly foreseen. Some potential exists in employing monitoring and control solutions, as well as in process optimisation for different stages of the proposed processes.	L	2b
EDP1WG2P2	Food Supplements and Cosmetics 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	- 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.	ICT contribution not explicitly foreseen ICT may contribute towards supply chain integration, optimisation and control of processing and for B2B, B2C and	L	2b

	by-products; (b) setting up a low capacity plant to extract useful substances from by-products and (c) establishing a distribution network.	- 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.	marketing.		
EDP1WG2P3	Organic fertilizers from tsipouro The so-called "giparta", the key by-product of the tsipouro-distilling process, is an organic residue rich in N2 that can be used as a low-cost organic fertilizer.	- 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. - A lab to certify the final product	ICT contribution not explicitly foreseen. ICT support tools are applicable to the lab certification process and potentially in controlling and optimising processing.	L	2b
EDP1WG2P4	Animal feeds from wine by-products 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.	Not specified	ICT contribution not explicitly foreseen. ICT support tools are applicable to the lab certification process and potentially in controlling and optimising processing.	L	2b
EDP1WG2P5	Tsipouro-based Liqueurs The idea is about bringing to the market tsipouro-based liqueurs flavoured by pomegranate, dogwood berries, honey or similar local produce. Tsipouro itself is	Collaborative partnership of 'amateur distillers' that would collectively produce and market such liqueurs using a pre-specified protocol.	ICT contribution not explicitly foreseen. ICT may contribute towards supply chain integration,	M	2b

	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.	Local orchard growers and beekeepers would be an essential part of the partnership.	optimisation and control of processing and for B2B, B2C and marketing.		
	WG3: Research and innovation related to green energy and the environment in the wine sector				
EDP1WG3P1	Local varieties & local histories 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 gastronomic 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.	Local communities with local culture Restaurants Research bodies & educational institutions Wine specialists, producers Social media specialists IT users	ICT contribution not explicitly foreseen ICT may contribute towards supply chain integration, especially linking the wine sector with tourism. Additional contribution could be applicable to B2B, B2C and marketing.	H	2a, 2b, 2c
EDP1WG3P2	Wine gastronomy culture entertainment Combination of wine – gastronomy – entertainment and culture (including, sports, local customs, art, etc.) at the	Engagement of the Greek Tourism Organisation is necessary as well as of local authorities for promotion, also restaurants, alternative tourism sector, social enterprises	ICT contribution not explicitly foreseen ICT may contribute towards linking the	M	2a, 2b, 2c

	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.	(KOINSEP); initiatives should be co-funded by the private sector too.	wine sector with tourism.		
	WG4: Research and innovation in wine tourism				
EDP1WG4P1	Branding regional wines 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.	Wine producers Cultural bodies Hotels Restaurants Tourist organisations was acknowledged as critical for the success of the partnership.	ICT contribution not explicitly foreseen ICT can contribute towards product traceability and linkage with local history and culture to support branding	H	2a, 2b, 2c
EDP1WG4P2	Wine-Gastronomy Cultural Tourism The idea is related to the previous one (branding regional wines). 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.	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.	ICT contribution not explicitly foreseen ICT may contribute towards supply chain integration. Additional contribution could be applicable to B2B, B2C and marketing.	H	2a, 2b, 2c
EDP1WG4P3	Wine value chain cluster 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	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	ICT contribution not explicitly foreseen Wine clusters in various countries have been successful in raising the overall sector potential, especially counting on	H	

	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.	entities, marketing support, management and logistics.	ICT contribution. End to end contribution (from the vineyard to the customer) can be more effective through clustering.		

Table 4. Wine sector EDP ideas and knowledge mapping

* H/M/L indicates High/Medium/Low priority (estimates) for proposed ICT enablers, ie the extent to which the suggested ICT contribution is critically important for the implementation of the proposed idea

9.2 Dairy and Meat

Within the REMTh enterprise sector, dairy and meat production holds a substantial share of the regional GDP. With extensive farmlands in the region, significant goat, sheep and to a lesser extent cattle and pig livestock is present. Dairy industry has a strong presence across the geographic area of the region. The inner business value chain in dairy and meat is similar to the one shown in Figure 5 for cattle.

