



mater

MANAGEMENT OF TECHNOLOGY
RESEARCH LAB

*Creating the Future
Today*



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Contents

- U.O.W.M./p8
- About Materlab/p9
- Our Mission/p10
- Strategy/p10
- Where We Deliver/p10
- Research Portfolio/ p11
- Grants & Projects/p14
- Training Programms/p23
- Materlab in the Community/p24
- Publications/p28
- The Team/p30
- Contact Us/p38

Welcome Message

Over the past decade, new dynamics have emerged in higher education, based on changing lifelong learning needs, on growing Information and Communication Technologies, and diversification of demand and supply. The perspective of basic and applied research and their differences still remain the core issue, but the challenge "think global, act local" was recently given a new direction, emphasizing the necessity for both research for innovation and research on innovation.

It is more than evident that you can hardly mention higher education today without hearing the word "innovation", or the terms "change", "reinvention", "networking", and "public - private partnership". In today's world of innovative activities and development of entrepreneurial societies, higher education and scientific institutions are working hard on research areas of innovation, towards policies of Cohesion, Convergence, Employment, Equal Development, ICTs and more.

Within this framework, and the support of University of Western Macedonia, we took the initiative of creating an advanced Management Research Lab, "**Materlab**". This constitutes the University's platform that promotes ideas on technology and asset management, innovation and entrepreneurship within a regional, national and international environment. Materlab is specialized in the fields of Technology and Innovation Management, Entrepreneurship, Research & Development, Smart Specialization, Regional Policies, Clustering, Business Networking & Development and works towards creating a technologically strong market place and developing economic growth within the region of Northern Greece and widely within Europe.

In Materlab we are proud of our explicit growth during the last fifteen years. My personal commitment is that through the hard teamwork on a daily basis, **Materlab** will continue to strengthen its position in national and international communities. Within the following pages, you will find a detailed description of our fields of activity and all contact details for interaction with us. We are looking forward to enhance our activities and improve our profile in major global markets, by potentially establishing new cooperation with ensured high quality and effectiveness.



*In Materlab we believe that it is our responsibility to fight for
"Creating the Future Today".*

Sincerely,

A handwritten signature in black ink, appearing to read "Ioannis Bakouros".

Professor Ioannis Bakouros

- U.O.W.M. 
- About Materlab 
- Our Mission 
- Strategy 
- Where we Deliver 
- Research Portfolio 

U.O.W.M.

University of Western Macedonia

The University of Western Macedonia (U.o.W.M.) is a multi-campus university in Northwestern Greece. It was founded in 2002 in Kozani.



Faculties and departments:

Faculty of Educational Sciences:

- Department of Elementary Education (Florina)
- Department of Nursery Education (Florina)

Faculty of Engineering:

- Department of Mechanical Engineering (Kozani)
- Department of Engineering Informatics and Telecommunications (Kozani)

Independent Departments

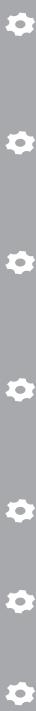
- Department of Balkan Studies (transferred to University of Macedonia - Thessaloniki since 2013)
- Department of Applied and Visual Arts (Florina)

U.o.W.M. is spreading the culture of innovation, encourages the creation of new products by highlighting the competitive advantages of the region, diffuses environmental awareness and promotes cultural wealth and local heritage. U.o.W.M. is continuously enhancing the quality of its human resources and has a major role in the development of R&D in the Region of Western Macedonia, as well as at a national and international level supporting the creation of new knowledge through the promotion of scientific Research

U.o.W.M. has developed cooperation with public and private entities at a local, national and a European Level. It implements projects undertaken within the framework of the Operational Programs under the 3rd and 4th NSRF, FP6, FP7, and other Community Initiatives (INTERREG, EQUAL, LIFE, MED).

About Materlab

The Management of Technology Research Lab (**Materlab**) constitutes the University's platform that promotes ideas on technology and asset management, innovation and entrepreneurship within a regional, national and international environment and focuses its research and services on:



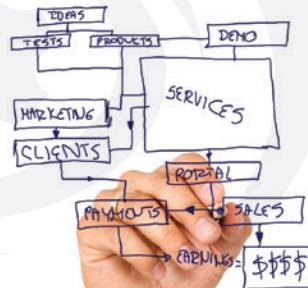
- Creation and diffusion of knowledge, guidance, information and development of dynamic and mainly stochastic models for Technology, Asset Management (Reliability & Maintenance) and Innovation Policies.**
- Development of platforms for virtual sessions and discussions that ensure the diffusion of knowledge and information in the areas of Technology Development & Transfer, Knowledge Management, Technological Innovation and Entrepreneurship.**
- Development of models with the use of System Dynamics (S.D.) methodological approach, with an objective to integrate the systemic approach, the computer modelling and the simulation discipline into a holistic dynamic consideration of Innovation Systems.**
- Organization of lectures and seminars in the field of Management of Technology and Innovation with additional emphasis on Asset Management, Reliability and Maintenance of Technological Systems.**
- Provision of scientific and technical advice to the Regional Stakeholders in topics related to Innovation, Entrepreneurship and Regional Development.**
- Technical support on Regional Entrepreneurship and Technological Innovation (e.g. mentoring for the development of Business Development).**
- Harmonisation and links between the process of Technological Innovation and the process of Social Innovation and Smart Specialisation.**

Materlab works towards creating a technologically strong market place and developing economic growth within the region of Western Macedonia and widely within Europe, with emphasis to the South East part of the Continent. It supports new ways at motivating regional networks and clusters into implementing innovative ideas.

Materlab is an active partner in many research and development projects on innovation and entrepreneurship in regional development, including regional innovation strategies, regional knowledge management, and tools supporting technological innovation, entrepreneurship and increasing business competitiveness.



Our Mission



- ⚙ To research and diffuse the principles of innovation, playing a key role in the regional development and growth, enhancing the quality of life of the society.
- ⚙ To foster entrepreneurship through the provision of scientific and technical advice to business community and policy makers.

