

EUROPEAN COMMISSION- DG REGIO

SECRETARIAT GENERAL OF THE
REGION OF CENTRAL MACEDONIA

**Regional Programme
of Innovative Actions**

**EXCELLENCE
IN CENTRAL MACEDONIA**



Final Report

Period covered

1 January 2002 to 31 December 2004

THESSALONIKI, DECEMBER 2005

Regional Programme of Innovative Actions

Excellence in Central Macedonia

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1. EXECUTIVE SUMMARY

The final report of the project "Excellence in Central Macedonia" covers the whole duration of the project, from 1st January 2002 to 31st December 2004. The main scope of the report is to provide information on the progress made and the results achieved, and to overview the practices put in place to establish and extend partnership.

Excellence-in-Central Macedonia aimed to continue and renew the efforts to support the development of the Region based on knowledge and innovation, by introducing quite new elements into the regional innovation strategy shaped by RTP and RIS+ initiatives. The origin of the programme was to strengthen efforts towards the creation of a regional environment, which accelerates the introduction of businesses and regional intermediary organisations into the world of business intelligence, and to promote a knowledge-based competitive regional economy. In this framework, all ten Actions of "Excellence in Central Macedonia" fall under the thematic "regional economies based on knowledge and technological innovation". The core of the programme strategy has been to support selected industrial clusters of the region to introduce and adapt innovation, and to enhance the outward performance of research institutions and technology transfer organisations, thus bridging the gap between production and research. With the end of the programme this strategy has successfully delivered:

- completion of the 10 Actions according to the specifications set in the technical annexes
- improvement of the innovation performance of the regional ICT cluster, involving companies in the innovation process
- development of virtual tools supporting the operation and competitiveness of companies and clusters in the services sector (health services, hotels, layers, private schools)
- demonstration of the efficiency of innovation management tools in business problem solving, though the implementation of technology clinics
- establishment of the methodology for the award of regional business excellence prize
- establishment of permanent institutions supporting innovation, such as the Innovation Observatory, the Digital Research Centre of Central Macedonia,
- establishment of a permanent mechanism supporting regional exportation activity through the e-Partenariat digital application
- diffusion of innovation management techniques (benchmarking, human resources management, quality certification, etc.) to the labour side, through training schemes at the virtual and the real space
- development of a technology foresight exercise in Central Macedonia covering 8 critical fields for the region

Excellence in Central Macedonia has been managed, at the technical and financial level, by the Regional Authorities of Central Macedonia. Evaluation/quality assurance has been performed by the Urban and Regional innovation research unit (URENIO) of Aristotle University of Thessaloniki.

Competent authority in the Region	Secretariat General of the Region of Central Macedonia
Managing Body	Management Authority for the ROP Central Macedonia
Paying Body	Regional Development Fund of Central Macedonia
Quality Assurance Unit-Evaluation	URENIO research unit, Aristotle University of Thessaloniki

The selection of the regional implementation agents and the assignment of the actions aligns with the cornerstones of the strategy: the creation of clusters, the support to the clusters, the improvement of the supply side, the diffusion of research results and the broadening of research institutions visions, the development of non-material structures – the observatory for long-term services and evaluation of innovative actions, the reinforcement of regional human resources, skills and capabilities.

The initial duration of the project was 24 months, starting from the 1st January 2002 and ending on the 31st December 2003. However, the assignment of actions to the regional agents was delayed by eight months, from January to August 2002, mainly due to administrative reasons, which concerned the definition of the administrative framework for the operation of the project. A prolongation of the project duration was officially requested and approved by the Commission, setting the end date of the project the 31st December 2004.

Contracts were signed by the end of August 2002 and covered all issues related to the objectives of the Actions, financial resources, budget, financial management rules, timetable, and contractual obligations. Indispensable part of each contract was the technical annex of the corresponding Action, where work packages, activities, expected deliverables, and budget were analysed. With the signing of the contracts, implementation agents committed to speed up efforts in order to cover the delay and accomplish the work foreseen within the initial time schedule (until the end of December 2003). However, this goal was not achieved and a twelve-months prolongation of the project was required and approved by the Commission, setting the end date of the project on the 31st December 2004.

Eight actions started just after the signing of contracts, while actions 1 and 6 initiated later, in the beginning of 2003. Implementation agents established the monitoring team for the action, and proceeded to the implementation phases. During the evolution of the programme, major concern of both the action managers and the management team of the programme have been:

- the establishment of business clusters and the broadening of existing clusters with the involvement of a significant number of participants, in order to multiply benefits
- the development of digital applications which facilitate the activities of research institutions, consultants and intermediary organisations
- the acknowledgement of actions to the beneficiaries
- the organisation of appropriate promotion activities.

In general, the evolution of the programme was satisfactory both in terms of progress made, taking into consideration the delayed start, and communication between the members of the partnership and the beneficiaries of each action. Budget accumulation almost reached the initial forecast: almost 4.448.000 euros have been absorbed on the project, in relation to the 4.500.000 euros foreseen. This is explicitly important provided that the private contribution has exceeded the initial plan by around 36.000 euros.

Balanced partnership was major success factor for the project. For this reason, the Steering Committee was composed of representatives from a wide range of social activities: the academic community, technology transfer institutions, the entrepreneurs, exporters, labour organisations. Representation included also institutions and stakeholders of the region covering a wide range of scientific areas, both traditional and emerging technologies, manufacturing and service sectors, and human resources: food-beverages, computing and information technology, health and tourism services, transport logistics, business management, quality, international co-operation, training personnel. The meetings of the Steering Committee enabled the exchange of experiences regarding raising awareness of the target groups, best practices in the fields of

innovation, practices to put in place in order to relate actions to each other, and multiply results and avoid overlapping.

Raising awareness of regional agents was facilitated by the structure of the programme and the implementation agents, who exploited existing communication paths and facilitated the involvement of regional agents to the actions. Digital spaces have had a distinct and important role in the promotion of actions. Most implementation agents developed separate spaces in their web sites for the specific action, and thus, innovative actions in C. Macedonia are communicated to a wide audience, creating new challenges for further co-operations in the fields of innovation.

The following sessions of the final report provide information on the management procedures, the financial management and the quality assurance system, the partnership, the implementation procedures, the results of the Actions, the publicity and dissemination activities, and the budget accumulation.

2. IMPLEMENTATION OF THE PROGRAMME VIS-À-VIS THE ORIGINAL PROGRAMME DESCRIPTION

2.1 Objectives

Overall objective of the programme was to bring the companies and intermediary organisations of Central Macedonia closer to the worldwide best practice level, in terms of advances in business, technology, production, and manufacturing practices, with the scope to reinforce their innovation capacity. The overall objective was specialised in four distinct axes. Each axis is translated in specific actions which promote the notion of innovation in different target groups. The axes of "Excellence in Central Macedonia" and the Actions falling under, are:

(1) Increase regional technology intelligence and the understanding of emerging features in innovation and technology. Increase of regional technology intelligence is a permanent concern of all leading regions that carry out efforts to capture future technological trends and outline emerging technologies. Two specific Actions of the programme foster technology intelligence in C. Macedonia:

Action 1: Technology Foresight in Central Macedonia: an exercise covering 8 industrial sectors. Although most foresight exercises are national, there are some quite remarkable regional attempts, which guided the selection of the specific action as a best practice

Action 7: Digital Research Centre: codification and presentation of the main results of about 1.000 research projects/outcomes achieved by regional Universities and research centres.

(2) Sustain the development of knowledge-based clusters, as a key element in changing the production structure of the Region. Three actions fall under this aim:

Action 2: Encouragement of clustering and cooperation of SMEs in areas of technology transfer, innovation, quality control, marketing and promotion of products.

Action 3: Ecological food cluster: new products development and diffusion, to farmers and food enterprises, according to organic farming principle

Action 4: High Technology Based Enterprises: support for start-up innovative business actions with high intensity in information business/ computing

At the level of each cluster, the aim was to:

- Prepare a development plan outlining the trajectory to be followed in order to improve the cluster's position on the knowledge / technology ladder.
- Create a digital network among the members of the cluster, facilitating the communication, exchange of experiences, co-operation, and joint ventures.
- Identify best practices, business excellence principles, and world manufacturing standards to be introduced into the cluster.

(3) Disseminate business excellence and world class manufacturing principles, through the implementation of four specific Actions:

Action 5: Technology transfer through technology clinics – development of 10 technology clinics

Action 6: Innovation and business excellence prize - innovation award for the adaptation of the EFQM model at the regional level

Action 8: Training personnel in innovation management / e-learning: dissemination of innovation management techniques and training courses to business managers, employees and unemployed people.

Action 9: E-partenariat – Establishment of an innovative electronic system to assist the development of international partnerships.

(4) Help the Region in defining, monitoring, evaluating and restructuring a comprehensive regional development policy, based primarily on innovation and secondly on sustainability.

Action 10: Observatory of Regional innovation and Entrepreneurship: development of a specialised Observatory to which the Region assigned the tasks of evaluating the results and impacts of all innovative actions on the regional economic and social structure and of proposing appropriate policies.

With the conclusion of the programme, the objectives initially set have been met, mainly thanks to the following factors:

- assignment of actions to the appropriate agents of the Region, in terms of competences and communication capability with the corresponding final beneficiaries
- fully designed technical annex for each action, considering the origin and scope of the action
- fruitful cooperation and communication of the managing authorities and the quality assurance unit with the implementation agents, which allowed experiences exchange and incorporation of good practices within the actions

2.2 Duration

The initial starting date of the programme was the 1st January 2002. However, Excellence in Central Macedonia actually started in September 2002, when the assignments of Actions to the implementation agents were concluded. The delay to the initiation of the Programme is related to the efforts of the regional administration authorities to clarify issues regarding the programme's coordination, eligibility criteria, financial rules, content of the contracts, VAT issues, etc, prior to the assignment of the Actions. The purpose was to establish a sound monitoring and financial management system and a strong partnership, in respect to the national and Commission rules. Major concern was the definition of the type and content of the contracts between the implementation agents and the General Secretariat of the Region of Central Macedonia, in order to ensure the fulfilment of the overall project strategy.

The implementation agents did not manage to cover this delay and a request for a twelve months prolongation was submitted to the Commission and finally approved. Thus, the overall duration of the project was 36 months, from January 2002 to December 2004, split in two time periods: the first, covering the period from the 1st to the 8th months, was dedicated to administrative tasks and finalisation of management principles. The second period, from the 9th to the 36th months was the clearly execution phase of the programme.

2.3 Partnership

Excellence in Central Macedonia has been based on an on-going effort to keep and broaden regional consensus, developed through the RTP, RIS+, IRIS exercises in the region, and base the process on the co-operation between regional agents, including regional authorities,

business associations, and the academic community. Two main elements have been put in place in order to achieve consensus building and maintaining: (1) the participation of actors from various regional agents and the government in the Steering Committee, and (2) the involvement of regional actors in real work procedures with the assignment of each pilot application to the regional agent that excels in the nature of the application.

Preparatory work for the establishment of the partnership and the assignment of the Actions included:

- (1) Assignment procedures: although implementation agents were identified in the approved project proposal, the project management team investigated all possible alternatives and possibilities to assign the actions, in order to align with EU and national rules (de minimis, etc.)
- (2) Preparation of contracts: special care and effort were dedicated to conclude to the content of contracts, given that national and EU rules had to be kept, as well as specific articles had to be included in order to ensure quality of the actions' implementation, on-time delivery of results, and eligibility of expenses. In particular, for each Action, a three-party contract was signed between the General Secretariat of the Region of Central Macedonia, the Regional Development Fund of the Region of Central Macedonia and the corresponding implementation agents. Each contract covered in detail the following issues:
 - basis and content
 - rationale
 - object of the contract – description of the action
 - geographical coverage
 - resources: funding, financial management of the action
 - duration and timetable of the action
 - contractual obligations and rights
 - creation and role of a common commission
 - conflict solving procedures
 - final regulations

Each contract was supplemented by the corresponding technical annex, which described in depth the activities of the action, deliverables and delivery dates, and budget.

- (3) Drafting a technical annex for each action: the content of the technical annex was designed by the Quality Assurance Unit, URENIO research unit, discussed and approved by the managing body, the Managing Authority of the ROP of Central Macedonia. The technical annex was describing in detail the deliverables, the activities related to each deliverable, the cost, the time required, the whole duration of each action, and the categorisation of eligible expenditure. For each action, the technical annex consisted indispensable part of the contract.

After the preparatory work was concluded, contracts were signed and the Steering Committee for the whole duration of the programme was formed with representatives from a broad range of regional actors. Table 1 illustrates the partnership of Excellence in Central Macedonia.

TABLE 1. EXCELLENCE IN CENTRAL MACEDONIA – COMPOSITION OF THE STEERING COMMITTEE

Regional Agent	Representative
Secretariat General of the Region of Central Macedonia	G. Tsiotras, General Secretary
Regional Development Fund	P. Georgopoulos E. Staiou
ROP 2000 – 2006 Management Authority	L. Oreopoulou F. Platis
ROP's Management Consultant	G. Michaelidis
URENIO Research Unit – Aristotle University of Thessaloniki	N. Komninos L. Kyrgiafini
Aristotle University of Thessaloniki (AUn)	Y. Tsoukalas
University of Macedonia (PM)	G. Tsiotras
Centre for Research and Technology-Hellas (EKETA)	K. Tramantzas
Centre for Entrepreneurship and Cultural Development (KEPA)	Y. Tsaras P. Koumplis
Federation of Industries of Northern Greece (SVVE)	Y. Stavrou
Association of Exporters of Northern Greece (SEVE)	M. Stamboulis N. Manousaki
Association of ICT businesses of Northern Greece	S. Ignatiadis
Trade Unions Centre of Thessaloniki (EKTh) – Macedonian Employment Institute (MAKINE)	K. Pagarliotas

The role of the members of Excellence in Central Macedonia Steering Committee was to transfer experiences from the domain they represent, mobilise members of the agencies they represent on innovation issues, provide consultancy to the management body and monitor the progress of work and the distribution of financial resources. Task of the Steering Committee was also to oversee the whole Programme, to define the operation rules concerning the work to be done in each pilot project, to direct the diffusion of the Programme results. Overall task has been to ensure a consensus on the objectives, methodology, inputs and results of the programme. The work of the SC was supported by:

- The Managing Body of the Programme, Regional Operational Programme managing body, responsible for communication and co-ordination between the Programme and the Regional Operational Programme.
- The Project Team of the Managing Body, on issues concerning the organisation of the SC meetings, keeping minutes, and distributing information material.
- The Paying Body, Regional Development Fund of Central Macedonia, responsible for the allocation of budget to implementation agents, the control of eligibility of expenses, the coordination of work of the chartered auditors, and communication with the Commission on financial management issues.
- The Action Managers of the pilot actions, in terms of information on on-going projects and progress, and disseminating the Programme results.
- The Quality Assurance Manager of the Programme, URENIO research unit, in terms of on-going evaluation issues, the application of the quality assurance through checking the Actions' deliverables, and the preparation of reports to be submitted to the European Commission.

Steering Committee meetings have been the main mechanism of communication between regional agents, transfer of good practices of the pilot actions, and monitoring the whole programme. Five Steering Committee meetings were organised during the reference period, in which participated the action managers and representatives of the specific actions:

- (1) *The kick-off meeting was held on the 9th April 2002*, at the premises of the General Secretariat of the Region of Central Macedonia. The scope was to announce the initiation of the programme, present the content of the specific actions, review the implementation details, and discuss about administrative difficulties, management and financial issues, and methods for the monitoring and evaluation.
- (2) *The second Steering Committee meeting was held on the 5th December 2002*, at the premises of the General Secretariat of the Region of Central Macedonia. Major issues of the agenda were the monitoring, evaluation and financial management system to be followed during the whole duration of the programme. Three types of documents were distributed and presented to the implementation agents:
 - templates for the monitoring of the physical progress, the financial progress – expenditure categories- and the physical towards the financial evolution,
 - instructions regarding VAT eligibility, according to the ERDF rules, and
 - instructions regarding the eligibility of VAT, according to the Paying Body.

Participants made remarks and comments and the Evaluation and Monitoring unit committed to incorporate the modifications and redistribute the revised templates to the implementation agents. The on-going evaluation of the project has been based on the completion of these templates by the action manager for each reporting period. Clarifications on financial management issues were provided by the director of the Regional Development Fund, Mr P. Georgopoulos.

- (3) *The third Steering Committee meeting was held on the 22nd May 2003*, at the premises of URENIO research unit. The scope of the meeting was to present the progress made on each Action. At the meeting participated the representatives of each implementation agent, and the members of the Managing and Paying authority and the Quality Assurance team. The presentations made proved that, despite the delay in initiating the Actions, the progress of work was satisfactory, but a request for a prolongation would be more beneficial for the programme. A number of financial clarifications were also given to the implementation agents.
- (4) *The fourth Steering Committee meeting was held on the 22nd December 2003*, at the premises of the ROP Management Authority. Main objective of the meeting was to overview the progress of the Actions and discuss the details for the submission of the request of payment of the second pre-financing of the Commission's grant. The SC decided to submit the request in spring 2004, in order to fulfil the condition of spending the 40% of the total budget of the programme.
- (5) *The fifth Steering Committee meeting was held on the 27th December 2004*, at the premises of the ROP Management Authority, with the participation of all project actors. The main issues discussed during the meeting were:
 - outcomes of the Actions
 - final steps of the project, in light of the project ending (31/12/2004)
 - coordination of work for the submission of the final report
 - clarification of the Actions' obligations –technical and financial- for the final report

Apart from the Steering Committee meetings, contacts between the partnership and the Regional authorities responsible for the Objective 1 programmes have been developed through two distinct circuits:

- (a) an internal circuit concerning the implementation of the pilot actions, which links the Steering Committee, the regional authorities implementing the pilot actions, the project manager, the quality assurance manager, the paying body, and the beneficiaries of the pilot applications, and
- (b) an external circuit, concerning the exploitation of Programme's results, which links the Steering Committee with the Regional Operational Programme and the European Commission. Communication with the Commission has been ensured via the ROP and the progress reports.

A smooth cooperation between the Regional authorities and the implementation agents has been developed during the evolution of the project, which allowed Actions to benefit from experiences exchange between the implementation agents and get useful guidance from the Managing authorities and the Quality Assurance Unit.

2.4 Implementation of the Strategy

Excellence in Central Macedonia aimed to continue previous efforts of innovative actions of ERDF and FP5 in Central Macedonia, such as the *Regional Technology Plan* (ERDF, 1995-97), the *RIS+ Central Macedonia* (ERDF, 1999-2000), *INNOREGIO: dissemination of innovation development technologies* (RECITE II, 1999-2001), *InnoTender* (FP5, 2000-01), *Innovation-on-Line* (FP5, 2000-01), and others, which led to the formulation and testing of a regional strategy for innovation and technological development. The programme launched a revised strategy for regional innovation and development based on the concepts of 'high tech clusters', 'technology foresight' and 'technology clinics', as well as experimentation with pilot actions that were never tested, which involved the major regional actors and established permanent alliances among the learning institutions of Central Macedonia.