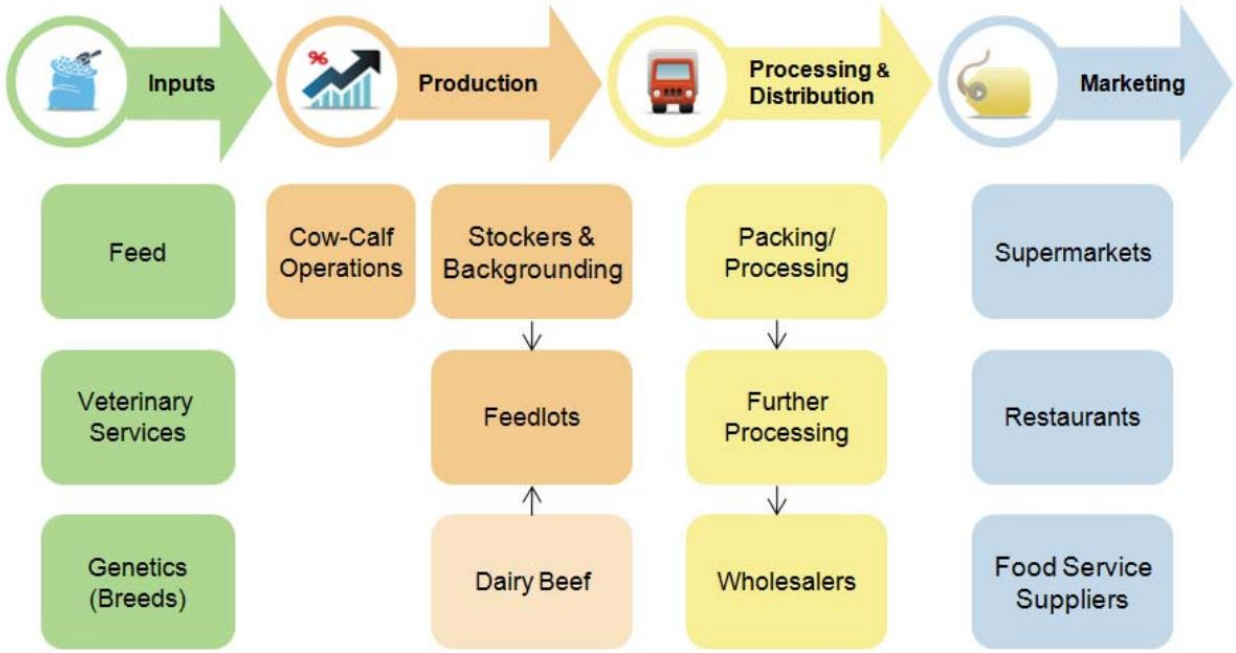


Figure 5. Simplified Dairy industry Value Chain [19]

Dairy industry in the region has witnessed a technology-enabled modernisation in recent years, increasing production efficiency. Nonetheless, the sector still needs targeted interventions to tackle animal disease and end to end commodity handling and logistics, from farm to the table. During the EDP process, several ideas were contributed both from larger and smaller producers, as seen in Table 5. Each idea is accompanied by the knowledge mapping produced as a result of

[19] Source: Lowe, M., and Gereffi, G., (2009), A Value Chain Analysis of the U.S. Beef and Dairy Industries, Report Prepared for Environmental Defense Fund, Center on Globalization, Governance & Competitiveness, Duke University, February 16, 2009

the EDP focus group and further supplemented by suggested ICT contribution, as part of the present report.

ID	Idea	Knowledge Mapping	EDP Suggested ICT	ICT Priority (L/M/H)*	TO2
	WG1: Research and innovation in animal husbandry				
EDP2WG1P1	Cluster for animal husbandry and agriculture 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.	farmers (for fodder) breeders (for the livestock) financial institutions (for the capital) education institutes (from knowledge and research) development agencies (for consultancy services).	ICT contribution not explicitly foreseen Geo-spatial information systems and ICT/RFID for livestock tracking, supported by predictive modelling. Data mining for disease management and efficiency optimisation support. ICT-enabled Farm management (e.g. automated feeding, climate monitoring and control, biosensor for disease monitoring). ICT-enabled whole chain traceability and logistics support.	M	2a, 2b, 2c
EDP2WG1P2	Genetic mapping and genetic improvement 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	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.	ICT contribution not explicitly foreseen ICT and data management/processing support for animal genomics and nutri-genomics	L	2a, 2b, 2c

	genetic material) for each animal breed.				
EDP2WG1P3	Inter-community supporting farming production short supply-chain from consumer to producer This idea refers to establishing collaboration with neighbouring regions in Bulgaria. The aim would be to increase transnational sales for animals and products but also to create support structures for coaching, mapping and training activities. Another aim is to raise awareness of local communities about local gastronomy. This can be the activity of networks of consumers – users – families – restaurants, etc. These networks would facilitate exchange of information across communities as well as visits to production places or even practice community-based farming (based on the model of community – based agriculture).	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.	ICT contribution not explicitly foreseen Collaborative and socially-enabled platforms for networking communities of producers-consumers and support brokerage of demand/offer.	M	2a, 2b
EDP2WG1P4	Completion of vertical integration - slaughter houses in small farms 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.	The partnership is focused at small farms and producers.	ICT contribution not explicitly foreseen Geo-spatial information systems and ICT/RFID for livestock tracking, supported by predictive modelling ICT-enabled Farm management (e.g. automated feeding, climate monitoring and control, biosensor for disease	M	2a, 2b

			monitoring). ICT-enabled whole chain traceability and logistics support. ICT-enabled slaughterhouse automation		
	WG2: Food processing technologies				
EDP2WG2P1	Religious certifications of meat and meat products 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).	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.	ICT contribution not explicitly foreseen	-	-
EDP2WG2P2	Production of certified traditional meat products and their promotion via marketing innovations 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	- 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 net-work 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	ICT contribution not explicitly foreseen ICT to support end to end B2B and B2C solutions ICT-enabled certification processes Product promotion with ICT innovation, including learning and gaming	M	2a, 2b

	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.	national and international markets. The key partners 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 the core certification scheme.			
EDP2WG2P3	Innovative technologies in producing local non-pig meat products with improved conservation ability The idea is about developing innovative meat products characterised by improved conservation ability by exploring dehydration or natural antibacterial substances or traditional preservation methods.	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.	-	-	-
	WG3: Research and innovation in dairy products				
EDP2WG3P1	Development of certification system for dairy products based on local characteristics The idea is about developing innovative meat products characterised by improved conservation ability by exploring dehydration or natural antibacterial substances or traditional preservation methods.	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	ICT contribution not explicitly foreseen ICT-enabled certification processes Sensing/bio-sensing, measurement technology and analytics support for certification and optimisation of production processes and dairy	M	a,b