Strategy

As a research intensive lab our strategy focuses on:

1. Delivering outstanding research in the areas of innovation management, social innovation, smart specialisation, and regional development;
2. Enhancing R&D, modelling, promotion of products, tools, software and providing corresponding consulting services at innovation management of public and private organizations;
3. Developing tools and techniques for managing knowledge, innovation and technology;
4. Creating the necessary scientific-entrepreneurial cooperation and synergies in supporting technological and innovative actions;
5. Expanding strategic collaborations with businesses, enterprises, universities, research centres, business support centers, incubators and technology parks;
6. Making a major impact upon regional and global society;

Where we Deliver

Materlab supports those interested in innovation and the use of new technology. Specifically:

- Decision Making Public Bodies
- Private and Public Enterprises and Organizations
- Higher Educational and Research Institutes and
- The Society

Research Portfolio

The research focus of Materlab is covering a diverse area of topics, as described below.

Innovation Management

Innovation is considered a key source for increasing organisational competitiveness. Research on innovation management attempts to capture its multidimensionality as many players have a role in innovation. It has a socio-economic impact and is influenced by organisational practice. Our aim is to investigate and disseminate tools and methods for achieving successful innovation management and increasing innovation potential of organisations.

Smart Specialization

Smart specialization strategies can help regions concentrate on resources on key R & D priorities, rather than spreading investment thinly across areas and business sectors. Thus, they can ensure a more effective use of public funds and stimulate private investment. They can also be a key element in developing multi-level governance for integrated innovation policies. Our aim is to identify optimum ways of designing smart specialization strategies for facilitating economic growth.



Entrepreneurship and its Education

Entrepreneurship plays a very important role in revitalising the regional, national and global economy, especially during economic downturns. There seems to be a positive relationship between entrepreneurship and economic growth, which creates a challenge for higher education. Higher education needs to foster entrepreneurial culture among young people and nurture an entrepreneurial mindset to students and young people. Responding to this challenge it will provide them the necessary capabilities to uncover and comprehend their business ideas. Our aim is to research and develop tools and methods for successfully developing the entrepreneurial mindset of young people.

Innovation Systems and Dynamics Modelling

The innovation process involves interactive relations among different actors, following a non-linear path which is characterised by complicated feedback mechanisms. The systemic approach of innovation is grounded on the presumption that innovation processes cannot be decomposed into several isolated phases that take place in a strictly proceeding sequence. This research axe focuses on the use of National Innovation Systems (NIS) as an analytical frame, in order to reveal the structure of regional and national innovation processes and main involved participants.

Mathematical models from one hand, can provide significant insights about the dynamics of the innovation process and from the other hand can be tools used to study the impact of innovative policies on the performance of Innovation Systems. Towards this direction, the need for holistic dynamic mathematical models such as system dynamics (S.D.), which can be used as a tool to describe and analyse the complex and dynamic nature of Innovation Systems, is obvious. Our aim is to provide a holistic modelling approach to the Innovation System's concept, in order to reveal the functions and the mechanisms which lead to their innovative performance.



ANALYSIS
SOLUTION
PROCESS
OBJECTIVES
TEAMWORK
VISION
SALES

- 
- Grants & Projects 
 - Training Programms 
 - Materlab in the Community 
 - Publications 

Grants & Projects

Materlab has successfully lead or participated in many national and international grants and projects of a total budget well above 5M Euros, on regional development, regional innovation strategies, regional knowledge management, technological innovation, asset and maintenance management, SMEs competitiveness and entrepreneurship. It has implemented projects, funded by entities such as ERDF, FP6, FP7, ROPs, INTERREG IIC, IVC, LEONARDO DA VINCI, Greek Ministry of Development, MED, ENPI, LIFE, EU Innovative Actions and many others.



Materlab has many times taken the overall responsibility for financial, administrative, legal management, coordination and overall scientific responsibility and execution of a series of projects. Based on the participation experience of a very big number of projects, Materlab can ensure that project objectives are accomplished on time and partners' consortiums are motivated and well driven.



EFFMIS

EFFMIS, is an INTERREG IVC Capitalisation project aimed to pool good practices (GPs) on the exploitation of using information systems in order to early detect, efficiently manage and handle forest fires, assess the damage caused and identify ways for regeneration. EFFMIS is focused on the exchange of good practices between the participating regions. All partners developed regional action plans in order to demonstrate how each region can improve its natural resources protection systems against forest fires using ICTs.

The leverage effects of using information systems for forest fires detection and management have come out through joint learning and actions, such as:

- capitalizing on previous experience at regional level and European level in this policy field in order to move from experience exchange to concrete transfer actions;
- transferring previously identified GPs increasing the capacity of responsible parties for forests monitoring authorities and research institutes;
- raising awareness on potential tools for increasing the effectiveness of relevant information systems;
- ensuring that GPs transferred have a quantifiable and measurable impact on the statistics of the regions receiving them; and
- enabling a constant flow of knowledge transfer between European regions.

REGIONAL INNOVATION POLE OF WESTERN MACEDONIA (R.I.P.W.M.)

The Regional Pole of Innovation of Western Macedonia (R.P.I.W.M.) was a network of regional partners from the private and wider public sector that aimed to increase Western Macedonia's technological and innovative records, to stimulate an environment of innovation and regional conscience in the main axis of Energy and increase the competitiveness of regional economy.

The existing scientific and technological excellence in the sector of energy was and will be the main factor for strengthening the competitiveness of Western Macedonia, in the international, national and regional environment. This network aimed at the improvement of collaboration on research activities, in order to accelerate new innovative products and services' development and facilitate the required transfer of technology and models in the wider space of energy. Thus the main objective of the Regional Pole was the reinforcement of regional competitiveness, via the strengthening of collaborative research and targeted technological and innovative specific actions across the Region.