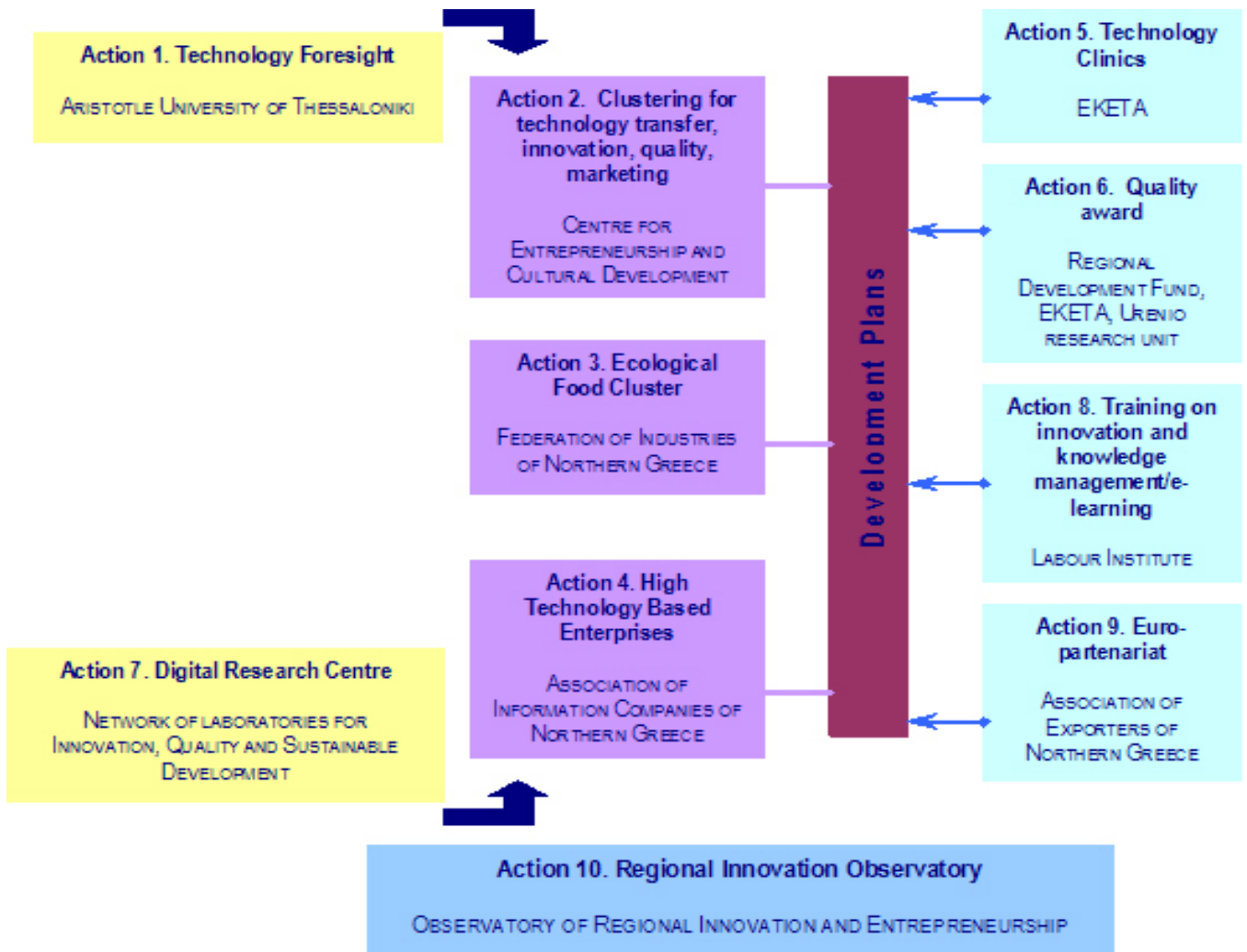
The overall strategy of Excellence in Central Macedonia was based on the following concept: at the heart of the strategy are a number of selected industrial clusters representing important and emerging industries of the region, such as agricultural products, food and beverages, textiles and clothing, chemical products, electric machinery, telecommunications, software, pharmaceuticals, medical services. For each cluster, a detailed development plan has been prepared and validated, introducing business excellence and world class manufacturing principles. Two Actions of the Programme were seeking to facilitate the drafting of development plans of the selected clusters: the Regional Technology Foresight exercise, which identifies promising technologies for the coming decade at the industry level, and the Digital Research Centre, which codifies the existing regional capabilities in terms of research results and scientific human resources. On the other hand, a series of pilot practices (including technology clinics, training, e-learning, technology demonstration, euro-partenariat exercise, quality award) support the endorsement and implementation of the development plans. The Regional Innovation Observatory monitors and evaluates the effects of these pilot projects transferring the most promising actions to the mainstream structural funds of the region for large-scale implementation.

During the definition phase of the programme, which lasted until the 8th month, the strategy was reviewed and specialised, in terms of implementation agents and content of the Actions of the project. The pilot actions were assigned to regional agents, according to their field of competence. Implementation of Excellence-in-CM was based on the actors of the Regional Innovation System, with proven, in previous innovative actions, interest, expertise, and

capability to promote innovation and technological development in Central Macedonia. The strategy has been concretely shaped within the technical annex prepared for each Action. The evolution of the programme showed that synergies between actions may be developed, which is a challenge for the actions and significant criterion for the comprehensive implementation of the strategy.

Diagram 1 illustrates the milestones of the strategy of Excellence in Central Macedonia, including the Actions and the regional implementation agents.

DIAGRAM 1. EXCELLENCE IN CENTRAL MACEDONIA – THE STRATEGY



2.5 Implementation of individual actions

The programme has been structured on 10 distinct Actions, while a technical assistance unit was operating separately in order to provide support to the action managers on managerial and financial issues, monitor the progress of work and ensure the quality of actions. Table 2 presents the Actions included in Excellence in Central Macedonia and the corresponding implementation agents.

TABLE 2. EXCELLENCE IN CENTRAL MACEDONIA – ACTIONS AND IMPLEMENTATION AGENTS

Strategic theme: Regional economies based on knowledge and technological innovation		
Action	Implementation agent	Code
1. Technology Foresight in Central Macedonia	Aristotle University of Thessaloniki – Research Committee	A163
2. Encouragement of clustering and co-operation of SMEs in areas of technology transfer, innovation, quality control and promotion of products	Centre for Business and Cultural Development (KEPA)	A182
3. Ecological food cluster: new products development and diffusion, to farmers and food enterprises, according to organic farming principle	Federation of Industries of Northern Greece (S.V.V.E.)	A182
4. HTBE cluster: support for start-up innovative business actions with high intensity in information systems/ computing and technology	Association of Information Technology Companies of Northern Greece (S.E.P.V.E)	A182
5. Technology transfer through technology clinics	Centre for Research and Technology-Hellas (EKETA)	A163
6. Innovation and business excellence prize	Centre for Research and Technology-Hellas (EKETA)	A164
7. Digital research centre of Central Macedonia	Network of laboratories of innovation, quality and sustainable development of Aristotle University of Thessaloniki	A183
8. Training personnel in innovation management	Macedonian Institute of Employment (MAKINE)	A183
9. E-partenariat	Association of Exporters of Northern Greece (S.E.V.E)	A182
10. Observatory of Innovation and Entrepreneurship	Observatory of Innovation and Entrepreneurship	A183
Technical Assistance		
1. Quality Assurance Management	URENIO research unit – Aristotle University of Thessaloniki	
2. Regional Development Fund financial management	Regional Development Fund of Central Macedonia	
3. External experts	Chartered auditors (SOL S.A.)	

Work on most actions started in summer 2002, but official contracts between the management body and the implementation agents were signed in September 2002, with the exception of Actions 1 and 6, which started in 2003. Specifically,

Action 1: A technological foresight exercise for Central Macedonia, in eight thematic areas with significant importance for Central Macedonia, has been accomplished. A relevant report/ book, including the outcomes of the foresight exercise has been published and distributed to technological laboratories of Aristotle University of Thessaloniki and major regional stakeholders. The dissemination of the action has been based on the web (<http://foresight.rc.auth.gr/>), the participation in conferences and scientific meetings, and the publication of the regional foresight guide.

Action 2: Clusters in four sub-sectors of the services sector (hotels, lawyers, private schools, health diagnostic centres) have been established, and one report for each cluster has been developed, analysing the chain companies-suppliers-markets with regard to the innovation, the quality, the use of new technologies and the marketing. Business plans, and software tools for each cluster have also been developed.

Action 3: The ecological food cluster has been established including 20 companies, and a business plan for the future of the ecological agriculture in Greece is on progress. Studies and manuals on organic farming and cultivation of specific products have been developed. Several promotion activities were organised, and the web site <http://biofood.sbbe.gr> has been created providing on-line information services to the cluster's members.

Action 4: The high-technology-based firms cluster is established. Training on the development of business plans for new product development was provided to ICT companies, and 14 companies completed business plans, covering a wide range of topics, such as innovative products, software development, innovative e-services, etc.

Action 5: Nine technology clinics in corresponding technological fields have been conducted, including technology audits, workshops and individual consultation to the companies participating in the clinics.

Action 6: A business excellence award, based on the EFQM principles has been developed. A number of executives have been trained on the application of the model to companies, and prizes have been awarded to regional companies for their innovative performance, according to the new model.

Action 7: The digital research centre of Central Macedonia is developed (www.vrc.gr), providing a digital platform for the demonstration of research outcomes of the regional research institutions, the matching of technological demand and supply, and the provision of support services related to technology transfer, quality management, new product development/prototype manufacturing, technology watch, spin-off creation, and measurements and patterns.

Action 8: Several training schemes on innovation management techniques were organised, addressed to chief directors and employees. Training on Benchmarking has been performed at the real and the virtual space.

Action 9: An electronic partenariat system is set up, operating through the Internet (www.e-partenariat.net) and allowing the organisation of virtual partenariats, offering the possibility for distant business meetings between potential partners in different countries.

Action 10: The Regional Innovation and Entrepreneurship Observatory has been established (www.orie.gr), as an effective means – instrument for dissemination of information and news of current developments in the region, also promoting dialogue and the culture of innovation in Central Macedonia.

No significant implementation difficulties have been faced. The implementation agents had the competences and skills to carry out the activities foreseen and deliver the expected results. The expertise of external consultants has also formed an important input for most actions. The technical assistance unit provided support and consultation for the preparation of the analytical technical annexes of the actions, the clarification of the financial management and administration details, the preparation of the progress, the interim and final reports, and the evaluation of the actions' progress. The following templates, completed by the projects' action managers, provide a brief description of the content of each action, the tasks undertaken, the deliverables and the corresponding results.

Action 1	TECHNOLOGY FORESIGHT IN CENTRAL MACEDONIA
Implementation Agent	RESEARCH COMMITTEE, ARISTOTLE UNIVERSITY OF THESSALONIKI
Reference Period	01.01.2002 to 31.12.2004
Code	A163

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

Primary objective of the action was to design and develop the first regional foresight exercise in Greece. The action was an attempt to foresee the impact of technological developments on the various elements of the regional innovation system. The project's look-ahead period was 15 years; the Delphi paradigm was followed. By using the experience and know-how of the most prominent regional experts that were summoned to observe and comment on the latest developments and trends the action developed probabilistic models and theories for development and put them under the criticism of the public. The results of this process were published in a book that summarises the actions findings.

1.2 Content

Central Macedonia is very small in terms of population (approximately 18% of Greece) and technological capacity; it is not considered as a technology provider. It "imports" technology from other Greek and international regions for internal use, and by adding some value "exports" technological solutions to neighbouring Regions and Southeast European countries. However, there exist some interesting strengths within the regional innovation system—i.e., a strong educational infrastructure, the presence world-calibre research centres, an entrepreneurial attitude, easy access to significant markets outside the Greek borders, that, when supported by the correct mix of technological developments, might result to exploitable opportunities.

The project's secondary objectives were to identify and interrelate the "correct mix of technological developments" to the "exploitable opportunities"; to provide hints on re-orientating the regional innovation system towards exploiting these opportunities; and influence the strategy development process of all regional actors towards supporting the transition of the region to global-grade competitiveness so that the opportunities will be effectively exploited.

The foresight exercise originated from and applied to Central Macedonia. Under the co-ordination of the Research Committee of Aristotle University of Thessaloniki, approximately sixty high-level experts were selected to form a balanced mix of the elements of the regional innovation system (academia, industry, research, regional administration, NGOs, technology transfer) and elaborate eight thematic areas of strategic importance to the Region: (a) Information and Communication Technologies, (b) Agro- and Bio-technologies, (c) Industrial processes and Materials, (d) Environment, (e) Transport networks, (f) Energy, (g) Human Resources and (h) the South-eastern European economic area.

The theoretical paradigm upon which this action was built was Kolb's learning circle. The Delphi paradigm was used to evaluate and fine-tune forward predictions. 1240 selected individuals were asked to evaluate 215 Delphi statements classified in eight on-line questionnaires. 200 individuals actually participated in the process. Two iterations of the Delphi questionnaires took place between October 2003 and February 2004. Following the convergence of the Delphi process, the teams of experts elaborated one final report per thematic area. All eight reports together with a Methodological Guide and a Summary of Findings were published in "N. Maroulis and Y. Toliias (editors), Technological Foresight in Central Macedonia: Central Macedonia Towards 2018, Thessaloniki, Greece: Research Committee-Aristotle University of Thessaloniki, 2004, ISBN 960-88503-0-4 (484+iv pages)".

1.3 Final beneficiaries

Indirect beneficiaries of the action are all the actors in the regional innovation system due to their improved ability for decision making on the issues that were examined by the project.

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

The action's mission statement, endorsed just after staffing the working groups was: "Our mission is to provide our best efforts to identify the most probable routes for the development of the regional innovation system in Central Macedonia and provide justified evidence to any interested key actor so that the most rewarding is selected. We develop our project by assessing the technological progress as a result of rapid advances in science and technology and evaluating their impacts on everyday life of the people in Central Macedonia."

The implementation steps that were followed in developing the action are summarised below and analysed in the first chapter of the final deliverable (Y. Toliás, "Technological Foresight in Central Macedonia: A Methodological Guide," in Technological Foresight in Central Macedonia: Central Macedonia Towards 2018, Thessaloniki, Greece: Research Committee-Aristotle University of Thessaloniki, 2004, Chapter 1, pp. 1-58):

1. Selecting the thematic areas upon which the foresight exercise would be built. The selection process was based on a thorough SWOT analysis of the regional innovation system.
2. Elaborating the Operational Guidelines for all parties involved in the development of the project.
3. Selecting the chairpersons of the eight Working Groups. This task was carried out by the project's Steering Committee.
4. Staffing the working groups. Approximately 60 people were involved as members of the eight WGs, the majority volunteered and some by direct appointment following the directions of the Steering Committee and the WG Chairpersons. This process finished on 22 June 2003.
5. Finalising Scope per WG: The WG proposed which attributes of the respective thematic fields are important and worth assessing and which not. This process finished on 30 July 2003.
6. Elaborating a baseline audit per WG: Following the finalisation of the scope for each WG, a baseline audit was elaborated to define the state-of-the-art and the situation in Central Macedonia. This process finished on 15 September 2003.
7. Drafting the Delphi statements. Each WG provided from 20 to 37 Delphi statements to be assessed by the public. The final list was available on 4 October 2003.
8. Preparing the data management system (web-based questionnaires) and inviting participants to the first iteration of the Delphi method. The first iteration of the Delphi method was launched on 14 November 2003, terminated on 31 December 2003. The second iteration was launched on 16 January 2004 and terminated on 18 February 2004. Convergence was achieved and no additional iteration was required.
9. Analysing the Delphi results. The WGs were asked to update their baseline audits, comment on the Delphi Results and synthesise their findings in a way that can be understood to the general public. A uniform template was used by all WGs to present their findings. This process finished in late October 2004.
10. Preparing / Publishing the project's proceedings and dissemination events. It took two months to have the project's final deliverable printed and a dissemination event has held on 21 December 2004.

2.2 Deliverables

The action's inheritance to the Region of Central Macedonia consists of:

- a. A book (in Greek) with the action's findings available on demand and free of charge from the Research Committee of Aristotle University of Thessaloniki, and
- b. The project's website at <http://foresight.rc.auth.gr> where the entire materiel collected, processed and produced by the project is available.

2.3 Difficulties/ problems faced

Not applicable

3. RESULTS

The project's primary and secondary objectives were fully met. There were extremely favourable comments on the quality of the project's final deliverable.

4. FOLLOW-UP ACTIONS/ SUSTAINABILITY POSSIBILITIES

The regional administration have already expressed their interest in utilizing them to draft the strategic objectives of the new Regional Operational Programme covering the period 2007-2013. The Research Committee of Aristotle University has already put foresight high on its' agenda for developing the University's research orientations, being committed to repeat the exercise by establishing a foresight mechanism within the University.

Action 2	ENCOURAGEMENT OF CLUSTERING AND CO-OPERATION OF SMEs IN AREAS OF TECHNOLOGY TRANSFER, INNOVATION, QUALITY CONTROL, MARKETING AND PROMOTION OF PRODUCTS
Implementation Agent	CENTRE FOR BUSINESS AND CULTURAL DEVELOPMENT – KEPA
Reference Period	01.01.2002 to 31.12.2004
Code	A182

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

Main goal of the action is the creation of an environment in Central Macedonia that will accelerate the corporations' entrance in the era of "business intelligence" and will promote the creation of a peripheral economy internationally competitive and based on the exploitation and utilization of knowledge.

1.2 Content

The action's goal has been implemented through the creation of four Information Portals for the provision of innovative services that will utilize the advantages of IT technology in order to improve the quality of offered services towards final recipients.

The pilot application that was materialized in the framework of the present program concerned the "Digitalized Corporate Networks". The service sectors as well as the individual sub-fields that were selected after the call for tender for submission of proposals were the following:

- Tourism, sub-sector Hotel Corporations
- Health, sub- sector Diagnostic centers
- Education - sub- sector Private schools
- Legal Profession - sub-sector Lawyer's offices

The analysis of the selected sub-sectors resulted to the need for creation of the following clusters:

- User Portal for the customers Thessaloniki's Hotel cluster that facilitates the supply of specialized and individualized information concerning tourism of high level, for the development of tourist awareness in Thessaloniki, as well as innovative services towards travelers through on line capabilities for traveling arrangements via internet (routes to the important parts of the city – interactive maps, information for the city's highlights via SMS, etc).
- User Portal for the customers of the Health Corporations cluster through a unified information system which centrally manages the total amount of the information and directly disseminates it in a manageable and friendly way to the appropriate audience and members of the entire health "supply chain" : salesperson, medical professionals, customers
- Creation of a network concerning privately-owned educational services and content delivery with new means of enterprise training services of Thessaloniki which is constituted by the following sub systems: (a) a sub system for web-based educational applications (e-learning) that assists the educational work of privately-owned educational services, and (b) a sub system for operational web-based applications that relies on current off-line operational systems of privately-owned educational services and allows the collaboration and diffusion of information to all involved parties: students, teachers, parents and privately-owned educational services (informal education).
- Information Network for the Lawyers of Thessaloniki via which users are given the capability for the supply of targeted and specialized briefing news by using the latest advancements in technologies concerning mobile telephony.

1.3 Final beneficiaries

The networks of the four clusters created through the specific action are constituted by corporations from Central Macedonia that have mutual goals, either vertically (supplementary corporations) or horizontally (uniformed corporations) connected, and are seeking to further accommodate their common interests and needs, improving their financial position and their competitiveness. Through the network, organizations

may transfer technology and know-how and share information that is beneficial to all participating cluster members.

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

The project was implemented in five phases

Phase A: Coordination and project management

Phase B: CLUSTERS selection

Phase C: CLUSTERS Composition

Phase D: CLUSTERS Analysis

Phase E: Results dissemination

2.2 Deliverables

Final deliverables are:

1. Initial study regarding the selection of the four (4) clusters
2. Business Plan for each cluster (4)
3. Data Base for each cluster (4)
4. Specialized studies for the development of each cluster (4), which include Functional Specifications of Advanced Applications and Implementation Study of advanced applications
5. Training Seminars (5 Thematic Units)
6. Traveling for knowledge transfer in each cluster
7. Software tools
8. CD-ROM production for each cluster
9. Newsletters for each cluster
10. Workshop implementation for each cluster (4)

2.3 Difficulties/ problems faced

The problems faced during the selection of the participating corporations concerned the collaboration difficulties amongst members, as well as the payment of submission of own-funding from the corporations of the initially selected sectors, which also led to their change.