		equipment to implement the process at an industrial scale.	products Integration of IT-enabled solutions in meat production equipment		
EDP2WG3P2	Sustained and integrated promotion of local, traditional food systems from authentic microbial cultures The idea refers to the isolation and identification of 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; - Wild isolated strains lab/bank; - Application for international patents; products/outputs commercialization.	- 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.	ICT contribution not explicitly foreseen ICT and data management/processing support for animal and animal feeding genomics and predictive analytics	M	a, b, c
EDP2WG3P3	Development of functional products based on local dairy products 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	- HEI Research Institutes (for example department of Molecular Biology or Environmental Engineering). - Local small and medium scale SME's of manufacturing of dairy products - Specialised consultants	ICT contribution not explicitly foreseen ICT and data management/processing support for animal and animal feeding genomics and predictive analytics ICT-enabled production technologies	L	a, b

	food sector. Possible exploitation of by-products should be further investigated, since they present a high market potential.				
	WG4: Organic meat and dairy products and sustainable production				
EDP2WG4P1	Dairy meat sectors clusters 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	Different partner groups include animal farmers, slaughterhouses and local/regional authorities.	ICT contribution not explicitly foreseen Geo-spatial information systems and ICT/RFID for livestock tracking, supported by predictive modelling. Data mining for disease management and efficiency optimisation support. ICT-enabled farm management (e.g. automated feeding, climate monitoring and control, biosensor for disease monitoring). ICT-enabled whole chain traceability and logistics support. B2B and B2C solutions for products and by-products	H	2a, 2b, 2c
EDP2WG4P2	Research and/or implementation of new technologies and methodologies for producing value added products The idea is about the development of new technologies or implement new	Different partner groups include gastronomy/culinary professionals, actors of the tourism sector (hospitality professionals, restaurants) food producers, certification support service providers, cultural	ICT contribution not explicitly foreseen ICT-enabled automation of different production process stages.	M	2a, 2b

	production methodologies in order to innovate at traditional production processes (e.g. cheese bags) or new added value products (e.g. ariani with honey). The idea's main goals are: - Regional characteristics exploitation (e.g. ethnic traditions, regional natural environment/herbs, regional herds, culinary/gastronomy traditions, etc.); - Implementing modern marketing techniques to capture niches with recorded price premiums.	organisations and of course producers (individual, collaborative, companies).	Collaborative, socially-enabled and B2B, B2C platforms and solutions for product channeling, distribution and sales.		
EDP2WG4P3	Energy production from animal waste The idea is about the production of biogas (and other forms of energy) from animal waste and its exploitation. The idea's main goal is the implementation of an environmentally friendly alternative energy production.	Different partner groups include animal farmers, environmental/energy technical companies/professionals and energy producers.	ICT contribution not explicitly foreseen ICT-enabled simulation, optimisation and LCA decision support. Sensing and automation support in energy production, management and distribution	M	2a, 2b, 2c
EDP2WG4P4	Development of a network for collecting and management of data on milk and dairy production chain 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	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.	Geo-spatial information systems with environmental, soil and other measurement data, Modeling to support decision support and optimisation across the whole production chain. disease monitoring). Integration with logistics and support for traceability.	H	2a, 2b, 2c

	platform would also assist Regional policy making.				

Table 5. Dairy and meat sector EDP ideas and knowledge mapping

* H/M/L indicates High/Medium/Low priority (estimates) for proposed ICT enablers

9.3 Tourism

The tourism sector ecosystem is extremely broad. Considering the stakeholders directly involved in the business value chain, one may primarily focus on travel organising and booking, transport, accommodation, food & beverages, the local points of interest (assets), local tour organising and leisure activities and related support services (Figure 6).

