

SOCIAL AND INSTITUTIONAL IMPACTS OF MERSİN REGIONAL
INNOVATION STRATEGY: STAKEHOLDERS' PERSPECTIVE

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

HÜLYA METİN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
CITY AND REGIONAL PLANNING

APRIL 2010

Approval page:

**SOCIAL AND INSTITUTIONAL IMPACTS OF MERSİN REGIONAL
INNOVATION STRATEGY: STAKEHOLDERS' PERSPECTIVE**

submitted by **HÜLYA METİN** in partial fulfillment of the requirements for the degree of **Master of Science in City and Regional Planning Department, Middle East Technical University** by,

Prof. Dr. Canan Özgen _____
Dean, Graduate School of **Natural and Applied Sciences**

Prof. Dr. Melih Ersoy _____
Head of Department, **City and Regional Planning**

Assoc. Prof. Dr. Serap Kayasü _____
Supervisor, **City and Regional Planning Dept., METU**

Examining Committee Members:

Prof. Dr. Ayda Eraydın _____
City and Regional Planning Dept., METU

Assoc. Prof. Dr. Serap Kayasü _____
City and Regional Planning Dept., METU

Assoc. Prof. Dr. C. Nil Uzun _____
City and Regional Planning Dept., METU

Assoc. Prof. Dr. H. Tarık Şengül _____
Political Science and Public Administration Dept., METU

Assist. Prof. Dr. N. Aydan Sat _____
City and Regional Planning Dept., Gazi University

Date: 28. 04. 2010

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name: HÜLYA METİN

Signature:

ABSTRACT

SOCIAL AND INSTITUTIONAL IMPACTS OF MERSİN REGIONAL INNOVATION STRATEGY: STAKEHOLDERS' PERSPECTIVE

Metin, Hülya

M.S., Programme of Regional Planning

Supervisor: Assoc. Prof. Dr. Serap Kayası

April 2010, 170 Pages

This study explores the Regional Innovation System (RIS) approach which is an efficient policy tool for the achievement of regional development in the global competition environment and aims to evaluate the social and institutional gains of Mersin RIS following the implementation of Mersin Regional Innovation Strategy (RIStr). An analysis of Mersin RIStr, which is the first and the only RIStr of Turkey, has been taken as a case study. Mersin RIStr, as being a project supported in the context of European Union 6. Framework program, aims to improve the regional innovation infrastructure and capacity of Mersin. RIS is not only technological but is also a social process and accordingly requires intense regional interaction networks. In this context, the impact of RIStr on the improvement of RIS in Mersin has been evaluated through the determinants of new institutional structures, improvements in labor market conditions, newly occurred cooperation networks and newly produced project-products-services-skills. In-depth interview method has been used for the survey. Interviews were carried out with the stakeholders of strategy project. Throughout the survey, gains of the region in general terms and gains of the specified leading sectors; i.e. tourism, logistic and agro-food, have been evaluated from the perspective of stakeholders. Social and institutional achievements of Mersin RIS

have been evaluated in detail with the aim of presenting the effectiveness and weaknesses of strategy as being a new model case for the other regions in Turkey.

Keywords: Innovation Oriented Regional Policies, Regional Innovation System, Institutional Structure, Networks, Mersin Regional Innovation Strategy.

ÖZ

MERSİN BÖLGESEL YENİLİK STRATEJİSİNİN SOSYAL VE KURUMSAL ETKİLERİ: PAYDAŞLARIN PERSPEKTİFİNDEN

Metin, Hülya

Yüksel Lisans, Bölge Planlama Programı

Tez Yöneticisi: Doç. Dr. Serap Kayasü

Nisan 2010, 170 sayfa

Bu çalışma küresel rekabet ortamında bölgesel kalkınmayı sağlanmada etkili bir politika aracı olan Bölgesel Yenilik Sistemi (BIS) yaklaşımını ortaya koymayı ve Bölgesel Yenilik Stratejisinin (BIStr) uygulamaya konulması sonrasında Mersin BIS'in sosyal ve kurumsal kazanımlarını değerlendirmeyi amaçlamaktadır. Türkiye'nin ilk ve tek yenilik stratejisi olan Mersin BIStr'nin bir analizi örnek çalışma olarak alınmıştır. Mersin BIStr, AB 6. Çerçeve Programı kapsamında desteklenen bir proje olup Mersin'in yenilikçilik altyapısını ve kapasitesini geliştirmeyi hedeflemektedir. BIS sadece teknolojik değil aynı zamanda sosyal bir süreçtir ve dolayısıyla bölgesel düzeyde güçlü etkileşim ağları gerektirir. Bu kapsamda, BIStr'nin Mersin'deki Yenilik Sistemi üzerindeki etkisi yeni kurumsal yapılar, işgücü piyasasındaki gelişmeler, yeni oluşan işbirliği ağları ve yeni üretilen proje-ürün-servis-beceri göstergeleri üzerinden değerlendirilmiştir. Örnek çalışma yapılırken kapsamlı röportaj metodu kullanılmıştır. Strateji Projesinin paydaşları ile görüşmeler yapılmış ve bölgenin genel anlamdaki kazanımları ve önde gelen sektörler olarak belirlenen turizm, lojistik ve tarım-gıda sektörlerinin kazanımları paydaşların perspektifinden değerlendirilmiştir. Türkiye'deki diğer bölgeler için yeni bir örnek model olan Mersin BIStr'nin başarı ve eksikliklerini ortaya koymak amacı ile sisteminin sosyal ve kurumsal kazanımları detaylı olarak incelenmiştir.

Anahtar Kelimeler: Yenilik Odaklı Bölgesel Politikalar, Bölgesel Yenilik Sistemi, Kurumsal Yapı, Ağlar, Mersin Bölgesel Yenilik Stratejisi.

To My Father

ACKNOWLEDGMENTS

I wish to express my deepest gratitude to my supervisor Serap Kayasü for her guidance, advice, criticism, encouragements and insight throughout my research.

I also want to thank Fikret Zorlu for his guidance, suggestions and comments on my area work in Mersin.

Special thanks go to the stakeholders of the RIS-Mersin Project, whom I interviewed with, for their contribution.

I also want to thank my friends Ali Rıza Demirel for his technical support and Özgül Berber Yağdıran for her hospitality.

Finally, I would like to thank my family for their invaluable support for my education.

TABLE OF CONTENTS

ABSTRACT.....	iv
ÖZ.....	vi
ACKNOWLEDGMENTS.....	ix
TABLE OF CONTENTS.....	x
LIST OF TABLES.....	xiii
LIST OF FIGURES.....	xiv
CHAPTERS	
1. INTRODUCTION.....	1
2. INNOVATION ORIENTED KNOWLEDGE ECONOMY.....	5
2.1. Effects of Globalization.....	6
2.1.1. Competitive Advantage.....	8
2.1.2. Knowledge, Learning and Innovation Process.....	9
2.2. Structural Changes in Economy.....	12
2.2.1. Theoretical Approaches to Economy.....	12
2.2.2. Shift from Industrial to Information Economy.....	15
3. INNOVATION ORIENTED REGIONAL POLICIES AND THE SIGNIFICANCE OF INSTITUTIONS.....	18
3.1. The Concept of Region.....	19
3.2. Innovation Oriented Regional Policy Approaches in Knowledge Economy.....	20
3.3. Regional Innovation System Approach.....	22
3.3.1. Shift from National Innovation System to Regional Scale.....	23
3.3.2. Concept of the Regional Innovation System.....	25

3.3.2.1. Meaning and Definition of RIS.....	25
3.3.2.2. Importance of Innovation in Regional Term.....	25
3.3.2.3. System Requirement of Innovation in Regional Level.....	26
3.3.3. What Comprises a Regional Innovation System.....	27
3.3.3.1. Institutional Structures.....	32
3.3.3.2. Regional Social Capital: Social Attributes and Labor Market.....	39
3.3.3.3. Network Relations.....	41
3.3.4. Different Forms and Dimensions of RIS.....	43
3.3.4.1. Governance Dimension.....	44
3.3.4.2. Business Innovation Dimension.....	46
3.4. Regional Innovation Strategy Projects of European Union.....	47
3.4.1. Success Factors of Regional Innovation Strategies.....	53
4. AN EVALUATION OF INSTITUTIONAL AND SOCIAL IMPACTS OF MERSİN REGIONAL INNOVATION STRATEGY: STAKEHOLDERS' PERSPECTIVE.....	58
4.1. Description of the Mersin Region.....	58
4.1.1. Location and General Information.....	58
4.1.2. Economy.....	60
4.1.2.1. Mersin Industrial Inventory Project as a Background Study for RIS-Mersin.....	61
4.1.3. Regional Development Efforts of the Region up to Regional Innovation Strategy.....	69
4.2. Mersin Regional Innovation Strategy Project.....	70
4.2.1. Main Elements of the Strategy Project.....	72
4.2.2. SWOT Analysis.....	75
4.2.3. Action Plan.....	78

4.2.4. Pilot Projects.....	81
4.2.5. Current Structure of Mersin Regional Innovation System.....	83
4.3. Evaluation of the Impacts of Mersin Regional Innovation Strategy.....	86
4.3.1. Methodology.....	88
4.3.2. Institutional Achievements of the Region.....	92
4.3.2.1. Regional Policy Subsystem.....	93
4.3.2.1.1. Public and Private Governance Organizations.....	93
4.3.2.1.2. Financial and Consultancy Services.....	97
4.3.2.2. Knowledge Application and Exploitation Subsystem.....	99
4.3.2.2.1. Sectoral Associations.....	99
4.3.2.2.2. Sectoral Clusters.....	105
4.3.2.3. Knowledge Generation and Diffusion Subsystem.....	107
4.3.2.3.1. Research Centers.....	107
4.3.2.3.2. Education and Training Organizations.....	108
4.3.2.3.3. Scientific Organizations.....	108
4.3.3. Labor Market.....	112
4.3.4. Cooperation Networks.....	118
4.3.5. Projects, Products, Services, Skills.....	125
4.3.6. Evaluation of the Effectiveness of Mersin Regional Innovation Strategy.....	134
5. CONCLUSION.....	144
REFERENCES.....	153
APPENDICES	
A. Members of the Sectoral Platforms.....	159
B. Action Plan of RIS-Mersin 2008-2009.....	162
C. Question Set for the Thesis Interviews.....	169
D. The Structure of Mersin Regional Innovation Strategy.....	170

LIST OF TABLES

TABLES

Table 1 The Framework of Thesis.....	3
Table 2 Super- structural Elements of Strong and Weak Regional Systems of Innovation Potential.....	29
Table 3 Two Different Regional Profiles.....	30
Table 4 Three Strands of Institutionally Informed Literature.....	37
Table 5 IRE Structural Projects.....	51
Table 6 Subcontracting Activities of the Firms Operating in Mersin- 1997.....	63
Table 7 Exportation Facilities of Firms in Mersin-1997.....	64
Table 8 Existence of the R&D Units in Firms.....	65
Table 9 Firms' Competitive Capabilities in National and International Markets.....	66
Table 10 Innovativeness of the Firms in Mersin- 1997.....	67
Table 11 Main Elements of the Mersin Regional Innovation Strategy Project.....	74
Table 12 SWOT Analysis.....	76
Table 13 Current Regional Innovation System in Mersin.....	85
Table 14 Institutions Chosen for the Interviews.....	90
Table 15 Interview Questions.....	91
Table 16 New Collaborations Appeared as an Output of R&D 33 Project.....	122
Table 17 Joint Projects with International Organizations.....	127
Table 18 Trademarks, Patent, Useful Model and Industrial Design Applications from Mersin Region	134
Table 19 Evaluation and Grading of the Stakeholders' Opinions	135

LIST OF FIGURES

FIGURES

Figure 1 Competitive Trends of Today.....	9
Figure 2 The Institutions in a Regional System of Innovation.....	34
Figure 3 Diagrammatic Representation of a Regional Innovation System.....	43
Figure 4 Innovating Regions of Europe (IRE) Network.....	48
Figure 5 Location of Mersin Province.....	59

LIST OF ABBREVIATIONS

ABBREVIATIONS

BAN: Business Angels Network

BIC Epirus: Epirus Business Innovation Center

CASE: Chambers working for the Implementation of the Acquits and Business Ethics in Bulgaria, Romania Croatia and Turkey

CCI: Chamber of Commerce and Industry

DOT: Digital Opportunity Trust

EEN: Enterprise Europe Network

EU: European Union

IRE: Innovating Regions of Europe

İŞKUR: Turkish Employment Authority

KOSGEB: Small and Medium Enterprises Development Organization

MEGIAD: Mersin Young Entrepreneurs Association

METU: Middle East Technical University

METUTECH: Middle East Technical University Techno-Park

MCCI: Mersin Chamber of Commerce and Industry

MCST: Mersin Chamber of Sea Trade

MTOIZ: Mersin Tarsus Organized Industrial Zone

NGO: Non-Governmental Organizations

NIS: National Innovation System

RDA: Regional Development Agency

RIS: Regional Innovation system

RIS-Mersin: Mersin Regional Innovation Strategy

RIStr: Regional Innovation strategy

SME: Small and Medium Sized Enterprises

TOOB: The Union of Chambers and Commodity Exchanges of Turkey

UNDP: United Nations Development Program

CHAPTER 1

INTRODUCTION

Structural changes in world economy that causes a shift from industrial to knowledge based economic system marked the last two decades. The most important reason of these changes stems from the fact that globalization forces had brought up such concepts as competitive advantage, knowledge, learning and innovation. Globalization also forced competition among regions, namely, regions that can innovate and attract the essential flows of global world gain competitive advantages to sustain their competitive power.