3. RESULTS

The presumable results from the contexture of the 4 Portals have as follows

Hotels Cluster

- Integration of the Infosociety's Technology, which aims towards improvement of competitiveness hotel owners of Thessaloniki.
- Increase tourist demand through the promotion and projection of the city's attraction points.
- Emergence of historical and cultural elements of the region.
- Projection of special tourist information (amusement, food, sports, culture, events, etc.)

Legal profession Cluster

- Incorporation of Information and Communication technologies, in order to improve the competitive position of legal professionals of Thessaloniki.
- Qualitative improvement of the provided services of legal professionals of Thessaloniki since the information they receive and provide is continuous and up to date.
- Reduction of labor cost as a result of reduced time being spent for searching information.

Private health sector Cluster

- Increase satisfaction of customers with the provision of high quality services mainly with regard to the subscribing medical programs and increased sales,
- Cost Reduction for servicing customers and promotion of customer autonomy via self-servicing.

- Improvement of security for sensitive personal data and access to enterprise data.

Private training services Cluster

- Exploitation of the results of the work for educational purpose from the students of the privately – owned educational services that participate in the cluster.
- Internal and enterprise re-engineering for privately –owned educational services that participate in the cluster through internet technologies.
- Exploitation of results of the work for the support of the distant learning students. From the results of the work enterprises, that participate in the cluster, can broaden and extend the work, providing distant learning educational services, even beyond Greece (specifically in the Balkan region).
- Development of new teaching methods, by utilizing Internet technologies.

Also, the work for the privately-owned educational enterprises provides an exceptional opportunity to strengthen their place in terms of quality and the range of provided services as well as increase the implementation of innovative learning products. Thus, students of privately-owned educational organizations are given the opportunity to make use of new learning technologies aiming to optimize the effectiveness of learning.

4. FOLLOW-UP ACTIONS/SUSTAINABILITY POSSIBILITIES

The possibilities to continue the results of the Portal development depends on the positive impact that these initiatives will have for participating members of such a network, which utilizes on the tools of modern technology and information technology and aims to improve the quality of services for the recipients.

Action 3	ECOLOGICAL FOOD CLUSTER: NEW PRODUCTS DEVELOPMENT AND DIFFUSION, TO FARMERS AND FOOD ENTERPRISES, ACCORDING TO ORGANIC FARMING PRACTICES
Implementation Agent	ASSOCIATION OF INDUSTRIES OF NORTHERN GREECE
Reference Period	01.01.2002 to 31.12.2004
Code	A182

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

The scope of the action was the establishment of an Ecological Food Cluster for the development and promotion of organic farming products to farmers and food enterprises. The goals are:

- Studying the feasibility of organic farming
- Transfer of technical know-how on organic farming
- Development of networking activities for transfer of know-how on organic farming and promotion of organic farming activities and products
- Creation of an Organic farming cluster, including organic farmers, producers of organic farming products and intermediaries, for promoting joint organic farming activities and exchange of know-how

1.2 Content

The action concerns the realization of a series of studies and activities, including:

- Studying the needs, requirements and feasibility of actions concerning certain organic farming products of interest, such as organic sheep and goat stock breeding products, organic citrus drinks and wine from organic farming of vineyards.
- Establishment of a cluster of organic producers and intermediaries, for promoting organic farming and organic farming products
- Development and operation of a web-based tool for cluster development and organic farming activities and product promotion

1.3 Final beneficiaries

The final beneficiaries are:

- The farmers and food producers who will benefit from transfer of know-how on organic farming in order to be encouraged to include organic farming in their business activities
- The organic farmers and organic food producers, in order to promote their organic farming activities and products

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

In order to achieve the above goals, the action included the following implementation steps:

- Project management and coordination (D1)
- Realisation of a series of studies on technical requirements and feasibility of certain organic farming activities and products of interest, including:
 - A study and technical manual for the organic sheep and goat stock breeding and the production of organic products based on sheep and goat milk (D2)
 - A study and technical manual for the production of organic citrus juice drinks (D3)
 - A study and manual for the organic farming of vineyards for the production of organic wine (D4)
- The creation of a web portal on organic farming and initial creation of an on-line organic food cluster, for transfer of know-how and promotion of organic farming activities and products (D5)
- Three workshops for transfer of know-how and dissemination of organic farming activities (D6)
- Scenario analysis for the future of organic farming in Greece and feasibility study for the establishment of an Ecological Food Cluster (D7)

- Seminar for the promotion of the cluster activities and the dissemination of project results (D8)
- Development and publication of training and promotion material (D9)

2.2 Deliverables

The project deliverables include:

(D1) Project management deliverables including action plan, progress reports, financial progress reports

(D2) A study and technical manual for the organic sheep and goat stock breeding and the production of organic products based on sheep and goat milk, including identification of existing systems and needs, technical manual and feasibility study

(D3) A study and technical manual for the production of organic citrus juice drinks, including identification of existing systems and needs, technical manual and feasibility study

(D4) A study and manual for the organic farming of vineyards for the production of organic wine, including identification of existing systems and needs, technical manual and feasibility study

(D5) A web-portal on organic farming, <http://biofood.sbbe.gr>, including library, links, news, FAQs, forum and member access to promote their organic products

(D6) Three workshops on the European policy of GAP and organic farming, the future of organic farming in Greece, the strategic business plan of the Ecological Food cluster

(D7) A study on the future of organic farming in Greece, the results of which were used as input for the development of a strategic business plan for the establishment and operation of an Ecological Food Cluster

(D8) A seminar for the promotion of the cluster activities and the dissemination of project results

(D9) Production and publication of promotion and training material, that was disseminated during the workshops and the seminar and also via mail to attract members to the cluster

2.3 Difficulties/ problems faced

There were not any particular difficulties faced during project implementation.

3. RESULTS

The main project result, apart from the successful implementation of all project activities and deliverables, was the creation of the Ecological Food Cluster. The cluster was initially created in pilot form, in order to test its functionality and effectiveness. The initial cluster members (36 members) participated in the following project activities:

- Electronic access to the studies and technical manuals that were delivered during the project
- Access to other relative documents (legislation, policies) in the electronic library of the web portal and to corresponding links
- Electronic promotion of the members profile and organic products via the web portal
- Electronic access to corresponding news and announcements on organic farming
- Electronic forum for exchange of views and experience on organic farming
- Participation to the workshops European policy of GAP and organic farming, the future of organic farming in Greece, and the strategic business plan of the Ecological Food cluster
- Participation to the seminar for the promotion of the cluster activities and the dissemination of project results

At the end of the project a full Ecological Food Cluster was created in the form of an association, including 25 members. The main aims of the cluster are:

- Strategy development and implementation for the promotion of organic products of Greece and the

support of organic farmers

- Promotion of organic products to consumers, via systematic information and awareness creation activities
- Information and transfer of know-how to farmers on the market and technology trends in organic farming
- Having an impact in increasing the demand for organic products, increasing organic product consumers and organic product producers

Initial project goals have been therefore achieved, involving final beneficiaries in all project activities.

4. FOLLOW-UP ACTIONS/SUSTAINABILITY POSSIBILITIES

According to the strategic business plan of the Ecological Food Cluster, the cluster can be sustainable by offering services to its members, including:

- Organic farming and product promotion, information and support via the Ecological food cluster web portal (<http://biofood.sbbe.gr>)
- Information and support on corresponding funding possibilities
- Information and support on corresponding organic product certification procedures and requirements
- Consulting and training services
- Product promotion services

Possible funding possibilities exist within the general EU policies for supporting organic farming and organic product promotion activities, at European, national and regional level.

5. OTHER COMMENTS

The pilot actions implemented during the project were very important in attracting the interest of beneficiaries to form a network of activities with the aim of promoting organic food farming and products, not only in Central Macedonia but also in the rest of the country.

Action 4	HTBE CLUSTERS: SUPPORT FOR START-UP INNOVATIVE BUSINESS ACTIONS WITH HIGH-TECH INTENSITY OF INFORMATION SYSTEMS/ COMPUTING AND TECHNOLOGY (HIGH-TECHNOLOGY BASED ENTERPRISES –HTBE CLUSTER)
Implementation Agent	ASSOCIATION OF NORTHERN GREECE INFORMATION TECHNOLOGY ENTERPRISES (SEPVE)
Reference Period	01.01.2002 to 31.12.2004
Code	A182

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

The HTBE Cluster supported new firms in the computer science & telecommunications environment as well as the recently established spin-off activities of the existing high technology firms.

1.2 Content

The Action included:

- The organization and operation of the cluster
- The launching of a contest focused on the promotion of innovation either of individual entrepreneurs or existing firms
- The training and consulting activities to the participants of the contest
- The selection of the most innovative 5-10 ideas concerning ICT industry
- The organization of a master plan regarding the strategic direction of ICT within the Region based on the ideas and business plans submitted.

1.3 Final beneficiaries

Final beneficiaries were all the member companies of SEPVE, plus all interested individual potential entrepreneurs that would like to transform their idea into a technology intensive company.

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

The Action was planned to cover three strategic levels of implementation:

- Within the first level the main focus was the broad dissemination of information that would satisfy the demand of SEPVE members regarding issues like Marketing of Innovation, Legal Issues and Patent Law. The first level of implementation also included the execution of a field research among all members of SEPVE, investigating the current state and the strategic direction of the industry in the Region of Kentriki Makedonia. The main goal of the first level was that all members would take part in the activities designed and executed.
- The second level gave all members the chance to exercise their entrepreneurial skills, by taking part in the Innovative Ideas Contest that was designed and organised. All participants went through a short educational session on business planning and prepared a concise business plan with the assistance of experts from the industry. The main goal of this level was the promotion of the business thinking within innovative firms and/or individuals, plus the creation of a "pool of ideas" from which the best of them would be spotted and promoted.
- The third strategic level aimed to the creation of an "Innovation Library" within SEPVE after the evaluation of the business plans submitted during the Innovation Contest. Those business plans were ready to be presented to potential firms (VC Funds) or individual (business angels) in order to set the first ground for negotiation and possible funding. The main goal was to come up with 10-15 ideas in that level. This group of ideas would also be awarded with a prize.

The main strategic focus of the Action was to give SEPVE's members and especially the smaller ones the chance to face the challenge of testing the viability of their innovative ideas by preparing a realistic

business plan based on a solid methodology and full support by industry experts.

2.2 Deliverables

D1- Organisation and operation of the cluster. The support group formed by SEPVE's staff and external technical assistance, organised communication channels among the members, the meetings and events throughout the duration of the Action and created the Master Document based on the field search among members.

D2 – Technical Assistance of the Action. The agent appointed by SEPVE executed all the activities regarding control of the physical and financial activities of the Action, administration and reporting activities to the MA of the Programme, development of the questionnaire for field research, development of the Innovation Contest Guide and management of the evaluation process of the business plans.

D3 – Educational activities and promotion of the Action. (a) Formal presentation of the Action and the Innovation Contest (b) Workshop on the strategic focus of the ITC sector within the Region of Kentriki Makedonia (c) Event on the "Marketing of Innovation" (d) Event on "Intellectual property and Patent Law" (e) Event on the closure of the Action (f) Development of a website giving information on the Action throughout the duration of the Programme, www.sepve.org.gr.

D4 – Innovation Contest. SEPVE faced and organized the contest as an educational process, therefore designed and developed a series of activities for the encouragement and supporting of the members that would take part in the contest. More specifically the activities that took place were: (a) training workshop on Business Planning (b) preparation of a business plan template that was distributed to the participants (c) formation of a group of 5 consulting firms in order to assist the participants to elaborate their proposals (d) formation of a committee in order to evaluate the business plans submitted (e) organization of a "business morning" where the participants had the chance to present their ideas and discuss with experts from the financial market.

D5 – Development of the Innovation Library. The business plans that were evaluated as eligible according to the basic terms of the contest, took a unified form and were delivered to SEPVE after SEPVE signed a concede contract with the participants. The scope of this contract was to create an Innovation Library and promote the ideas to anyone that might be interested in financing the ventures.

2.3 Difficulties/problems faced

The major difficulties relate to the hesitation of the members to take part in the contest, mainly due to the disclosure of their ideas. Soon this was disappeared when members of the cluster realised the whole process that put an emphasis on the educational aspect of business planning.

3. RESULTS

1. Dissemination activities designed for all SEPVE's members. Practically all members followed one or more of the events/workshops of the Action.
2. Wide participation in the main educational activity of the Action (business plan seminar). 82 people from 62 firms (out of 168 members of SEPVE) took part in the seminar.
3. Number of companies initially interested reached to 29.
4. Number of companies evaluated and received the award reached 13.
5. Creation of Innovation Library within SEPVE.

The initial goal was for 40 individuals to get the training course, 20 to participate in the contest and 10 ideas to fulfil the criteria set. The actual numbers exceeded the projected.

4. FOLLOW-UP ACTIONS/SUSTAINABILITY POSSIBILITIES

The main output was the involvement of the participants during the activities of the Action. This will lead to the reproduction of the whole process (educational and contest) since the members that hesitated to take part, saw the outputs and had feedback from the companies that did, setting the example for a more promising repetition of the Action.

Action 5	TECHNOLOGY TRANSFER THROUGH TECHNOLOGY CLINICS
Implementation Agent	CENTRE FOR RESEARCH & TECHNOLOGY HELLAS (CERTH)
Reference Period	01.01.2002 to 31.12.2004
Code	A163

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

Main objective of the project was the implementation of technology transfer actions to SMEs of the Region of Central Macedonia aiming at confronting in the best possible way technological weaknesses that hamper their progress. SMEs of the region that participated in the action benefited from the knowledge and experience of bodies specialized in technology and know-how transfer. Thus, the bases for exploiting existing resources available in RCM were set and major synergies among Universities, Research Centres and organisations activated in the field of technology transfer were created.

Goals of the action have been:

- Assisting SMEs of RCM through processes crucial for their further development and sustainability
- Creating strong bonds between productive core of RCM and technology transfer organisations
- Preparing SMEs of RCM for rational exploitation of funds foreseen by the new regional operational program, elaborating projects based on their actual needs
- Developing the culture of strategic operational planning based on innovation
- Avoiding wasting resources (both public and private) for implementing projects non-compatible with SMEs' operational strategy and the national and international environment trends.

1.2 Content

Based both on the well defined technological needs of the SMEs (according to past studies during RTP, RIS, RIS+, Innoregio, etc.) and on the structure of the productive core of the RCM, the technology clinics that were planned to be implemented concerned the following topics:

1. Implementation of technological strategy for innovation
2. Operational planning
3. Quality systems application
4. Environmental management and policy
5. Marketing of products and sales policy
6. E - commerce
7. Supply chain management
8. New products development
9. Energy saving systems
10. Business excellence

The topic of Business Excellence that was initially foreseen to consist the 10th technology clinic was covered by another Innovative Actions project ("Establishment of Innovative Entrepreneurial Excellence Prize"). This project was decided to be implemented after having defined the Technology Clinics technical annex. In order to avoid the implementation of identical actions under the same initiative, and as an exclusively dedicated to Business Excellence project was already running, the 10th Technology Clinic was postponed.

The rest nine clinics were implemented in two phases. Phase A included dissemination actions for each technology clinic and consultation from experts in groups for the SMEs participating in this phase. Phase B included individual consultation for each SME participating in this phase.

1.3 Final beneficiaries

All technology clinics were addressed to SMEs of the Region of Central Macedonia. The selection criteria for the SMEs participation in each technology clinic were specialized according to the thematic area of each clinic and the particular technological services provided, and were finalized before each clinic's start.

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

The model selected for the implementation of the action "technology transfer through technology clinics" was based on the collaboration of the following 4 parties: the manager of the clinic, the coordinator of the clinic, the provider of the technological service and the SMEs whose technological constraint was to be dealt.

Manager of each technological clinic was CERTH. Responsibilities included modulation and specialization of the thematic of each clinic aiming at disseminating technologies of high added value but still under-exploited by SMEs. Also, the manager was responsible for defining the Technology Clinics' specifications and the selection criteria for the SMEs to participate. Furthermore, the clinics' manager was responsible for tuning evaluation procedures, selecting coordinators and technology providers.

The *coordinator* of each technology clinic was responsible for designing and implementing dissemination activities promoting the selected technological services aiming at approaching mature SMEs ready to commit to the implementation of development projects in the corresponding thematic areas. Also, the coordinator was responsible for supporting the technology provider during phase B, designing and implementing rationally structured projects with clear goals, resources and timetables.

The *technology provider* was responsible for assisting SMEs to identify the benefits arising from the exploitation of the suitable technology and application methodology for overcoming their technological constraints. In a second stage the technology provider was responsible for solving the technological problem, reducing at the same time risks arising during the adaptation procedure.

For clarifying methodological issues, securing smooth progress and eventually successful completion of the action the following guides were edited:

- *Technology clinics' specification guides*: each guide referred to the thematic area of the corresponding clinic, the responsibilities of the involved parties, the beneficiaries (SMEs), the implementation methodology (indicative activities, tasks allocation), and the general conditions for the financial contribution of SMEs
- *Templates of collaboration agreements* among all involved parties (manager – coordinator – technology provider – SMEs) for the implementation of Phase A and Phase B of each technology clinic.

The action was implemented in 4 stages:

1. Management and coordination

- Constitution and operation of management unit with main responsibilities coordinating working groups, monitoring physical and financial progress of the action and edition of six-months progress reports.
- Elaborating analytical operational plan for the implementation of the project and the particularization of methodological issues (deliverables' specifications, timetable etc)
- Definition of specification of each clinic, thus definition of the thematic area, the corresponding technology providers, the eligible activities, the final beneficiaries etc.

2. Phase A of technology clinics

- Edition of information package concerning activities and content of the clinics that was distributed to SMEs of RCM in order to promote initiatives of the region and raise awareness of the SMEs on innovation issues
- Announcement of the initiation of each technology clinic aiming at collecting SMEs expression of interest for participation
- Selection of SMEs that participated in each technology clinic
- Definition of technology needs of participating SMEs through technology audits
- Organization of info-days in the form of workshops for the familiarization of SMEs to the proposed technological services and to the methodology of transfer through technology clinics
- Identification and parameterization of technical constraints and elaboration of proposals for implementing customized projects during phase B.

3. Phase B of technology clinics

Phase B concerned the implementation of specific customized action plans for confronting the technological constraints of the participating SMEs. Aims of this phase was:

- Supporting each SME to solve its technological problem
- Drawing of conclusions in the form of best practice – case studies aiming at identifying crucial factors for achieving desirable results that could be transferred and applied in similar cases

4. Dissemination of results

- Development and updating of the technology clinics website aiming at disseminating results and providing access to the best practices – case studies, <http://services.thestep.gr/clinics/>
- Organization of an event with the participation of all involved parties aiming at experience exchange, assessment of the implementation of the action and elaboration of proposals for any future planning of similar actions.

The action (phase A and phase B) was based on circular implementation methodology. Every circle's results consisted feedback to the initial plan. In this way and when necessary, revisions were performed in the direction of improving the methodology.