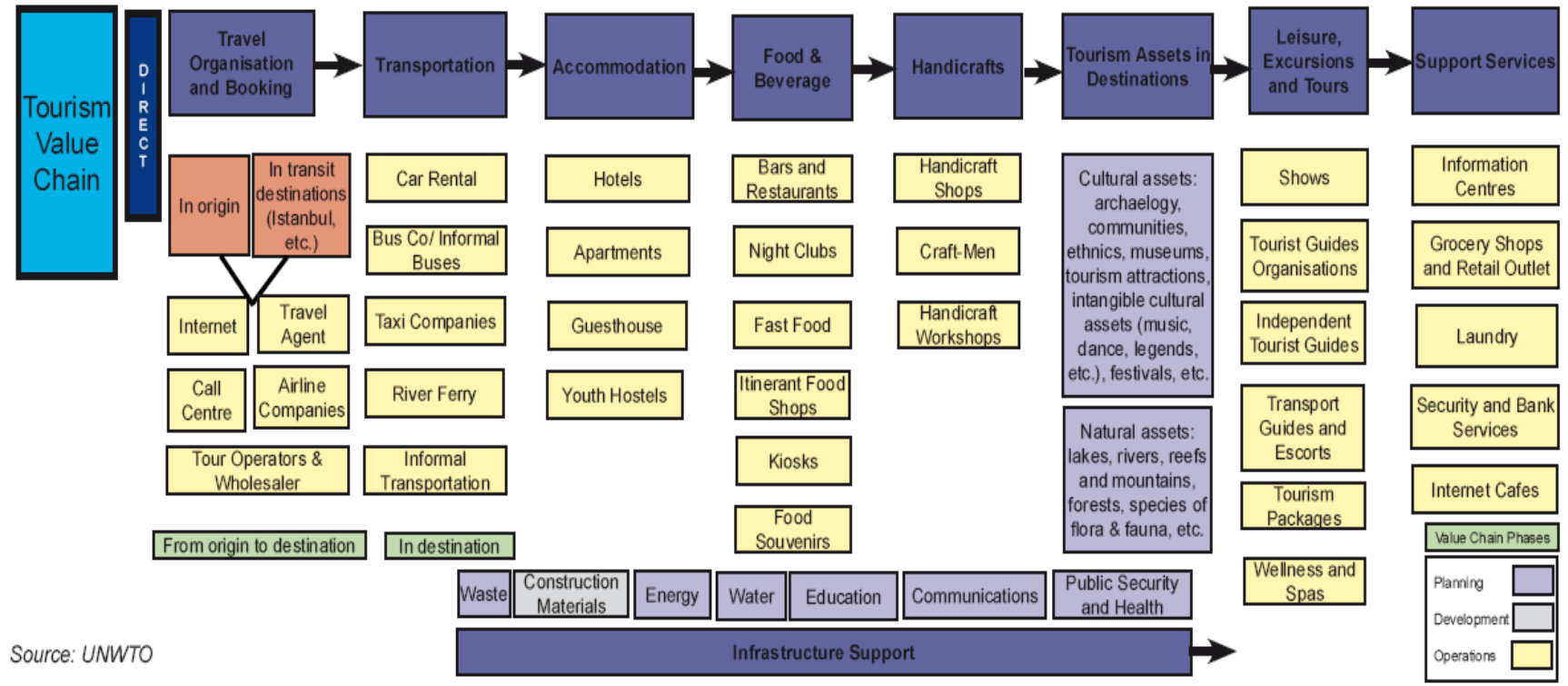
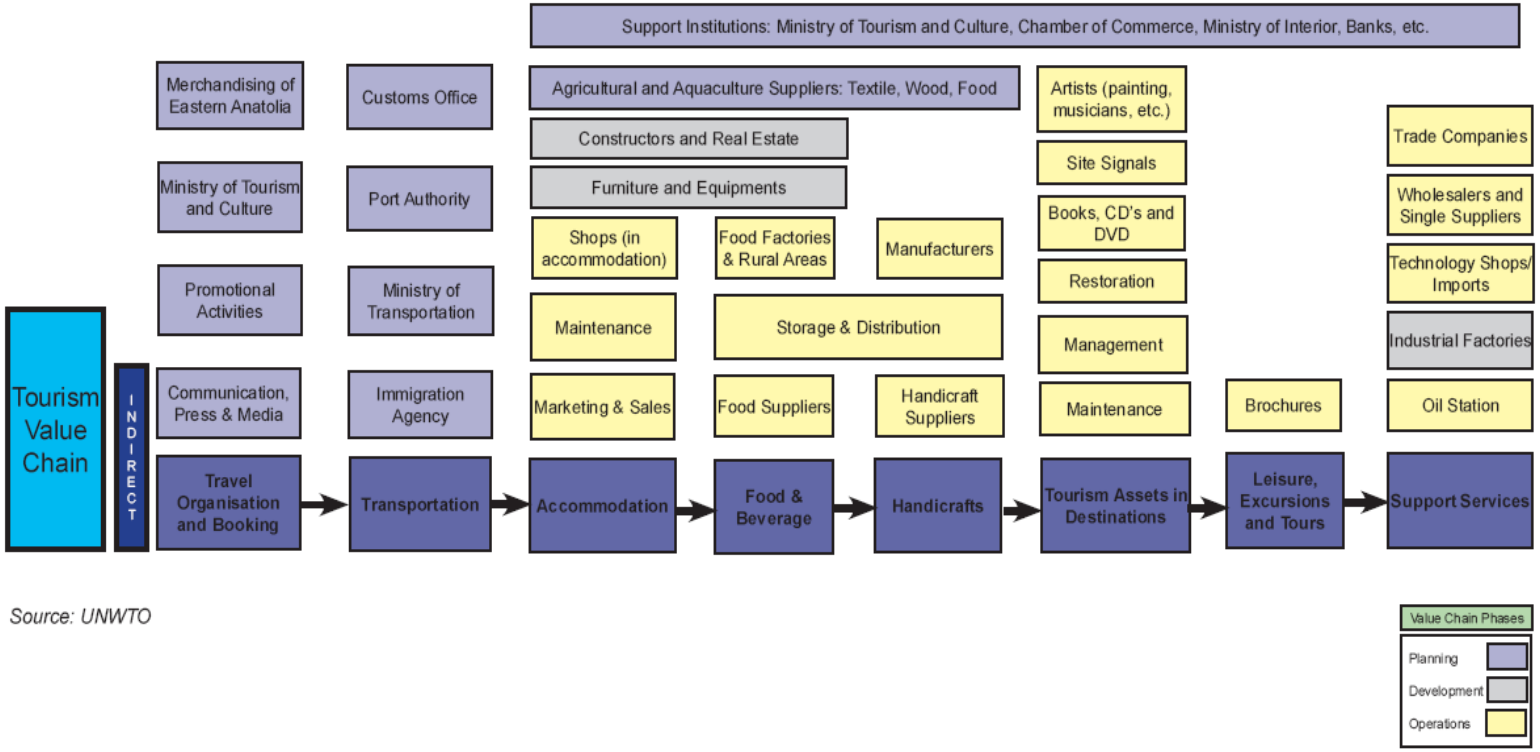


Figure 6. Stakeholders directly involved in the tourism value chain



Source: UNWTO

Figure 7. Stakeholders indirectly involved in the tourism value chain

If the wider range of businesses associated with tourism are considered, taking also into account indirectly involved stakeholders, many additional actors can be considered for each one of the main constituents of the tourism business value chain (Figure 7). The potential ICT contribution in most such businesses is rapidly increasing and in the global tourism landscape is quite pervasive. During the EDP process of REMTh's EPPA a strong ICT element was present in many of the contributed ideas. They are summarised in (Table 4), wherein each idea is accompanied by the knowledge mapping produced as a result of the EDP focus group and further supplemented by suggested ICT contribution, as part of the present report.