Innovation oriented regional policies have become important tools to sustain competitiveness in the knowledge economy and also have become the focal point of regional development efforts of the regions. Evolutionary and institutional economists stated that the social and institutional characteristics of the regions are very important both for the generation and transmission of knowledge and innovativeness and accordingly for the creation of innovation oriented regional policies. In this sense, Regional Innovation System (RIS) is described as a social system that provides regions the opportunity to use their locally embedded potential and network relations for continuous innovativeness. Moreover, Regional Innovation Strategies (RIStr), established in the 1990s, aim to improve innovative capacity of regions and to establish a well functioning RIS. These strategies are being used to formulate effective RIS and to increase the competitiveness of regions.

Globalization and knowledge based economy have forced the European Union (EU) to use new policy tools in order to overcome competitiveness challenges. European Union regions have been designing and applying Regional Innovation Strategy

(RIStr) projects since 1994. These strategies have been supported by the European Union with the aim to support competitiveness and regional development by stimulating innovation in European regions and accordingly enhance the EU's transition to a knowledge-based economy. Regional Innovation Strategy of Mersin, that is RIS-Mersin Project, is the first RIStr in Turkey and supported by the European Commission under the framework of Sixth Framework Program.

The thesis aims to evaluate the social and institutional gains of the Mersin Regional Innovation System following the implementation of Mersin RIStr. Main question of the thesis is whether the Regional Innovation Strategy of Mersin (RIS-Mersin) has been effective for the improvement of innovation system in Mersin. Within the framework of the main question, issues that have been researched related to the improvements in the main subsystems of the RIS, i.e. the existence of new innovation supporting **institutions** established in the region, improvements in the **labor** market facilities with the impact of the strategy, new collaboration and confidence **networks** appeared following the implementation of the strategy, and also the improvement in the ability of region to construct a well operating RIS; namely new **projects, products, services and skills** gained during the implementation of the strategy.

In the context of this thesis, the characteristics of innovation oriented knowledge economy are covered in the second chapter. This chapter discusses the forces of globalization and accordingly increasing importance of knowledge, learning and innovation to sustain competitive power in this newly emerged global economy. It is also emphasized that the competitiveness in regional term is based on regional resources and social and institutional capabilities in order to be able to innovate and attract the essential flows of the global economy.

The concept and main components of the innovation oriented regional policies and the Regional Innovation System (RIS) approach with an emphasis on institutions are discussed in the third chapter. RIS and Regional Innovation Strategy (RIStr) Projects of European Union, which aim to enhance regional innovation and competitiveness

through optimizing innovation policies and infrastructure in a region, have been explored in this part of the thesis.

In the fourth chapter, following the theoretical background study, the contents, main elements and outcomes of Mersin RIStr are examined in detail with the aim of presenting the effectiveness and weaknesses of the strategy, which is a new model case for the other regions in Turkey, in strengthening the innovation system in Mersin. In this evaluation part of the thesis, RIS is described as a social system with strong emphasis on institutions and their networks. Therefore, an attempt to evaluate the social and institutional gains of the Mersin RIS following the implementation of RIS-Mersin project is taking place in this part of the thesis with the aim of searching for the answers of the research questions through three leading sectors and from the stakeholders' point of views (See Table 1). RIS-Mersin determined three leading sectors which have innovation potential and the strategy is being executed through these three preferential sectors having the ability to be innovative and competitive, i.e. logistic, agro-food and tourism sectors. Here it is also emphasized that the concept of RIS and the policy tool of innovation strategy might be a useful tool for regions to sustain their competitive power for a continuous regional development.

Table 1: The Framework of Thesis

Aim: To evaluate the social and institutional achievements of Mersin Regional Innovation System following the implementation of Regional Innovation Strategy.				
Thesis Statement: The main question of the thesis is whether the Regional Innovation Strategy has been effective in improvement of the Innovation System in Mersin.				
		Gains of the main components of RIS		Improvement in the ability of region to construct RIS
		Institutions	Labor Market	Cooperation Networks
		Production Side: New innovative projects, products, skills		
Leading sectors of RIS-Mersin, determined as having innovation potential	Logistic	Effectiveness of the Innovation Strategy and achievements of the leading economic sectors and region, perspectives of stakeholders		
	Agro-food			
	Tourism			

Research questions directed to the stakeholders are, first, the existence of new innovation supporting **institutions** established in the region; second, improvements in **labor** market facilities with the impact of the strategy; third, new collaboration and confidence **networks** formed with the impact of the strategy, and finally new projects, products, services and skills that came into being during the implementation period of the strategy. Stakeholders answered the questions by considering the situations appeared following the implementation of RIStr in terms of their institutions, region in general and sectors they operate within. Opinions of the stakeholders will present the achievements of the region in general terms and also the achievements of the three leading sectors in terms of institutional settings, production side, labor market situations and collaborations created. Stakeholders' opinions have been assessed exhaustively in the quest to evaluate the effectiveness of RIStr in the improvement of the innovation system in Mersin. The EU's experience on regional innovation served as a useful guide for Mersin through the preparation of the RIStr and accordingly will serve a guide for Turkey in the development efforts of its less developed regions.

CHAPTER 2

INNOVATION ORIENTED KNOWLEDGE ECONOMY

Particularly in the last two decades, a broad range of literature on the rise of an innovation oriented knowledge economy has dominated the related fields. The processes of globalization, deregulation and liberalization forces, which put a pressure on companies to innovate in order to sustain competitive power, have been the main driving forces of this development.

There are different views regarding to the understanding of a knowledge economy, as has been pointed out by Smith (2002), the first significant point is that knowledge is an input is becoming quantitatively and qualitatively more important than ever before. Thus, in this new economic era, the growth and performance of national and regional economies are more dependent on the generation, dissemination and application of new knowledge and also on innovations. Accordingly, codified knowledge as opposed to tacit personal skills has become more significant. Knowledge creation is a necessary process for knowledge economy. Most important factor is described as the exploitation of new knowledge in order to create new knowledge (Cooke, 2002), in other words innovation process.

In the new economy, productivity and growth are less based on the abundance of natural resources than on the capacity to improve the quality of human capital and factors of production, which determines the creation of new knowledge and ideas and incorporation of them into equipment and people (David and Foray, 2003). Increasing multi-skilling, networking skills and application of learning become a crucial part of firm performance that requires immediate respond to rapid changes in economy. Thus, advanced economies are learning economies where networking

among firms, horizontal communication and frequent mobility of workers between departmental posts are typical features of associated learning organizations (Braczyk and et al., 1998: 13).

Another line of literature has been dealing with spatial aspects of the knowledge economy, such as high-technology clusters, local knowledge spillovers and local global relationships (Cooke and et al., 2007: 26). Cities are focal points of the knowledge economy, because it is mainly in cities that knowledge is produced, processed, exchanged and marketed. Cities cover knowledge infrastructure, that is universities and educational institutions, well educated people as residences, connections to the global economy, through its transportation infrastructure, airports, and so on, clusters where knowledge is exchanged (Berg and et al., 2005).

2.1. Effects of Globalization:

Today, globalization is seen as one of the main phenomena affecting social and economic life and described as a new internationalization process influenced by technology. After 1980s, privatization, deregulation, and opening up of national economies to foreign firms and growing participation of national economic actors in global markets changed this dominant structure (Sassen, 2002). This new economic system is composed of free flows of capital, labor, technology, goods and services, transnational corporations seeking new places to invest and high level of competition to attract these freely flowing capital and labor. With the effects of increased communication technologies and accordingly globalization forces, the world is getting smaller in economic, social and cultural senses. In fact, Castells (1996) pointed that the world has changed from the space of places to the space of flows. These flows include free flow of capital, labor, goods and services via various kinds of networks.

Globalized world is also characterized by deregulated nation states which have lost many of their tools by which they control economic, social and cultural activities. State oriented cross border economic processes have been the dominant economic structure until the 1980s. Rapidly developing technologies, reconstructed political systems and reconstruction of societies in the global world system have made it

essential to belong to the global and regional networks. Regions must attract global flows, i.e. capital, labor, goods, services and technology, in order to be more competitive and accordingly more attractive and successful than the other regions. Thus, regional economic development policies should emphasize to attract these desired flows. International trade, capital flow, foreign direct investment and technological links which emerged by globalization have been the elements fostering market competition. Lundvall and Borras (1997) emphasized that the significance of increased market competition is based on knowledge, learning and innovation, which are the sources of competitive advantage. In other words, generation and diffusion of new knowledge and having the ability of continuous learning have made firms and regions more competitive and attractive in this new global economic system.

As already mentioned above, changing world economic system, forces of globalization and emergence of the new economy increased the importance of knowledge and innovation for regions to be able to sustain their regional competitive power. Free flow of capital, information and knowledge- borderless world with respect to these flows- weakened state controlling and regulating system. This new world system has new crucial characteristics such as networks, linkaged relationships, entrepreneurship and competition. Another development is the emergence of new business culture characterized by less hierarchy and stability. To be able to sustain competitive power in this new innovation oriented knowledge economy, it is important for firms and regions to adapt to the rapidly changing economic conditions. As a result, new economic system requires flexibility, networked relations and continuous innovation activity to be able to adapt to these changing conditions and gain competitive advantage in such a flexible economic system. Regions have to be unique in order to be attractive for the foreign capital and to have a share in the local and global market. As a result, they should be innovative and accordingly attractive by using their unique and locally embedded potential. Being an innovation oriented regional policy; Regional Innovation System (RIS) is a social system provides regions to use their potentials and network relations for continuous innovativeness. Today regions prepare Regional Innovation Strategies (RIStr) in order to improve their innovative capacity and establish a well functioning RIS.

2.1.1. Competitive Advantage:

The sources of regional competitiveness have changed in the post-fordist era which is characterized by the dominance of knowledge, learning and innovation processes. New factors leading competitiveness are history, institutional structure, culture and untraded interdependencies in a specific region. Today competitiveness in regional term is based on regional resources and social and institutional capability of that region. These resources and capabilities provide interactive learning and accordingly affect the regional productivity, regional innovativeness and citizens' welfare in that region. It is obvious that the knowledge is a fundamental output of today's new knowledge economy and is embedded in human being.

The regional knowledge economy has been improved by the skilled labors that create new knowledge and ideas. Therefore, the competitiveness of regions is related to their social, cultural and physical environment where these well educated, talented labor live in. Innovation capability of a region has become the focal driving force of her competitiveness and economic growth. Who can innovate and offer new different ideas, products and production processes can get competitive advantage and attract new investments, new customers and people in the global world. In the new knowledge economy, which has been appeared as a result of increased communication technologies and globalization, knowledge and learning are the focal competitiveness factors. Figure1 shows the competitive trends of innovation oriented knowledge economy.