2.2 Deliverables: brief description

D1 Management and coordination of the action: Press announcement of the start of the action, Progress reports, Cost statements, Time sheets

D2 Project's detailed action plan: Initial Technical Annex, Modified Technical Annex, Implementation guides

D3 – D12 Implementation of technology clinics: The following table illustrates quantitatively the main actions and deliverables

	Technology clinic	Activities											
		Press articles	Infopackages	Infodays	Participants	Interest for participation	Workshop	Participants	Private contacts/visits	Technology audits	Proposed implemented projects	Implemented customized projects	Best practices/case studies
1	Implementation of technological strategy for innovation	1	1	1	25	17				12	9	6	3
2	Operational planning	2	1	1	9	15				8	0	0	0
3	Quality systems application	2	1			10	1	9	9	9	9	9	3
4	Environmental management and policy	1	1	1	10	12			2	10	2	2	2
5	Marketing of products and sales policy	1	1	1	42	42				14	3	2	2
6	New products development		1			10			10	10	2	1	1
7	Supply chain management		1			11			2	10	1	1	1
8	E-commerce	1	1			38	1	32		25	14	5	5
9	Energy saving systems	2	1	1	35	21	1	21	21	12	4	4	4

D13 Website of the Technology Clinics

Development of Web site (<http://www.techpath.gr/gr/Clinics/index.html>) containing project info, results,

case studies etc.

D14 Results dissemination – assessment of the implementation of the pilot action “Technology transfer through Technology Clinics”: Press article, organisation of event with the participation of involved parties, edition of assessment report

2.3 Difficulties/ problems faced

During the implementation of the action the following difficulties / problems were faced:

- The thematic areas and the particularities of the SMEs and business sectors to which every clinic addressed indicated in fact the different designing of each clinic. Allocating activities into work packages according to the initial technical annex generated time and sense preposterous
- Phase B of the technology clinic “Operational planning” was not implemented as no SMEs interest was identified

Based on the aforementioned the modification of the technical annex was requested in order to:

- Better monitor and illustrate progress and results of the action
- Avoid the implementation of identical actions under the same initiative
- Keep the total of deliverables and budget unaltered

The modified technical annex incorporating all necessary changes was approved. According to this, each technology clinic was considered as individual work package. This concept allowed direct drawing of conclusions for each thematic area and each methodology of the mechanism of technology transfer.

Also, as phase B of the technology clinic “operational planning” and the technology clinic on “Business Excellence” were not implemented, a budget reallocation was also incorporated in the modified technical annex, reinforcing the implementation of the rest of the clinics in order for the total of deliverables to be achieved without any deviation from the initial planning.

3. RESULTS

According to the selected implementation model, the action “Technology Transfer through Technology Clinics”, was based on the collaboration of CERTH with organizations of proven know-how concerning the corresponding thematic areas. After procurement of the specifications of each technology clinic and according to CERTH’s regulations concerning evaluation and assignment of projects, the nine technology providers and coordinators were selected.

The whole action was addressed to SMEs of the region of Central Macedonia. Through promotion activities, more than 2000 SMEs of RCM were informed about the action, the way to participate and the benefits arising from their involvement.

The goal for 100 SMEs participation was achieved (110 SMEs participated in the action). At the same time private contribution to the budget exceeded (more than 11%) the initial figures demonstrating the acceptance of the action by SMEs of the region. All 110 SMEs were audited according to the thematic of the technology clinic they participated in. For each one a report was elaborated indicating the necessity and also the company’s maturity to proceed to the implementation of a customized action plan. For 44 companies corresponding action plans were proposed. The proposals’ evaluation resulted in the selection of 30 customized action plans that were pilot implemented during phase B of the technology clinics.

The selection criteria were:

- Importance of the technological problem for the SME
- Relevance to the objectives of the action
- Maturity and commitment of the company to implement the proposed action plan
- Added value for the business sector
- Rational utilization of available budget

Implementing the action indicated the following important benefits:

- Over 2000 SMEs of RCM were informed about the possibility of technology transfer through technology clinics

- 110 SMEs exploited knowledge and experience of organizations with expertise in technology and know-how transfer in crucial sectors for the increase of their competitiveness and their further development
- Existing infrastructures and resources available in RCM were exploited and major synergies between research organizations and technology transfer bodies were created
- Participating SMEs were prepared for rational exploitation of funds foreseen by the new regional operational program, by elaborating projects based on their actual needs and thus avoiding wasting (both public and private) resources.

4. FOLLOW-UP ACTIONS/SUSTAINABILITY POSSIBILITIES

Taking into consideration the benefits for all involved parties (SMEs, research centers, technology transfer organizations), it is obvious that the implementation of the action "Technology Transfer through Technology Clinics" had a positive effect in the region, and, although pilot, some phase B projects concluded to concrete results. The experience gained during the pilot implementation and the synergies that were developed between SMEs and research bodies have a long lasting effect on the continuous effort of enterprises to innovate. New measures fostering technology transfer through technology clinics could be implemented regardless of scale (regional, national, European) as the positive impact of the methodology has been proven through this pilot action.

Action 6	ESTABLISHMENT OF INNOVATIVE ENTREPRENEURIAL EXCELLENCE PRIZE
Implementation Agent	CENTRE FOR RESEARCH & TECHNOLOGY HELLAS (CERTH)
Reference Period	01.01.2002 to 31.12.2004
Code	A164

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

Goals of the action "Establishment of innovative entrepreneurial excellence prize" were:

- the development of a methodology aiming at evaluating the ability of SMEs to innovate,
- the application of the developed methodology to 20 SMEs of the Region of Central Macedonia
- the measurement of success and the proposal of calibration actions for further increase of the SMEs ability to innovate.

1.2 Content

The action referred to the establishment of a prize for innovative activities of SMEs of the RCM. The project's implementation was based on the development of a methodology for the evaluation and measurement of the ability of SMEs to innovate, the identification of SMEs specific departments for which the increase of innovative ability is possible and the measurement of the success and calibration of actions for further growth of the SMEs' ability to innovate. The methodology developed was based on the adaptation of the Business Perfection Model of the European Foundation for Quality Management to processes related to technological innovation and to the specific socioeconomic characteristics of the productive core of RCM.

1.3 Final beneficiaries

The action addressed to all SMEs of the region of Central Macedonia. The developed model allowed the participation of all interested SMEs regardless of their size or the business sector.

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

The project was implemented in four phases.

1. Five-part workgroup creation: in order to secure effective coordination of the action, sufficient scientific and technical support, sensitization of as many SMEs as possible and sustainability of the established prize, a five-part workgroup was created consisted of experts within organizations with corresponding expertise.
2. Methodology Development: this phase included 1) the adaptation of the EFQM business perfection model in the direction of evaluating the Innovative Performance and 2) the training of specialized staff concerning the methodology application in the regional SMEs
3. Application of the developed methodology in 20 SMEs of the Region. During this phase the trained staff 1) carried out Company Audits during meetings with SME executive managers, 2) presented the Audit result to the SME and 3) proposed an action plan on how the SME can improve its ability to innovate.
4. Awarding of a prize for innovative excellence: after the completion of the technology audits the enterprises with the best results in the direction of innovative and business excellence were awarded.

2.2 Deliverables

- D1. Technical Annex of the action
- D2. Contract assignment
- D3. Physical progress monitoring

- D4. Financial progress monitoring
- D5. Edition of Innovation performance evaluation and awarding guide
- D6. Edition of Expression of interest leaflet
- D7. Organization of regional Info days
- D8. Organization of main info day
- D9. Selection of 20 SMEs
- D10. Edition of training material on innovation and business excellence assessment
- D11. 30 hours training course
- D12. Innovation and business excellence assessment reports for each participant
- D13 Awards documentation report
- D14. Synthesis report
- D15. Designing of awards
- D16. Results dissemination
- D17. Organization of awarding ceremony

2.3 Difficulties/ problems faced

During the implementation of the action the partial modification of some work packages deemed necessary in order to better fulfill the goals of the action without any deviation from the general objectives and deliverables. More specifically:

D7 – D15 (organization of 6 regional info days – designing of awards)

3 regional info days were organized (instead of 6) using 50% of the available budget. The modification was necessary since coordination activities from local chambers caused significant delays in the work progress. The new planning still secured the full geographical covering of RCM.

The indisposed 50% of the budget of D7 was reallocated to D15 in order to upgrade the awards. The cost of 3 applications (first 3 winners) for participating in the first level of EFQM contest: "Commitment to Business Excellence" was covered by the action.

D10 – D11 (edition of training material – training of evaluators)

The nature and the necessary man effort for the implementation of these work packages necessitated the transfer of 4.000 euros from D10 to D11.

D12 – D13 (assessment of participating SMEs – awards documentation report)

According to the technical annex 20 SMEs were expected to participate in the action. As only 11 SMEs of the region went through all stages of the contest, the budget used for completing D12 and D13 reached 56% of the initial foreseen.

The aforementioned modifications were thoroughly discussed with the monitoring committee of the Program and they were approved without the need of modifying the action's technical annex.

3. RESULTS

A. Five-part workgroup creation

The collaboration of organizations with complementary expertise secured the best possible implementation of the action. The workgroup established consisted of experts in the areas of:

- Management and coordination (CERTH)
- Scientific support and documentation (URENIO)
- Technical support (LOGOTECH)
- Promotion and sensitization of SMEs (CHAMBER OF COMMERCE)
- Sustainability of the established prize (REGIONAL AUTHORITY / DIRECTORATE OF REGIONAL PLANNING)

B. Methodology Development

During this phase activities implemented concerned the development of a methodology for the evaluation of the ability of SMEs to innovate, adapted to the specific socioeconomic characteristics of the productive core of RCM. This methodology included:

I. Elaboration of a specialized questionnaire consisted of 141 questions aiming at illustrating the company's performance in an objective way concerning:

- Management activities to secure desired results, achieving goals and constant improvement
- Way of company's policy and strategy development and implementation
- Effectiveness of human resources management
- Effectiveness of other resources management: collaborations (suppliers, contractors, subcontractors), raw materials, financial resourced etc
- Production processes management
- Effectiveness of management and exploitation of the results of the aforementioned
- Effects on financial performance and consequent decision making

In this way it was possible to identify the company's strong points as well as the points that needed further improvement in order to increase its competitiveness.

II. Edition of a guide "how to answer the questionnaire", in order for participating companies to better understand its content and give clear and objective answers.

During this phase, a training course was implemented too. The course aimed at the training of 8 experts (evaluators group). Scope of this course was the "multiplication" of experts in the field of innovation performance evaluation. The 30 hours course consisted of the following thematic areas:

- Introduction to Total quality management
- TQM evaluation models
- Business and Innovation Excellence
- National and international TQM awards
- Assessment and self-assessment criteria
- National and international Excellence awards
- Training on real cases, application of the developed model
- Benefits from assessment and self-assessment models

C. Application of the developed methodology in 20 SMEs of the Region

Dissemination activities (info days and press articles) gave SMEs of the region the opportunity to be informed about the action, the way they could participate and the benefits from their involvement. In the 4 info days that were organized 33 SMEs participated. 23 of them expressed interest in participating in the action and eventually 11 went through all stages of the contest.

The application of the methodology developed in phase B included the following steps:

- Mailing of the questionnaire to participating SMEs, filling of the questionnaire stating innovative performances
- Company visits performed by the group of evaluators in order to carry out complementary interviews with members of the upper management
- Assessment of innovative performance of participating SMEs, presentation of results
- Edition of assessment report for each participant incorporating proposals in the direction of improving their ability to innovate

D. Awarding of a prize for innovative excellence

The evaluation committee (consisted by experts from the organizations involved in the implementation of the action plus an expert representing the EFQM's national partner, EEDE) examined the assessment reports and the awards documentation report and validated the final ranking. During a festive ceremony all 11 SMEs were awarded for their effort and the first three winners received a special prize corresponding to covering the cost of their applications to the first level of EFQM contest – "Commitment to Business Excellence".

SMEs that participated in the implementation of the action were assisted in the direction of maturing the idea of innovation and business excellence and realized the contribution of assessment methodologies to constant improvement. By participating in the action SMEs were also given the opportunity to gain publicity through the awarding ceremony. But the most important benefit was that the assessment reports were edited by a group of independent evaluators and contained valuable and objective information concerning strong points and points that need further improvement in order to increase SMEs competitiveness.

4. FOLLOW-UP ACTIONS/SUSTAINABILITY POSSIBILITIES

Taking into consideration the positive impact for all involved parties (SMEs, technology transfer organizations, regional authorities), the establishment of Innovative Entrepreneurial Excellence Prize in periodical bases consists a challenge for the Region of Central Macedonia. Through the pilot implementation of the action the work group involved gained experience and know-how needed not only for the sensitization of the SMEs of the region to participate to the contest but also and mostly for the effective implementation of the audit, assessment and awarding procedures.

Action 7	DIGITAL RESEARCH CENTRE OF CENTRAL MACEDONIA
Implementation Agent	NETWORK OF LABORATORIES FOR INNOVATION, QUALITY AND SUSTAINABLE DEVELOPMENT OF ARISTOTLE UNIVERSITY OF THESSALONIKI
Reference Period	01.01.2002 to 30.04.2003
Code	A183

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

The Digital Research Centre of the Central Macedonia Region is a digital application aiming at the amplification and support of the cooperation among the academic - research units and the industry. Such an ambitious aim could be achieved through the market employment of the research outcomes (both potential products and services) that resulted from the research activity carried out in the Region of Central Macedonia and, thus the growth of the regional technology intelligence.

The overall strategic orientations that supported the development of the action were:

- The training of the academic and research community on the methods of commercial exploitation of R&D results
- The dissemination of R&D results to enterprises and third parties
- The reinforcement of cooperation between universities and research units and the businesses of Central Macedonia
- The development of sustainable collaboration networks among research laboratories and enterprises

1.2 Content

The Digital Research Centre undertook the development of the research results access and to provide support regarding the trade marking of the results to the beneficiaries. Therefore, it contacted the research units and laboratories of the academic institutions, as well as, businesses that activate in the field of research and development.

For the design of this work (deliverable 3), the Innovation, Quality and Sustainable Development (IQSD) network employed the results of a market research that aimed to record the demand for products and services that sprang or could spring from research activity. The implementation of this action entailed the diffusion of the research activity results to the market and the support of their use. Thus, the audience targeted was mainly businesses, public organisations, venture capitals, incubators.

The Digital Research Centre is available online since 2003 at the url: <http://www.vrc.gr>. It consists of a content management system in which 1.578 research units' profiles, research products and services have been registered (Deliverable 6). The research products registered also provide information on patents and prototypes, if any. The registrations are sustained by the interested research units. At the Digital Research Centre website the principle of user friendliness is applied and, thus multiple options were designed for the data mining process; simple and advanced searches, searches by scientific categories, commercial value or keywords. Another fundamental component of the Digital Research Centre is a series of supplementary applications that provide support to the research units or laboratories that pursue trade marking and commercial promotion of their research outcomes or even, businesses that aim at the commercial exploitation of the regional research activity. More precisely, these applications are roadmaps that aim at solving typical obstacles that one can meet during the management of research products and services. These roadmaps are:

1. Technology Transfer & Intellectual Property Rights Protection Roadmap (Deliverable 11)
2. New Product Development Roadmap (Deliverable 12)
3. Spin-Off Creation Roadmap (Deliverable 13)
4. Quality Management Roadmap (Deliverable 14)
5. Technology Demand Service (Deliverable 15)

For the dissemination of the Digital Research Centre of Central Macedonia and the services it provides a series of seminars (Deliverable 8) were organised. The first seminars were targeting at research institutions (Aristotle University of Thessaloniki, University of Macedonia, and Technological Educational Institute of Thessaloniki) and the rest to potential users of the DRC. Moreover, a brochure (Deliverable 7) was designed and distributed providing information about the Centre and some publishing activity was undertaken via conferences (Deliverable 9), press and media.

The final stage of the Digital Research Centre's implementation involved the design and execution of ten pilot projects (Deliverable 16). These projects developed products and services already registered in the DRC database.

2. IMPLEMENTATION

The implementation of the Digital Research Centre of Central Macedonia commenced on the 1/1/2002 and came to an end on the 31/12/2004. It was executed in the four phases:

PHASE I: Management and coordination,

which involved two actions: (1.1) the build-up and operation of the Steering Committee and (1.2) the Action Plan.

With the initiation of the action, the management unit was constituted and the specifications of the deliverables (action plan) were determined, including the structure of Digital Research Centre, its operations and budget.

Throughout the project's implementation the steering committee was coordinating the actions that had to be taken under, it monitored the progress of the project and whether the specifications were met. Moreover, it monitored the budget and the financing throughout the progress of the project.

During the execution of the plan, equipment specifications had to be defined, the equipment procurement conditions to be written and competitions for the equipment procurement were announced. Furthermore, the evaluation committee of the Excellence in Central Macedonia received a mid-term report on the series of the deliverables, as well as the current final report.

PHASE II: Design and development of the DRC – research products registration,

which consists of four actions that produced four deliverables,

2.1 A questionnaire was designed for the survey and it was tested in a small number of businesses (10) in order to confirm its validity and its ease-of-use. The population of the survey was then selected, that is businesses that activate in the following industries: agriculture, consultancy, telecommunications, Insurance, Constructions, Banking, Heavy Industry, Transport, Tourism, Energy, Informatics, Health services, Other economy sectors.

Then, the questionnaire was printed and sent to 2400 enterprises of Central Macedonia with informative material a propos the Digital Research Centre. In this survey 300 enterprises corresponded. It followed a processing of the data resulted from the research and the conclusions that were exported with regard to market tendencies and the future needs of enterprises for research and technology are presented in the report of Deliverable 3.

In the same report are presented the thematic categories in which the products and the services of research were classified, as well as the profiles of research units according to the demand for research and technology as it resulted from the survey. After investigating the best practices in European level and evaluating them, resulted also the standardised depictions (templates) for the registration of profiles of research units and research products and services in the data base of the Digital Research Centre. Finally, forms for search/presentation of registered products and services were determined, as well as, the information of the Digital Research Centre demonstrated in the website (description, implementation agency, news, contact data, etc).

2.2 Creation of the Digital Research Access Centre, which had as aim the more direct registration of data in the database of the Digital Centre of Research. Specifications of operation and required equipment were preset, then, three competitions for the equipment procurement, the acquisition of the equipment and the installation of it were completed. After the connection of the Digital Research Access Centre with the data

network of the Aristotle University, the Access Centre operates daily for the collection and registration of the material.

2.3 Design and development of the content management system. After the determination of scientific categories and categories of market applications, as well as the standardised depictions (templates), an initial implementation form of the database was worked out and progressively its structure was optimised. Then, a pilot application in MS Access was developed for the database management, in order to locate any potential imperfections and a pilot web application based on ASP and Javascript for the database management was produced. Based on these pilot applications the final form of the database was drawn. The final web application was developed in ASP. Net so much for the search and presentation of certain model registered data, what on the data import and processing. The implementation of this service was executed by the laboratory of Informatics (General Department of the Polytechnic Faculty of the AUTH).

2.4 Pertaining to the collection and registration of products and services of research activity, a complete catalogue of research institutions and companies of Central Macedonia was composed, that included laboratories, clinics and other institutions of the region, the institutes of CERTH and the enterprises that have executed research programs. These institutions were approached for the registration of products and services. This approach resulted in informative data about 1238 research programmes carried out in the Aristotle's University of Thessaloniki, 48 research programmes carried out in the Technological Educational Institution of Thessaloniki and 116 in enterprises of Central Macedonia (according to the General Secretariat for Research and Technology). Until the end of the project 400 research outcomes (products and services) were registered in the DRC. Interested research units continue to register their research outcomes in the DRC.

PHASE III: Dissemination actions, including:

3.1 An informative booklet on the Innovation, Quality and Sustainable Development Network was produced and distributed to interested institutes through the survey that was carried out, as well as, through the seminars that followed. Similarly, a printed guide on the DRC was issued and distributed.