TRAIN IN MAIN: Training Material in Maintenance



Maintenance strategies affect the most significant operations of every manufacturing organization, regardless size and sector. With increasing automation and mechanization, the role of equipment maintenance in controlling quantity, quality and costs, is more evident and important than ever. In order to succeed in this new environment, equipment must be maintained in ideal operating conditions and must run effectively. Train in Main Leonardo project aimed at:

- Increasing the European SMEs competitiveness responding to the pressures of the market for continuous innovation and technological adaptations, using maintenance tools that have been developed.
- Cultivating plant and maintenance workers, managers and directors awareness in order to support the implementation of the innovating maintenance practices and tools. The key to systematic and effective maintenance is a managerial decision-making that is appropriate to the particular circumstances of the machine, plant or organisation.

The fundamental results of the project gave us a handbook in Maintenance Management, a Maintenance Self-Audit tool and a portal for training in Maintenance with an electronic curriculum, covering all relevant issues and a comprehensive training e-platform including a big selection of models, practices and tools.

VIRTUAL TECHNOPOLIS



The development of Virtual Technopolis aimed at supporting all efforts of networking (cluster) through an ICT unit, as extension of the infrastructure of the existed Electronic Centre of Trade. The objective of such action was the activation of an electronic infrastructure for the interconnection of enterprises of Western Macedonia and the creation of a suitable infrastructure for the hospitality of tools and applications that have been created by e-clusters.

Grants & Projects



ENTREDI: Entrepreneurial Diversity

ENTREDI was an INTERREG IVC capitalization project with the full support of the Assembly of the European Regions (AER). Entrepreneurial activities have enormous impact on the economic performance of regions and the renewal of regional knowledge. Fostering entrepreneurship with (semi) public funding, contributes to a more prosperous regional economy and can reduce the unemployment rate significantly.

ENTREDI project partners were convinced that a shift is needed from a fragmented support system to a holistic approach. It is necessary to develop wide regional networks of involved government agencies, regional economic development providers, labour offices, universities, associations, banks, etc. in order to provide support to all potential and young entrepreneurs to overcome the initial hurdles on launching their businesses. Active networks of public and private institutions as well as target group-orientated consultation and qualification approaches, have been already implemented in some ENTREDI partner Regions. The project gathered such activities, approaches and good practices into a pool, where all partners were able to find a tool or mechanism to implement or adopt in their regional Structural Funds framework.

Materlab was responsible for the design of the ENTREDI guide book, where the whole process is described. In such a way, the experiences, methods and tools obtained during the whole process have been available to other European Regions.



ERIK ACTION

ERIK ACTION was a Fast Track Capitalisation project financed by the INTERREG IVC European programme for interregional cooperation. Project's overall objective was to improve the effectiveness of regional development policies in the field of innovation and knowledge of economy. Throughout the project, every region developed targeted regional action plans for the transfer of already identified effective practices. Training sessions on key themes, transfer workshops on specific effective practices, study visits and staff exchanges took place and a mainstreaming guide was developed for the transfer of Effective Practices. MaterLab played a key role in the development of the ERIK guide book.



DLA

The DLA project was implemented under the second call for proposals of INTERREG IVC Programme. A Digital Local Agenda (DLA) is a common strategy shared with citizens, for the development of the Information Society with socio-economic, cultural and institutional factors. In order to reach its objectives, the project fostered a permanent exchange of experience between partners and established a cooperation network, in order to update and improve knowledge on the information society and its applications.

The specific objectives of the project were to:

- Design a general digital local agenda, transferable to every EU Region;
- Elaborate a common methodology in order to adapt the general DLA to each local situation;
- Involve all key stakeholders in the project;
- Exchange of experiences;
- State the basis for future collaboration;

FOSTERING ENTREPRENEURIAL ACTIVITIES, INNOVATIVE APPLICATIONS AND COURSES TO THE STUDENTS OF WESTERN MACEDONIA



The programme "Creation of Entrepreneurship and Innovation Unit" under the auspices of the Operational Programme "Education and Lifelong Learning 2007-2013" aimed to foster innovation and entrepreneurship among students in higher education institutions all over the country, linking higher education with the labour market. It encouraged innovation and entrepreneurship among young people by organizing conferences for the selection of innovative ideas and business plans, seeking to develop skills that promote the modernization of administrative procedures, the growth of entrepreneurship and the development of human resources in research and technology.

The main objectives of the project were:

- Encouraging entrepreneurship and new applications;
- Preparation and training of young people for employment in SMEs and the creation of start-ups;
- Creation of educational programs that foster innovative entrepreneurial thinking and action.

The main activities of MaterLab aimed at promoting innovation and entrepreneurship in the Region of Western Macedonia were:

- The conduction of open seminars and media entrepreneurship;
- Mentoring students in entrepreneurship;
- Organization of competition for the development of Innovative Company's Business Plans;
- Creation of an entrepreneurship laboratory, development, operation and ongoing briefing site;
- Organization of students visits to incubators, technology parks, research centres and innovative companies.

SMART + SMEs GO GLOBAL NETWORKS



SMEs Go Global Networks subproject, under the Sustainable Management and Actions to Promote Regional Transition (SMART) INTERREG IVC project, supported the implementation of a broader concept for the creation of a Global Innovation Network of clusters within the regions. Through this network, economic development of regions with emerging strengths in the life sciences sectors was being enhanced, by sharing assets, best practices and intellectual property. The target was to better compete with first-tier life science regions by stimulating investment, from the creation and expansion to the location of life science businesses, through increased research, bundled technologies and improved licensing opportunities for technologies already developed within the member regions.

Project results created a strong structural basis for innovation collaboration, which aimed to attract other bio-regions / life science clusters to join and collaborate. Dissemination activity focused on showcasing the power of networking innovation, aiming at bringing new partners to the Global Initiative Network (GIN).

Grants & Projects

mainDSS: INTER-FUNCTIONING AND INTELLIGENT DECISION SUPPORT SYSTEM FOR MAINTENANCE IN THE MANUFACTURING SECTOR



In today's competitive business environment, companies are seeking every possible advantage. It is widely known that maintenance is seen as a "black hole", which spent a lot of money with little measurable performance. Administration realises that maintenance offers real opportunities for reducing costs and increasing productivity.