As mentioned above, globalization has forced the competition among regions to be able to attract free flows, i.e. labor, capital, technology, goods and services, seeking for new locations in the global world. Regions that can attract essential flows and innovate gain competitive advantage and sustain their competitive power.

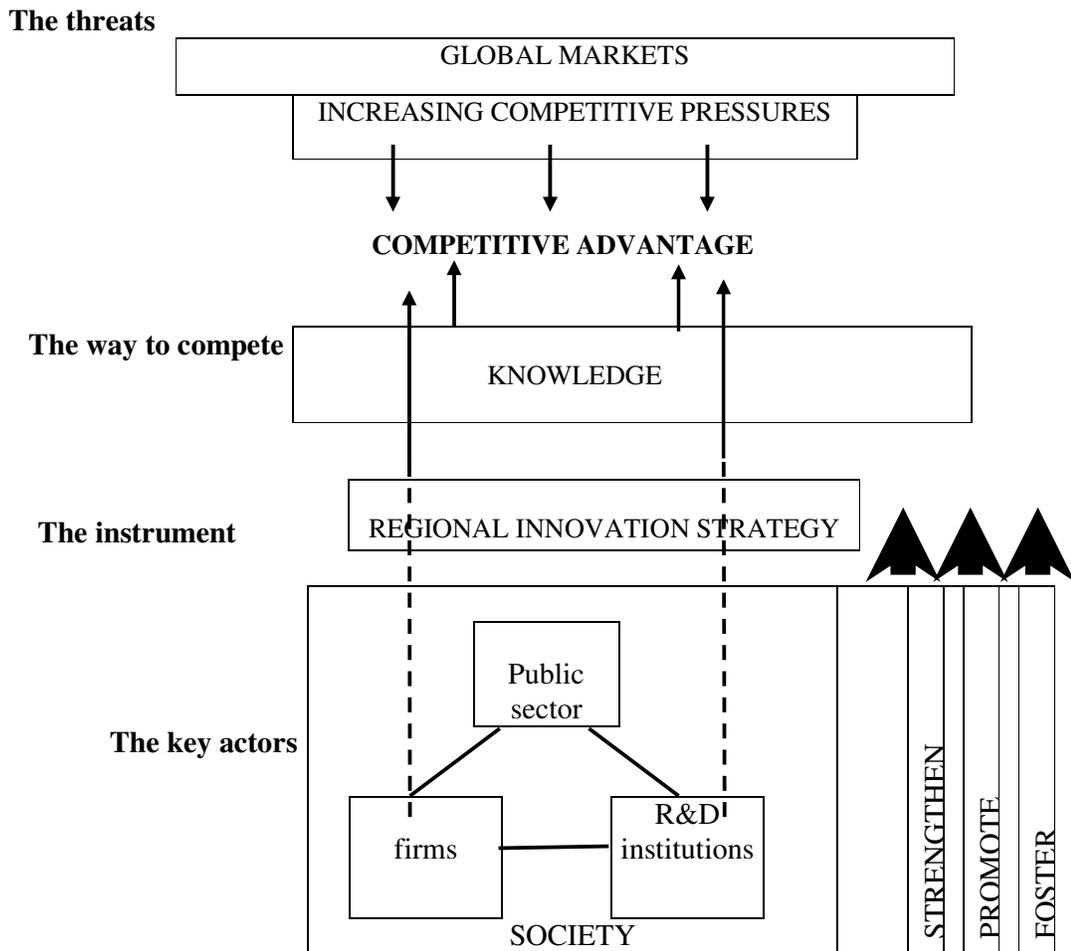


Figure 1: Competitive Trends of Today

Source: www.inovace-zlinkykraj.cz

2.1.2. Knowledge, Learning and Innovation Process:

In the knowledge economy, knowledge, learning and innovation are crucial competitiveness factors. Berg and et al. (2005) emphasized that the knowledge is steadily gaining weight as a production factor in economies of the developed world and the core activity in all sectors is no longer the physical manufacture of a product, but the development of new products and production processes, the generation of new knowledge and the devising of marketing concepts. Knowledge has become the most important production factor in the new era of knowledge economy. Therefore, knowledge is a widely discussed topic in the context of economic development and

this discussion often deals with the nature of knowledge and its meaning for development.

Knowledge economy is a network economy and requires strategic alliances between companies and institutions of education and research. As, knowledge intensive activities are the essential processes, location factors of knowledge economy described as highly educated workers and as a result, social and physical attributes of countries and regions to attract these skilled labor and accordingly gain competitive advantage (Berg and et al., 2005). The most important social attribute among all these is the learning capability of the region. Continuous learning means continuous knowledge generation and transmission. And the term innovation, which is seen as a social as much as a technical process, is the worked and commercialized form of this new knowledge. Innovation is also seen as the main drive for economic growth. Evolutionary theorists concentrate on innovation term and developed the concept of National Innovation Systems (NIS) and then Regional Innovation Systems (RIS) as a more useful form of NIS.

In the literature, knowledge is categorized into two groups: tacit and codified knowledge. These are the two main category accepted by a number of economists. **Tacit** knowledge is a more socialized form of knowledge which is shared locally through face-to-face relations and requires close interaction of human capital embedded in that specific local area or region. An important proportion of knowledge remains in tacit form.

Codified knowledge is also called explicit knowledge that can be codified easily and transferred over long distances with the use of modern communication technologies. Therefore the codified knowledge is available everyone in everywhere. On the other hand, **tacit** knowledge does not travel easily because its transmission is shared through face-to-face interactions between partners who already share some basic commonalities; same language, common codes of communications and shared norms that have been fostered by a share institutional environment; and personal knowledge of each other based on a past history of a successful collaboration or informal interaction (Asheim, and Gertler, 2005: 293).

According to Asheim and Gertler (2005), the creation of unique capabilities and products, which generates competitive advantage, depends on the production and use of tacit knowledge in global world where codified (explicit) knowledge is accessible by everyone. Tacit knowledge is not transferred and exchanged over long distances like codified one and needs social interaction, close proximity and interactive learning processes. So that it is seen as one of the key determinants of the geography of innovative activity. In regional context, it is crucial to access to the codified knowledge and develop tacit knowledge. Yılmaz (2001) is also stated in her study that this social learning process, that are interactive learning and social interaction, occurring when economic actors are in close relationship and proximity and particularly RIS represent crucial arenas for localized learning and tacit know-how sharing.

Since spatial proximity is the key to the effective production, transmission and sharing of tacit knowledge reinforces the importance of innovative clusters, districts and regions. These kind of innovative regions are benefit from localized capabilities and social assets which exist between, rather than within, firms (Asheim and Gertler, 2005). Innovative regions are regions that can achieve to formulate networks between and within firms and other institutions.

The process of knowledge generation and exploitation requires a dynamic interplay between tacit and codified forms of knowledge as well as strong interaction of people within organizations and between them. Thus these knowledge processes have become increasingly inserted into various forms of networks and innovation systems- at both regional and national level (Asheim and Gertler, 2005:295).

Knowledge is the most important and crucial resource in the innovation oriented knowledge economy and accordingly, learning is the most important process. The recent development of information and communication technologies have promoted knowledge intensity and learning to the front rank of assets or resources for contemporary competitive advantage. Accordingly, innovation process which requires many learning interfaces inside and outside firms has become necessary for the survival of firms (Braczyk and et al., 1998).

In the knowledge era, innovation is seen as the driving force of economic growth. There are different descriptions of the term innovation. We can describe the term basically as a social and interactive process which has outputs such as new products, new production methods and new organizational set-ups. On the other hand, innovation process is defined as producing new knowledge or combining the existing knowledge in new ways and turning it into economically profitable products and processes.

Innovations are increasingly seen as the driving force of regional competitiveness and economic growth and considered to be a result of co-operation in social and economic activities. The innovation process includes many kinds of interaction and the most important factors influence this process are the ability to interact, learning by interaction and building trustful relations between the innovating actors. Nowadays, there are fundamental inputs of innovation process. These are proximity to universities, research organizations and accessible knowledge, especially tacit knowledge. So that, the innovation process is seen as a social, as much as a technical process. Lundvall (1992) has emphasized that innovations emerge as the results of non-linear processes deeply embedded in normal social and economic activities, and as the processes of interactive learning between firms and their environment.

2.2. Structural Changes in Economy:

In this part of the study first step is the theoretical evolution and then the experience devoted to these theories in world economy. This change is a result of the globalization which comprises forces like competitiveness, rising values such as knowledge, learning and innovation capacity.

2.2.1. Theoretical Approaches to Economy:

In 1980s, certain notions that were related to technology came into agenda in the context of regional development policies. The emergence of high-tech industry, science park development, technologic networking and regional innovation policies can be considered as the results of this development. Much of this literature was addressing, directly or indirectly, the changing production paradigm from fordism to postfordism, identifying new kinds of subcontracting, customer-supplier relations

between large corporations and dynamic smaller firms and also among the latter themselves. Where such relations occurred in geographically distinct spaces, where an institutional support infrastructure for enterprise had developed through public or private initiative, that is innovative governance: economically powerful region-state, the terminology of cluster came into use (Braczyk and et al.,1998: 6).

These changes were studied by a group of economists as an economic theory which superseded the old theory of neoclassical economists. New system is called the “evolutionary economic theory” or “neo-Schumpeterian economic theory”. Another economic theory is the “institutional theory”, which suggests thoughts that eventually converges with evolutionary economists.

In neoclassical economic theory, as Braczyk and et al. (1998) stated in their study, economic agents are homogenous, rational and compute non-costly decisions in a world without uncertainty. Furthermore, competition is pure and perfect, there are no entry barriers to market, firms have equal access to resources and information is freely available. The assumptions of efficient markets, full employment, and immobility of resources and international specialization of production based on comparative advantage are also the characteristics of the neoclassical theory. In this world of pure and perfect competition, firms’ decisions and activities are driven by the price mechanism of market forces. This theory of neo-classic economists cannot explain the realities observed in the reel world; such as, partnership, networking, oligopoly and history, routines, location of research and production centers, advantages of technological and individual skills. It is not possible for territories to rely on comparative advantage including wage and price adaptation in such a world system.

Evolutionary economics and institutional economics initiate a different view to the economic development than this earlier defined theory of neoclassic economists. Therefore, evolutionary and institutional economists have developed a different theory that has a new way of conceiving economic agents, firms and markets by giving importance to history, routines and influences of environment and institutions in economy. Briefly, firms in this theory are not homogenous units that aim rational

utility maximization as in neoclassical theory. This new approach has brought out the difficulties, which are ignored in the neoclassical theory, for firms and agents to predict others' behavior because of uncertainty, bounded rationality and differing expectations experienced in real world situations.

Neoclassical world has an isolated system and technology and learning are exogenous factors. In contrast, evolutionary world has an innovative, imitative, unpredictable and changeable system (Braczyk and et al., 1998) and knowledge has a fundamental role in this system. Firms learn through their own experiences, from other firms' experiences they work with and other firms they share information, knowledge and technologies. Thus, the institutional settings are important factors providing a learning environment.

In evolutionary economics firms are differentiated and use differentiated inputs and also have a history, a trajectory of development: they are created, explore new paths of growth, they discover new routines, develop technological capabilities, capture new opportunities, adapt to new situations and competition, or cannot respond to this demanding environment and slowly exit from the market (Braczyk and et al., 1998: 8). Evolutionary theorists were aware of that the neo-classical economic theory was not capable to bring forward the important aspects, like innovation and technological change, leading economic growth. Knowledge, learning and innovation are important sources of competitiveness and have also been considered essential in regional context. As being a path dependent, communicative and cumulative process, economic development tends to be local in nature.

Following a brief look at this theoretical background, it can be suggested that the concepts of neoclassical approach remain too narrow in understanding the new economy, where networking, cooperation and learning by interacting are necessary elements for economic growth and competitiveness. Evolutionary economists put technological innovation and learning processes at the core of economic development processes to state how firms innovate and adapt to innovations (Yılmaz, 2001).

2.2.2. Shift from Industrial to Information Economy:

Structural changes in economy occurred last decades should be examined to understand this shift from traditional industry based economy to Information based new economy.