3.2 Design and implementation of seminars. The objective of the seminars was at first to attract the units that carry out research so as to have their products registered in the DRC database. Its next goal was to train end users on the usage and benefits of the DRC. In order to achieve these goals, eight (8) seminars addressing to the academic community, (AUTH, University of Macedonia, ATEITH), but also to enterprises (food industry), regional institutions (e-polis) and international organisms (Rkm-Net, Stratinc) were organized. Specifically:

	Seminar title	Seminar scene	Date
1	Digital Research Centre and Research Outcomes management	Aristotle University of Thessaloniki, Central Library	09.10.2003
2	Digital Research Centre and Research Outcomes management	Faculty of Sciences, Aristotle University of Thessaloniki	17.12.2003
3	Digital Research Centre and Research Outcomes management (with the attendance of Federation of Industries of Northern Greece - F.I.N.G.)	University of Macedonia	31.03.2004
4	E-Polis: Digital Technology Applications for the Sustainable Urban Development	Byzantine Museum of Thessaloniki	07.07.2004
5	Interregional Seminar on Regional Innovation Measurement & Benchmarking	Aristotle University Farm	23.09.2004
6	Strategic Intelligence and Innovation – Business Clusters	Aristotle University Farm	08.10.2004
7	Food Safety: Academia, research and industry (with the attendance of the National Institution of Food Control)	Aristotle University Farm	02.12.2004
8	Digital Research Centre and Research Outcomes management	Technological Educational Institute of Thessaloniki	16.12.2004

3.3 Transregional collaboration activities, aiming at the exchange of experiences on applications and

systems of research distribution. The Digital Research Centre was presented in the 15th annual congress of ISPIM (International Society for Professional Innovation Management, <http://www.ispim.org>), in the National Seminar of Innovative Actions Programs that took place in Heraklion, Crete on the 23-24th June of 2003, as well as, in a series of work meetings, in which researchers of the DRC, as well as of institutions of the European Union regions participated.

PHASE IV: Research outcomes management support, which included seven activities:

4.1 Design and implementation of the DRC website. Basic requirements and models of software development were taken into consideration for the growth and operation of the www.vrc.gr so as to meet a series of principals, as, for example, accessibility, interoperability, sustainability, safety etc. Still, they were taken into consideration the conclusions of the Deliverable 3 in combination with the analysis of structure and the content of relative network spaces, as: Cordis MarketPlace, MIT DSpace, Madri+d. Then, with the registration of the electronic address <http://www.vrc.gr> the operation of network place commenced. The system was improved since then and connected with the data base and the search engines.

4.2 Design and implementation of a digital consulting services provider for Technology Transfer and Intellectual Property Rights Protection

4.3 Design and implementation of a digital consulting services provider for Technology Watch and Prototyping

4.4 Design & implementation of an online methodological guide on Spin-off creation

4.5. Design & implementation of an online methodological guide on Quality Management

4.6 Design & implementation of a Technology Demand digital announcement service

In these activities, firstly the material of the supporting services roadmaps (online innovation learning suite) was assembled (in a report form) and then was organised with the form of roadmaps. For the collection of this material, direct commissions to experts on the subjects of intellectual property rights protection, technology watch, spin-off creation, quality management and technology demand were appointed. This material was constituted by case studies and examples, articles, presentations, models, bibliography, etc. Challenge was in each gate, the user to be guided through a process of steps - stages, as it was achieved via the information system, which then was connected with the website of Digital Research Centre (Deliverable 10) completing, thus, the development process.

4.7 10 small-scale pilot projects were designed and implemented which utilized products and services of research activity already registered in the database of the Digital Research Centre. Part of their funding was provided by the action. A final report on each of these pilot projects was delivered at the project's completion (D 16).

3. RESULTS

In December 2004 the Innovation, Quality & Sustainable Development network completed the implementation of the Digital Research Centre of Central Macedonia, with the initial objectives that had been set by the management unit and having been met. Particularly:

1. DRC connects the regional demand for technology with the supply. The Digital Research Centre assembled and organised in a database information material with regard to the activity of a big number of research units and coded this material for its easy drawdown by the users. It also provides a platform for the registration of the technological needs of the enterprises aiming at the matching between demand and supply. Some difficulties in the achievement of the objective of 1000 research products and services were faced. The high standards that had been placed in addition to the quality of the content of the base resulted to the concentration of 400 completely enlisted registrations and 1100 descriptions of research work.

2. DRC provides a system of supporting services that are addressed to research units for the commercial exploitation of their research products but also to enterprises that wish to utilise research and high

technology products coming from academic and research organisms. These services are available on the internet and pertain to Technology Transfer and Demand, Protection of Intellectual Property Rights, Technological Survey/ Prototype Manufacturing, Spin-Offs creation and Quality Management. The Digital Research Centre constitutes henceforth a lever of acceleration of regional growth, as it satisfies a constant demand of local economy and society, that is the knowledge provision with regard to the possibilities of commercial exploitation of the regional research system.

The problems of this action were limited in the nature of cognitive material of services as it is a continuously altering subject. Suitable actions were undertaken towards the flexibility and frequent update of the support services portals of Digital Research Centre of Central Macedonia.

3. DRC disseminates the (Products and Services) R&D results to the enterprises and other public servers. The actions of dissemination in the framework of the project's implementation which had the objective "to educate" the final users in how to achieve the most optimal utilisation of services possible offered by the Digital Research Centre were put into action during the whole project. Through the transregional collaborations and the informative seminars the reluctance of the productive coefficients of the local economy as for the effectiveness of the regional research performed by academia (a conclusion that had also emerged from the market research which was carried out through the program) was confirmed and simultaneously the inversion of this mistaken reluctance was attempted. The collective demonstration of the research results through the Digital Research Centre along with its diffusion activities contributed in bridging the gap between industry and the academic community.

4. FOLLOW-UP ACTIONS/SUSTAINABILITY POSSIBILITIES

The viability of the Digital Research Centre concerned the management team. A positive indication is the recognition from the Research Committee of the Aristotle University of Thessaloniki on the role of the Centre on the promotion of the university's activities. For this reason, the Research Committee decided to continue the operation of the centre as a permanent structure of the university.

Finally, the recognition of the Digital Research Centre by both the academic community and the productive sector of the region, sets the ground for the successful viability of the project after the completion of its financing from the Innovative Actions. The possible scripts on the continuation of its work consist in:

A. The incorporation of advertising registrations by companies and institutes. The number of these registrations is calculated to be increased in parallel to the increase of the number of products and services provided by the Centre's database and, consequently the added value of the Centre's services will be increased. The use of the VRC services will remain free of charge.

B. The creation of websites based on the Digital Research Centre's website that will provide limited access to users, who will have the possibility of using additional services but with small financial contribution.

Action 8	TRAINING PERSONNEL IN INNOVATION MANAGEMENT/ E-LEARNING
Implementation Agent	MAKINE
Reference Period	01.01.2002 TO 31.12.2004
Code	A182

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

Main goal of the Action was to familiarise employees with modern evolutions in technological fields and to provide information on the impact these evolutions are expected to have on employment and demand for specific skills. The Action concerns training of chief directors and employees in new processes and systems for diagnosis, evaluation and planning of methodologies which address the needs of skills demand, as well as in techniques for the management of human resources and industrial production. The selection of informational material on these issues created a system of services supply to job seekers, focusing on the matching of jobs supply and demand and the orientation of human resources to employment sectors with best opportunities.

In addition, the Action focused to inform companies on issues relating to the organisation, methodology and content of training procedures and the adaptation of benchmarking techniques.

1.2 Content

In order to achieve the goals set, the Action included:

1. Training of employees on industrial sectors:

- Identification-development of training material
- Training on the problems of industrial sectors and employees, at theoretical level
- Training of chief directors in the forecast of needs and the exploitation of available human resources, at theoretical level
- Practical demonstration of related applications at the working environment

2. Training of employees on new processes:

- Modern telecommunication systems
- Automations
- Quality certification

3. Development of services

- Services supply regarding job demand, labour legislation, available training schemes
- Coordination of regional agents activating in the fields of training personnel
- Selection of training material and definition of the trainee profile

4. Training of chief directors on the Benchmarking technique

- Conventional training on Benchmarking
- Development of web site for the provision of e-learning on Benchmarking
- Development of e-learning training courses on Benchmarking

5. Dissemination

- Design and distribution of leaflet for the Action
- Training seminars and workshops
- Organisation of final event of the Action

1.3 Final beneficiaries

The Action has been implemented by the Macedonian Labour Institute (MAKINE). A significant part of the Action, concerning the conventional training and e-learning on Benchmarking, was assigned, as foreseen in

the contract, to the Southeastern Europe Telecommunications and Informatics Research Institute (INA). Final beneficiaries were the employees and chief directors that participated in the training courses.

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

The working team for the Action was initially formed including members of MAKINE and INA.

(1) Identification of training needs–development of educational material

The identification of needs included the analysis of the external environment, the requirements for training human resources, the availability of human resources and the forecast of human resources skills. Training material was developed on 10 thematics: (1) Business strategy, (2) Quality management, (3) Supply chain management (logistics), (4) Innovation management and technology transfer, (5) Business economics, (6) Project management, (7) Organisation of industrial production, (8) Human resources management, (9) Labour legislation, (10) Marketing. This material was used to the training courses on the problems of industrial sectors at theoretical level.

(2) Training at the theoretical level included three courses: modern telecommunications, automations, and quality certification.

(3) Training of chief directors on the forecast of needs and the exploitation of available human resources, on theoretical basis. Training was provided to business executives on issues concerning human resources management. The training course included three one-day workshops and one two-days workshops, to each of which participated around 20 people. The topics covered were:

- Basic principles of industrial – organisational psychology
- Business Administration principles
- Human Resources Management
- Communication techniques, Role playing
- Consultancy principles
- Theories of adult training
- Labour legislation
- Techniques for job search, life-long training, etc.

(4) Practical demonstration of application at the working environment, through training visits to companies.

(5) Practical training on the development and application of quality certification systems included two team-work exercises of ISO 9001 in two agencies of the region (MAKINE and INA).

(6) The development and supply of services regarding job demand, labour legislation, available training schemes, included:

- Contacts with public and private agents dealing with job finding, in order to formulate a joint framework for labour skills identification according to the specifications of each job position
- Survey to public and private training organisations, in order to identify the existing training programmes
- Survey to the employees, in order to identify the desired working framework and relations (by age, social group, sex, etc.)
- Development of web site providing information on the issues above (<http://www.makine/aristeia>)
- Collection of training material on Benchmarking
- Identification of the profile of suitable employees to perform benchmarking
- Information diffusion on the benefits from the application of Benchmarking

(7) Conventional training on Benchmarking included two stages:

- Theoretical training of employees in five seminar cycles, each one including eight three-hours courses
- Practical application of Benchmarking to ICT companies

(8) E-learning on Benchmarking included:

- Development of adequate web site (<http://benchmarking.inatelecom.org/public/default.asp>)

- Development of multimedia training material
- Organisation of training courses to selected employees

(9) Evaluation of the conventional and e-learning methodologies for training on benchmarking, in terms of gainings of trained personnel, degree of achievement of training goals, efficiency of the methodology followed, training material etc.

(10) Organisation of conference on Benchmarking and the perspectives of its application in Greece.

2.2 Deliverables

D1: Organisation and monitoring of the Action – progress reports

D2: Technical annex and specifications of the Action

D3: Identification – development of training material in ten thematic fields

D4: Training on the problems of industrial sectors and employees, at theoretical level (four workshops of 20 employees each)

D5: Training of chief directors in the forecast of training needs and the exploitation of human resources, at theoretical level (four workshops of 20 employees each)

D6: Practical demonstration of applications at the working environment – two training visits to companies with the participation of 20 employees in each

D7: Implementation of three training programmes to chief directors – three training courses, 60 hours in total, 20 employees participated in each

D8: Application of ISO 9001 in two agencies – two team-work applications

D9: Services supply regarding job demand, labour legislation, available training schemes

D10: Collection of training material on benchmarking and identification of the profiles of trainees

D11: Conventional training on Benchmarking

D12: Development of web site to support e-learning on Benchmarking

D13: Evaluation of conventional and distant learning on Benchmarking

D14: Promotion material – leaflet, newsletters

D15: Conference on Benchmarking

2.3 Difficulties/ problems faced

Main difficulty faced was related to the methods required in order to make employees recognise the significance of the need to be trained on the new technological developments and informed on the impact of the technological evolutions to their job positions. The need for better and continuous information on these issues has been defined during the evolution of the Action.

3. RESULTS

The degree of achievement of initial goals is considered satisfactory with the delivery of significant results:

- Training material and guides
- Informational material
- Experiences gained by the training and informational activities

In parallel, the implementation agent, MAKINE, recognises that more efforts are required in the future, as the training material needs continuous update and the raising awareness efforts need follow-up activities.

4. FOLLOW-UP ACTIONS/ SUSTAINABILITY POSSIBILITIES

The implementation agent, due to the objectives of its activity, will continue to disseminate the results of the action after the end of the programme. The mechanisms developed for information diffusion, especially the Internet services, will continue to operate based on MAKINE self-funding.

Action 9	E-PARTENARIAT
Implementation Agent	EXPORTERS' ASSOCIATION OF NORTHERN GREECE (SEVE)
Reference Period	01.01.2002 to 31.12.2004
Code	A182

1. BRIEF DESCRIPTION OF THE ACTION

1.1 Scope, goals

The action's objective is to strengthen the internationalization efforts of enterprises, make them technology-aware and promote electronic commerce (B2B). Therefore, the action aims to set up an electronic partenariat system that operates through the Internet and allows the organisation of virtual partenariats and offers the possibility of distance business meetings between potential partners in different countries.

1.2 Content

The action deals with methodology evolution, so that the optimum use of the new technology and the expertise of national counsellors – namely specialized bodies assigned with the organizations of partenariat type events in every country – can lead to establishing an innovative electronic system for developing international partnerships and applying a pilot methodology focused on the organization of an electronic partenariat event (e-partenariat). The basic axes of the project is advanced technology, time-saving and cost-effective procedures, proven effectiveness as well as significant added value, since it also involves the integration of new services offered to enterprises.

1.3 Final beneficiaries

The groups targeted include:

- SMEs
- National counsellors network, given the fact that they will develop new methods of cooperation and put them into action
- Organizations and bodies from third countries, which will have the ability to make the best use of new methods for developing international partnerships.

2. IMPLEMENTATION

2.1 Content and deliverables

The action included 7 workpackages:

1. Monitoring and evaluation

- 1.1 Formation and operation of a Monitoring and Co-ordination Team within the implementing organisation
- 1.2 Formation of the Work Plan
- 1.3 Creation of the evaluation framework and procedure – on going and final evaluation
- 1.4 Creation of an Information System – continuous monitoring
- 1.5 Coordination meeting of the trans-national partners

2. Establishment of a trans-national counsellors network

- 2.1 Tracing of all relevant European organisations, supporting bodies, data banks dealing with international co-operation
- 2.2 Formation of a catalogue (data base) and introduction of all a.m. elements
- 2.3 Formation of a network comprising the most important European organisations-national counsellors (National Counsellors Network)

3. Development of a compatible pan-European database for international co-operation

- 3.1 Methodology and technology study towards the codification of the various data bases, tracing of good

practices, proposal for the new database

3.2 Development of a compatible pan-European database dealing with international co-operation

4. Experiences exchange

4.1 Organisation of meetings regarding the development of an innovating system of international co-operations and strategic plan of pilot applications, in Europe and third countries

5. E-partenariat software development

5.1 Development of the software for the electronic registration of co-operation needs from each company and for the match making

5.2 Development of the Internet site, www.e-partenariat.net, – formation of the electronic network for the exchange of information, know-how, methodology and for the implementation of e-partenariat events

5.3 Development of the methodology for the organization of e-business meetings

6. Pilot application

6.1 Pilot application of an e- partenariat (international business meetings using teleconference technology)

7. Dissemination

7.1 Printed material

7.2 Internet site

7.3 Direct promotion in organisations dealing with international cooperation

7.4 Organisation of a dissemination event in Thessaloniki

3. RESULTS

- ✓ Long Term and continuous promotion of the international character of enterprises using state-of-the-art technologies
- ✓ The action enables enterprises to find partners worldwide easily, economically and effectively
- ✓ Contacts with distribution networks, adoption of latest marketing techniques, know-how exchange, sought and integrated easier

4. FOLLOW-UP ACTIONS/SUSTAINABILITY POSSIBILITIES

E-partenariat is a non-stop project. Virtual meetings between companies are performed continuously. Also events for certain sectors and between specific countries could take place anytime. The web site is fully operational and companies as well as organisations, enter their data so the database is updated without special efforts from SEVE.

Action 10	OBSERVATORY OF REGIONAL INNOVATION AND ENTREPRENEURSHIP
Implementation Agent	OBSERVATORY OF REGIONAL INNOVATION AND ENTREPRENEURSHIP – ORIE (NON PROFIT ORGANISATION)
Reference Period	01.01.2002 to 31.12.2004
Code	A183

1. BRIEF DESCRIPTION

The Regional Innovation and Entrepreneurship Observatory of Central Macedonia is intended to enhance the region's capacity for innovation and entrepreneurship, while at the same time promoting a new development strategy for the region – one based on innovation, the new technologies, and integrated forms of industrial organization and production. In pursuit of these goals the Observatory seeks to:

- explore procedures for the technological development of Central Macedonia region and to define the existing potential and weaknesses of the regional system of innovation.
- form a pattern of cooperation among all agencies interested and involved in the technological development priorities of the region.
- select projects and actions to strengthen the technological and innovation capacity of the business community.

Another important objective of the Observatory has been to develop a system of ongoing monitoring and evaluation able to indicate the adjustments required in implementation of the specific project. At the same time the Observatory aims to serve as an effective means – instrument for dissemination of information and news of current developments in the region, also promoting dialogue and the culture of innovation in Central Macedonia.

In this way the Observatory will assist the endeavour of the business community to exploit to the full current developments occurring in the region, encouraging the creation of new and improvement of existing industrial sectors, promoting technological cooperation on the local, national and international levels and helping to reinforce the competitiveness of Greek businesses in international markets.

2. IMPLEMENTATION

2.1 Strategy/ implementation steps

The mission of the Observatory involved the implementation of a significant number of work packages to develop entrepreneurship and exploit innovation, including:

1. The development of a data base for information on entrepreneurship and the exploitation of innovation
2. The comparative evaluation of co-funded actions, leading to the preparation of two annual reports
3. The drawing up of a strategic action plan for the promotion of entrepreneurship, with information on the exploitation of innovation in the Region of Central Macedonia
4. The selection of 10 sectors/areas/technologies etc. for which an equal number of reports have been compiled, evaluating their performance and predicting their prospects in respect of entrepreneurship and innovation.
5. The creation of a guide to good practices in the monitoring of the development of innovation and entrepreneurship, as a result of the collection and processing of data from Greece and Europe, and the implementation of actions to publicize and disseminate the results, as well as the organization of two international conferences and the participation of the Observatory in the 68th Thessaloniki International Trade Fair.

The work of the Observatory involved also implementation of the following Measures:

Measure 1: Creation of database

The basic mission of the Observatory is to measure and evaluate the scale of innovation and

entrepreneurship in the Region of Central Macedonia. To this end a database has been created, into which data and information has been entered concerning the promotion of entrepreneurship through innovation in the region in question, with the capacity to present the results generated by statistical processing of the data entered into the base.