The mainDSS project aimed to provide assistance in improving the efficiency of maintenance units, irrespectively of the industry and size of the unit. The project developed an information system, using a plug-in approach having a dynamic interface ('bridge'), with the databases of the Computerised Maintenance Management Systems (CMMS). This situation was the basis on which the project based its expected results, namely: ontology of maintenance which includes benchmarks and Key Performance Indicators (KPIs), an auditing section in combination with a progress control section and a Decision Support System (DSS).

ODS3F



The project aimed at the development of a common understanding of the capabilities of vision (optical or thermal) and detection systems on which a fire remote detection network can be based. The main objective of this project is the technical assessment and operational comparison among remote visual systems and detectors network devoted to monitor wooded areas or areas of particular environmental, touristic and/or cultural interest.

Furthermore the project has the objective to promote the cooperation in spreading and sharing successful practices in reducing the incidence of forest fires or improving the reaction time allowing an enhanced distribution of the human and means resources on the ground.

ARCHINET



Mediterranean Regions have been characterized by a low number of High Tech Enterprises and Science & Technology Parks, often lacking communication and effective collaboration, due to the sea barrier and the lack of networks.

ARCHINET Project - Mediterranean Association of Science & Technology Parks was an INTERREG IIIB project, which aimed to create a network among existing innovation parks and agencies, based on the synergistic potential of mutual exchange of information, tools, expertise and technologies. Its' focus was to establish and facilitate a common understanding on the importance of the link between innovation and entrepreneurship. This was achieved through building a concrete relationship among all key players in order to improve the competitiveness of the territories. A permanent Network of Science Parks (MEDASTEP) was established within the ARCHIMED area (East Mediterranean), aiming to expand to the whole Mediterranean area.

K-CLUSTERS: KNOWLEDGE CLUSTERS IN WESTERN MACEDONIA

"Knowledge Clusters in Western Macedonia", under the EU Innovative Actions, aimed to create the public-private partnership that could play an important role in developing knowledge generation through inter-regional collective learning and cross-sector interactive processes. "Knowledge Clusters in Western Macedonia" included distinct Actions which fell into the following categories:

- Regional economies based on knowledge and technological innovation;
- Information society at the service of regional development;
- Regional identity and sustainable development.

The core of the Knowledge Clusters in Western Macedonia strategy was the development of business clusters based on innovative ideas and capitalizing on the regional resources of Western Macedonia. By the end of the programme this strategy has successfully achieved the following:

- completion of the nine Actions according to the specifications set;
- improvement of the regional innovation performance, involving companies in the innovation process;
- development of virtual tools supporting the starting, operation, competitiveness and monitoring of companies and clusters;
- establishment of an Innovation Observatory, supporting regional innovation;
- establishment of a mechanism supporting innovation-learning for small enterprises and clusters;
- diffusion of innovation techniques and tools (benchmarking, financing innovation, business-plan, marketing-plan, cost-benefit analysis etc), through training schemes.

IKTIMED: Increasing Knowledge Transfer and Innovation in the Mediterranean Area

University of Western Macedonia participated in IKTIMED project, an innovative project which aimed to detect the best practices, at supporting innovation also to create new tools for effective collaboration between public & private sector and the research/scientific community, in order to foster the competitiveness of Mediterranean SMEs and to support innovation, based on a more open approach of knowledge and technology transfer.

The project dealt with six modules that constitute the "major" areas for development of entrepreneurship and competitiveness in Europe

- | | |
|-------------------------|--------------------------|
| 1. Smart Specialization | 4. Knowledge Database |
| 2. Public Procurement | 5. Innovation Policies |
| 3. Open Innovation | 6. Knowledge Communities |

Grants & Projects



SMART WIKIMEDIA: Internet Media Businesses

Wikimedia: Internet Media Businesses, is an INTERREG IIC subproject under the project Sustainable Management and Actions to Promote Regional Transition (SMART), that aims to absorb structural changes and search for new and innovative business models to promote employment in the Region of West Macedonia. Learning from each other, sharing information and developing common regional and international strategies, were also addressed by the project. An elevated concentration on growth industries was focused, on the increase a sustainable added value, that aims to promote economic potential and develop businesses' competitiveness.



TRACTORS: Training Material In Creativity & Innovation For European R&D Organizations & SMEs

Creativity management has gained much ground as a strategic choice, both in the academic and in the business community. TRACTORS project was financed by EU funds through the framework of Leonardo Da Vinci (LdV) programme and aimed to set the boundaries and define the role of all sciences involved in Creativity and Innovation Management, providing a certified training process and a curricula, by combining tools and practices from several sciences. The project also intended to provide target groups and potential users with a fully documented training material in Creativity and Innovation (C&I). Fundamental results were:

- A handbook in C&I Management in 6 languages;
- A portal for training in C&I with an electronic curriculum;
- A C&I Self-Audit tool;
- A comprehensive training e-platform including a large selection of models, practices as well as tools from several related sciences;
- A website with an electronic library, providing numerous academic articles and case studies in creativity management by practitioners and business consultants.

INNOVATIVENESS STUDY IN THE R.O.P OF IONIAN ISLANDS (3I)

The predominant sector of financial growth in the Ionian Islands is the tourism sector. The innovation aspect puts another view into improvement efforts, by setting the methods for collectively defining new types of services, with the use of technology and the promotion of new ideas into successful business ventures. Within this concept, the strategy imposed by 3I is interconnected to the regional needs of Ionian Islands, in order to include them into the new era of economy. While at the same time protecting the traditional business practices and retaining the strong region's identity and distinctive cultural characteristics.

Materlab participated in this project by developing a study sponsored by the Management Authority of the Ionian Islands, named "Innovation in the Ionian Islands," which included the composition of business development and scientific views of all stakeholders of the region.