Economic crisis of 1970s has showed that the large firms can not cope with the changing market demand and economic crisis and they collapse easily in such a situation. These vertically integrated large firms, such as Ford, gave the name to the accumulation regime of 'fordism' as deployed by the 'regulation school' (Cooke and et al., 2007) and following the period of economic crisis in 1970s the world experienced a shift from fordism to postfordism. Fordist production system was characterized by mass production and standardized products. Large firms were in the centre of production and innovation processes. In the new regime of postfordism, small and medium sized enterprises (SMEs) and flexible production systems have become more important. These firms are more innovative and more adaptable to the changing market conditions and they are also agglomerated in space. Another important cause of this crisis is the deregulation of state which means state is not as powerful as the one in the period of welfare state. After this period, small firms, flexible production, low waged, informal and non-unionized labor, deregulation of state, more innovative agglomerated SMEs have become the dominant factors of economy.

In studies on industrial districts, innovative milieu and technology districts which have been undertaken since the 1970s, small firm have moved the center stage again- this time not the individual entrepreneurs but ensembles or networks of SMEs, embedded in the social fabric of particular regions or localities (Cooke and et al., 2007: 53). With the rise of these new approaches, strong role of institutions and institutional networks, by the shift from fordist production system to postfordist system, have become the main discussion subject. Postfordism also focuses on regional production systems because of the firms' effort to have competitive advantage and to link to the local and global networks. In the regional level, specialized SMEs, network relations between these firms and institutional, social and

physical infrastructure make a region unique and differentiated from the others and also provide competitive advantage and sustainable competitiveness. Regions compete to be able to adapt to the changing conditions and to have different and unique production systems and products and accordingly to realize this aim of region it is seen crucial that the production and use of knowledge is at the core of value added activities and innovation at the core of firms (Archibugi and Michie, 1995).

This changed world economic system formed new economy. Knowledge and learning have gained importance and have become essential to be able to gain competitive power and adapt to rapidly changing conditions in new economy. This new “knowledge economy” is connected with the concept of “learning region”. Florida (1995) made the earliest discussion of this learning region concept as a movement from mass production to knowledge based capitalism. Florida also stated that the learning regions function as collectors and repositories of knowledge and ideas and provide an environment and infrastructure which facilitates the flow of knowledge, ideas and learning.

Looking at the socio economic changes and regional growth approaches especially after the industrial revolution up to now, it is obvious that the dominance of continuously increasing trends of flexibility in terms of production system, finance system and labor market characteristics and the newly appeared dominance of knowledge and innovation in the production process.

This new period is described as the period of economic and technical transformation by Castells (1996) and is characterized by reduction in manufacturing employment and shift to service type of activities. Globalization and the emergence of innovation oriented knowledge economy have an important influence on the firms’ and accordingly regions’ competitiveness. Information technologies and rapid technological improvements require more innovative regions. The postfordist era changed the sources of regional development. Certain characteristics of knowledge economy can be stated as follows:

- Instead of material, production processes putting more emphasis on information as added value and depending on knowledge as crucial inputs,
- Different kinds of knowledge- tacit and codified- studied as an important factor,
- Knowledge and information are the main inputs and outputs,
- The diffusion speed of information and knowledge has increased with the emergence of globalization and information and communication technologies,
- Knowledge economy is a network economy. Networks enable faster responses to rapidly changing markets and technologies,
- Importance of innovation and entrepreneurship is increased in the era of knowledge economy,
- Knowledge economy is very volatile. That is to say, companies can grow and decline very quickly,
- The old distinction between manufacturing and services became less useful in knowledge economy. They are not totally separated matters and a shift from one affects the other,
- Different countries take different paths in knowledge economy; there is not a strict way (Berg and et al., (2005).

CHAPTER 3

INNOVATION ORIENTED REGIONAL POLICIES AND THE SIGNIFICANCE OF INSTITUTIONS

It has been emphasized that the regional policy should increasingly concentrate its efforts in the promotion of innovation which is essential to be able to create conditions for sustainable economic development in less favored regions and make them competetable in the new innovation oriented knowledge economy. Innovation policy is a discrete area, the focus of which is to assist firms and organizations to enhance their innovativeness (Cooke and et al., 1997). In recent years, innovation oriented regional policies have become the focal point of the regional development efforts of a number of regions.

Geography and proximity are the important necessities of innovation oriented regional policies. Knowledge and innovation are most often developed in close geographical proximity. As it has been described previously in thesis, tacit and codified knowledge are both important inputs of the innovation process. Moreover, evolutionary and institutional economists stated that social and institutional characteristics of the regions are very important both for the generation and transmission of the tacit knowledge and innovativeness and accordingly for the creation of innovation oriented regional policies.

Support for the promotion of innovation in the less developed regions has been generally inadequate in quality and quantity to satisfy their economic development needs. To overcome these problems, the one practical way is to encourage regions to develop **Regional Innovation Strategies**. These strategies should aim at promoting public/private and inter-firm cooperation and creating the institutional conditions,

that is consensus among the key regional players, for more efficient use of scarce public and private resources for the promotion of innovation (Landabaso, M., 1997). Last years increasing importance of knowledge and learning changed the regional development policy trends and new policy tools were emerged. New regional approaches have emerged in knowledge economy focusing on localities, local embeddedness, industrial clusters and lastly innovation processes.

3.1. The Concept of Region:

The term region means a territory which has a different cultural, administrative and economic structure differing it from its state and other regions. In 1980s, economic system that was formed by mass production has collapsed and a new system that is characterized by deregulation of state, learning and knowledge has emerged. Thus, region is accepted as a main basis of economic and social life by theorists. Now, regions are central elements of post-fordist, flexible, learning based, innovative production systems.

Region is understood as a sub-national functional geographical space being defined not only by geographical distance, but also by relational distance and being a natural unit in benefiting positive externalities and increasing returns. The concept of region is also described as a governance level between national and individual cluster or firm level and they are important bases of economic coordination (Asheim and Gertler, 2005). In regional level, innovation is created by the use of local network relations between regional firms, R&D organizations and institutions.

Regions are nodal points in the new knowledge economy. The sources of regional competitiveness have been changed in the post-Fordist era. This development is characterized by the shift from mass production to a knowledge-based economy. In this new economic era, we know that the social relations, which need face-to-face contacts and difficult to carry out over long distances, are very important for the dissemination and generation of knowledge, learning processes and accordingly innovativeness. Spatial proximity, in other words geographical closeness, is the source of these social relations. As a result of these requirements of new economy, regionalization and localization has gained importance and studied by economists.

Cooke (1998) pointed that collective manner of a region is related to its social infrastructure of trust, reciprocity and solidarity relations and included also the formal policy dimensions. A region must be defined in terms of both its administrative and its cultural evolution.

Cooke (1998) stated new arguments caused the recent rise in importance of regions, that are essential for global economic competitiveness, and these are:

- An emphasis upon the importance of the **institutional setting of norms, routines, and conventions** concerning the organizational support infrastructure for regional economic competitiveness,
- A recognition of informal **networks** as well as more formal organizations as mechanisms for sustaining high trust relationships which can be used to minimize transaction costs amongst firms,
- A reevaluation of the **geographical proximity or agglomeration** characteristics, for facilitating innovative tacit-knowledge exchange and other externalities and recognition of the importance of an institutional and organizational learning propensity to regional economic performance (Cooke, 1998).

3.2. Innovation Oriented Regional Policy Approaches in Knowledge Economy:

In 1970s, national policies have been replaced by a strong interest on endogenous development and local and regional initiatives for economic development. Local forces have gained importance. To be able to compete in the new knowledge economy, it has been important to develop new policy models based on cooperation. These models are based upon the proximity dynamics. Innovative milieu, industrial districts, new industrial spaces and learning regions are the new forms of clusters studied in the literature (Eraydin, 2002). Following the exploration of globalization trends and the emergence of new knowledge economy in the early 1990s, these concepts were introduced in order to address the systemic nature of innovative regions. Asheim and Gertler (2005) has also pointed that “the more knowledge intensive the economic activity, the more geographically clustered it tends to be”.

These clusters of agglomeration economies composed of small firms which are more flexible and more adaptable to the rapidly changing market conditions. These clusters sustain their competitiveness by learning, adaptation and innovation. Experiences showed that not all clusters can achieve to carry on these processes and to achieve a long term sustained growth. Learning region, which is one of the models based on proximity dynamics, is described as regions that “function as collectors and repositories of knowledge and ideas, and provide an underlying environment or infrastructure which facilitates the flow of knowledge, ideas and learning. Learning regions are increasingly important sources of innovation and economic growth (Florida, 1995: 528)”.

Local capabilities such as local embeddedness, local production culture, tacit knowledge, institutional thickness and social capital are the core of this new endogenous development sight. Regions develop innovation strategies to enhance endogenous development using the local resources, local forces and local relations and besides these internal networks the system also has external linkages in national and international level. Eraydın (2002) pointed that these studies of clustering could not give enough policy recommendations and the **Regional Innovation Strategies** established in 1990s which aims to create territorial systems in order to strengthen regional innovation potential and competitiveness. Innovation oriented regional policies have become important tools to sustain competitiveness in the knowledge economy and it has been emphasized that these strategies are important policy tools to be able to formulate efficient Regional Innovation Systems.

It is possible to specify an innovation system in abstract modeling terms to include key organizational elements and linkages between them. Universities, research institutes, technology transfer agencies, consultants, skill development organizations, public and private funding organizations and firms, both large and small, and non-firm organizations involved in innovation process are the main elements. Linkages can be specified in terms of flows of knowledge and information, flows of investment funding, flows of authority an even more informal arrangements such as Networks, clubs and partnership. It can further be hypothesized that there will be

strong and weak, regular and irregular, intense or relaxed kinds of interactions which shape the system (Cooke and et al., 1997).

Regional Innovation Systems (RIS) include the cooperation and collaboration activities between the actors of a region and increase the innovative power by building regional organizations and networks (Cooke, 1998). Eraydin (2002) emphasized that RIS is the result of a need to move from analysis to policy after a long period of studying the clusters and regional innovation strategies formulated as a policy instrument to support the needs of less favored regions. Regional policy is seen as an effective tool to reduce the cohesion gap. Therefore it has to address this problem by increasing the innovation capacities in less favored regions and this is dependent on the establishment of an efficient RIS in these regions (Landabaso and et al., 1999). Regional Innovation Strategies are seen as new tools to establish a RIS in a region, a strategy to formulate a system. In 1990s, European Commission provided new supports for European regions and European regions have started to carry out RIStr projects which aim to enhance regional innovation and competitiveness through optimizing innovation policies and infrastructure in these regions. This chapter contains first the conceptual frame of the term RIS and then the European experiences of RIStr projects as implementation side of these system policies.

3.3. Regional Innovation System Approach:

The notion of a knowledge economy has been elaborated upon by Lundvall & Johnson (1994), and it needs close analysis because of its general relevance to the National Innovation System (NIS) and Regional Innovation System (RIS) debate. The existence of the RIS had been boosted by the burgeoning literature on “post-fordism”, “industrial clusters” (Porter 1990) and the rise of the region state (Braczyk and et al., 1998).

Innovation, being a socially and economically embedded process, needs a socio-institutional environment to take place in. Innovation is a process embedded in a RIS which is a system of innovation networks and institutions located within a certain geographic area with strong internal interaction that promotes the innovativeness of

that region. Thus, a RIS is a very new policy tool aiming to increase the innovativeness of a region and consist of different kinds of multi-actor innovation networks.

In the literature, first attempt to establish an innovation system was in national level. NIS concept was first introduced by some scientists and then RIS approach came into agenda following the increasing importance of the concept of region.

3.3.1. Shift From National Innovation System to Regional Scale:

RIS concept was inspired by the NIS concept, and it is based on a similar rationale that emphasizes territorially based innovation systems (Asheim and Gertler, 2005). NIS is used as a background of RIS approach. Region is a more acceptable and effective unit of space than nation because of its homogenous structure in terms of institutions, social structure and production system.

