Part 1
SETTING-UP THE REGIONAL TECHNOLOGY PLAN

This part presents the institutional and methodological organisation of the Central Macedonia RTP: its concept, objectives, management structure, working programme and deliverables.

1. EUROPEAN TECHNOLOGY AND COHESION POLICY: THE RTP CONCEPT

European cohesion and technology gap

One of the new elements in the fifth periodic report on the social and economic situation of the regions in the European Community (*Competitiviness and Cohesion: Trends in the Regions*) is the view that many of the causes of regional disparities in economic development may by traced to disparities in productivity and competitiveness. In turn, regional productivity and competitiveness are considered as dependent variables of the capacity of regional firms to innovate the production process, to introduce new products in the early stages of their cycle, to lower costs through innovations in logistics, and to increase market adaptability. Innovation and intellectual property are among the strongest drivers of competitive achievement. There are clear statistical links between R&D, management capability, intellectual property, innovation, and rising market share, growing added value and jobs creation.

While innovation has become key issue for the wealth and prosperity of the regions, quantitative data and a number of research reports have established that the geographical distribution of technological and innovative effort in the European Union is extremely unequal. Many of the factors sustaining innovation, Research and Technological Development in particular, are unevenly distributed between EU regions.

Table 1.1.
Geographical polarisation of innovation factors

	GR	P	ES	IRL	DK	NL	FR	D	EUR
GDP per head (1993)	49	60	76	78	106	109	109	117	100
Unemployment % (1993)	7,8	4,9	21,3	18,4	10,6	8,2	10,3	7,0	10,4
GERD as % of GDP (1990)	0,47	0,50	0,87	0,91	1,54	2,06	2,42	2,81	2,00
BERD as % of GDP (1990)	0,10	0,12	0,52	0,55	0,85	1,11	1,48	2,02	1,30
Government RTD as % of budget (1988)	0,60	0,98	2,19	0,98	2,28	2,50	6,91	4,11	3,24
RTD scientists per 1000 labour force	1,4	1,1	2,2	5,0	3,8	4,0	5,1	5,9	4,2

Source: Commission of European Community 1994 (GDP: Gross Domestic Product, GERD: Gross Expenditure in Research and Development, BERD: Business Expenditure in Research and Development)

Table 1.1. indicates that regional disparities in factors of innovation (RTD, BERD, R&D scientists) are far more important than disparities in GDP and unemployment (cohesion gap):

- The Community four weakest members (Greece, Portugal, Spain, and Ireland) have RD expenditure levels which are two to three times lower than the Community average. The gap in terms of gross R&D expenditure is 1 to 6, while in terms of income per head is 1 to 2,5.
- Business expenditure for R&D in Greece and Portugal are one tenth of the community average, and 15 to 20 times lower than in France and Germany. State expenditure for R&D, in the same countries, is one fourth of the community average.
- R&D personnel in Greece and Portugal is only one quarter to one fifth of the same personnel in the more advanced states, and one third of the community average.

The "technology gap" becomes important both in quantitative terms and in terms of effects on the convergence process, since it reproduces the conditions of uneven development. The innovation capacity of less developed regions cross dynamically the cohesion process, as regional disparities are nurtured by disparities in technology and innovation. This correlation has introduced a clear interest for the diffusion of technology and innovation, both in the framework of R&D programmes, and the regional and cohesion policy of the European Commission.