SMART OFFINNO: Offensive Innovation Plus

This project's main aim was the quicker and broader exploitation of scientific R&D results. Project's objectives specifically addressed the issues of:

- Sub-optimal exploitation of the region's of Western Macedonia research results;
- Technical barriers for transforming scientific research results into viable innovations;
- The lack of collaboration between the University of Western Macedonia and the Industry;
- The lack of knowledge on New Technology Based Firms (N.T.B.F.) development.

Partners shared common aims by taking the opportunity to exchange experiences and develop new solutions by:

- Fostering cooperation between science and SMEs;
- Creating environment for start-ups / spin-offs;
- Increasing competences in the area of innovation;
- Promoting regional innovation internationally.

REGIONAL INNOVATION STRATEGIES

The aim of all Regional Innovation Strategy projects was to analyze the needs and opportunities for innovation within the territories of interest, in order to develop a strategy, that promotes and strengthens innovation and enhances technology transfer. Through the project implementation, specific action plans were developed, including a list of pilot actions, identifying necessary funding and relevant stakeholders for fostering innovation.

All the Regional Operational Programmes of the Regions undertaken this RIS exercises, have been greatly affected by their outcomes. Materlab and its staff have been participated as external consultants to various RIS initiatives namely:

- Thessaly, Sterea Ellada, Peloponnese, Epirus, Western Macedonia, Central Macedonia, Grete, Ionian Islands, Aegean Islands,
- North-East Bulgaria, Central-South Bulgaria, Sofia & South West Bulgaria and
- South Central Romania.

OBSERVATION AND DETECTION SYSTEMS FOR FOREST FIRES MANAGEMENT

The project is devoted to the development of a common understanding of the capabilities of vision (optical or thermal) and detection systems on which a fire remote detection network might be based. The main objective of this project is the technical assessment and operational comparison among remote visual systems and detectors network, used to monitor wooded areas or areas of particular environmental, touristic and/or cultural interest. Furthermore, the project aims to promote the co-operation at spreading and sharing successful practices in reducing the incidence of forest fires or improving by such a way the reaction time, allowing an enhanced distribution of the human and means resources on the ground.



Grants & Projects



INNOVATION COUPONS FOR SMEs

"Innovation Coupons for SMEs" is a national action funded by the programme "Competitiveness & Entrepreneurship", NSRF. The main objective of the project was to provide support regarding the technological needs of SMEs in 5 regions of transitional support along the country. The specific objectives of the project within the Region of Western Macedonia were:

- The transfer of knowledge / technology from innovation entities to enterprises aiming to:
 - develop new innovative products and services;
 - develop innovative production procedures or enterprises' function;
 - provide solutions to problems arising during the production process, for improving the quality of products.
- Enhancement of the cooperation between enterprises and R & T institutes;
- The promotion of R & T activities, oriented from innovative bodies to enterprises' specific needs.



OBSERVATORY OF INNOVATION OF WESTERN MACEDONIA

The Observatory of Innovation of Western Macedonia, being a vital part of the Management of Technology Research Lab of the University of Western Macedonia, constitutes a digital platform that will help ideas and persons to work together. It provides services of knowledge, guidance and information in innovation practices. The observatory of innovation is an internet source, drawn as a service of knowledge of innovation with information that will be renewed frequently. It also constitutes a platform for virtual sessions and discussions that ensure the transmission of knowledge and information through the network of collaborators.

Training Programms

Materlab has organized and executed a large number of training sessions, mainly to the business community and the young graduates on:

- **Innovation Management;**
- **Entrepreneurship with emphasis to New Product Development, Green Entrepreneurship, Social Entrepreneurship;**
- **Maintenance Management & Asset Management;**
- **Clustering and Business Networking;**



- **Innovation Management Tools / Techniques;**
- **Business Plan Development;**
- **Measuring Innovation;**
- **The Role of Liaison Offices;**
- **Regional Policy Development;**
- **Competitive Strategy & Innovation;**
- **Government, Business and Development in EU Regions.**

Materlab in the Community

The main organizations, institutes and authorities with which Materlab has collaborated along European Countries are listed thereafter.

Austria	
	Lower Austrian Government, Dept. Economic Affairs, Tourism and Technology Multidisciplinary European Research Institute Graz Region of Lower Austria
Belgium	
	Flemish government - Agency for Economy, Brussels Region of Wallonie
Bulgaria	
	Alliance of the Regional Authorities in the North-East Planning Region Applied Research and Communications Fund (ARC Fund) Bulgarian American University Executive Forest Agency Ministry of Regional Development and Public Works Regional Agency for Entrepreneurship and Innovations, Varna Regional Authorities in the Central-South Region Regional Authorities in the South-West Region Regional Governor of Blagoevgrad Storact Log Ltd
Cyprus	
	University of Technology The Institute of Technology Development Organization Talos
Estonia	
	Euregio Pskov-Livonia Tartu Science Park University of Tartu
France	
	Bretagne Innovation Toulon Var Technologies (BIC TVT) Region of Basse Normandie Region of Lorraine
FYROM	
	St. Clement of Ohrid University of Bitola Ministry for Development

Germany

Aufbauwerk Region Leipzig GmbH
 District of Muldentalkreis
 IDEUM Unternehmensberatung, Stuttgart
 Kompass Centre for Startups in Frankfurt
 Public Innovation Agency for ICT and Media of Stuttgart
 Region of Bremen
 SEZ (Steinbeis-Europa-Zentrum), Stuttgart

Greece

Alexandria Zone of Innovation, Thessaloniki
 Aristotle University of Thessaloniki
 Association of Industries of Northern Greece, Thessaly, Sterea Ellada
 Atlantis Engineering S.A. / Atlantis Consulting S.A.
 BICs of Epirus, Attika
 Corfu Euro Info Center, Thessaly Euro Info Center
 Democritus University, East Macedonia and Thrace
 Development Agencies of Western Macedonia (ANKO), Karditsa (ANKA)
 Enterprise Europe Network, Kozani
 Euroconsultants SA
 Foundation of Research and Technology Hellas
 General Secretariat for Research and Technology
 International Centre for Black Sea Studies (ICBSS)
 KETA of Crete, Thessaly, Western Macedonia
 Patras Science Park S.A.
 Planet Consulting S.A.
 Regions of Aegean Islands, Central Macedonia, Crete, Ionian Islands, Sterea Ellada, Thessaly, West Macedonia, Western Greece,
 Regional Development Agency of West Macedonia
 Science and Technology Park of Crete
 South East European Research Centre - SEERC
 Technological Education Institute of Western Macedonia, Thessaloniki, Kavala
 Thessaloniki Technology Park Management & Development Corporation S.A (TTP.
 MDC S.A)
 University of Northern Aegean
 University of Patras
 University of Thessaly
 URENIO Research Unit