The Observatory also has a website at www.orie.gr where those interested can find a mass of information and links to organizations and agencies whose activities focus on the design, organization and implementation of actions promoting innovation, know-how transfer and strengthening entrepreneurship.

Measure 2: Comparative Evaluation of Co-funded Actions

This Measure comprises the following actions:

- The collection of data from agencies interested and involved in the regional system for innovation and promotion of entrepreneurship, designed to create a record of data which can be used for comparative evaluation of co-funded actions in the Region of Central Macedonia.
- The quantitative and qualitative processing of the above data and the compilation of a manual containing all the required indicators and parameters used to draw conclusions on the state of entrepreneurship and innovation in the Region of Central Macedonia.
- The elaboration of a study offering comparative evaluation of co-funded actions which have been implemented in the Region of Central Macedonia in the last five years, and a comprehensive review and evaluation of the data and information gathered on the regional system of innovation and promotion of entrepreneurship.

In this way the Observatory has identified the main problems of the productive base of the Region of Central Macedonia, clarifying the role of the public and private sectors in the implementation of policies to support and encourage innovation – allowing the framing of proposals to increase the efficiency of future co-funded interventions.

Measure 3: Strategic Action Plan

In order to implement the Strategic Action Plan the Observatory decided to collect good practices and transfer experience and know-how from sister agencies abroad. To this end contacts and visits were arranged to foreign agencies, while delegations were sent to events of common interest in Greece and elsewhere, in order to gather information on good practices in the observation and measurement of innovation and entrepreneurship development.

The Observatory's Business Action Plan forms part of its Strategic Action Plan and represents the basis of its activities over the next few years. The Business Action Plan is based on exploitation of international practice and experience in the aspects of the organization and operation of similar agencies abroad, taking into account the broader conditions affecting the needs and prospects of Central Macedonia.

Measure 3 also involves preparation of the Strategic Plan for Support for Innovation and Entrepreneurship in Central Macedonia. This is a strategic document presenting integrated proposals for supporting innovation and entrepreneurship in the broader region over the next few years. Completion of the plan involves a review of the actions implemented in the Region to support innovation and entrepreneurship over the last five years, incorporating also current national and European policies to strengthen regional innovation and entrepreneurship.

The basic axes of the Strategic Plan for Support for Innovation and Entrepreneurship in Central Macedonia are as follows:

- Diagnosis of the strengths, weaknesses, threats, risks and prospects of the Region of Central Macedonia.
- Recognition of the strengths, weaknesses, threats, risks and prospects for development of innovation and entrepreneurship in the broader region.
- Description, documentation and evaluation of the strategic objectives and priorities.

The collection of the data and information required for compilation of the Strategic Plan for Support for Innovation and Entrepreneurship involved use of the 'Data Collection Instrument', which consists of two parts:

- The specially structured and purpose-designed data collection questionnaire.

- The form to be used in personal interviews with representatives of businesses and other agencies, intended to gather mainly qualitative data.

Measure 4: Regional and Sectoral Studies

The Observatory has undertaken to prepare a series of studies designed to predict the anticipated benefits to the business world of the implementation of measures to support innovation and entrepreneurship in various sectors and disciplines.

A key element in the compilation of these regional and sectoral studies is the clear definition of their specifications, which – *inter alia* – involve a definition of the structure and content of the following elements:

- Description of the object
- Object of project, with a precise reference to the regions and sectors under study
- Description and analysis of the factors involved in development of innovation and entrepreneurship
- Processing and forecasts
- Conclusions
- Summary report
- Presentation of conclusions
- Duration of project and timetable for delivery of various phases

Measure 5: Provision of Technical Support

Provision of technical support must be preceded by evaluation of the needs arising, and preparation of an appropriate mechanism for coordination and satisfaction of these needs. To describe and evaluate as effectively as possible the needs for technical and scientific support, the Observatory can draw on:

- Data derived from the implementation of actions and agencies to promote innovation and entrepreneurship on the local and national level.
- Opinions and assessments by Management Authorities, Intermediate Implementation Agencies involved in development projects, educational institutions and technological parks.

As part of the provision of technical support, interested parties can consult the 'Guide to Good Practices in the Monitoring and Development of Entrepreneurship through Exploitation of Innovation'. This is a comprehensive document setting out the good practices for entrepreneurship in each sector of economic activity, and the corresponding good practices in innovation. The guide focuses on the best examples of businesses which successfully adopt and implement practices and techniques for exploitation of innovation and promotion of competitiveness, also providing the main principles to be followed in implementing similar practices across the whole range of businesses in the Region of Central Macedonia.

The Observatory has the necessary infrastructure for provision of technical support to all interested parties. Specifications have been created for operations and needs in the support of working groups; innovation and entrepreneurship reviews have been conducted, and data and results are available from the sectoral studies conducted to date.

For the optimal provision of integrated technical support to the business community, it is hoped to bring together businesses with local market consultants. A register of consultants has been compiled, listing all those consultants specializing in development of innovation and promotion of entrepreneurship.

Measure 6: Measures to Publicize and Disseminate Results

To ensure the most effective dissemination of the results generated to date by the work of the Observatory, a number of actions have been planned, including:

- Organization of a Regional Conference on Innovation and Entrepreneurship in Thessaloniki.
- Organization of an International Conference on Innovation and Entrepreneurship in Thessaloniki.
- Sending of delegations from the Observatory to events (conferences, fairs, etc.) organized by other agencies in Greece and abroad, focusing on related issues.
- Creation, reproduction and distribution of information material in printed form (copies of sector studies, newsletters, posters etc.).

2.2 Deliverables

Deliverable 1: Portal with database containing information on entrepreneurship in the Region of Central Macedonia.

Deliverable 2: Data on regional entrepreneurship – Manual for measurement and evaluation of entrepreneurship and exploitation of innovation

Deliverable 3: Comparative evaluation of co-funded actions : First-year report

Deliverable 4: Comparative evaluation of co-funded actions : Second-year report

Deliverable 5: Review of international practice in activities of entrepreneurship observatories – Field research – Definition of strategic axes

Deliverable 6: Strategic support plan for entrepreneurship and exploitation of innovation: Study volume

Deliverable 7: Volume containing specifications for ten studies – ten study volumes

Deliverable 8: Report on support needs of sectors and business groups – Guide to good practices in promotion of entrepreneurship with parallel exploitation of innovation

Deliverable 9: 40 innovation and entrepreneurship reviews – Operation of working groups – Provision of data – Dissemination of study results (issuing of 8 newsletters)

Deliverable 10: Action plans

Deliverable 11: Organization of Regional Conference

Deliverable 12: Organization of International Conference

Deliverable 13: Brochure presenting the Observatory – Articles in press / publications

3. RESULTS

Deliverable 1 involves:

- The construction and operation of a database containing data and information gathered from businesses in the Region of Central Macedonia in respect of entrepreneurship and innovation.
- The creation of a portal at www.orie.gr – the website of the Observatory, where interested parties can find useful material and information on the promotion of entrepreneurship in the Region of Western Macedonia, through exploitation of the advantages offered by innovation.

Deliverable 2 involves:

- Description of actions to support entrepreneurship and exploit innovation in the Region of Central Macedonia.
- Creation of a model for the gathering and processing of data on entrepreneurship and innovation.
- Vade mecum forming part of the methodology developed by the Observatory to measure and evaluate entrepreneurship and innovation.

Deliverable 3 concerns the first-year report which contains almost all the actions involving support for entrepreneurship and exploitation of innovation in the Region of Central Macedonia during the 2nd Community Support Framework.

Deliverable 4 concerns the second-year report which assesses the situation in respect of entrepreneurship and innovation in Central Macedonia, taking into account the developments and efforts by agencies in the Region, on the basis of available data and information, while also utilizing the results generated by other deliverables of the project, such as the sectoral studies of entrepreneurship and innovation, the regional and international conferences, the review of international practice, the evaluation of needs, the guide to good practices, the bringing together of businesses and consultants, the data base and the Observatory portal.

Deliverable 5 includes:

- Two visits to similar agencies abroad. Specifically, visits were made to the Agence pour la Creation d'Enterprises (APCE) in France, and to the Institute for Management Development, in Switzerland.
- Field research to find and evaluate agencies whose mission is to support entrepreneurship through exploitation of innovation. The results of the research were published in a manual which categorizes the actions of the above agencies in support of entrepreneurship and innovation.
- Strategic Development Plan of the Observatory for the years 2003-2005

Deliverable 6 concerns completion of the document Strategic Plan for Support of Innovation and

Entrepreneurship in the Region of Central Macedonia. This document represents a synthesis of the studies conducted by the Observatory over the last two years. Its basic objective is to bring together the knowledge and experience acquired and to utilize it by offering a valuable tool to all those engaged in decision-taking in the areas of regional development and policy.

Deliverable 7 includes:

- A volume detailing the methodology for selection of the ten sectors and the specifications for compilation of the ten sectoral studies.
- Ten studies of entrepreneurship and innovation in the sectors: waste management, transport, rubber and plastics, textiles – clothing, non-metallic minerals, ecotourism, cultural tourism, food – drinks, community services and chemical products.

Deliverable 8 resulted to the Needs Report and the Guide to Good Practices for promoting entrepreneurship through exploitation of innovation.

Deliverable 9. To compile the 40 reports on Entrepreneurship and Innovation in Deliverable 9, reviews were carried out of an equal number of businesses active in the Region of Central Macedonia. On this basis individual business diagnoses were carried out for each business, referring specifically to the following:

1. the strategy for investment, technological modernization and competition being implemented by each business
2. the collaborations developed with suppliers, distributors and customers
3. the development in sales and employment resulting from the above
4. the measures and actions for innovation being implemented by the business

All the above permit the drawing of conclusions for each business under scrutiny, with identification of the strengths, problems and weaknesses, opportunities and threats the business faces.

The above activities led to the production of:

- Completed questionnaires/reviews of innovation in 12 technological agencies, 12 business consultancies and 18 productive businesses
- Comprehensive volume of conclusions from the technical diagnoses

Deliverable 10. A register of consultancy companies was created, listing consultants active in the Region of Central Macedonia and engaged in aspects of entrepreneurship and innovation.

Deliverable 11. On 8/10/2003 a regional conference was held in Thessaloniki under the title 'Innovation and Entrepreneurship in Central Macedonia'. During the conference the delegates were presented with the results of the primary research into strategies of technological development being adopted by manufacturing sectors and business consultants in the Region of Central Macedonia, as well as an evaluation of the degree of capacity to exploit innovation possessed by businesses and involved agencies.

Deliverable 12. On 10&11/12/2004 an international conference was held in Thessaloniki under the title 'Utilization of Good Practices in Evaluation and Promotion of Entrepreneurship through Exploitation of Innovation'. During the conference the delegates were presented with the good practices and pilot actions in innovation which have been implemented in Greece and abroad, by agencies in the public and private sectors, concerning the funding of business ideas and the internal and external operating environment of the businesses.

Deliverable 13 involved:

- Participation of a delegation from the Observatory in the 68th International Trade Fair of Thessaloniki and in the 17th Infosystem Fair.
- Preparation of printed material setting out a profile of the Observatory, in both Greek and English, material for the programme 'Excellence in Central Macedonia', also in Greek and English, as well as 8 newsletters.

2.6 Financial implementation and control

The authority responsible for the financial management of Excellence in Central Macedonia has been the Regional Development Fund of Central Macedonia (RDF). RDF is a legal entity of civil law responsible for the fulfilment and management of European programmes. It is administrated by a seven-members council, with the General Secretary (GS) of Central Macedonia as chairman. During the evolution of the project, the General Secretary who initially followed the project, Mr Vassilios Valassopoulos, was replaced, according to national procedures, by Ilias Liakopoulos and then by Dr Georgios Tsotras, who is the current chairman of the RDF of Central Macedonia.

Especially for Excellence in Central Macedonia, the following steps were followed to assign the financial management to RDF:

- Specific decision was taken and related contract was signed between the RDF and the managing body, the Management Authority of ROP.
- Specific approval for the financial management of Excellence in Central Macedonia was notified by the Administration Council of the Regional Development Fund.
- Separate account was opened to the Commercial Bank of Greece, especially for the programme.

RDF has managed the financial flows of the project, the allocation of the budget to the implementation agents and the final control of expenses eligibility. External to the RDF, has been the role of the Quality Manager of the programme (session 2.7), which constituted the receiver and inspector of the necessary receipts and progress reports for each Action. Following systematic control, the Quality manager was submitting official recommendation to the RDF to proceed to the payment of expenditures incurred, when activity and financial progress of Actions were balanced and related expenditures were eligible. Independent financial auditing by chartered auditors (SOL S.A.) was also conducted at the interim and final stage of the project.

The system established to provide sound financial management of the programme includes the following procedures:

- With the initiation of the project, a twelve months letter of bank guarantee was requested and submitted by all implementation agents, in order to proceed to payments.
- The RDF, following the decision of the Steering Committee, signed contracts with the implementation agents. The contracts included analytical description of the contractor's obligations and the nomination of an Action Manager.
- Following the contracts' provisions and after the proposal of the Managing Body, down payments were deposited.
- All payments followed related decision of the President of the Administration Council of the Regional Development Fund and corresponding official payment order.
- The implementation agents had the obligation to inform the quality manager on the physical and financial object of the project, on specific templates signed by the action manager, and also to provide all necessary legal evidence, such as copies of original invoices, as to the way their own financial contribution was covered.
- After the accomplishment of the contracts' terms, a formal payment of the public financial contribution request was submitted to the RDF. With the approval of the Managing Body, RDF proceeded to the payment of the corresponding amount.
- Once the implementation procedures were accomplished and payment requirements were covered, the intermediate and the final report have been composed. At this point, officially recognized Chartered Auditors made the necessary financial audit and after the SC's approval, the outcome results were submitted to the Commission.

- Modification of contracts is legalised, only with decision of the General Secretary of the Region of Central Macedonia and the eventually necessary acceptance of the relevant EU authority.

2.7 Monitoring and evaluation

The monitoring and evaluation was based on the close co-operation of the management and implementation bodies of the Programme (session 2.3 – partnership), while a quality assurance unit was also operating. The Secretary General of Central Macedonia endorsed URENIO research unit of Aristotle University of Thessaloniki as Quality Assurance manager, due to its proven experience in the monitoring and evaluation of ERDF programmes, and in the planning of regional innovation actions.

The monitoring and evaluation system of Excellence in Central Macedonia followed an efficient Quality Assurance (QA) Plan, which applied to all the deliverables of the Programme. On-going evaluation and monitoring has been conducted, based on the following process:

- (1) Implementation of quality assurance plan: URENIO research unit, as the quality assurance manager of the programme, implemented the following tasks:
 - Monitoring the programme development, aiming to ensure that initial objectives are met within time and budget.
 - Development of templates-checklists for the monitoring of the physical and financial progress and the consistency of the financial towards the physical progress.
 - Reviewing of deliverables for consistency, clarity, technical content, and adherence to Programme's QA plan documentation standards.
 - Conducting audits of informal/internal documentation and deliverables.
 - Conducting controls of processes prior to each development phase of the project, in order to check whether processes are defined, milestones are fixed and a suitable work-plan is available.
 - Assuring existence of specifications for each phase.
 - Checking the Actions' contracts against the Programme's contract and EC rules, keeping the documentation for project reviews.
- (2) Communication with the Action managers, for a bottom-up approach of potential corrective actions, and incorporation of related modifications within the actions.
- (3) Reporting to the Managing Body, on a six-months basis, about the progress made on each action and the consistency between the deliverables achieved and the expenditure incurred. Each evaluation report was based on the data gathered during steps (1) and (2), and information reports provided by the action managers.
- (4) After approval by the Managing Body of the semestrial quality assurance report, URENIO was preparing the corresponding semestrial report to be submitted to the European Commission.

More specifically, during the project, URENIO research unit performed the following tasks:

- Assisted the management and the paying bodies on the clarification of administration difficulties, financial management issues and eligibility criteria, the methodology to be used for the assignment of the actions and preparation of clear contracts.
- Provided consultancy to the implementation agents for the preparation of the technical annex: agents submitted a plan of their technical annex to URENIO, which checked eligibility and feasibility of activities and compared the physical towards the financial object. Once an agreement was reached with each implementation agent, the technical annexes were officially submitted to the managing body in order to proceed to the assignment of the action and related contract.

- Developed the methodology for the continuous evaluation of the programme and created the following templates for the evaluation: physical progress, financial progress, control of the physical towards the financial progress.
- Performed and submitted three evaluation reports to the management body. Work concerned (a) selection and control of the evaluation templates from the implementation agents, (b) communication with the action managers for clarification of obscure points regarding mainly eligibility of expenditure and consistency of physical and financial progress, (c) drafting a brief evaluation report for the progress of each action.
- Elaborated the interim and final reports of the project, based on information provided by the implementation agents, and following control of the quality of deliverables and providing guidance on correction actions for the improvement of quality, in cases it was necessary
- Assisted the chartered auditors and the management body in the preparation of the interim and final financial audits, providing guidance on eligibility issues.

2.8 Publicity

Excellence in Central Macedonia included a long publicity campaign, covering almost the 36 months duration of the programme, focusing to raise awareness, stimulate potential regional users of innovative actions and to effectively communicate the programme's results to the regional population. The publicity campaign included several means of promotion: distribution of printed material for the whole programme and per action, development of electronic means of information (CD-ROMs and web sites), organisation of open events (meetings, conferences, etc), announcements on local media and press, and participation in trade fairs. In addition, major issue that concerned the managing authorities and the implementation agents during the evolution of the programme was the possible ways that inter-relations between the Actions could be developed. More precisely, the dissemination activities per Action included:

- *Managing body*
 - (1) Announcement on the press of the first meeting of the steering committee, providing general information on the programme
 - (2) Operation of web site for the programme, providing information on the specific actions and the monitoring procedures, within the web site of the URENIO research unit, <http://www.urenio.org/excellence/>
 - (3) Publication of a Greek and an English leaflet providing brief description of each Action
- *Action 1*
 - (1) Organisation of international panel on Foresight entitled "Technology Foresight-Best Practices and Link to National Initiatives" on 11th April 2003 at the Central Library of Aristotle University of Thessaloniki, with the participation of 60 persons from academia and the industry. The panel introduced the audience to the necessity and the significance of regional foresight exercises, the outcomes of similar efforts in EU and the cross-fertilisation opportunities with the national foresight initiative undertaken by the General Secretariat for Research and Technology in Greece.
 - (2) Publication of the book "Maroulis N., Toliias I. (eds), (2004), *Technology Foresight in Central Macedonia: Central Macedonia versus 2018*, Aristotle University of Thessaloniki Research Committee, ISBN 0-8493-1121-7."
 - (3) Organisation of seminar for the presentation of the Action's outcomes and the Foresight book, 21/12/2004, Hotel Hyatt, Thessaloniki.