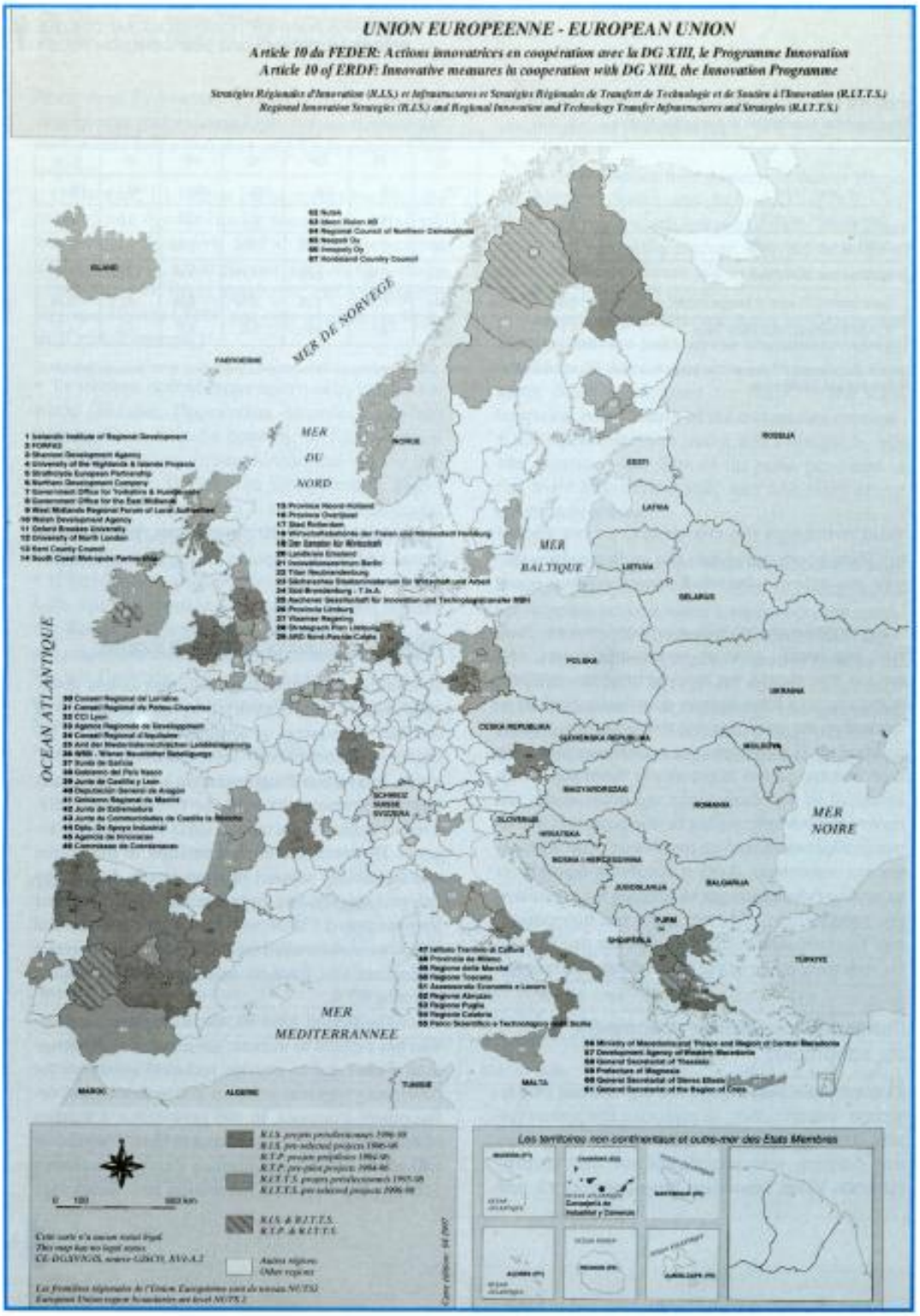
Regional policies for innovation support

Innovation and technology diffusion in less developed regions were supported by various actions of the R&D framework programmes targeting on research and technology dissemination (SPRINT, Value, Innovation Programme, etc.), the Community Support Frameworks, and the Community Initiatives designed to encourage R&D in peripheral regions. However, the implementation of innovation and technology support programmes in the less developed regions has been limited. In Objective 1 Regions only 2.7% of resources from the structural funds were channelled into R&D, while in Objective 2 Regions this fraction was substantially higher, reaching 9.3%.

For the period 1994-99, the European Commission has decided to increase the amount of the structural funds and to provide technical assistance for developing regional research and technological development strategies. In this perspective, a number of innovative regional actions has been designed or extended, such as the Science Parks Consultancy Scheme, the Regional Innovation and Technology Transfer Infrastructures and Strategies, the Regional Technology Plans and the Regional Innovation Strategies (see Diagram 1.1.).

The implementation of these strategies is a positive step beyond comparative advantage strategies, focusing on exploitation of lower labour costs, which were the usual policies in the less developed regions. But, they encounter significant obstacles, both on the level of applied research and technology supply as well as on the level of the demand for R&D and the understanding of the capability of R&TD to increase business competitiveness.

Diagram 1.1: Innovative Measures of ERDF Article 10 and Innovation Programme



Regional Technology Plans (RTP) are part of this concern. They use research and technology development policy in order to promote economic development, to increase productivity and competitiviness, and to reduce inequalities among the European regions.