ID	Idea	Knowledge Mapping	EDP Suggested ICT	ICT Priority (L/M/H)*	TO2
	WG1: 4 seasons tourism				
EDP3WG1P1	Improve Eco-Tourism and Nature Activities in the region The idea is about improving the infrastructure in support of eco-tourism and nature activities (hiking, climbing, bird-watching, mountain bike, hunting, camping, 4x4 racing, herbal tourism, etc), especially within the boundaries of the Region's four National Parks.	Partnership would involve the majority of the stakeholders of the tourism value chain. The Managing Authorities of the Region's four National Parks are needed to establish and enforce region-wide, common rules and terms for what types of activity are permitted within National Park. Entrepreneurs will design, market and implement outdoor activities in line with the framework imposed by the National Park MAs and share with them a part of their revenues. Finally the Regional Administration could intervene so that the aforementioned parties reach a win-win agreement.	ICT contribution not explicitly foreseen Digital tools with media-rich content and specialised trail/hiking maps and GPS support Linkage with e-tourism and booking services Educational tools (etc e-learning, gaming, 3D experience, etc) to promote eco-tourism and nature activities, especially for children and young adults Multi-lingual and speech-enabled support Distributed remote sensing and monitoring infrastructure for improved environmental protection	H	2a, 2b, 2c
EDP3WG1P2	Αξιοποίηση Τουριστικής Υποδομής για Εναλλακτικές Χρήσεις κατά τη χαμηλή περίοδο The idea is about organising off-season cultural and athletic events to extend the touristic season. Rehabilitation	To implement the idea, all stakeholders in the regional tourism value chain should contribute, including: Regional government and municipalities, hoteliers, Chambers of commerce, the Physical	ICT contribution not explicitly foreseen Digital platform to promote and support off-season events with social media presence and booking services linkage	M	2b, 2c

	tourism is included within the specific concept.	Education and Sports Dept. of Democritus Univ. Thrace, local sports associations and teams. The implementation of this idea would benefit from an organisation that would co-ordinate tourism activities at the prefectural level.	Multi-lingual and speech-enabled support		
EDP3WG1P3	Regional/local tourism organisation The idea is to establish a regional organisation for managing and coordinating the touristic Product (s) in the region.	To implement the idea, all stakeholders in the regional tourism value chain should contribute, including: municipalities and the regional government, hoteliers, managing bodies of National Parks, tourist agents, chambers of commerce, networks of local food/beverage producers and Higher Education Institutions	ICT contribution not explicitly foreseen A range of media-rich and 3D-enhanced tools to promote offerings Digital platform with marketplace support for individual products and services ICT support to link with bookings and purchases services	H	2a, 2b, 2c
	WG2: Tourism and cultural heritage				
EDP3WG2P1	Innovative management of cultural heritage The idea is about the exploitation of local cultural assets with the implementation of innovative digital tools and applications in order to create new forms/models of business applications within the tourism industry. The proposed idea would contribute: (a) to increase the level of publicity and awareness on REMTh rich cultural heritage, (b) to promote education	The following key partners are needed to implement the idea: - Regional/local bodies that are responsible for the management of cultural heritage assets - Entrepreneurs from the creation industries - ICT companies and social media experts - Social groups/organisations that can support the idea by implementing new forms of social innovation.	Digital heritage tools (for museum, exhibition spaces, archaeological sites etc) Educational, e-learning and gaming tools Digital and creative tools offering media and 3D-rich experience Multi-lingual and speech-enabled support	H	2a, 2b, 2c

	among tourism stakeholders on cultural tourism and (c) to add value to REMTh visitors' experience.		Digital content creation and dissemination platforms Geospatial and time-based navigation, tourism recommender systems, itinerary planning and guidance support tools Linkage with social digital tools		
EDP3WG2P2	ICT based applications for thematic itineraries The idea is about the formation of solid co-operation among the components of the triple helix for the creation of modern ICT based applications for thematic itineraries. The proposed idea would assist: (a) to improve the capabilities of professional touristic guides, (b) to apply the concept of personalised guides based on specific touristic interests and (c) to establish a Destination Management Organization with the participation of both public and private sector.	The following key partners are needed to implement the idea: - Public bodies and Academia to assist with the legal aspects and the open data issues respectively - The private sector in order to establish the desired Destination Management Organisation	Geospatial and time-based navigation, tourism personalised recommender systems, itinerary planning and guidance support tools Digital content creation, storytelling support and dissemination platforms Multi-lingual and speech-enabled support Educational, e-learning and gaming tools Digital and creative tools offering media and 3D-rich experience Linkage with social digital tools	H	2a, 2b, 2c
	WG3: ICT and tourism				
EDP3WG3P1	Personalised digital tourism services The idea is about the creation of platform to exploit currently available	For the effective implementation of the project the participation of the following groups is required: ICT contributors	Geospatial and time-based navigation, tourism personalised recommender systems, itinerary planning and	H	2a, 2b, 2c