- *Action 2*

- (1) First announcement of a call for proposals to invite SMEs to participate in the project, 26th of April 2003. Special attention was dedicated in order to maximize the impact of the announcement of the call for proposals.
- (2) Preparation and distribution of CD-ROM for each of the 4 selected clusters, including informational material
- (3) Publication of informational guide-newsletter for each of the 4 clusters
- (4) Organisation of one seminar for each cluster

- *Action 3*

- (1) Creation of a web-portal on organic farming, <http://biofood.sbbe.gr>, including library, links, news, FAQs, forum and member access to promote their organic products
- (2) Organisation of three workshops on the European policy of GAP and organic farming, the future of organic farming in Greece, the strategic business plan of the Ecological Food cluster
- (3) Organisation of a seminar for the promotion of the cluster activities and the dissemination of project results
- (4) Production and publication of promotion and training material, that was disseminated during the workshops and the seminar and also via mail to attract members to the cluster

- *Action 4*

- (1) Formal presentation of the Action and the Innovation Contest, Thessaloniki, Money Show 2002, 14th December 2002
- (2) Publication of article on the SEPVE magazine, presenting the challenges from the participation in the Action
- (3) Workshop on the strategic focus of the ITC sector within the Region of Kentriki Makedonia and Seminar "Business Planning", Thessaloniki, 4&5 April 2003
- (4) Event on the "Marketing of Innovation", Thessaloniki, 12/06/2003
- (5) Event on "Intellectual property and Patent Law", Thessaloniki, 18/12/2004
- (6) Event on the closure of the Action
- (7) Development of a website giving information on the Action throughout the duration of the Programme, through the SEPVE web site (www.sepve.org.gr)
- (8) Distribution of printed information material to the members of the information technology companies cluster

- *Action 5*

- (1) Publication of 4 press releases
- (2) Over 200 e-mails and 350 fax were sent to regional companies and personal contacts with potentially interested SMEs of the region
- (3) Development and updating of the technology clinics website aiming at disseminating results and providing access to the best practices – case studies, <http://services.thestep.gr/clinics/>
- (4) Organisation of a seminar for each technology clinic
- (5) Organization of an event, 22/12/2004, with the participation of all involved parties aiming at experience exchange, assessment of the implementation of the action and elaboration of proposals for any future planning of similar actions.

- *Action 6*

- (1) Organisation of four information days (7th June 2003-Thessaloniki, 10th June 2003-Kilkis, 12th June 2003-Veria, 17th June 2003-Serres) informing on the Action and calling SMEs to participate
- (2) Publication of numerous press releases

- *Action 7*

- (1) Design and distribution of printed guide on the DRC technical features and using methodology
- (2) Design and publication of leaflet for the Action and the Innovation, Quality and Sustainable Development Network
- (3) Development of web site for the action (www.vrc.gr)
- (4) Organisation of 8 seminars focusing to attract the units that carry out research so as to have their products registered in the DRC database, and to train end users on the usage and benefits of the DRC. The seminars were addressed to the academic community, (AUTH, University of Macedonia, ATEITH), enterprises (food industry), regional institutions (e-polis) and international organisms (Rkm-Net, Stratinc).
 - Digital Research Centre and Research Outcomes management, 09/10/2003
 - Digital Research Centre and Research Outcomes management, 17/12/2003
 - Digital Research Centre and Research Outcomes management (with the attendance of Federation of Industries of Northern Greece - F.I.N.G.), 31/03/2004
 - E-Polis: Digital Technology Applications for the Sustainable Urban Development, 07/07/2004
 - Interregional Seminar on Regional Innovation Measurement & Benchmarking, 23/09/2004
 - Strategic Intelligence and Innovation – Business Clusters, 08/10/2004
 - Food Safety: Academia, research and industry (with the attendance of the National Institution of Food Control), 02/12/2004
 - Digital Research Centre and Research Outcomes management, 16/12/2004
- (5) Presentation of the Digital Research Centre in the 15th annual congress of International Society for Professional Innovation Management, in the National Seminar of Innovative Actions Programs that took place in Heraklion, Crete on the 23-24th June of 2003

- *Action 8*

- (1) Design and distribution of leaflet
- (2) Distribution of training material
- (3) Promotion of the Action's results during the training seminars
- (4) Creation of web site for informational purposes of the Action and services supply to the final beneficiaries of the Action (<http://www.makine/aristeia>)
- (5) Development of web site for the promotion and e-learning on Benchmarking (<http://benchmarking.inatelecom.org/public/default.asp>)
- (6) Organisation of conference

- *Action 9*
 - (1) Printed informational material in Greek and English
 - (2) Press releases regarding the evolution of the Action
 - (3) Publication of articles on e-Partenariat in three newsletters of SEVE
 - (4) Creation of Internet site, www.e-partenariat.net
 - (5) Launching informational material on e-Partenariat in 13 different web sites
 - (6) Direct promotion of the Action's outcomes to organisations dealing with international cooperation
 - (7) Organisation of one dissemination event in Thessaloniki, 19/05/2005

- *Action 10*
 - (1) Organisation of a regional conference on innovation and entrepreneurship in Thessaloniki, 8th October 2003, under the title "Innovation and Entrepreneurship in Central Macedonia"
 - (2) Organisation of an international conference on innovation and entrepreneurship in Thessaloniki, 10th & 11th December 2004, entitled "Utilization of Good Practices in Evaluation and Promotion of Entrepreneurship through Exploitation of Innovation"
 - (3) Participation of the Observatory in the 68th International Trade Fair of Thessaloniki and in the 17th Infosystem Fair.
 - (4) Preparation of printed material setting out a profile of the Observatory, in both Greek and English
 - (5) Distribution of 8 newsletters on the activities of the Observatory
 - (6) Creation, reproduction and distribution of information material in printed form (copies of sectoral studies, newsletters, posters etc.).
 - (7) Creation of the Action's web site, www.orie.gr

2.9 Financial Plan

Expenditure on the project, including actions and technical assistance, has almost covered the total budget foreseen: 98,84% of the initial budget has been spent on the project, representing 4.447.744,86 euros towards 4.500.000 euros foreseen.

The actual private contribution has exceeded the estimated one by around 36.000 euros (785.970,97€ actual private contribution towards 750.000€ foreseen), mainly due to Actions 3, 5 and 7. The other Actions provided actual private contribution equal to that of the initial budget, while Action 9 did not manage to provide the private contribution foreseen. In any case, the exceeded private contribution can be seen as an indicator of the effective effort of the managing authorities and the implementation agents to involve regional end beneficiaries in the activities of the project.

Public resources on the project covered 3.661.733,89€, from which 2.929.419,11€ concern ERDF contribution and 732.354,78€ have been covered by national public funding.

All expenditure on the project has been checked by external auditors (SOL S.A), who certify the eligibility of expenses, after having checked invoices and probing documents of each Action separately.

Table 3 illustrates the budget and the expenditure incurred and paid for the whole duration of the programme.

TABLE 3. EXCELLENCE IN CENTRAL MACEDONIA – BUDGET AND SPENDING FOR THE REFERENCE PERIOD 1/1/2002 TO 31/12/2004

Strategic themes	Total (including private)	Public expenditure								Private expenditure				
		Total Public	Community participation				National public funding incl regional/local participation				National private funding**			
			Total ERDF	Obj 1	Obj 2	Non-Obj	Total	Obj 1	Obj 2	Non-Obj	Total	Obj 1	Obj 2	Non-Obj
1=2+11	2=3+7	3=4+5+6	4	5	6	7=8+9+10	8	9	10	11	12	13	14	
1) Regional economies based on knowledge and technological innovation	4.250.490	3.464.519	2.771.615	2.771.615			692.904	692.904			785.971	785.971		
Action 1.1 Technological Foresight in C. Macedonia	359.476 632.813	359.476 506.250	287.581 405.000	287.581 405.000			71.895 101.250	71.895 101.250			126.563	126.563		
Action 1.2 Encouragement of clustering and co-operation of SMEs in technology transfer, innovation, quality control	249.818	168.720	134.976	134.976			33.744	33.744			81.098	81.098		
Action 1.3 Ecological food cluster; new products development, diffusion to farmers and food enterprises of the organic farming principle	222.543	166.292	133.034	133.034			33.258	33.258			56.251	56.251		
Action 1.4 HTBE cluster; support centre for start-up HTB Enterprises	406.524	344.010	275.208	275.208			68.802	68.802			62.514	62.514		
Action 1.5 Technology transfer through technology clinics	125.340	125.340	100.272	100.272			25.068	25.068						
Action 1.6 Innovation and business excellence prize – EFQM	760.937	562.500	450.000	450.000			112.500	112.500			198.437	198.437		
Action 1.7 Digital research centre of C. Macedonia	562.500	421.875	337.500	337.500			84.375	84.375			140.625	140.625		
Action 1.8 Training of personnel in innovation management, e learning	180.538	144.431	115.545	115.545			28.886	28.886			36.108	36.108		
Action 1.9 e-Partenariat	750.000	665.625	532.500	532.500			133.125	133.125			84.375	84.375		
Action 1.10 Regional Observatory of Innovation and Entrepreneurship														
2) e-EuropeRegio: the information society at the service of regional development														
3) Regional identity and sustainable development														
4) Accompanying Measures														
5) Technical Assistance	197.255	197.255	157.804	157.804			39.451	39.451						
5.1. Quality Assurance Management	120.000	120.000	96.000	96.000			24.000	24.000						
5.2. RDF financial management	63.189	63.189	50.551	50.551			12.638	12.638						
5.3. External experts: chartered auditors	14.066	14.066	11.253	11.253			2.813	2.813						
TOTAL	4.447.745	3.661.774	2.929.419	2.929.419			732.355	732.355			785.971	785.971		

*see footnote of financing plan, annexe 1 of the Commission Decision

**Where public expenditure is the basis for the calculation of the ERDF contribution, the private expenditure, if any, needs to be presented only in indicative figures

3. IDENTIFICATION AND DISSEMINATION OF GOOD PRACTICES

Main objective of Excellence in Central Macedonia has been to identify and disseminate good practices, in terms of worldwide technological and innovation advances. The Steering Committee meetings, apart from their coordination role, enabled the exchange of experiences on issues related to the management and the physical progress of each Action and the diffusion of lessons learnt to the regional agents. The information included in the web sites of the Actions, the operation of the Observatory for Innovation and Entrepreneurship, the participation in international fairs, are main methods for the dissemination of good practices and results of the programme to a wide audience inside and outside the region.

4. CASE STUDIES

Three actions of the project are further analysed as case studies:

Action 1: Technology Foresight in Central Macedonia

Action 5: Technology Transfer through Technology Clinics

Action 7: Digital Research Centre in Central Macedonia

PRAI title: Excellence in Central Macedonia
Region: Central Macedonia
Project title: Technology Foresight in Central Macedonia
Action title: Technology Foresight in Central Macedonia

Description/type of activity

This action was an attempt to foresee the impact of technological developments on the various elements of the regional innovation system in Kentriki Makedonia and provide strategic guidelines on the exploitation of emerging opportunities to any interested party. It was the first regional foresight exercise, of any kind, in Greece, and that was an innovation by itself.

The foresight exercise originated from and applied to Kentriki Makedonia. Under the co-ordination of the Research Committee of Aristotle University of Thessaloniki, approximately sixty high-level experts were selected to form a balanced mix of the elements of the regional innovation system (academia, industry, research, regional administration, NGOs, technology transfer organisations) and elaborate eight thematic areas of major strategic importance to the Region: (a) Information and Communication Technologies, (b) Agro- and Bio- technologies, (c) Industrial processes and Materials, (d) Environment, (e) Transport networks, (f) Energy, (g) Human Resources and (h) the south-eastern European economic area. This extensive involvement of all elements of the regional innovation system in the foresight exercise was a very remarkable success of the project.

The theoretical paradigm upon which this action was built was Kolb's learning circle. The international experience from similar exercises was presented to the regional stakeholders in a workshop in April 2003. The process that was selected to develop the exercise was rather well-known to any foresight practitioner. The Delphi paradigm was used to evaluate and fine-tune forward predictions. 1240 selected individuals were asked to evaluate 215 Delphi statements classified in eight on-line questionnaires. 200 individuals actually participated in the process. Two iterations of the Delphi questionnaires took place between October 2003 and February 2004. Following the convergence of the Delphi process, the teams of experts elaborated one final report per thematic area.

All eight reports together with a Methodological Guide and a Summary of Findings were published in: N. Maroulis and Y. Toliás (editors), *Technological Foresight in Central Macedonia: Central Macedonia Towards 2018*, Thessaloniki, Greece: Research Committee-Aristotle University of Thessaloniki, 2004, ISBN 960-88503-0-4. All the material that was produced or evaluated during the development of the action is also available for downloading from the project's website.

A summary of the implementation steps that were followed in developing the action is presented below:

0. Raising awareness and providing information on international best practice: A workshop was organised in April 2003 where Vassilios Laopodis (European Commission) and Michael Keenan (PREST/University of Manchester, UK) presented to the participants successful cases of developing foresight exercises on various thematic / geographic areas.
1. Selecting the thematic areas upon which the foresight exercise would be built. The selection process was based on a thorough SWOT analysis of the regional innovation system and the Regional Operating Programme of Kentriki Makedonia. Eight thematic areas were selected, they have already been mentioned above.

2. Elaborating the Operational Guidelines for all parties involved in the development of the project. External consultants with considerable experience in the design and implementation of foresight exercises have proposed the modus operandi of the action. Their proposal was accepted and validated by the action's Steering Committee.
3. Selecting the chairpersons of the eight Working Groups. This task was carried out by the project's Steering Committee by evaluating the feedback that followed a call for expression of interest.
4. Staffing the working groups. Approximately 60 people were involved as members of the eight WGs, the majority volunteered and some by direct appointment following the directions of the Steering Committee and the WG Chairpersons. This process finished on 22 June 2003.
5. Finalising Scope per WG: The WG proposed which attributes of the respective thematic fields are important and worth assessing and which not. This process finished on 30 July 2003.
6. Elaborating a baseline audit per WG: Following the finalisation of the scope for each WG, a baseline audit was elaborated to define the state-of-the-art and the situation in Central Macedonia. This process finished on 15 September 2003.
7. Drafting the Delphi statements. Each WG provided from 20 to 37 Delphi statements to be assessed by the public. The final list was available on 4 October 2003.
8. Preparing the data management system (web-based questionnaires) and inviting participants to the first iteration of the Delphi method. The first iteration of the Delphi method was launched on 14 November 2003, terminated on 31 December 2003. The second iteration was launched on 16 January 2004 and terminated on 18 February 2004. Convergence was achieved and no additional iteration was required.
9. Analysing the Delphi results. The WGs were asked to update their baseline audits, comment on the Delphi Results and synthesise their findings in a way that can be understood to the general public. A uniform template was used by all WGs to present their findings. This process finished in late October 2004.
10. Preparing / Publishing the project's proceedings and dissemination events. It took two months to have the project's final deliverable printed and a dissemination event has held on 21 December 2004.

Objectives

The action's primary objective was to support strategic decision-making for all the elements of the regional innovation system towards identifying and correlating the "correct mix of technological developments" to "exploitable opportunities"; to provide hints on re-orientating the regional innovation system towards exploiting these opportunities; and influencing the strategy development process of all regional actors towards supporting the transition of Kentriki Makedonia to global-grade competitiveness so that the opportunities will be effectively exploited. By using the experience and know-how of the most prominent regional experts that were summoned to observe and comment on the latest developments and trends the action developed probabilistic models and theories for development and put them under the criticism of the public, the action's primary objective was met.

Corollary objectives included the acquisition, understanding and application of well established foresight methodologies; establishing a wide, multidisciplinary learning mechanism and disseminating the learning outcomes to the maximum extend. Judging from the enthusiastic comments on the action's results, all corollary objectives have also been met.

Funding

The action's budget was €375 000. Actual expenses were €359 476, 80% of which was contributed by ERDF.

Partnership

The action ran under the supervision of the Research Committee of Aristotle University of Thessaloniki, the Region's bigger University.

A big partnership, reflecting the regional innovation system, was created in the development of the action, consisting of representatives from academia (21%), the industry (64%), public administration (7%), R&D organisations (4%) and NGOs / trade unions / others (4%). A total of 280 persons were directly involved with the various stages of the action's development.

Potential impact

In evaluating the success and the problems of the first ever regional foresight exercise in Greece as a whole, on the positive side there was a clear success in attracting widespread participation from all elements of the regional innovation system in Kentriki Makedonia. Although the priorities that emerged were rather broad, they have been generally accepted. There is an acknowledgement that these are priorities for follow-up action and not an attempt to foresee or influence technological developments. The networking activities are considered to be beneficial and become more prominent as an objective over time, especially with respect to drafting the Regional Operating Programme for 2007-2013. Overall, the enthusiasm of the members of the WGs and their commitment towards the successful implementation of the action is one of the action's highlights.

Problems in the approach that was followed in developing the action included a rather strict timescale which inhibited the development of mature recommendations and the ability to take full advantage of the Delphi methodology, in terms of responders and iterations.

The most probable impact of the action's development is the evaluation of a roadmap for future development of Kentriki Makedonia, together with a list of priorities that should be addressed in short-, medium- and long-term timeframes towards maximising the possibilities for regional development.

For the regional authorities, executing the exercise contributed to the development of long-term thinking on policy issues, understanding legal and regulatory barriers to innovation in various fields, and involving the stakeholders in the development of policies: a promising condition for their implementation.

For academia, which constituted the core of this regional foresight exercise, foresight was seen as a tool for identifying new areas for research, new applications from existing research and new partnerships and networks. Alignment to foresight priorities might help attracting research funding.

Finally, for the industry, foresight highlighted new opportunities, out of the traditional sectors in Kentriki Makedonia and a greater awareness of the contribution of science and engineering in business success.

Sustainability

The regional technological foresight exercise was an opportunity for foresight to become embedded and institutionalised within the regional innovation system rather than operating only

at a higher strategy-making level. Two interesting developments might prove the action's sustainability:

- (a) The Regional Administration have already expressed their interest in utilizing them to draft the strategic objectives of the new Regional Operational Programme covering the period 2007-2013.
- (b) The Research Committee of Aristotle University has already put foresight high on its' agenda for developing the University's research orientations, being committed to repeat the exercise by establishing a foresight mechanism within the University.

Transferability

The project was conceived as a learning process, and all elements of this process are documented in the methodological guide, the first chapter of the action's print deliverable (see Toliás, Y; "Technological Foresight in Central Macedonia: A Methodological Guide," in *Technological Foresight in Central Macedonia: Central Macedonia Towards 2018*, Thessaloniki, Greece: Research Committee-Aristotle University of Thessaloniki, 2004, Chapter 1, pp. 1-58).

There is nothing new in the process of developing a foresight exercise: the literature provides adequate information on every aspect of the process like methods and their limitations; therefore, collective learning and the existence of a critical mass of the various elements in any given innovation system are the only parameters that limit foresight applicability.

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Date of this information

February 2006

PRAI title: Excellence in Central Macedonia

Region: Central Macedonia, Greece

Project title: Technology Transfer through Technology Clinics

Action title: Technology Transfer through Technology Clinics

Description/type of activity

The project concerned the implementation of technology transfer actions to region's SMEs, through technology clinics. Over 27,000 SMEs constitute the industry network of Region of Central Macedonia (RCM). These enterprises bear pressure on a daily basis for fund raising and support related to evaluating and applying new technologies. Through technology clinics SMEs benefit from the knowledge and experience of bodies specialized in technology transfer. Thus, the existing infrastructure is fully exploited and major synergies among Universities, Research Centres and Technology Transfer Organizations are created.

Nine (9) **methodology technology clinics** were created aiming at the dissemination and application of best practices and methodologies of management in the following areas:

1. **Technological strategy for innovation:** this clinic helped SMEs create competitive advantage based on innovation. 12 SMEs of all sectors participated and eventually benefit from the action line.
2. **Operational - Business planning:** pilot application for the implementation of business plans and the incorporation of specific technology business plans in the general operational planning. The action targeted SMEs in the tourism sector. 8 SMEs participated.
3. **Quality systems application:** this technology clinic prepared SMEs to adopt the forthcoming changes in the ISO 9000 (valid from 2003). 9 SMEs of all sectors participated.
4. **Environmental management and policy:** the clinic facilitated the adoption of SMEs to the environmental management systems (ISO 14000 – EMAS). 10 SMEs from all sectors participated.
5. **Marketing of products and sales policy:** this clinic's objective was to find the best channels for the products promotion together with the evaluation both of the product portfolio and the target markets. 14 SMEs from the construction material sector participated since their major problem is related to the marketing and promotion of their products.
6. **E – applications:** this clinic examined the obtainability of e-applications with emphasis on maintenance management applications in 25 SMEs of all sectors.
7. **Supply chain management:** this clinic's objective was the study and implementation of common data interface in the supply management systems of SMEs. 10 SMEs of the food sector participated.
8. **New products development:** this clinic's objective was the study of the products life cycle since it is a basic criterion for the development of new ones. 10 SMEs of all sectors participated.
9. **Energy saving systems:** the obtainability of already existing energy saving systems and their application in the production process was the objective of this clinic. 12 SMEs of sectors with high energy consumption participated trying to implement the best available practices.