The RTP concept

The objectives of the RTP are twofold. One the one hand, to encourage regions to develop regional innovation strategies and to improve the capacity of regional actors to make policies which take into account the real needs of the productive sector and the strengths and capabilities of the regional RTD community. On the other hand, to provide a framework for both the regions and the European Community for optimising policy decisions regarding future investments in RTD initiatives at the regional level. In this sense, elaborating an RTP may accelerate the process to receive financing for RTD projects through the Structural Funds and adapt better these projects to the regional technology and innovation needs.

As defined in the *RTP Guide Book*, each Plan ought to reflect specific orientations:

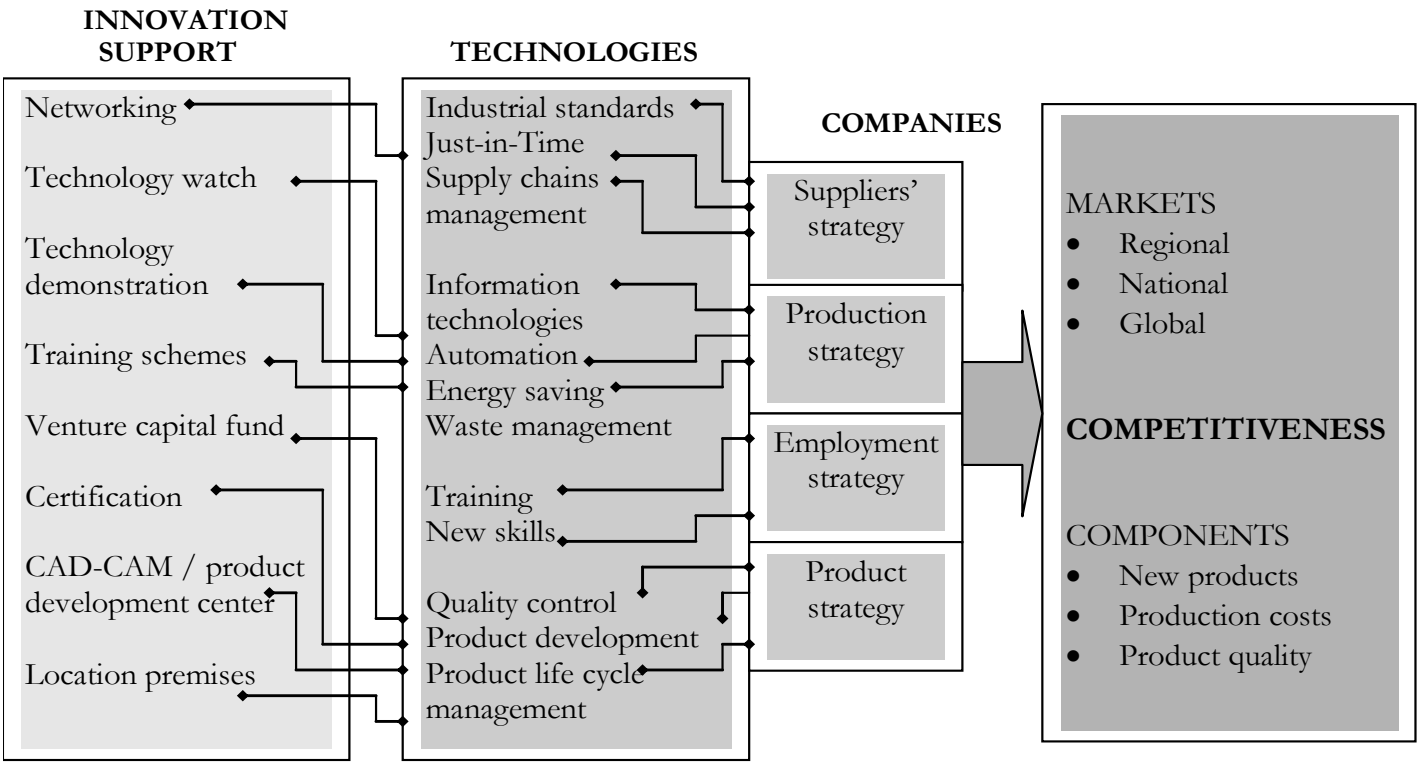
- a *bottom-up approach*, giving emphasis on the regional technology demand and SMEs,
- a *regional approach*, focusing at the development of a territorial entity on the basis of a consensus between the government, the private sector, the universities and the research centres,
- a *strategic approach*, combining the analysis of the regional technological development and the definition of long-term priorities and short-term actions,
- an *integrated approach*, linking the efforts of the public and private sectors towards the common goal of increasing regional productivity and competitiviness,
- an *international approach*, considering the global market trends and enhancing international technology and economic co-operation.