Hungary

Regional Development Agency of North Hungary Non-profit Corporation (NÓRDA)

Ireland

South West Regional Authority (SWRA) of Ireland
 Western Business and Innovation Centre, Galway

Materlab in the Community

Italy	
	Ancona Chamber of Commerce Aster s.cons.p.a. of Bologna Emilia Romagna Region, Department for Industry, Unit for Local Development, Bologna Etruria Innovazione S.C.p.A. Firenze Tecnologia Special Agency of the Florence Chamber of Commerce Marche Region - Department for Innovation and Research Metron srl Regions of Emilia-Romagna, Lombardy, Tuscany Regional Administration of Abruzzo Regional Administration of Liguria San Marco Project Research Centre - University of Rome "La Sapienza" (CRPSM) Science and Technology Park of Sicily The Scientific and Technological Park Crotone Venetian Cluster of Cultural Heritage
Malta	
	Temi Zammit Foundation
Latvia	
	Euregio "Pskov, Livonia", section Latvia Foundation "Latvia Technology Park"
Lithuania	
	Institute of Forestry Kaunas Regional Innovation Centre Kaunas Technological University U. Savickas and partners
Poland	
	Forest Research Institute Jagiellonian Center of Innovation Ltd., Krakow Institute of Urban Development, Krakow LifeScience Klaster Krakow Malopolska District Nowy Sacz School of Business - National-Louis University Tarnow Agency for Regional Development University of Lodz
Portugal	
	Alentejo Regional Development Agency Batalha Municipality North Regional Development and Coordination Commission Region of Alentejo Taguspark, Science and Technology Park, Lisbon University of the Algarve

Romania

Babes-Bolyai University from Cluj-Napoca
 National Council of Small and Medium Sized Private Enterprises in Romania
 The South-East Regional Development Agency of Romania

Slovakia

University of Kosice

Slovenia

Governing Region of Banska Bystrica Self
 Slovenian Forestry Institute
 University of Maribor Science Park

Spain

Agency for Innovation and Development of Andalusia (IDEA)
 Andalusia Institute of Technology (IAT)
 Aragonese Cluster of Biotechnology (Bioaratec), Zaragoza
 Atlantic Axis of the Peninsular Northeast
 Castilla and Leon Wood & Forest Services Centre (CESEFOR)
 Fundacion Labein
 International Association of Science Parks (IASP)
 Region of Aragon
 Region of Murcia
 UAB Research Park, Catalonia

Sweden

Jagielloian Centre of Innovation Ltd
 Jonkoping University
 LTC AB Ltd
 UTEK AB

United Kingdom

Basingstoke and Deane Borough Council
 Nottingham University
 Region of West Midlands
 Serious Games Institutes, Coventry University
 University of Portsmouth
 University of Southampton

Publications

In addition, a very large number of papers were published in scientific journals and magazines.

- «Entrepreneurship and Innovation. Theory and Practice»
- «Entrepreneurship and Innovation Policies in the European. A research agenda»
- «Women Entrepreneurship: an approach to the Greek reality»
- «Erik Action»
- «Entredi»
- «Reliability and Maintenance of Technological Systems»
- «Innovating in Thessaly»
- «An introduction to Innovation Management Techniques»
- «RIS+ Regional Innovation Strategy: The case of Thessaly»
- «Innovation Management Techniques in Region and Production Clusters»
- «RIS Thessaly Regional Innovation Strategy Action Plan»
- «Innovation process: make sense using systems thinking»
- «Case studies book on entrepreneurship and innovation & business creation and management»
- «Enterprise education: practice-based activities for encouraging the entrepreneurial mind»
- «Entrepreneurial path to market: a systemic modelling of entrepreneurial contracting»
- «Decode global economic crisis influences on innovation cycle using system dynamics»





The Team
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The Team



Prof. Yiannis Bakouros
Head of Materlab

A Chemical Engineer graduated from Aristotle University of Thessaloniki in 1981 and received his Ph. D. in Management and Administration in 1988, from the University of Bradford, in the UK. He worked as Production Manager, Technical Advisor, Sales Manager in Industrial and Distribution Enterprises and Consultant Companies. He has also been a member of the board of Directors and Technical Advisor of a Textile Company. He has been a Visitor Associate Professor of the Industrial Management Division at the Engineering School of Aristotle University of Thessaloniki and University of Thessaly in Greece. He was a Key member of the development team of Thessaloniki Technology Park and Director of its Vocational Training Center and one of the Founders of Thessaly Technology Park. He has also served as Chairman of Eureka National Project Coordinators during the Greek Eureka Presidency. He was a Coordinator of Regional Innovation Pole of Western Macedonia and a Former member of the board directors of Alexandria Innovation Zone of Thessaloniki.

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Dr. Elpida Samara

She graduated from the department of Mechanical Engineering, Aristotle University of Thessaloniki. She holds her PhD with subject "National Innovation Systems, an innovation model using System Dynamics", at the Department of Mechanical Engineering, University of Western Macedonia. Furthermore, she is working as a project manager with the UOWM in many EU projects. She participated in the organizing committee of the Eureka National Project Coordinators during the Greek Eureka Presidency. She has a teaching experience at the University of Western Macedonia and at the Technological Education Institute of Kozani where she is working as a Scientific Collaborator with full qualifications since 2004. Her research interests include modelling of innovation systems and technological innovation, management of innovation and technology and technology transfer.