	digitised repository and offer innovative services like visit planning & execution, aid/guidance, promotion/advertisements, wherein a provider can plug or make available individual services, with a participatory operating model to support business sustainability.	(academic/research and private organisations), hospitality professionals/hotels, marketing professionals, NGOs and local/regional cultural organisations, tourism consulting and professionals.	guidance support tools Digital content creation and dissemination platforms Content harvesting tools Multi-lingual and speech-enabled support Educational, e-learning and gaming tools Digital and creative tools offering media and 3D-rich experience Linkage with booking and purchase support platforms. Advertising and digital signage support Linkage with social digital tools		
EDP3WG3P2	Development of high added value digital tools for key tourism sectors The idea is about the development of high added value digital tools for hospitality and food/gastronomy businesses & professionals with a range of offered end products and services to support quality personalised experience. Main expected outcomes are: - The support of smart building management, with multiple targets, including energy efficiency and comfort	The following key partners are essential to implement the idea: - Engineering/technical companies and professionals - ICT contributors (academic/research and private organisations) - Regional/local producers of food / gastronomy products.	Integrated solutions for facilities sensing, monitoring and management, with smart energy and HVAC management and digital services and media control Supply chain linkage with local producers and one-stop solution for accessing information, making purchases and bookings	H	2a, 2b, 2c

	optimisation for hotel facilities - The creation of personalised services targeting regular visitors (for example professionals) and supporting visit and preferences data recording and management - The support of basic information provisioning tailored to food/gastronomy offerings and used also by hospitality services units		Information collection, management and personalised recommendation support for hotel residents Multi-lingual and speech-enabled support Ubiquitous e-menu services support and facility integrated e-menu provisioning, integrated with a network of local producers, chefs and other providers Advertising and digital signage support Linkage with social digital tools		
EDP3WG3P3	Digital business innovation in tourism The idea refers to a horizontal intervention that will incorporate regional-level data recording and management, innovation awards and destination management services. This can offer multi-stakeholder educational support for improving tourism services and acceleration services for innovative business ideas.	There is a need for engagement from different stakeholders groups. The most important are: - Regional/local producers - Tourism industry / professionals/service providers - Regional public authorities and organisations - Cultural organisations - Research/academia community.	Digital marketplace for offering tourism related products and services Clustering and brokerage of services, including acceleration support for new ventures Digital observatory of business innovation in tourism Multi-lingual and speech-enabled support, including business - oriented language Social media support	H	2a, 2b, 2c

			Horizontal services provisioning (market push, supply/business chain support, financial and legal support services, educational services and training, etc)		
	WG4: Gastrotourism				
EDP3WG4P1	Regional culinary centre The idea is about the formation of a regional culinary centre to develop local cuisine capabilities in accordance with key tourism objectives (through a PPP). The idea's main goals are: - To set a Regional Quality Agreement for all the actors of the value chain of agro-food and tourism. - To enhance the aspect of collaboration with neighbouring regions. - To increase the involvement of citizens within the establishment of gastronomy - tourism projects. - To develop a platform that might combine local ingredients with recipes towards exchange of information on local cuisine (especially Med cuisine).	Different partner groups may contribute to the project accordingly: - Local/Regional authorities would assist for the initial set-up and the administration tasks - Agrofood producers for the necessary supplies - Research and Education for setting quality protocols - Entrepreneurs (mainly hoteliers and restaurant owners) to follow main strategy and promote the concept	ICT contribution not explicitly foreseen Digital integration and brokerage services platform hosting culinary offers and receiving service requests Digital media content for promotion Multi-lingual and speech-enabled support Socially-enabled tools, reaching out to both ordinary citizens and businesses to attract offers and supply to create/satisfy demand Map-based and multilingual tools to integrate cross-border offerings and satisfy/serve cross-border demand	H	2b, 2c
EDP3WG4P2	History and cuisine synergy and collaboration The idea is about the creation of a structure to design a gastronomy-	Different partner groups including municipal/regional authorities, gastronomy/culinary professionals (hospitality professionals, restaurants),	ICT contribution not explicitly foreseen Digital integration and brokerage services platform	H	2b, 2c

	tourism strategy that will influence the touristic promotion of the region. The idea's main goals are: - To associate history and cuisine - the (re)creation of ancient regional and more recent history and cuisine - Fusion of different cuisines (Greece, Turkey, Bulgaria, etc.) - The promotion of local dishes associated with local myths, recipes, etc. and connect the above with famous chefs, local events etc. - The organisation of a competition of gastronomic city of the region with a relevant awarding scheme - The development of tourist destinations connected to the agro-food value chains	producers of local food and wind/spirit products, local HEI departments, research centres (history, anthropology, gastronomy), training facilities.	hosting culinary offers and receiving service requests Digital media content for promotion of linkage between history and culinary traditions Multi-lingual and speech-enabled support Socially-enabled tools. Map-based and multilingual tools to integrate cross-border offerings and satisfy/serve cross-border demand		

Table 6. Tourism sector EDP ideas and knowledge mapping

* H/M/L indicates High/Medium/Low priority (estimates) for proposed ICT enablers

9.4 Non Metallic Minerals

The EDP Process was clustered around two main areas of potential interventions, namely:

1) Research and innovation for energy and environmental optimisation of the marble value chain;

2) Management of marble quarries and aggregates: waste and environmental impacts.

Both these areas of potential interventions are in line with the perception of where the main Innovation Thrust in the sector currently is (see *D1. Report based on quantitative analysis tools to prepare a preliminary assessment of the industry sector in REMTh*"). They can also benefit from the adoption of the Best Available Technologies in the sector. More details are provided in the following table, wherein each idea is accompanied by the knowledge mapping produced as a result of the EDP focus group and further supplemented by suggested ICT contribution, as part of the present report.