Diagram 1.2. illustrates how an RTP may operate by linking (1) the competitiveness of a Region's companies, (2) corporate strategies for production, products, interfirm relations and employment, (3) the technologies incorporated in these strategies, and (4) infrastructure and innovation support services facilitating access to and use of technologies. Regional infrastructure, technology and innovation services, developed in the framework of a regional strategy, may improve the innovation capacity of regional firms and increase their competitiviness on the regional, national and international markets.

However, the meaning of regional competitiviness is rather different than the usual economic meaning of the word. Regional competitiveness is understood as the capacity of the region to attract and maintain firms with stable or increasing market shares in an activity while maintaining stable or increasing standards of living for those who participate in it. This capacity is based on the resources available in the region, the established

physical infrastructures, and the integration of activities at the local level. The following diagram 1.2. presents RTP's operation and fields of action.

Diagram 1.2.
RTP operation and field of action



Regional Technology Plans (renamed Regional Innovation Strategies) are supported jointly by DG XVI (Regional Policy and Cohesion - ERDF article 10) and DG XIII (Telecommunications, Information Market and Exploitation of Research - The Innovation Programme) of the European Commission.

2. OBJECTIVES OF THE C. MACEDONIA RTP

Following the guidelines and concept of the RTPs, the objectives of the Regional Technology Plan in C. Macedonia are:

1. To investigate the processes of technological development in C. Macedonia and to define the strengths and weaknesses of the regional innovation system.
2. To ensure an agreement between the principal bodies and agencies of government, the regional firms, the workers organisations, and the universities, on the priorities of technological development in the Region.
3. To select projects and actions that sustain the technology and innovation capacity of the regional firms and to investigate their feasibility to be implemented.
4. To implement these projects in co-operation with the Structural Funds and to attract funds towards actions sustaining the technology and innovation capability of the Region.
5. To establish an Observatory in order to monitor the effects of the Plan and to diffuse information on innovation and development of C. Macedonia.

These orientations declare a clear relation of the Plan to the Community regional policy and the Structural Funds. This concern is not a rigid constraint of the RTP concept, but it comes out of the actual development situation in Greece and C. Macedonia. The process of Economic and Monetary Union and the intense effort of the country to meet the targets of the Maastricht Treaty connects most of the public and private investments to the Structural Funds and the Community Support Framework in particular. The latter has become the dominant tool that drive the selection of projects and initiatives to renew the country's infrastructure and production capacity. In this sense, principal problem in the actual development trajectory is to make a correct use of these resources, to sustain projects with major multiplication effects and to co-ordinate the public and private initiatives for modernisation and growth. This aim towards the Structural Funds is a major political choice of the Plan in C. Macedonia.

Among the preoccupation of the Plan is to develop a system of continuous monitoring and evaluation, capable to indicate adjustments throughout the implementation stage. Previous planning procedures have shown the importance of such correction mechanisms to optimise the effects of interventions. Furthermore, an Observatory constitutes a good tool to diffuse information related to innovation and to enhance the dialogue and the culture of innovation in the Region.

Overall objective of the Plan is to enable regional industry to work at best practice level in the technologies relevant to it, to enhance the emergence and growth of new industrial branches, and to promote international technology co-operation and competitiveness to international markets.

3. MANAGEMENT OF THE PLAN

The Central Macedonia Regional Technology Plan is coordinated and managed by two bodies: the Steering Committee and the Management Unit.