NIS is described as a National System containing all actors, interactions and institutions to improve innovativeness in national level. In the late 1980s, a group of evolutionary and institutional economists, who became aware that the dominating neoclassical approach was unable to address some of the crucial problems of technical and institutional change, developed the concept of “National Innovation Systems” (NIS) which puts innovation and interactive learning as necessary elements for economic growth (Yılmaz, 2001).

Freeman and Soete (1997: 291) defined National Innovation System as “ the national interactions, whether public or private, between various institutions dealing with science and technology as well as with higher education, innovation and technology diffusion in the much broader sense have been known in the literature as national systems of innovation”.

NIS concept is a very useful tool for understanding all the factors lying behind technological development and economic growth. A problem with the concept is that it is too broad to focus on specific, especially local, problems in an effective way and that a sub-national focus was needed. In the late 1980s and early 1990s a group of

regional economists proposed new concepts like regional innovation policies, innovative milieu and innovative networks in order to address the systemic nature of innovative regions (Yılmaz, 2001). These all aim to increase the innovative capacities of regions. Cooke introduced the concept of RIS in 1992 as a new and more effective tool, with respect to NIS, for regional development. Yılmaz (2001) was also pointed that the regional level might be a more suitable level for the implementation of policies related with technological and economic development and that RIS enhance the effectiveness of NIS.

A RIS comprises a set of institutions, both public and private, which produces pervasive and systemic effects that encourage firms within the region to adopt common norms, expectations, values, attitudes and practices, where a culture of innovation is nurtured and knowledge transfer processes are enhanced. A national system of innovation can not adequately do this (Cooke and et al., 2007:116).

One of the assumptions of the RIS approach is that many innovative firms operate within regional networks, cooperating and interacting not only with other firms such as suppliers, clients and competitors, but also with research and technology resource organizations, innovation support agencies, venture capital funds and local and regional government bodies. Innovation is a process that frequently benefits from the proximity of organizations. Furthermore, regional governments have an important role to support innovation processes by offering services and other mechanisms that augment the inter-linkages between all these actors of that region.

In 1980s, social scientists realized that the regionalization phenomena is very important in the world economy and they became aware that regions might be a suitable level for the coordination of economic activity and explored innovative regions which leads to competitive advantage (Yılmaz,2001). RIS, being a systematic aspect and an economic structure, fulfill this requirement of the knowledge era.

3.3.2. Concept of the Regional Innovation System:

Definitions, main components and different forms and dimensions of RIS will be stated in this part of the thesis.

3.3.2.1. Meaning and Definition of Regional Innovation System:

RIS is a kind of system containing innovative networks and institutions located within a specific geographical area and strong internal interaction that promotes the innovativeness of the region's companies is in the center of the system. The concept provides a good framework for the technology and innovation policies that are seen as necessary tools for regional innovation environment.

Asheim and Gertler (2005) were also made a description as "The Regional Innovation System can be thought of as the institutional infrastructure supporting innovation within the innovation structure of a region". The aim of RIS is to integrate traditional, context linked, regional knowledge and codified, worldwide available knowledge in order to stimulate regional endogenous potential (Eraydın, 2002).

Yılmaz (2001) emphasized that Regional Innovation Systems provide a systematic dimension for innovation at a regional level and linking several theoretical approaches, described in previous parts, such as evolutionary economics, governance, new production concepts and the models of industrial districts and innovative milieu which play important role in the success of innovative regions.

To be able to extend the definition of the concept of RIS, innovation in regional level and its systemic structure should be emphasized.

3.3.2.2. Importance of the Innovation in Regional Term:

An innovative region can compete globally and improve the social, cultural, environmental and accordingly life quality of its inhabitants. Regional competitiveness is based on regional resources and a region's socio-institutional capability to renew the resource base in an interactive and collective learning process in order to increase regional productivity and innovativeness. To be able to gain

competitive advantage in the global market, regions should host enterprises which can create new products, services and production processes.

Regions that have constructed advantage through supporting innovative enterprise, present meaningful communities of economic interest, define genuine flows of economic activities and take advantage of true linkages and synergies among economic actors. Regions have to seek competitive advantage from mobilizing all their assets including institutional and governmental ones, where there exist, or press for them where they do not (Cooke and et al., 2007: 114). To become attractive for companies, regions should set up institutions to support their innovation strategies.

The regional innovation environment is seen as a system consists of innovation networks and institutions located within a region. This system has strong internal interactions that promote innovativeness and is characterized by embeddedness, since innovations are processes embedded in normal social and economic activities.

There are lots of factors supporting innovation process in a region. The existence of universities and technical faculties and qualified workforce are the factors which should be determined firstly. Since the innovation process is a social process, high level of trust and reciprocity, shared values and culture in a region provide this region to be innovative. Circulation of learning process between different actors of the region, collaboration and cooperation between firms, universities, research centers and regional institutions, local interest on processes of research, innovation, creativity and experiment, local demand for innovative and creative products, availability of venture capitalist for new inventions, existence of financial resources can be summarized as the other factors facilitate innovation in a region.

3.3.2.3. System Requirement of Innovation in Regional Level:

Innovation is a social process that affects diffusion of new knowledge and turning it to a differentiated commercialized product. Therefore, innovation process requires a dense interaction between firms, universities, public and private R&D institutes and financial organizations. For this comprehensive process it is necessary to establish a system. System, as a term, means orderly interconnected and complex arrangements

of parts or elements (Yılmaz, 2001). Lunvall (1992) also describes the term system as an order consisting of a number of elements with relationships among them, and so an innovation system “elements and relationships that interact in the production, diffusion and use of new and economically useful knowledge”. His narrower definition contains: organizations and institutions, such as R&D organizations, universities and technology centers, involved in innovation process and his broad definition contains: all parts and aspects of economic structure and institutional set up effecting learning as well as the innovation process.

There are two main prerequisites for RIS (Eraydın, 2002): first one is the formal and explicit cooperation between firms in innovation process, the link with new knowledge bases, the access to venture capital and university-industry-government relation. The other one is the networking between firms, i.e. other firms, customers, competitors, consultants; firms and R&D infrastructures, i.e. government research institutes, private research institutions and universities; between R&D infrastructure units, i.e. government-private, university-private, university-government R&D. Similarly, Cooke and et al (2007) indicated that the innovation systems are made up of networks of knowledge providers such as universities and research organizations, clusters of large and small firms underpinned by venture capital, education, technology transfer and other supporting institutions.

To sum up, an innovation system is a social system, and innovation is the result of the social interaction between economic actors. It is an open system in interaction with its environment and feedback mechanism is important in producing new knowledge and new technologies (Cooke and at al., 2007).

3.3.3. What Comprises a Regional Innovation System:

In knowledge economy, the sources of competitiveness are found in social environment rather than in market environment. The untraded interdependencies (Storper, 1995) are the examples of this social environment. These untraded interdependencies include the institutional, social, cognitive and cultural characteristics of a region that created in history. As evolutionary economists and institutional economists emphasized, regional institutional settings and routines are

the main factors in regional development process. These institutional settings must be composed of elements enabling the processes networking, learning, innovating and leadership in the regional development network. Regional Innovation Systems, in which firms and other organizations are systematically engaged in interactive learning through an institutional milieu, characterized by embeddedness (Cooke, 1998). Strong RIS requires strong locally embedded institutional and organizational characteristics.

Institutions which foster **networking and interactions** constitute the innovative environment. We know that competitiveness is an essential requirement of the knowledge economy and regions should adapt to the rapidly changing economic and social conditions and make difference to be able to become attractive. Thus, the competitive power of the regions depends on their regional resources and institutional capacity that organize the use of these resources in an interactive and effective manner to increase productivity and innovativeness. **Socio-institutional structure** of regions determines their collective learning, innovation and interaction capability and thus regional innovation environment is a system consists of these interactive structures and called “Regional Innovation System”. This system is formed by innovative networks and institutions with strong linkages and interactions which are the sources of an innovative and consequently a competitive region. Institutional set-up in that region is the essential part of such a system.

Being a social system which composed of interactions between actors of that region, establishing a well functioning RIS requires some structural elements such as efficient institutional settings, spatial proximity, network relations and qualified labor force as a requirement of learning process.

Table 2: Super-structural Elements of Strong and Weak Regional Systems of Innovation Potential:

Strong RSI potential	Weak RSI potential
Institutional level Cooperative culture Associative Learning disposition Change orientation Public-private consensus	Competitive culture Individualistic ‘not invented here’ conservative public private dissension
Organizational level: firms Trustful labor relations Workplace cooperation Worker welfare orientation Mentoring Externalization Innovation	Antagonistic labor relations Workplace division ‘sweating’ ‘sink or swim’ internalization adaptation
Organizational level: policy Inclusive Monitoring Delegation Consultative Networking	Exclusive Reacting Centralization Authoritarian ‘stand alone’

Source: Cooke, 1998: 1580

A strong innovation process at regional level relies upon a combination of well endowed organizational infrastructure and a superstructure including an embedded civil society capable of activating social capital (Cooke, 1998). Table 2 shows the most important institutional and organizational characteristics of regions which have potentials to be able to formulate a system of innovation. Here we can see the importance of the **social capital** embedded in region. **Cooperation networks** between individuals, firms and other institutions are also important factors to be able to construct a well operating system. Regions should also have their own independent and **peculiar institutional structures** in order to use their regional potentials in a more effective way.

Cooke and et al. introduced two different regional profiles to express the importance of the density and quality of infrastructures for innovation in a region. Here, Table 3 shows two regional profiles which correspond to regions with totally different scopes of jurisdiction and autonomy (Cooke and et al., 1997).

Table 3: Two Different Regional Profiles:

Profile 1:	Profile 2
(1) autonomous capacity for regional public spending	(1) a certain degree of administrative decentralization on spending
(2) regional capacity to impose taxes	(2) limited capacity to impose taxes
(3) little need for firms to approach the national capital market	(3) less regionalisable sources of financing
(4) high level of regional financial intermediaries	(4) low level of regional financial intermediaries
(5) regional government control over financial intermediaries	(5) little local government control over financial intermediaries
(6) development of regional information and promotion policies	(6) slight development of own information and promotion policies
(7) regional control over execution of part of strategic infrastructures	(7) no regional control over execution and management of infrastructures
(8) control or shared execution(state-region) of strategic infrastructures	(8) slight influence on execution and management of infrastructures
a. density and quality of infrastructures for innovation are spread more widely throughout the regional space	a. density and quality of infrastructures for innovation exist but more in relation to local or metropolitan areas
b. density and quality of infrastructures for innovation are more highly concentrated in local or metropolitan areas	b. low density and quality of infrastructures
<i>the regions general competence</i>	<i>the regions general competence</i>
(1) own educational and training system	(1) state educational and training system
(2) university related to the area	(2) university slightly related to the area
(3) research laboratories in the region	(3) no research laboratories in the region
(4) regional government	(4) no regional government
(5) public procurement made by the regional government	(5) state policies on industry, technology, public procurement and science
(6) industrial and technological policies designed and executed by the regional government	(6) no regional industrial and technological policy
(7) regional science and technology program	(7) no regional science and technology program

Source: Cooke and et al., 1997

The more similar a region is to profile one; the more favorable its conditions are suitable to establish an effective regional system of innovation. Density and quality of innovation infrastructure, existence of regional government, research centers, regional education and training systems, universities and financial institutions fostering innovativeness are important elements of the innovation systems.

Landabaso and et al. (1999) have also stated ten structural factors affecting the Regional Innovation Systems in less favored regions. These factors are:

1. Lower quality and quantity of **scientific and technological infrastructure**,
2. Scarcity or lack of **technological intermediaries**,
3. Poorly developed **financial systems** to finance innovation,
4. Lack of a **dynamic business services sector** offering services to firms to promote the dissemination of technology,
5. Weak **cooperation links between the public and private sectors**, and the lack of an entrepreneurial culture prone to inter-firm cooperation,
6. **Sectoral specialization** in traditional industries with little inclination for innovation and predominance of small family firms,
7. Small and relatively closed **markets** with unsophisticated demand, which do not encourage innovation,
8. Little **participation in international R&TDI networks**, scarcely developed **communications networks**, difficulties in attracting **skilled labor** and accessing external know-how,
9. Few **large firms undertaken R&D** with poor links with the local economy,
10. Low levels of **public assistance** for innovation and aid schemes poorly adapted to local SME's innovation needs (Landabaso and et al., 1999).