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Paraskevi Gkiourka,

Paraskevi has received her degree in Civil Engineering with a specialty in public procurement and has postgraduate studies in Business Administration at the University of Portsmouth, UK. Her PhD research focused on how to nurture organizational innovation and improve the organizations' potential to innovate. P. Giourka, since 2007 is working at the University of West Macedonia as a research associate managing and implementing national and EU projects of total budget 4.5M Euros. She is currently an associate fellow in the Doctoral Program of Business Administration (DBA) at the School of Management in Grenoble (Grenoble Ecole de Management), France. She has taught the modules of Innovation and Strategic Management and Governance and Business Development in EU regions in Nottingham Trent University, UK. She also taught engineering drawing and surveying at the University of Leeds, and Forecasting Techniques-Statistics at the School of Finance in the Technical Educational Institute of West Macedonia, Greece. Her interests include innovative product development, innovative marketing, entrepreneurship and its education, innovation management, development of mechanisms to strengthen the innovativeness of organizations, and global innovation policies.

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Amalia Kouskoura

Amalia Kouskoura is a graduate of the Department of Political Science of the Faculty of Law in the Aristotle University of Thessaloniki (2006). In 2010 she acquired her master's degree in Political Analysis in the Department of Political Science. She was a fellow of the Foundation "Christos Vrakas" throughout her undergraduate studies.

She worked as an external researcher in surveys and participated in the Scientific Group which performed the planning, the collection and the analysis of statistical data for the Prefecture of Thessaloniki. She has been working as a trainee at the Planning Bureau and European Projects of the municipality of Panorama in Thessaloniki. Recently she was the Vice Governor for Development, Entrepreneurship and Trade of the Region of Western Macedonia, Greece.

Since 2015 she is a Doctoral Student at the Department of Mechanical Engineering researching the "modeling of regional policies with emphasis to less favorable regions".

The Team

During those last years she has participated in a number of projects, seminars and workshops on Regional Development, Smart Cities, Smart Specialization Policies, Regional Innovation and Foresight.

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Anastasios Andronikidis

Anastasios Andronikidis is a Ph.D. candidate in Innovation Management and Entrepreneurship at the Department of Mechanical Engineering at the University of Western Macedonia. He acquired his bachelor's and his master's degree from the Electrical & Computer Engineering Department at the University of Thessaly. In his Acceleration Program he thoroughly studied about Management of Organizations, Strategic Marketing, Managerial Economics, and International Human Resources Management.

He was honored with scholarships and awards from the Ministry of Education (Greece), D.A.A.D. German Academic Exchange Service (Germany), and the University of Thessaly (Greece).

His quality educational foundation in Computer Science / Electrical Engineering from the University of Thessaly (Greece), and in Entrepreneurship field from i4G (Greece), as well as his hands-on research experience, make him a strong researcher. His aspiration is to work in teams in order to solve a problem, divide work efficiently and support each other in order to achieve the best results.

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Pavlos Kilintzis

Pavlos Kilintzis is currently a PhD candidate at the University of Western Macedonia at the topic of Innovation and Entrepreneurship. He is an Electronic Engineer - member of The Technical Chamber of Greece (TEE - TCG), having obtained his bachelor degree in the University of Northumbria at Newcastle, UK. He also holds two Master degrees, in Optoelectronic and Communication Systems (University of Northumbria at Newcastle) and Master of Business Administration - MBA (Hellenic Open University). He has substantial research experience at both engineering and business-innovation themes and he has been primarily

focused on the research combination of engineering/financial/business triptych. During the last years, he has participated in the completion of several techno-economic projects as a researcher and has mainly investigated the financial-innovative aspect of the proper project design.

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Evangelos Katsaros,

Mr. Evangelos Katsaros, born in 1973, is an experienced researcher and a PhD candidate at the University of Western Macedonia at the topic of Emergency Logistics. He is a chemical engineer, graduated from National technical University of Athens. He has a Master Degree in Methods of Industrial Analysis and Planning from University of Thessaly. Rich professional and research experience of more than 20 years. Expert in civil protection. European Commission evaluator in security and SMEs. Experienced project manager in research and interregional / transnational, cross border projects of various topics ranging from regional innovation strategies and product development to logistics, transport and civil protection. His research interest are mainly disaster risk reduction, civil protection and emergency logistics. Member of Greek Technical Chamber of Commerce.



Prof. Katerina Sarri,

is a Professor at the university of Macedonia. She is a graduate of the Economics Department, Faculty of Law and Economics of Aristotle University in Thessaloniki, Greece. She has a Master's degree in Business Administration (MBA) from the University of Birmingham, UK, and PhD from the University of Macedonia, Department of Applied Informatics.

She has taught courses in Business Administration, Women's Entrepreneurship, Entrepreneurship and Innovation, Entrepreneurship, Financial Management, Human Resources Management and Strategic Management, Train the Trainers, and Mentoring in Greek and foreign educational institutions (universities,

The Team

technical colleges) at undergraduate and postgraduate level, and in legal entities in the private and public sector.

She has also worked as a consultant, evaluator and coordinator of programs (Central Health Council of the National Welfare Organization, KEK KEPAK & CIS MAKINE, Omnia Co, ELESA Ltd, RIPE, EQUAL, etc.). She has published articles in leading Greek and foreign journals on her scientific interests (Entrepreneurship, Women Entrepreneurship, entrepreneurship education, entrepreneurship and innovation, mentoring, business administration) and has presented her work at numerous international conferences.

She is the author of a forthcoming book on Women's Entrepreneurship in Greece and national coordinator of the program GUESSS (Global University Entrepreneurial Spirit Students' Survey) for youth entrepreneurship. She is also associated editor for the South-Eastern Europe Journal of Economics (SEEJE) and a reviewer for the International Journal of Entrepreneurship and Innovation Management (IJEIM), published by Inderscience Publishers

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Prof. Pantelis Angelidis,

Prof. Pantelis Angelidis is a Prof. on eHealth at UOWM. A Telecommunications Engineering by education, he has worked as a technology expert in the areas of IoT and Digital Health for the past 20 years. He is the founder of three start-ups, an innovative Digital Health SME, an custom software development house and an Agri IoT microenterprise. He is actively publishing research articles and textbooks. He has four patents. Prof. Angelidis was a visiting professor at MIT Media Lab in 2009-10 and again in 2015. He is a visiting lecturer at UB Medical School. He is a Marshall Memorial fellow and an alumni of the Bodossaki foundation. He is active in turning research results into profitable businesses focusing on IoT and telecommunication technologies.