ID	Idea	Knowledge Mapping	EDP Suggested ICT	ICT Priority (L/M/H)*	TO2[20]
	WG1: Research and innovation for energy and environmental optimisation of the marble value chain				
EDP4WG1P1	*Geological and Geophysical Research in Marble Quarries; Underground Mining Equipment*: To identify promising, in terms of quality, marble reserves and to support the transition to underground marble mining. *Expected outcome*: Considerable	- Universities/Research Centres with relevant experience in Geology & Geophysics would provide detailed underground profiles to identify promising quarry sites. - Municipal governments would	Sensing/Remote Sensing Technology TLS, DTP, Sensing/Remote Sensing Technology Geotechnical information	L L H	2b

[20] reference to ICT-oriented thematic objective 2: (a) refers to networking access infrastructure; (b) refers to Digital Growth - oriented application and services development for e-commerce and e-businesses; and (c) refers to ICT applications and services for e-government, e-learning, e-inclusion, e-culture and e-health.

	improvement in the efficiency of the marble extraction process: from 12-15% in open quarries and 15-25% in underground quarries to 30%.	speed-up and optimise the licensing process. - Regional and/or national government would provide financial incentives for the industry to switch to underground extraction of marble.	systems and Geodata Stress/geological and kinematic simulation Multi-facet data modelling and GIS mapping, including 3D mapping	M M	
EDP4WG1P2	*Integrated interventions for energy efficiency in quarries and marble processing facilities*. Perform energy audits; implement "fast wins" by training employees; optimise processes and for minimum power consumption; replace inefficient equipment; introduce renewable energy sources at quarries; introduce environmental management systems *Expected outcome*: Power consumption optimisation can lead to overall cost reduction of 6% (~ € 7 million / yr) for the entire sector in Kavala and Drama; this can be further increased by introducing renewable energy sources (i.e., solar or wind) close to the quarries.	- Specialised service providers perform energy audits in quarries, mines and processing facilities to identify "fast wins" and propose changes in processes and equipment. - Enterprises train their employees on energy saving; modify their processes to achieve "fast wins"; invest in new machinery and/or equipment; invest in renewable energy sources. - Regional government provides financial incentives for replacing low efficiency equipment / machinery; this can be linked to reduced CO2 emissions actually achieved.	Environmental and sustainability information systems (inc. energy) Reporting Automation, Quarry Management and Production Management Information Systems LCA tools Computerised and Mobile Maintenance Management System Tracking and auto-identification technologies (e.g. with RFID sensing). ICT and Automation in Quarry Wastewater Treatment ICT-enabled, Augmented Support / Training	H M M L M L H	2b, 2c
EDP4WG1P3, EDP4WG2P1	*Development and Diffusion of know-how on reusing quarry and marble processing residues and scrap*. Process / management of marble debris and residues. This might include e.g. debris	Not provided	Sensing Technology for Condition Monitoring Sensing Technology of Occupational H&S and for	L M	2b, 2c

	recycling, uses of by-products in areas like 3D printing, or in the construction industry (manufacture of synthetic marble, or chippings) or use in organic cleaning of urban waste as soil improver / fertilizer or even production of new materials. *Expected outcome*: Reduce unprocessed waste or residues; More value-added for quarries and marble processing plants;		Environmental Protection Tracking Automation and Warehousing Imaging for Inspection and Quality Control / Defect Detection Physico-chemical measurements and analysis data management and decision support Web-based B2B and B2C functions / orders and purchases Automation and Monitoring in Waste Crushing Automation in Waste/Slurry Recovery, Disposal and Management/Re-purposing ICT-enabled, Augmented/ Mobile Support / Training e-training for quarry and marble processing residues and scrap management	M M H M H H H H	
EDP4WG1P4	*Clustering across the marble value chain*: Capitalise the uniqueness of the regional marbles to create a strong regional brand and promote it to international markets. Integrate the regional tradition of marble processing with cultural	Not provided	*Note*: Clustering is a large-scale intervention. Potentially all identified ICT enablers are applicable here.	H	2a, 2b, 2c, (also 3d)

	tourism initiatives. Undertake joint R&D efforts to optimise processes and explore new product development. Expected outcome: More exports; improved profitability; sustainability.				
	WG2: Management of marble quarries and aggregates: waste and environmental impacts				
EDP4WG2P1	See EDP4WG1P3				
EDP4WG2P2	*Restoration of marble quarries*. Explore novel ideas for quarry restoration, (apart from standard ones like tree planting), such as creating leisure areas, open theatres, and others. *Expected outcome*: Creating new economic activity in quarry sites; Overcome standard restoration requirements imposed by environmental legislation.	Not provided	Augmented Reality / Virtual Reality for experience enhancement Mobile Guidance and Content Support Web Store for Bookings and Gifts Multimedia & Narratives Platforms Support ICT-supported Learning Miniature Museum Gifts / 3D gifts Wireless Networking and Auto-Identification Technology Privacy Preserving / Secure Computing and Networking	H H H M H M M H	2a, 2b, 2c
EDP4WG2P3	*Planning / coordination of access to the raw material*. Introducing a reinforcing cycle of planning of access that would enable better use of scarce sites and	Not provided	UAV, TLS, DTP Imaging, Photogrammetry & Laser Scanning support	L L	2a, 2b, 2c

	sources, which would be combined with incentives on restoration (like with guarantees) and change of land-use for the purpose of restoration. This would lead to better and smoother exploitation of marble sources and sites.		software suites Geotechnical information systems and Geodata Multi-facet data modelling and GIS mapping, including 3D mapping LCA tools Tracking and auto-identification technologies (e.g. with RFID sensing). Automation in Load Out / Weighing ICT in Logistics and Fleet Management (Inventory and SCM processes) optimization B2B Customer Order Management ICT-enabled, Augmented Support / Training ICT-enabled Product Provenance Support	H M H M M M M H M	

Table 7. Marble EDP Process Outcome and Potential ICT Contribution

* H/M/L indicates High/Medium/Low priority (estimates) for proposed ICT enablers

10 Conclusion and Recommendations

This report included an analysis of the ideas proposed during the EDP workshops and the first stage of the project development labs, in order to highlight opportunities by ICT-driven innovation in REMTh's priority areas along with other competence and knowledge areas. The methodology of the analysis was to take into account the results of D2 and D1 and propose opportunities to incorporate ICT enablers for each one of the ideas put forward during the EDP process, as elaborated during the first stage of the PDL process.