As a result, the quality of the institutional settings in less favored regions is often appears as the main obstacle for the creation of an efficient RIS. In order to overcome these weaknesses and structural problems, it is important to built strategies like the ones prepared by European Regions and supported by the European Union. Institutions for an effective RIS are technological intermediaries, financial system, research centers, dynamic business services sector, universities, cooperation links between the public and private sectors, sectoral specialization and clustering in industrial sectors, public assistance, linkages with international networks, connection with communication and telecommunication networks and existence of skilled labor. RISTr include the guidelines to complete these required institutions for an effectively operating innovation system. The process of preparing a regional strategy for innovation means that cooperation can be integrated into a stable institutional

framework that encourages contacts and the search for partners, clarifies the objectives of public policy in this field and makes available to firms public resources to encourage their participation in joint projects.

It has been emphasized that not all of the regions have these characteristics stated in the first column of the Table 2. Therefore, Regional Innovation Strategies have been developed as a policy instrument in order to promote growth and innovativeness and establish “Regional Innovation Systems” in these regions. Institutional background and agglomerations (clusters), networking and social capital (labor market conditions) are also the main drivers of the Regional Innovation Systems. These three are more simple and useful ones in order to introduce and understand the fundamental elements of the Regional Innovation Systems.

3.3.3.1. Institutional Structures:

In recent years, to understand processes of regional development within an increasingly globalized economy, the economic geographers have drawn upon concepts from institutional economics and economic sociology and increasing interest in the social and institutional conditions shaping regional development (Cumbers and et al., 2003). As mentioned in the previous discussions, RIS is a new development policy tool to foster regional endogenous growth in a region by using existing resources as input and in the end innovation as an output. It is essential to formulate new institutional settings and make the existing ones work in a more systematic manner to be able to create an innovative environment in a region. This part of the study attempts to explain and analyze the institutional actors and their roles in the process of creating an innovative environment, promoting continuous learning and networking in a region.

According to the RIS approach there are various organizations and policy actions in order to promote learning and innovation at the regional level. We can compile these organizations and policy actions, which are essential for the generation, dissemination and transformation of knowledge, as universities and research institutions, science parks, innovation centers, technology transfer agencies and educational institutions. Other important organizations supporting innovation based

growth include venture capital firms, business angels, standard setting bodies and development agencies (Cooke and et al., 2007: 54).

Institutions are very important for the system of regional innovation, since they determine the rate and the direction of innovative activities. Cooke (2002:137) indicated two subsystems, that is the knowledge application and exploitation subsystems (production) and knowledge generation and diffusion subsystems (institution). Production side contains firms, customers, collaborators, contractors and competitors, on the other hand institution side, that supports knowledge creation and diffusion, includes business consultants, technology centers, R&D centers, university departments, laboratories, technology transfer and R&D centers and development agencies. Firms' innovativeness and competitiveness depend on institutions of their local environment. In RIS, firms and the organizations of a region experience interactive learning process through an institutional frame characterized by local embeddedness of that region.

In this innovation system, regional **governments** have different roles such as a catalyst, a facilitator and a broker in the articulation of a Regional Innovation System. In the study of Eraydin (2002) articulation defined as linking regional actors and matching them according to their innovation need and support collaborative activities among different actors and design policies to integrate all actors in a Regional Innovation System. This role of the government is particularly important for less favored regions where the RIS is more fragmented and its subsystems and integral parts are more underdeveloped or, at times, simply completely absent (Landabaso et al., 1999). As a result, the main subsystems of a RIS are **knowledge generation and diffusion subsystem, knowledge application and exploitation subsystem and regional policy subsystems** (See Figure 3).

The RIS approach is also highlights that regional authorities can shape local learning and innovation processes in such a way by providing R&D infrastructure and educational infrastructure, supporting academic spin-offs, enhancing human capital and the formation of social capital.

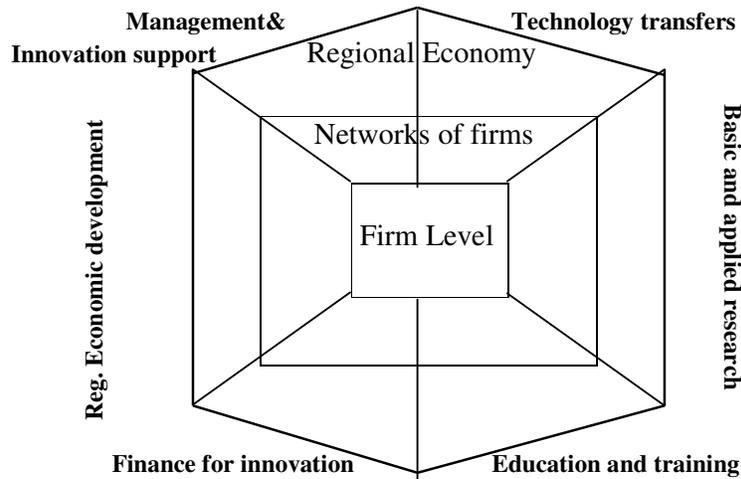


Figure 2: The Institutions in a regional system of Innovation

Source: Regional Innovation Systems: The Role of Governance in a Globalized World, 1998.

Figure 2 represents the institutional actors of a RIS. The central actor of the system is the small and large firms which are the supply and demand side of innovation process and accordingly the system and the other actors can be grouped into three parts. These three parts are the key actors of a RIS and works as innovation support organizations. These three groups are:

- First one contains **scientific organizations** such as universities, research laboratories and technology transfer agencies,
- Second group contains **public and private governance organizations** such as trade associations, chambers of commerce, vocational training organizations,
- Lastly the **financial organizations** such as banks and venture capitalists constitute the third group. Training system, public authorities and culture of the region are described as the other elements of the system which form the “environment” of the RIS (Yılmaz, 2001).

The literature on innovation systems brought the role of the **state and other public institutions**, which are the second group of institutions stated above, into attention.

The actors of the innovation process are more diverse than in the earlier approaches. They are to be found as core elements in the subsystems of knowledge generation and diffusion as well as in the subsystem of knowledge application and commercialization (Cooke and et al., 2007:53). Development of regions is determined not only by technological but also by institutional path dependencies introduced by institutional theorists. These mentioned institutional path dependencies highlight the importance of regional institutions. Regionalization involves the imposition of organizations in order to stimulate the development of regional institutions; regionalism involves the realization of regional organizations to give active expression to regional institutions (Cooke, 1998).

Institutions, which are introduced in the second and the third group of key actors of innovation system, such as the **education and training systems**, regional research and development capacities, industrial relations and **financial services** regulate the manner in which the technological knowledge available within a region is generated, further developed and harnessed economically. The necessary actions for the generation of effective institutional structure in RIS are determined as follows:

- The establishment of new interfaces between business and the knowledge base, including technology centers, universities, public laboratories and specialized consultants,
- Development of new financial instruments for the financing of innovation including brokerage services between innovators and the banking sector,
- Identification of innovation projects in firms through the combines efforts of university trainees and R&D laboratories from universities and other firms,
- Promotion and extension of technology audits in SME and innovation management training for businessman,
- Facilitation of university and big firms spinouts and technology based start-ups (Landabaso and et al., 1999).

As a policy concept, RIS has underpinned many practical applications in the field of research-business collaboration, support for high-tech Spin-offs and start-ups and clustering as well as more conceptual applications geared towards the drafting or Regional Innovation Strategies (Landabaso, 1997). Innovation strategies attempts to

establish and support these innovation promoting institutional structures in a less favored region in order to improve her innovativeness and competitive power.

From a regional development perspective, institutionalism approach draws attention to the ways in which a region's internal characteristics or social infrastructure can help and hinder economic growth. Shift to a knowledge based economy have heightened the demand of institutionalist ideas. In particular, conceptions of innovation as a socially embedded and interactive process have prompted new claims about the importance of localized learning in the construction of regional competitive advantage (Cumbers and et al., 2003). RIS approach contains a broad set of ideas concerning innovation, interaction and space. There is a review of the three most influential strands of institutionally informed literature (industrial districts, Regional Innovation Systems and learning regions) in terms of their institutions, power and space dimensions in the literature:

Table 4: Three Strands of Institutionally Informed Literature

	Industrial districts	Regional Innovation Systems	Learning regions
Institutions	Focus on ‘soft’ institutions, importance of socio-cultural Networks which facilitate trust and collaboration. Highlight role of trade unions, local authorities, trade associations and political parties.	Concerned with ‘hard’ institutional forms, highlighting the role of key regional organizations (financial systems, training infrastructure, and research institutions) . A prescriptive approach advocating collaboration and cooperation between firms and institutions (universities and research institutes, business associations, vocational training collages, etc)	‘Softer’ emphasis on untraded interdependencies and relational assets. Importance of tacit knowledge and collective learning in stimulating innovation. Some interest in the forging of regional alliances through collaboration between key organizations and actors (business elite, economic development agencies, trade unions.)
Power	Emphasis on collaborative inter-firm relations, recognition of political leftist coloring to successful districts but the issue of potential competition and rivalry is neglected. Some debate on divisions and exploitations within districts.	Emphasis on cooperative social relations , little sense of potential divisions and conflicts. Implicit acceptance of neo-liberal framework of global capitalism.	Focus on collective learning and trust. Little consideration of unequal power relations between firms and the difficulties of sustaining collaboration over the longer term. Implicit reliance on relational conception of power involves neglect of power as a capacity.
Space/scale	Focus on local scale, neglect of actors and institutions operating at other spatial scales. Global viewed as external product market.	Focus on regional scale. Particular neglect of national scale institutions (education, training, financial system). Globalization means that regions have become a key scale of economy organization and political intervention. The coherence of regions is taken for granted.	Emphasis on the role of region as the key site for the development of untraded interdependencies. Tendency towards spatial fetishisms where regions viewed as strategic agents. Notion of competitiveness extended from firm to region.

Source: Cumbers and et al., 2003.

These three approaches aim to create cooperation between local actors and raise the locally embedded potentials of the regions by using the institutional structures.

The role of institutions; that is, common habits, routines, prevailing practices in companies, labor markets and financial organizations, are relevant for the knowledge and innovation process (Gertler, 2003). This links up the concepts of innovation and

system. Innovation system requires spatial proximity (**clustering** in sectoral level) for the generation and transmission of knowledge that is transferred to innovation. These clusters are emphasized as the knowledge application and exploitation subsystem of a RIS.

Moreover, proximity and geography have strong role in knowledge generation and application and matter in the knowledge and innovation process. Innovation oriented knowledge economy and globalization trends foster the role of innovation for regions and countries to be able to gain competitive advantage. Innovative and knowledge based activities have become more important in economic processes. After the decline of fordist economic system, specialization has turned as the dominant factor for competitiveness. Some economists agreed that creation and diffusion of knowledge occur more efficiently via local proximity.

It has been stated that the geographical configuration of economic actors-firms, workers, associations, organizations and government agencies- is fundamentally important in shaping the innovative capabilities of firms and industries (Asheim and Gertler, 2005). Geographical proximity, thus, is not alone in creating a common understanding for tacit knowledge exchange as has often been claimed in the literature. This is reflected in the highly uneven and polarized character of knowledge generation, application and innovation in geographical space (Cooke and et al., 2007: 46).

The role of geographical proximity in tacit knowledge exchange is important. Innovation relevant knowledge requires trust, a common language and understanding and is strongly favored by face-to-face interactions, in other words being close on space (Cooke and et al., 2007). Accordingly, tacit knowledge has an important role in the innovativeness of a region because of its diffusion via face-to-face relations in a specific local area. Yılmaz (2001) was also stated that the knowledge exchange, especially the exchange of tacit knowledge, between actors of an economy is a social process, which depends on spatial proximity, thus occurs at the local level.

3.3.3.2. Regional Social Capital: Social Attributes and Labor Market:

Social attributes of a region are important inputs in the economic activity, coordination and development. The three dimensions of culture in economic activity indicated by Braczy and et al. (1998) are:

1. Trust (at the individual level),
2. Willingness to cooperate (inside the work place): in relation to team working between management and labor seen to be economically advantageous,
3. Links based on trust, reciprocity, exchange and social **network** relationships. (Large firms outsource their production and services): importance of social coordination to economic success brings to promote clusters of competitive advantage in an increasingly globalized economy (Braczy and et al., 1998).