Lefteris Topaloglou

He is a Research Associate, (MSc, PhD), at the Department of Planning and Regional Development at the University of Thessaly. He is the director of the Regional Association of Local Governments of Western Macedonia (PED DM) and has been working as a development consultant for local authorities since 1990. He obtained his Diploma in Political Sciences and International Studies from Panteion University in Athens in 1988. Also he received his M.Sc. in 2003, and his Ph.D in 2008 at the Department of Planning and Regional Development at the University of Thessaly. His main research interest pertains to the economic geography of borders and the impacts of integration on border regions. He currently teaches in the Graduate Programme and in Post Graduate Programme, "European Regional Development Studies". He has been involved in a large number of research programmes such as RELOCAL (2016-2020), funded by HORIZON 2020, INACT (2014-2016), funded by IPA CBC Programme "Greece-Albania 2007-2013", EUROBORDER-REGIONS (2011-2014), funded by FP7, TERCO (2010-2012), funded by ESPON, EUDIMENSIONS (2006-2009), funded by FP6, EXLINEA (2002-20050), funded by FP5.

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Principal Lecturer Kostas Galanakis,

is teaching at Nottingham Business School on the following modules: Innovation Management; New Venture Creation; International Value Chains; and, Contemporary Issues in International Business. The research activities that Kostas has undertaken recently focus on managing Entrepreneurial and Innovation Process. Especially, the support of young entrepreneurial minds and the alignment of their ideas with the market needs are on his priorities. Furthermore, Kostas directs research related to international value chains, reinforcing the fact that the operations processes are the ones that deliver value, but also deteriorate value. Therefore, he prepares practitioners to continuously improve, change and reinvent businesses aiming to achieve an optimum performance

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Assistant Professor Chrysostomos D. Stylios,

at Dep. of Informatics and Telecommunications Technology, Technological Educational Institute of Epirus (since 2006), is a collaborative senior researcher at Management of Technology Research Lab, University of Western Macedonia and a senior researcher at Sector of Telematics and Applications for Regional Development, Computer Technology Institute & Press. He was an external consultant at Patras Science Park for over 7 years. He was a visitor assistant professor at Computer Science Dep., of University of Ioannina for 4 years. He received his Ph.D from the Department of Electrical & Computer Engineering University of Patras in 1999. He received the diploma in Electrical & Computer Engineering from the Aristotle University of Thessaloniki in 1992. He has been Scientific Responsible and project manager of R&D project for over 4 MEuros. He has published over 100 journal and conference papers, book chapter and technical reports. His main research interests include: Fuzzy Cognitive Maps, Soft Computing techniques, Computational Intelligence Techniques, Evolutionary methods, Neural Networks, Support Vector Machines, Knowledge Hierarchical Systems and intelligent data fusion; Modeling and Decision Support Systems, Innovation, Smart Specialization and Regional Development.

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Maria S. Schina,

is a graduate of the Department of Civil Engineering of Aristotle University of Thessaloniki. After graduation she was involved in several structural design studies as self-employed or in cooperation with a design and construction firm. She has also been working as a scientific researcher at the Universities of Thessaly and Western Macedonia, in a series of projects and studies in the fields of Regional Development, Innovation, Management of Technology and Tourism Management. Since 2000 she has been working for the Urenio Research Unit of the Aristotle University of Thessaloniki, participating in the implementation and the management of European and National research projects such as: InnoRegio: Dissemination of Innovation and Knowledge Management Techniques, InVent: Innovative Actions in Thessaly, Istos: Innovative Actions in the South Aegean, Regional Innovation Strategy (RIS) in Southwest

Bulgaria, Medi-Cube: Mediterranean Technology Led Incubator Co-operation, RIPCMBusiness Intelligence, InnoPolis: Innovation Policy in University City Regions and CrossInnoCut: Innovative Cost Cutting Technologies for enterprises.

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Evi Mattheopoulou,
MBA, BSc in English & American Language & Literature,

She graduated from Aristotle University of Thessaloniki and took her Master's degree in Business Administration from University of Macedonia. She took her Doctoral Degree from University of Western Macedonia in Virtual Management. Experienced executive with sound knowledge of Project Management within the implementation framework of transnational EU Programmes, HR Management and Public Relations. Tutoring as an external expertise in Organisational Behaviour, Corporate Social responsibility and Corporate Communication at the Technical Educational Institute of Serres, Greece. Efficiently combining her progressive academic background with her extensive business career in the private business sector, bearing a life long tutoring experience at international level. Qualified as a Career development Facilitator at an international level European Centre for Credentialing & Education; registered A10 Expert in Certifying Trainers for Complementary & Supportive Services (National Accreditation Centre for Vocational Training).

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Evangelia Matiaki,
MBA, MSc, BEng (Hons) Civil Engineering,

graduated from City University of London, UK. She holds an MSc Degree in Regional Planning and Development from University of Thessaly, Greece and an MBA in Finance from University of Macedonia, Thessaloniki, Greece. She currently works in the area of Management of Innovation and Technology at the Department of Mechanical Engineering of University of Western Macedonia and in the implementation of INTERREG IVC European Funded Programs. She has long experience in the Region of Thessaly as a consultant to the INTERREG III Programs,

The Team

implementation of the 3rd ROP 2000- 2006 and has been a member of the design team of NSRF 2007- 2013 for Region of Thessaly - Epirus - Sterea Ellada. She has also participated in numerous conferences as a consultant to the General Secretary of the Region of Thessaly during period 2005 - 2009.

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