The Steering Committee is composed of representatives of the government, private sector and scientific institutions. It is responsible for the policy guidelines of the Plan, and ensures the agreement on the character of technological development in the region. Its members are:

- The Minister of Macedonia - Thrace (K. Triaridis and Ph. Petsalnikos)
- The General Secretary of the Region of Central Macedonia (K. Tsimas and Ch. Sofianos)
- The General Secretary for Research and Technology (N. Christodoulakis and I. Fragoulis)
- One representative from DG XVI of the European Commission (M. Landabaso)
- One representative from DG XIII of the European Commission (G. Strogylopoulos)
- The President of the Confederation of Industries of Northern Greece (N. Eftymiadis)
- One representative of the Association of Exporters of Northern Greece (I. Adamidis)
- One representative of the Centre for Industrial and Cultural Development (I. Tsaras)
- One representative from the food and beverage industry (D. Symeonidis)
- One representative from the textile industry (A. Genitsaris)
- One representative from the General Confederation of Greek Workers, Macedonian Labour Institute (K. Pagarliotas)
- One representative of the Aristotle University of Thessaloniki (I. Tsoukalas and E. Tzekakis)
- One representative of the University of Macedonia (L. Lambrianidis)
- One representative from the Thessaloniki Technology Park (I. Vasalos and G. Vakaros)
- The co-ordinator of the Management Unit (N. Komninos)
- One international expert with experience in innovation planning and technology transfer (M. Thomas and K. Morgan)

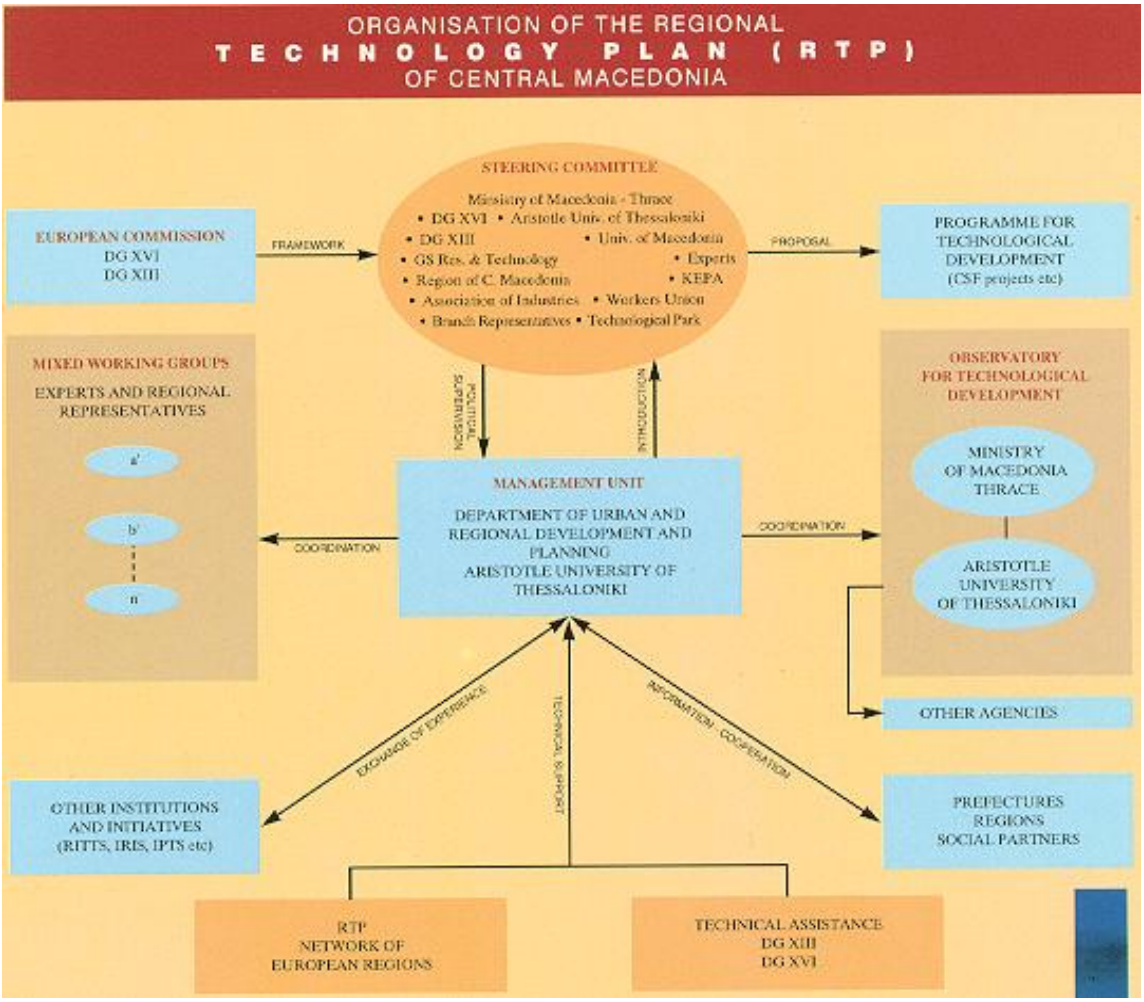
The Management Unit introduces proposals to the Steering Committee and provides scientific expertise and support for the policy guidelines of the Plan. The Management Unit of the C. Macedonia RTP consists of the following persons:

- N. Komninos, Department of Urban and Regional Planning and Development, School of Technology, Aristotle University of Thessaloniki, co-ordinator,
- G. Kafkalas, Department of Urban and Regional Planning and Development, School of Technology, Aristotle University of Thessaloniki,
- S. Tsiakiris, Regional planning engineer, European Programmes Section at the Ministry of Macedonia-Thrace,
- L. Kyriafini, Chemical engineer.

In the Steering Committee participated also Mr A. Chryssafis from DG III (Industry) whose the contribution on issues related to information technologies and regional development was very important. The work of Management Unit was supported by a large number of internal and external working groups, which provided scientific expertise and analysis on issues related to regional development, technology demand and supply, technology transfer, and planning for innovation infrastructures. The overall administrative structure and the connections between official bodies and working groups are presented in diagram 3.1.

Diagram 3.1.

Structure of the administration and management of the RTP



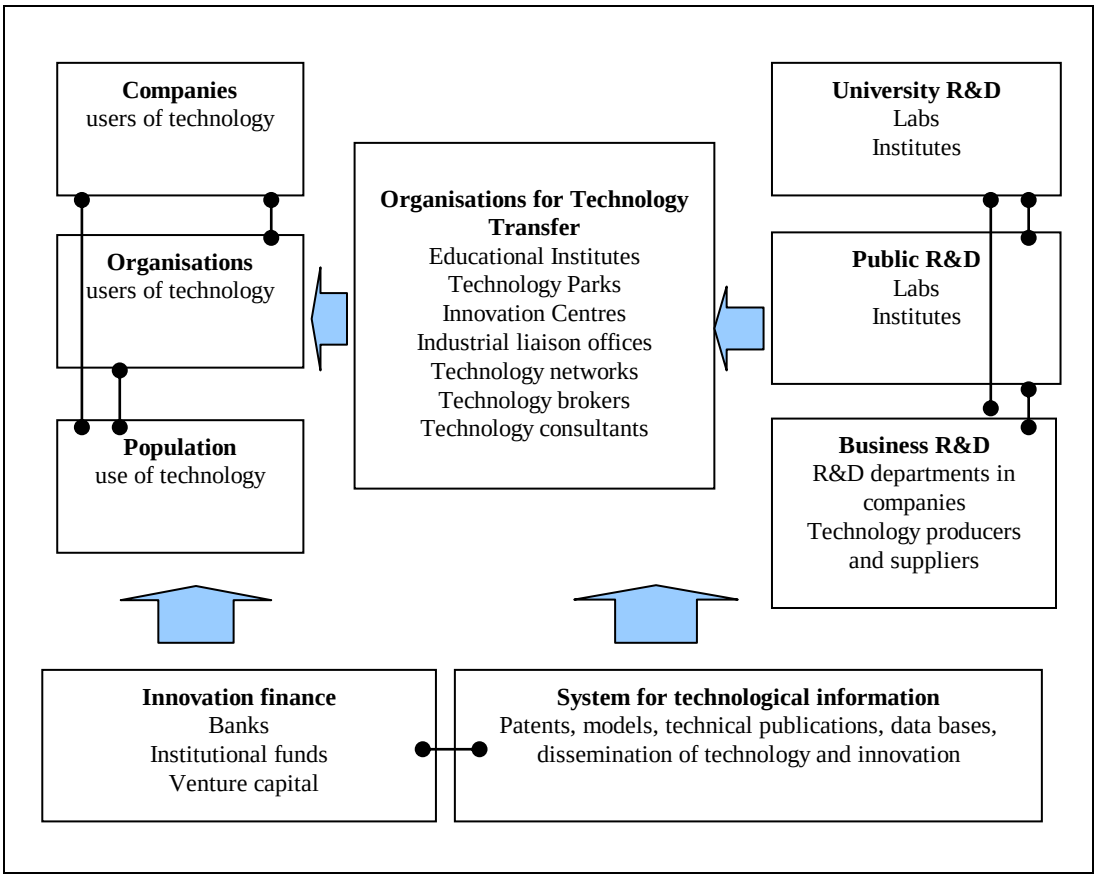
The key issue in the overall decision making process was to create a broad base of regional support for the Plan. Reaching *consensus* was a permanent concern of the Management Unit and implied the preparation of all decisions, from the creation of working groups to the definition of priorities and the selection of projects, in consultation with the participants in the formulation of the regional innovation strategy. Furthermore, to increase the motivation of the various parties involved in the planning process, we tried to assure their participation in the implementation of the Plan and the evaluation of its effects upon the regional innovation system. The general support expressed for the Plan justifies these orientations, and indicates the interest for the participation in its promotion and implementation.