A tenth topic of "Business Excellence" was initially foreseen to consist the 10th technology clinic but it was postponed as the topic was covered by another Innovative Actions project ("Establishment of Innovative Entrepreneurial Excellence Prize in central Macedonia").

The above-described 9 technology clinics were implemented in two phases:

A) PHASE A - PREPARATION PHASE: during this phase the following actions took place:

- Edition of information package concerning activities and content of the clinics that was distributed to SMEs of RCM in order to promote initiatives of the region and raise awareness of the SMEs on innovation issues
- Announcement of the start of each technology clinic aiming at collecting SMEs expression of interest for participation
- Selection of SMEs that participated in each technology clinic
- Definition of technology needs of participating SMEs through technology audits
- Organization of info-days in the form of workshops for the familiarization of SMEs to the proposed technological services and to the methodology of transfer through technology clinics
- Identification and parameterization of technical constraints and elaboration of proposals for implementing customized projects during phase B.

B) PHASE B - CONSULTATION PHASE: Phase B concerned the implementation of specific customized action plans for confronting the technological constraints of the participating SMEs. Aims of this phase was:

- Supporting each SME to solve its technological problem
- Drawing of conclusions in the form of best practice – case studies aiming at identifying crucial factors for achieving desirable results that could be transferred and applied in similar cases

A total of 110 SMEs participated in the PHASE A of the 9 clinics and 30 individually customised consultation projects were implemented during PHASE B of the project.

Objectives

Main objective of the project was the implementation of technology transfer actions to SMEs of the Region of Central Macedonia aiming at confronting in the best possible way technological weaknesses that hamper their progress. SMEs of the region that participated in the action benefited from the knowledge and experience of bodies specialized in technology and know-how transfer. Thus, the bases for exploiting existing resources available in RCM were set and major synergies among Universities, Research Centres and organisations activated in the field of technology transfer were created. Goals of the action have been:

- Assisting SMEs of RCM through processes crucial for their further development and sustainability
- Creating strong bonds between productive core of RCM and technology transfer organisations
- Preparing SMEs of RCM for rational exploitation of funds foreseen by the new regional operational program, elaborating projects based on their actual needs
- Developing the culture of strategic operational planning based on innovation

- Avoiding wasting resources (both public and private) for implementing projects non-compatible with SMEs' operational strategy and the national and international environment trends.

Funding

Action total cost: € 406.523,6 of which €258.007,2 ERDF contribution, € 86.0002,4 National contribution and € 62.514,0 private funds

Partnership

The model selected for the implementation of the action "technology transfer through technology clinics" was based on the collaboration of the following 4 parties: (a) the manager of the clinic, (b) the coordinator of the clinic, (c) the provider of the technological service and (d) the SMEs whose technological constraint was to be dealt.

a) Manager of each technological clinic was the Center for Research and Technology Hellas (CERTH), organization responsible for the implementation of the Action. Responsibilities included modulation and specialization of the thematic of each clinic aiming at disseminating technologies of high added value but still under-exploited by SMEs. Also, the manager was responsible for defining the Technology Clinics' specifications and the selection criteria for the SMEs to participate. Furthermore, the clinics' manager was responsible for tuning evaluation procedures, selecting coordinators and technology providers.

b) The coordinator of each technology clinic was responsible for designing and implementing dissemination activities promoting the selected technological services aiming at approaching mature SMEs ready to commit to the implementation of development projects in the corresponding thematic areas. Also, the coordinator was responsible for supporting the technology provider during phase B, designing and implement rationally structured projects with clear goals, resources and timetables.

c) The technology provider was responsible for assisting SMEs identify the benefits arising from the exploitation of the suitable technology and application methodology for overcoming their technological constraints. In a second stage the technology provider was responsible for solving the technological problem reducing at the same time risks arising during the adoption procedure.

d) the SME whose technological constraint was to be dealt.

Potential impact

The selected implementation model for the action "Technology Transfer through Technology Clinics" was based on the collaboration of CERTH with organizations of proven know-how concerning the corresponding thematic areas. Although the action addressed to SMEs of the region of Central Macedonia and had direct benefit in their ability to adopt and implement innovation, more important it created several synergies with Universities, Research Centers and Technology Transfer Organizations. This is considered as the long-term added value of the project and remains to be further exploited in the future by SMEs using the "best practice case studies" available.

Implementing the action indicated the following important direct benefits:

- Over 2000 SMEs of RCM were informed about the possibility of technology transfer through technology clinics

- 110 SMEs exploited knowledge and experience of organizations with expertise in technology and know-how transfer in crucial sectors for the increase of their competitiveness and their further development
- Existing infrastructures and resources available in RCM were exploited and major synergies between research organizations and technology transfer bodies were created
- Participating SMEs were prepared for rational exploitation of funds foreseen by the new regional operational program, by elaborating projects based on their actual needs and thus avoiding wasting (both public and private) resources.

Sustainability

Taking into consideration the benefits for all involved parties (SMEs, research centers, technology transfer organizations) mentioned above, it is obvious that the implementation of the action "Technology Transfer through Technology Clinics" had a positive effect in the region and although pilot, some phase B projects concluded to concrete results. The implementation methodologies developed, the experience gained during the pilot implementation and the synergies that were developed between SMEs and research bodies, have a long lasting effect in the continuous effort of enterprises to innovate. New measures fostering technology transfer through technology clinics could be implemented regardless of scale (regional, national, European) as the positive impact of the methodology has been proven through this pilot action.

Transferability

The implementation methodologies developed were adapted in to the particularities of each thematic area and the each specific sector where the clinics were implemented. The experience gained is reflected in to the methodological guides issued for each "Clinic".

The project's mechanism to facilitate this future exploitation and transferability of the results by SMEs is the "best practice case studies", which reflect the experience gained by each SME and can be used as a guide for repetition.

All these are considered the project's deliverables and can be fund on the project's web site (<http://www.techpath.gr/clinics>)

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Date of this information: February 2006

PRAI title: Excellence in Central Macedonia

Region: Central Macedonia, Greece

Project title: Digital Research Centre for Cooperative Innovation

Action title: Digital Research Centre for Cooperative Innovation

Description/type of activity

The Digital Research Centre for Cooperative Innovation (<http://www.vrc.gr>) is a new infrastructure in the Region of Central Macedonia, which supports the cooperation between academic research units and business through the exploitation of the outcomes (products or services) resulted from the research projects that have been carried out from the Aristotle University of Thessaloniki and other research and technology agencies of the Region.

The Centre offers three types of services:

1. On-line information on R&D results: The most important research outcomes are listed to a database, especially those that lead to the development of new products, new production processes and new services. Technology providers (universities and other research and technological units) submit their profiles and detailed information about their research products and services while technology consumers (from both private and public sector) can access this information over internet. The database entries are categorised in scientific categories and market applications so that companies and public organisations can easily find what they want.

2. On line support on innovation management: A series of roadmaps help users (laboratories, companies, entrepreneurs, and public organisations) to accomplish, with a new and innovative way, tasks related to:

- New product development: A tool that guides the user through the five stages of the new product development process: ideas generation, evaluation of ideas - selection of the final idea, product development, prototyping, and commercialisation.
- Intellectual property rights protection: A guide that shows users how to protect and gain commercial advantage from their intellectual assets.
- Spin-off creation: A tool that guides the user through the four stages of a spin-off company's creation process: identification of a potential new product, analysis of the business opportunity, investigation of issues regarding intangible assets, and preparation of the business plan.
- Management of quality: A guide presents to the user the activities of quality planning, quality control, quality assurance, and quality improvement within the quality system. The guide also informs the user about the systems, organisations, and tools which make it possible to plan, manufacture, and deliver a quality product or service.

3. Technology dissemination and support on innovation projects: The Centre is organizing matching events and provides support to companies and university labs working on collaborative innovation projects. A number of small pilot projects of cooperative innovation have been already funded.

The above mentioned activities show that the Digital Research Centre for Cooperative Innovation has both digital and physical dimensions, which stimulate and enhance the cooperation between

research units and companies or public organizations allowing the knowledge and expertise possessed and developed by universities to flow directly into business and society.

The digital parts of the Centre are built using standard web technologies and are accessible through the internet. The Centre services are available for free in Greek and English.

Digital Research Center
www.VRC.gr

Home Contact Ελληνικά

The Digital Research Center:

- Includes products and services resulted from the research projects that have been carried out from Universities and other research and technology agencies of Central Macedonia
- Supports the exploitation of these products and services

ABOUT THE CENTER | TECHNOLOGY SUPPLY | TECHNOLOGY NEEDS | SUPPORT SERVICES

The Digital Research Center for Cooperative Innovation aims to facilitate the access of public and private sector institutions in results of research projects, and to contribute in the wider distribution and exploitation of products and services that are based on the academic research.

Do the first step

- Submit a research product or service**
Easily and quickly to the database
- Search in listed research products & services**
By market application or scientific field
- Submit a Technology Need**
To the Digital Research Center's Technology Forum

Products from research projects

Innovation Toolbox
On-line tools that help the development of Innovative Firms: Technology Watch, Marketing Innovation, Technology Assessment, Technology Audit, and Financing Innovation.

Satelite Cities' Maps
Development of an Agriculture management system using GIS and remote sensing techniques.

Greek Benchmarking Center
The Centre aims to the diffusion of the Benchmarking technique in enterprises and organisations.

Learn about the Center

Market Applications

- Development
- Buildings / Constructions
- Production
- Environment
- Informatics / Automation
- Quality
- Services / Management

Scientific Categories

Architecture, Biology, Biochemistry, Engineering, Geography, Agricultural sciences, Forestry, Cultural sciences, Chemical engineering, Electrical engineering, Medicine, Sociology, Veterinary sciences, Mathematics, Metallurgy, Mechanical engineering, Economics, Organization & management of enterprises, Topography, geodesy, Pharmacy, Physical sciences

Roadmaps

- New Product Development
- Spin-off Creation
- Intellectual Property Rights
- Quality Management
- Discussion Forum
- Technology Needs

Similar Digital Spaces

- CORDIS Technology Market-place
- Digital repository of MIT research
- Yet2.com Technology Market-place
- Madri+d

Contact

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The innovative character of the Digital Research Centre comes from the integrated services it provides. The project bridges the existing gap between regional technology demand and supply with the design and development of integrated services addressed both to research institutions and laboratories, and companies. Specifically, key innovative features of the project are:

(1) Connects regional technology supply and demand. Research institutes and university laboratories maintain virtual and real spaces for the promotion of their research activity. These spaces are quite isolated from each other and operate independently. The recording of the companies' needs and intra-firm R&D activity is even rarer. The Digital Research Centre collects and organizes in a data base the information on the activity of the research units in uniform templates, and codifies the related results in categories. Research products are complemented with the corresponding patents and prototypes. Additionally, the DRC provides a platform to record the technological needs of companies and make the match-making between needs and supply.

(2) Provides an integrated system of support services addressed to research laboratories that wish to commercialize their research products and to the companies-users. These services are available on-line and concern information and roadmaps for the application of management tools (audit, technology watch, technology evaluation, business plan development) in the fields of technology transfer and intellectual property rights, technology watch and prototyping, spin-offs creation, quality management and technology demand.

(3) Operates both at the real and the virtual space providing the possibility for long distance

access. The virtual space includes demonstration of research results, data base to record the findings and research projects, portal and discussion forum open to companies facilitating their access to research results. At the real space, users are communicated with seminars aiming at informing on the benefit from the publication of research activity in the DRC.

Existing similar projects worldwide offer supply and demand matching services, but they do not provide the additional support services available in the DRC. In addition, they can not be easily applied in the Region of Central Macedonia due to the economic scale of most enterprises, mainly SMEs, and to the fact that these applications are not available in Greek.

The project foresees the possibility to check the operation and effectiveness of the Digital Research Centre with the design and implementation of 10 pilot applications, which exploit products and services already recorded in the DRC. Pilot applications concern the development of prototypes, and the launching of new products or services through technology transfer and quality control.

While the international experience in the development of similar digital spaces such as Cordis Marketplace (<http://www.cordis.lu/marketplace>), MIT's DSpace (<http://libraries.mit.edu/dspace-mit>), and yet2.com company's Technology Marketplace (<http://www.yet2.com>) was taken into account, the Digital Research Center for Cooperative Innovation not only incorporates most the features that the above developments offer but also adds the following significant innovations:

- The build of a physical layer consisting of pilot applications, seminars, printing guide, and extensive collaboration networks between research laboratories and enterprises.
- The creation of a series of on-line roadmaps (guides) that support companies and research units through the process of commercial exploitation of research results.
- The development of the on-line technology matching tool which gives to the companies and the public sector a medium to expose their technological needs.
- The creation of the on-line discussion forum where the users can exchange ideas and opinions about various aspects concerning the exploitation of the research results.

The above mentioned innovations facilitate yet more the cooperation between research units and private or public sector and at the same time help the dissemination of R&D product or services into business and society.

Objectives

The major objective of the project is to increase regional technology intelligence on research and innovation. Besides, the project set and achieved the following goals:

- Demonstration in the academic community of various ways of commercial exploitation of R&D results.
- Dissemination of R&D products and services to the business and public organizations.
- Reinforcement of the cooperation between universities and business, which also brings a raise to the private funding for the academic R&D departments.
- Development of extensive, sustainable collaboration networks between research laboratories and companies.

Funding

Total cost: 750,000 €

Partnership

The Implementation of the Digital Research Centre was the Network of Innovation and Sustainable Development of the Aristotle University of Thessaloniki. It is a not for profit organization founded in 2001 from ten laboratories of Department of Architecture, Agriculture, Mechanical Engineering, Civil Engineering, and Informatics of the Aristotle University of Thessaloniki.

Potential impact

The Digital Research Centre seeks to promote the technological dynamism of the region, exploit the outcomes of the research conducted in the laboratories, record the technological needs of the regional companies, cross-link technology supply and demand, and, thus, sustain the efforts towards the development of a knowledge based economy in Central Macedonia. The Digital Research Centre creates strong impact on the regional economy, mainly at three levels:

(1) Encouraging the linkages between research institutions and businesses. Scientific research in the region is mainly conducted by University laboratories and, although covers a wide range of scientific areas producing a variety of results, is abstracted from the real needs of firms. Existing links and cooperation between research and production are quite limited, mainly due to the isolation of both parts and the lack of interaction mechanisms. The Digital Research Centre is being developed on the direction to bridge the gap between research and production in the region, based on the origin that successful innovations are those that lead to the commercialization of the ideas created in laboratories. DRC provides the mechanism to gather and correlate inputs from the supply side (university laboratories, research and technology transfer institutions) with those of the demand side (companies). The data base of research results facilitates companies to reach the technology required for the creation of products and the launching of innovations. On the other hand, the recording of the technological needs of companies may orientate the research directions of the academic community. In addition, the exploitation of research results and their transformation into products becomes a crucial factor for the regional economy.

(2) Fostering networking between university laboratories, technology transfer organizations and companies, which supports the creation of clusters in technological fields. Clusters formed by groups of innovative enterprises, academic and research institutions and other support organizations are recognized as structures embodying a developing knowledge base, allowing interaction flows through technology and knowledge transfer. These relations can strengthen the fabric of the region, as traditional industries can turn to universities to investigate and meet their requirements.

(3) Disseminating and diffusing research results, both at the real and the virtual space, which leads to the exploitation of research outcomes and their transformation into products. The easy accessibility of the DRC, the number of users of its services -companies and research laboratories- the number of laboratory templates inserted in the data base, the number of users of the digital applications are major indicators to measure the impact of the virtual services of the DRC. In addition, the initiation of the pilot applications concerning the development of new products with the use of outcomes of research projects is a primary indicator of the dissemination of the DRC at the real space.

Sustainability

The Digital Research Centre was financed by the ERDF Innovative Actions and national resources, while a small part of the total budget (25%) is provided by private contribution of laboratories

and companies conducting the pilot applications included in the work programme. Sustainability of the project after the end of the public financing is a major concern of the management body of the project.

The first positive indication promising the project's sustainability is the recognition by the Research Committee of the Aristotle University of Thessaloniki of the role of the DRC to the promotion of the University's activity. The University's research committee has decided to maintain the operation of the Digital Research Centre of Central Macedonia as a permanent structure of the University and house the infrastructure of the DRC -equipment, offices and human resources- in the new building of the Research Committee of the AUTH, which is under construction. This way, the operational costs of the DRC will be covered by internal resources of Aristotle University of Thessaloniki.

In parallel, the enthusiastic acceptance of the DRC among the academic community and the economic sector sets the base for its successful course in the future and guides scenarios for the sustainability of the project after the end of the grant. These scenarios include:

- The establishment of commercial advertisements of companies and institutes aiming at their further promotion. The number of advertisements is expected to expand as the number of institutions, products and services included in the database is increasing, with a consequently continuously prosperous economic added value. Advertisement will not be compulsory, while the access to the DRC and use of its services will remain free of charge.
- Creation of sub-spaces within the DRC with limited access to members only, who will enjoy additional services with a certain financial contribution. The restricted areas may include case studies and analytical success stories, analytical description of research products and users' manuals, etc. Members of the DRC will enjoy special lower prices in the use of services of the laboratories of the DRC, the purchase of products and applications.

Transferability

The concept for the development of the Digital Research Centre is to bridge the gap between technology supply and demand, offering corresponding services at the real and the virtual space. This idea and the software platform may easily be adapted to any regional system aiming at connecting the demand and the supply side. More specifically, the main features rendering the approach of the Digital Research Centre easily transferable are:

- **Broadness:** DRC is addressed to all production units, regardless of specific branches, sectors and size. It is open to any scientific and technological field, thus covering a wide range of services and products. The broad character imposes that the system may successfully operate focusing on more narrow fields of application -it may focus on specific production sectors and corresponding service and technology providers, taking a cluster character- or on even broader scientific fields, including further research categories.
- **Easy accessibility and involvement procedures:** Information included in the DRC and the services provided may easily be reached through the Internet, which becomes a widely applicable tool. The recording of technological needs of companies and the presentation of the research activities of laboratories is based on the completion of simple templates.
- **Standard technical requirements,** including the information management system, the data base, the discussion forum, the web applications.

The project can be easily adapted to the conditions of any regional system, as, apart from the major concept to provide a mechanism linking demand and supply of technologies, it includes several supporting services and portals, which may be differentiated according to the specific fabric of each region. At the intra-regional level, the duplication of the DRC would not provide any

added value, but the extension of its target group and services provided could lead to further broadness. The structure of the DRC allows to extend the services it provides with the inclusion of information for intermediary organizations (business associations and consultants), public and private agencies, and funding mechanisms, offer additional on-line applications, create sub-space for the recording of technology demand of commercial enterprises, etc. The crucial precondition for the adaptation/ customization of the DRC concept is to put in place tools and engage efforts to raise awareness of both sides –technology supply and demand- on the benefits from the demonstration of their activity in such integrated system and overcome barriers related to suspiciousness and lack of trust.

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