Regions' socio-cultural structure is also an important factor affecting its innovative power. The cultural aspects most closely linked to systemic quality in an innovation system are:

- Culture of cooperation
- Associative culture
- Learning culture
- Experience and ability to carry out or incorporate institutional changes
- Coordination and public private consensus
- Productive culture: - labor relations- cooperation at work- company commitments to social well being- productive specialization
- Existing interface mechanisms- in the scientific field- in the technological field- in the productive field- in the financial field
- Different types of learning capacity
- Social valorization of the use of science
- University linked to the productive system
- Non-bureaucratized educational and training system linked to the productive system (Cooke and et al., 1997).

These attributes provide a regional synergy for cooperation and accordingly dissemination of knowledge, creation of new knowledge and innovation processes.

Institutionalization of productive culture draws attention to the notion of regional embeddedness. Specialized resources, skills, institutions and share of common social and cultural values constitute the localized regionally embedded capabilities which are the significant elements of innovation process.

Moreover, labor is considered as one of the most significant form of social capital. Labor is an important production function and has a crucial role in the generation and transmission of knowledge. Knowledge is embedded in the labor and move among firms and regions by the movement of labor. Production culture of a region embedded in the work force and inhabitants of that region. The capacity of attracting new businesses depends on planning and housing policies, international migration, educational policies and the capability to generate, attract and retain a highly skilled labor force.

Innovating firm is the core of RIS and a firms innovation activities are influenced by the other firms, public research institutions, supportive services and the labor force in that region. Labor force in which knowledge and skills embedded has a significant role in generating knowledge flows within RIS. Therefore, labor is the basis of knowledge spillovers between the actors and parts of the system.

Labor flexibility is important for the diffusion of knowledge and accordingly innovation activities and this flexibility occurs through the new ways of working including project works, part time works and so on. Access to resources for innovation (skills and knowledge) has therefore become central to the competitive strategy of firms, the best of which have developed new flexible structure to better utilize and capture such advantages on a global scale. Knowledge exchange and learning are embedded within global, national, regional and local networks (Cooke and et al., 2007: 120).

Therefore the labor market dimension becomes an increasingly important element within RIS approach. Processes of learning and knowledge transfer occur through regional workforce in which the knowledge is embedded in. The mobility of engineering, scientific and other talent across firms, between firms and academic

institutions allows knowledge to diffuse locally. Accordingly, the movement of people between labor markets, sectors and firms has important consequences for industrial functioning and innovation (Power and Lundmark, 2004). It follows that labor market policies and institutions affect the scope for the firm to appropriate rents generated through innovative activities.

3.3.3.3. Network Relations:

Institutions offer resources for the generation, implementation and economic utilization of technological knowledge and the more the region's institutional actors operating in a collaborative manner the more it has an innovative atmosphere. Therefore, institutional thickness and the interactions of the institutions are important factors in order to establish an innovation system in a region. Building an innovative local atmosphere requires interactions between these institutional actors of education and training, research and development, technological information and production and also finance. Briefly, an innovative local atmosphere that contains innovation-promoting institutions is an important requirement of a RIS.

Innovating firms, institutions, governments and networks are the components of RIS. Here the major component is the networks because of being the system which all these firms and institutions hold on. Networks determine the transfer of knowledge and experiences between different parts and subsystems of the innovation system.

First component of the networking system is the innovating firm which is the core of the system and innovative capacity is based on the cooperation and collaboration culture of the region and interaction of different actors such as research institutes, universities, local organizations, customers and suppliers. The important point is the local cooperation culture, trust and reciprocity between local actors, in other words social relations which generate mutual learning, knowledge transfer and accordingly innovativeness. These cooperation and interactions constitute networks.

Networking among different subsystems and actors of RIS is the basic activity of the system. This type of territorial systems achieves creation, exploitation and diffusion of knowledge by the help of networks. Networks enable knowledge transfer among

the different parts of the system. Regional networks includes: firms, research and technology organizations, innovation support agencies, venture capitalists and local central government bodies. The linkages of these various actors provide to turn knowledge into innovation and accordingly into competitive advantage. Networking between firms, between production and service firms and firms and R&D organizations constitute the innovative networks among local actors of the system.

RIS should have linkages both with local-regional and global-national networks. Accordingly, a RIS can be defined as an area of interaction where local innovative networking that enable the exploitation of local capabilities and external networks that function as open gates for these systems to recapture and adapt the different types of knowledge. Network externalities are important for an efficient innovation system and generated via networks which determine intensive cooperation and knowledge spillovers (Eraydın, 2002). Networks formed with global suppliers and customers, i.e. value chains, international R&D/academic excellence networks, global business services and technology transfer networks constitute the different types of global networks.

Regional Innovation Systems should be open systems which have interactions not only with its local actors but also with actors out of the region and should be able to cooperate with different Regional Innovation Systems. The relationship via different networks and the actors mentioned above is a crucial characteristic of RIS.

Figure 3 represents these three main components of RIS, i.e. three subsystems of institutions, labor and networks.

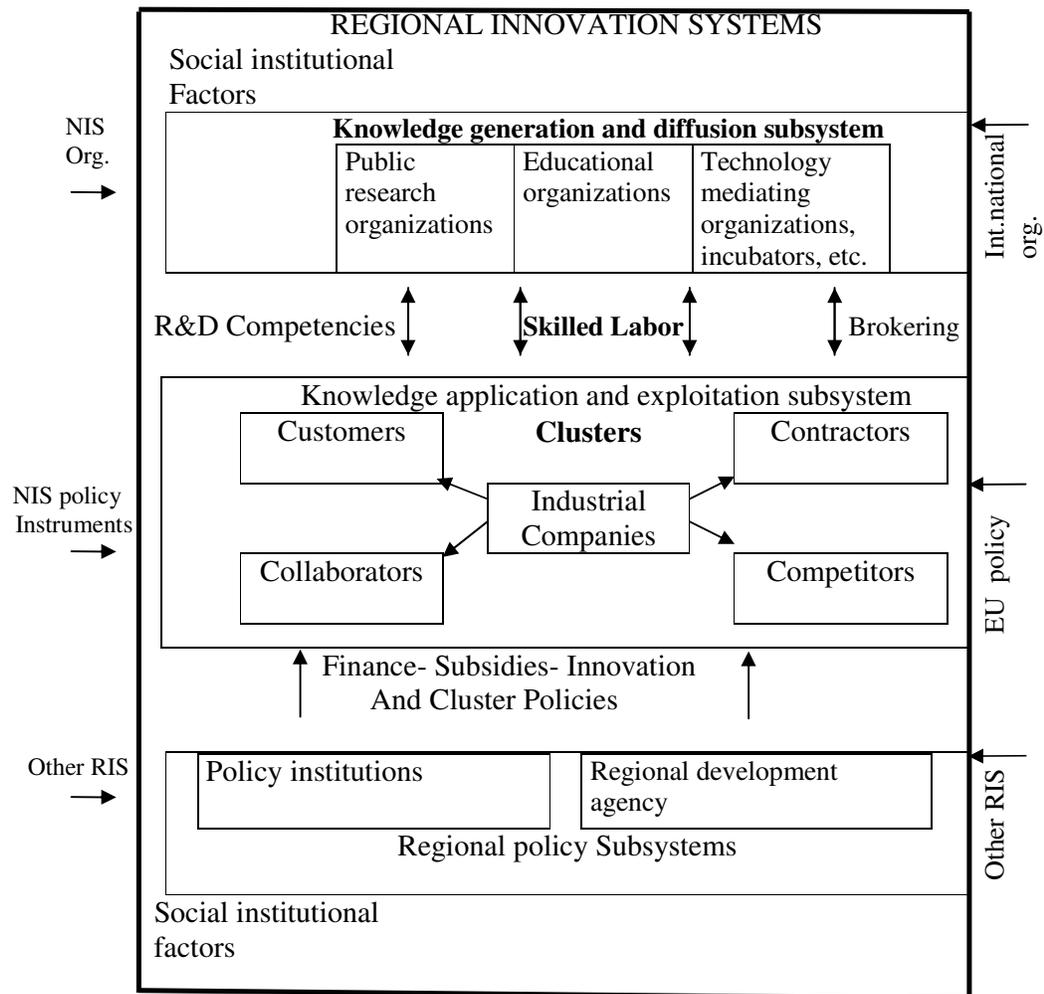


Figure 3: Diagrammatic Representation of a Regional Innovation System

Source: Regional Knowledge Economies- Markets, Clusters and Innovations, 2007

3.3.4. Different Forms and Dimensions of RIS:

Asheim and Gertler (2005: 300) define three types of RIS:

1. **Territorially embedded RIS**, that is regionally embedded, based on localized learning processes and geographical, social and cultural proximity, not have direct links with knowledge organizations,
2. **Regionally networked RIS**, that is also regionally embedded and characterized by localized interactive learning, different from the territorially embedded type it

is more planned by policy interventions and cluster of firms surrounded by a regional supporting institutional infrastructure,

3. **Regionalized national innovation system**, that is not characterized by regional embeddedness but based on institutional networks and innovation practices, linked to national and international innovation systems (close proximity to universities) and cooperate outside the region so exogenous actors and relationships play a larger role (Asheim and Gertler, 2005).

A good example to the territorially embedded RIS is the networks of SMEs in industrial districts and a good example to the regionalized NIS is the science parks composed of R&D laboratories, large firms and research institutes.

Braczyk and et al. made a more comprehensive classification for RIS. They indicated two key dimension of innovation activity: the governance infrastructure and the business superstructure. RIS was conventionalized in terms of a collective order based on micro constitutional regulation conditioned by trust, reliability, exchange and cooperative interaction. A conceptual model of an innovation governance system for a region was developed, and this fed into typology of RIS when the business innovation dimension was added (Braczyk and et al., 1998).

3.3.4.1. Governance Dimension:

Governance dimension contains the modes of technology transfer in a region. There are three modalities in this dimension and these are: grassroots, network and dirigiste RIS (Braczyk and et al., 1998).

1. Grassroots RIS:

- In terms of technology transfer action, the initiation process in this modality is locally organized, at town or district level,
- Funding will be diffused in origin, comprising local banking, local government, local chamber of commerce, capital, grants and loans,
- Research competence is likely to be highly applied or near market,
- The level of technical specialization low,

- The degree of supra-local coordination low (because of the localized nature of initiation).

Governance structure for this group is within the technology districts themselves rather than from state level. Grassroots RIS is similar to the Asheim's definition of "Territorially Embedded Regional Innovation System".

2. Network RIS:

- In terms of technology transfer action, the initiation process in this modality is multi-level, local, regional, federal and supranational levels,
- Funding will be guided by agreement among banks, government agencies and firms,
- Research competence in a networked innovation architecture is likely to be mixed, near market and in a larger network,
- Degree of system coordination is likely to be high because of the existence of a large number of stakeholders,
- Specialization such a system is flexible because of the wide system demands from global to small firms.

Network RIS is similar to the Asheim's definition of "Regionally Networked RIS".

3. Dirigiste RIS:

- In terms of technology transfer action, this model animated mainly from outside and above the region itself. Initiations of actions is typically a product a central government policies.
- Funding is largely centrally determined, despite the agencies
- Research is often rather basic or fundamental and it may be expected to relate to the needs of larger, possibly state owned, firms in or beyond the region.
- Level of coordination is very high, since it is state run
- The level of specialization is also high.

Dirigiste RIS is similar to the Asheim's definition of "regionalized national innovation system".

3.3.4.2. Business Innovation Dimension:

Second dimension, introduced by Braczyk and et al. (1998), is the business innovation dimension. This group is also divided into three parts: localist RIS, interactive RIS and globalized RIS.

1. Localist RIS:

- The extent of its domination by large enterprise, either indigenous in origin or inward investment, then a localist RIS will tend to have few or no large indigenous firms and relatively few large branches of externally controlled firm,
- The research reach of firms is not very great
- Have few major public innovation or R&D resources, but may have smaller private ones,
- High degree of associationalism among entrepreneurs and between them and local or regional policy makers.