4. METHOD AND WORK PROGRAMME

We have already mentioned as major objectives of the Regional Technology Plan the promotion of innovation and regional competitiviness, to enable regional industry to work at the best practice level and enhance the creation of new industrial activities. A logical consequence is to focus the actions of the Plan on the regional innovation system.

Diagram 4.1. shows the major components of a regional innovation system. It is the system that produces and drives technology and innovation to companies and intermediary organisations in the region.

Diagram 4.1
Regional System of Innovation



The regional innovation system is part of the productive system of the region and the established mix of activities, inter-activity linkages and institutional regulations. However, the innovation system can be considered as the "brain" of the production system. It has the responsibility for the modernisation, the adaptation of production to changing external conditions, and the effective competition on the market.

Focusing the Plan on the regional innovation system is a principal methodological choice. The rest of the method is based on common planning approaches, such as the articulation of analysis and strategy, the specification of strategy to projects, the study of the implementation framework, and the organisation of monitoring and evaluation.

From this point of view, deliverables of the Regional Technology Plan in C. Macedonia are the necessary components of a Plan supporting the regional innovation system, such as:

- The definition of projects for technological development in Central Macedonia, based on the substantial agreement between the principal bodies and agencies of the public and private sectors in the Region, to be implemented through the 2nd CSF, other Community programmes or initiatives, and public and private investment. The concern the regional innovation system and promote actions for innovation financing, the supply of technology services, technology transfer, and vocational training.

- The creation of an Observatory to monitor the progress of the Plan, and to record and provide information about the innovation system, the supply and demand for technology services and the development of Central Macedonia, to companies, government and the research community.

- The participation of Central Macedonian in the network of European Regions elaborating RTPs and collaborating on matters of technology, innovation and development.

In order to realise all the above, an analytical working programme was drawn up, including details of actions and implementing agents and an analytical timetable. The working programme is divided into four phases: Phase 1 focuses on the strengths and weaknesses of the regional innovation system. Phases 2 and 3 involve the development of a regional innovation strategy and of an Action Plan. Phase 4 concentrates on the implementation of the Plan, the translation of its strategic guidelines into measures and projects, in conjunction with the Community Support Framework and Community Initiatives (see Table 4.1.).

Table 4.1

RTP working programme

	WORK PACKAGE	SPECIFICATIONS	WORKING GROUP	TIME TABLE MONTHS
1	RTP Framework	DG XVI & XIII	-	-
2	Setting-up the Steering Committee (SC)	DG XVI & XIII	-	1-3
3	Setting-up the Management Unit (MU)	DG XVI & XIII	-	1-3
4	Define the deliverables	MU-SC	MU-SC	1-3
5	Define the method	MU	EXPERTS	1-3
6	Develop the working programme	MU-SC	MU-SC	1-3
7	Regional productive system analysis	MU	EXPERTS	4 -10
8	Regional generic technologies analysis	MU	EXPERTS	4 -10
9	Regional technology demand analysis	MU	EXPERTS	4 -10
10	Regional technology supply analysis	MU	EXPERTS	4 -10
11	Regional technology transfer analysis	MU	EXPERTS	4 -10
12	RTP priorities definition	MU	MU-SC	11-14
13	Bottom-up project selection	MU	MU	11-14
14	Experts consultation on projetcs	MU	EXPERTS	11-14
15	Technology demand and selection of projects	MU	EXPERTS	14-16
16	Strategy outline	MU	MU	16-18
17	Action plan	MU	MU-SC	16-18
18	Feasibility studies for the projects	MU	EXPERTS	16-18
19	Implementation framework analysis	MU	EXPERTS	12-18
20	RTP approval	MU	SC	18
21	RTP observatory development	MU	EXPERTS	4 -18