It is interesting to note that with the exception of the Tourism sector, the majority of the proposed ideas did not include ICT innovation elements. The report identifies, where relevant, additional opportunities for each one of the contributed ideas. It is suggested that in the final elaboration of the regional calls for funded actions targeting RIS3 oriented priority areas could take into account such opportunities. For example, the calls may indicate that actions which include relevant ICT contribution are likely to be looked upon more favourably with respect to their excellence, innovation potential and expected impact.

It is further suggested that the formation of relevant Innovation and Entrepreneurship Networks (EINs) in priority sectors, including one dedicated to ICT should be supported by the ROP. The synergy between the vertical (sector-specific) EINs and the ICT EIN (ie 'DAC', see Deliverable 1) can shape up the regional Digital Agenda for Growth. Such an Agenda can take into account ICT adoption opportunities, such as those proposed in the present report, but should be largely influenced by the contribution of the EINs in synergy with the DAC, leading to an increased level of ICT adoption.

While the overall data value chains that can be formed are sector-dependent, the capacity of the regional stakeholders to produce and deliver innovative products and services will be increased if the overall ICT adoption level in the region is higher. This will be visibly supported by adopting a regional Digital Agenda. The implementation of the regional Digital Agenda should become one of the criteria for the selection of the actions called for via the ROP.

The Digital Agenda implementation should be monitored via the foreseen monitoring mechanisms of the RIS Governance. Specifically, the monitoring strand of the RIS3

Governance should liaise with the EINs and the DAC and cross-check at certain milestones (e.g. on quarterly basis) progress towards the implementation of the Regional Digital Agenda. Deviations, needs for agenda refinements and Digital Agenda target setting should follow the results of the monitoring process.

ANNEX 15 – NOTE ON FDI GOVERNANCE IN GREECE[§]

One of the core activities of the ongoing European Parliament Preparatory Action supporting the Greek region of Eastern Macedonia and Thrace (REMTh) in the refinement and implementation of its RIS3 is to design, test and optimise measures aiming, inter alia, at creating an effective structure with highly qualified locals to maximise export potential of local businesses and help attracting foreign direct investments.
This annex provides an overview of the framework that governs major investments in Greece, covering both the regional and the national scale.

Private investors in Greece have historically had the following funding options to support the implementation of a project:

- The **"do-it-yourself" approach**, where the investor secures the necessary funding and goes through the process of applying for and getting the applicable permits and licenses.
- The **ESIF approach**, where the investor applies for small-scale financial support, either at the regional or at the national level, under the applicable *de minimis* rule[1] or equivalent provisions from other Funds (i.e., Leader programmes, integrated programmes for urban and rural development, other programmes for rural development).
- The so-called "**Investment Law**[2]" approach that addressed the implementation of the applicable EU regional state aid rules in Greece. Applying under the Investment Law leads to some type of direct (i.e., non-repayable grant) or indirect (i.e., tax breaks) financial support, but the investor has to deal with the process of acquiring all permits and licenses required by law to operate the proposed investment. There were three budget thresholds in the last version of the Greek Investment Law that regulated the competent authority to receive the application: investments up to € 3 million were routed either to the Development Directorate of the Regional Government or to the Ministry of Macedonia and Thrace in Thessaloniki; investments in the range of € 3 to € 50 million were routed to the Ministry of Macedonia and Thrace in Thessaloniki, and investments with a budget higher of € 50 million would be submitted to the Ministry of Development in Athens, irrespective of the location of the investment. However, the last deadline for applications under the previous Greek Investment Law has now expired and a new law is currently (June 2015) only at a an early stage of preparation.

The "**Fast Track Procedure**" under Law 3894/2010 and its amendments[3] which is applicable to large-scale, strategic investments and aims to shorten the time required for getting the applicable permits and licenses. Following a proposal of the Minister of Development, this procedure might also result to special tax provisions that have to be ratified by the Parliament. All European Projects of Common Interest under the Regulation EC/1391/2013 with Greek participation fall also in this procedure. While the new Investment Law is still in preparation, the Fast Track Procedure is currently the most relevant option for foreigners wishing to invest in Greece.

[§] Based on a note prepared in June 2015 for JRC-IPTS by Yannis Tolias, Innovatia Systems, 22 Dodekanissou st., GR-546 26 Thessaloniki, Greece. Tel: +302310567442, Fax: +2310567443, email: tolias@innovatiasystems.eu

[1] Latest version: Commission Regulation No 1407/2013 of 18 December 2013. Previous versions: Commission Regulation No 1998/2006 of 15 December 2006; Commission Regulation No 69/2001 of 12 January 2001.

[2] i.e., Laws 4146/2013, 3908/2011, 3299/2004 and previous. See also Law 3908/2011, Aid for Private Investment to Promote Economic Growth, Entrepreneurship and Regional Cohesion, (codified version in English) available online at http://www.mindev.gov.gr/wp-content/uploads/2011/03/NEW-INVESTMENT-INCENTIVES-LAW-OFFICIAL-TRANSLATION_11.02.004.pdf

[3] Laws 4072/2012, 4146/2013, 4242/2014 and 4262/2014.

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