2. Interactive RIS:

- Not particularly dominated by large or small firms but rather by a reasonable balance between them,
- The research reach is widespread, reach to regional research resources and foreign innovation sourcing when required,
- A reasonably balance mix of public and private research institutes and laboratories, reflecting the innovation presence of large firms and a regional government,
- A higher than average associationalism, expressed in local and regional industry networks and forums.

3. Globalized RIS:

- Dominated by global corporations,
- Research need is largely internal and highly privatistic rather than public
- Clustered supply chains,
- Associationalism is present, heavily influenced by the needs of larger firms.

3.4. Regional Innovation Strategy Projects of European Union:

Globalization and the challenges of knowledge based economy have made the European Union to use new policy tools in order to overcome competitiveness challenges. Innovation is considered as the most important driving force for sustainable economic development. Building a competitive and dynamic knowledge-based European society and economy was the main objective of The Lisbon European Council (March 2000) that is known as 'The Lisbon Strategy'. The Lisbon European Council has setup a ten-year strategy in March 2000 in order to make Europe most dynamic and competitive economy in world through a knowledge-oriented strategy. The Lisbon Strategy affects all policy areas as: research policy is on top of the priority list as being an essential mechanism to promote a knowledge economy, but all other policy areas- the structural funds of the EU's regional policy, competition policy, transport, environment- need to work together for the shared objectives of sustainable growth and more jobs. Research is the central element of the Lisbon Strategy, and regions are central areas of European Research. Thus, regions have a core role in the development of the European Research Area (ERA) and Innovating Regions in Europe Network (IRE) is a cooperation platform for regions to strengthen the European research.

Innovating Regions in Europe (IRE) Network was set up in mid 1990's by the European Commission. IRE is a platform for European regions to exchange experience and access good practice in regional innovation policies and strategies and aims to facilitate exchange of experience and good practice among European regions that are enhancing their capacity to support innovation and competitiveness among regional firms through the development and implementation of regional innovation strategies and schemes. IRE network has 240 member regions.

Mersin and Eskişehir which are two regions of Turkey are the members of IRE Network.

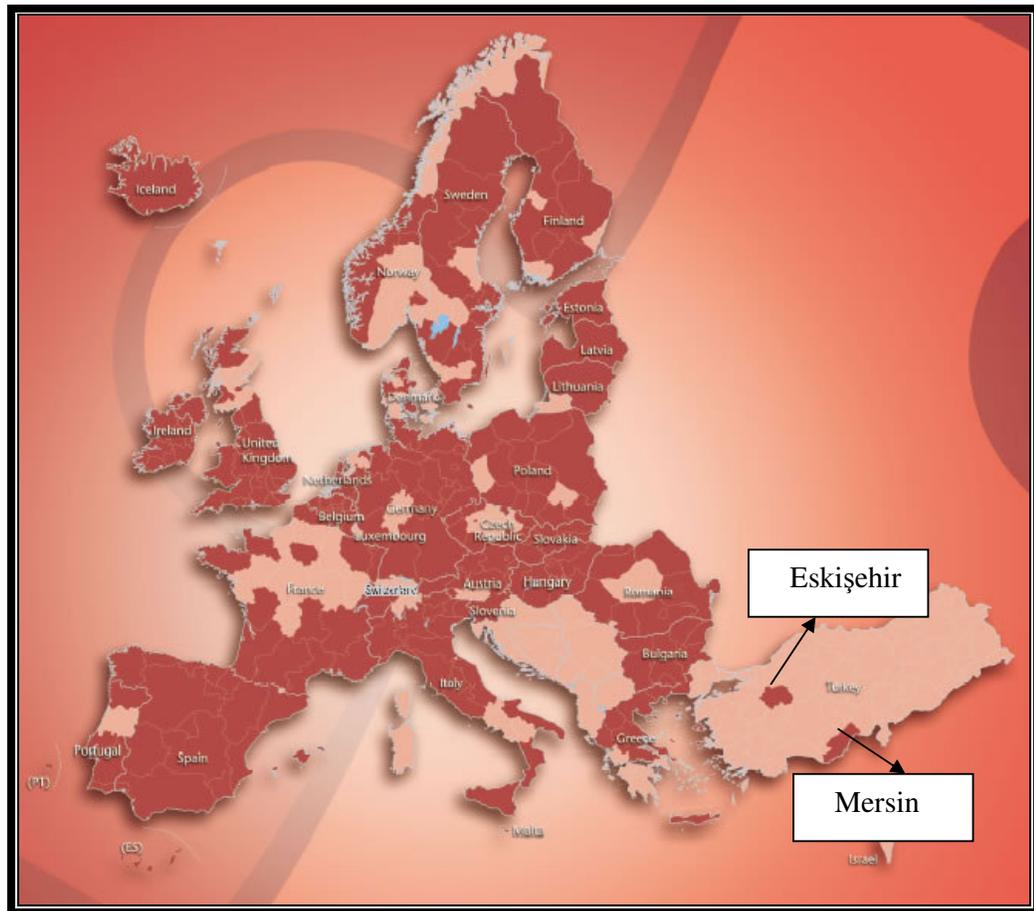


Figure 4: Innovating Regions of Europe (IRE) Network

Source: www.innovating-regions.org

European Commission seeks to coordinate research and innovation policies within the concept of ERA and European regions in IRE Network attempt to develop Regional Innovation Strategies to enhance the EU's transition to a knowledge-based economy. It is therefore at regional level that synergy becomes apparent between EU regional policy (promotes cohesion and regional economic development) and research policy that acts as a regional development tool. Regional policy and its instruments play a major role by accelerating the pace of transition of the economies of the less prosperous regions of Europe from traditional to knowledge-based (Cordis Focus-research policy supplement, September 2006: Issue number 1-18).

One of the priorities for the new generation of regional development programs in the European Union for the period 2000-2006 is the promotion of innovation (Landabaso and et al., 1999). RIS is presented as a general applicable concept to support regional development by stimulating innovation. RIStrs are the new policy tools to support and strengthen RIS, competitiveness and accordingly regional economic development in a region. Landabaso and et al. (1999) have made a short definition of these strategies as 'an instrument to translate knowledge into regional GDP'. These strategies should aim at promoting public/private and inter-firm cooperation and creating the institutional conditions (consensus among key regional players) for more efficient use of scarce public and private resources for the promotion of innovation (bigger and better spending in this field through regional policy) (Landabaso, 1997). Most European Union regions have experienced to formulate such strategies to be able to increase their competitiveness in the innovation oriented knowledge economy. European Union supports encourage regions to develop their own regional innovation strategies.

RIS projects were one of the first experimental projects that aim at enhancing innovative potential of the regions in EU. The general objective of RIStr was to promote the creation or strengthening of RIS in order to increase regional competitiveness. Basic structure of these projects is described (<http://www.tt30.org>):

In three **main phases**:

- Discussion and negotiation phase (partnership building): the steering committee and the management team are settled, working groups prepared and the consultants selected,
- Analysis phase: analysis of the innovation needs of firms, on the basis of postal or email questionnaires sent to firms and face-to-face interviews
- Phase for elaborating the regional innovation strategy: prepared on the basis of the studies mentioned above, and which had to be translated into a concrete action plan, a list of pilot projects, a time table and a budget.

And in six **key methodological principles**:

- Based on public private partnership and consensus. Regional administrations should be fully involved, in partnership with the relevant key regional innovation actors in the design, implementation, monitoring and follow up of the exercise,
- Integrated and multidisciplinary: innovation within RIS includes not only technology considerations but also issues regarding human capital, research and education, training, management, finance, marketing as well as policy coordination among regional policy, technology policy, industrial policy, R&D and education policy and competition policy,
- Demand-led and bottom-up,
- Action oriented: it should include an action plan for implementation with clearly identified projects,
- Inter-regional networking and benchmarking of policies and methods (sharing experience and good practices with others),
- Incremental and cyclical: the exercise is dynamic, previous experiences and on-going evaluation is necessary (www.tt30.org, Article of Michal Miedzinski, “Development Policy as a Regional Innovation Policy”).

RIS was particularly effective in developing regional strategies through a bottom-up process based on dialogue and discussion and rising awareness among regional policy makers as regards importance of innovation and knowledge. The design and implementation of appropriate measures and programs, to promote innovation within the community’s regional policy are of vital importance if the EU is to implement effectively the principle of economic and social cohesion through the sustained economic development of the less developed regions (Landabaso, 1997). Since 1994 more than 150 European regions have received support for carrying out their own RIStr projects. Five simple steps of the projects are:

1. Initiating regional dialogue,
2. Direct involvement of all relevant organizations in shaping innovation policy,
3. Analysis of regional innovation needs and capacities,
4. Selection of priorities for innovation support,
5. Development of action plans and pilot projects (www.innovating-regions.org).

By following these steps, over 150 European regions have placed innovation at the hearth of their practical competitiveness strategies and several generations of strategies have been implemented since 1994. These generations of projects are grouped as: New RIS, RIS, RIS- Associated Projects, RIS +, RIS- NAC, RITTS projects. First generation strategy projects are RITTS (regional innovation and technology transfer strategies) and RIS projects which launched in 1994.

Table 5: IRE Structural Projects

Project type	Completed (1994-2005)	On-going
Regional innovation strategies	RIS, RITTS (103) RIS-NACs (16)	New RIS (33)
Trans-regional co-operation	IRE Thematic Networks (14)	Impact assessment /benchmarking (8) Subgroups of regions (4) Mutual Learning Platform (1)

Source: RIBN Bussiness Forum, Ferreira A., ‘Innovating Regions in Europe’, Nova Gorica, 13 June 2006.

New RIS projects are the Innovation strategy projects of EU new member states and associated countries. In 2005, 33 New-RIS projects were launched by these regions to enhance regional innovativeness and competitiveness. Projects include innovation policies and infrastructural policies in order to formulate a RIS in certain regions. This group of projects is composed of regions of Bulgaria, Czech Republic, Estonia, Hungary, Israel, Lithuania, Malta, Norway, Poland, Romania, Slovakia, Switzerland and Turkey. In this group of current RIStr projects, each region is partnered with at least one other region that has already undertaken a RIStr project, which allows them to take full advantage of previous experiences (www.innovating-regions.org). RIS-

Mersin project is one of the strategies included in this group. Eskişehir, being a member Turkish region of IRE network, hasn't got a completed RIStr yet. RIS-Mersin is the only innovation strategy implementing in Turkey.

Common goal of the strategies is the increasing regional productivity and competitiveness and the realization of this goal requires integrated public sector (local, regional, national, European) and the private sector. Landabaso (1997) stated the final objectives of the strategies as:

- Institutionalization of an on-going and structured review by all these concerned in the economy of the region of the opportunities and consequences that stem from the process of adjusting the economy of the region to technical change,
- Help to improve the dynamic effectiveness with which firms and institutions can disseminate, adapt and adopt innovation on the basis of information and knowledge (establish network of cooperation within and between firms and identify and prepare projects for technological innovation in firms),
- Help the regional economy to secure competitive advantages through ongoing adjustment to technical change (help to design new public private programs to promote innovation) (Landabaso (1997)).

According to Landabaso and et al. (1999), the main objective of the strategies is to set foundations of an efficient RIS by improving existing regional innovation capacities. RIS generally focuses on SMEs but is not limited to high tech sectors and contains also traditional sectors as well as the service sectors (like tourism sector included in the strategy of Mersin) which tend to be important in less favored regions. Since being a general strategy and not only focuses on SMEs, RIStr of Mersin is differentiated from other regions in IRE network.

These experiences of RIStr projects showed that the main emphasis was on formulating new institutional settings and making existing ones work in a systematic manner. As Cumbers and et al. (2003) indicated in their study, 'successful Regional Innovation Systems are those which display high levels of collaboration and trust between regional institutions and business'.

3.4.1. Success Factors of Regional Innovation Strategies:

Critical success factors for effective RIS were introduced by IRE Secretariat as interaction, openness, need orientation, steering, strategy and vision. These are the important characteristics which should be formed by the innovation strategy.

The level of **interaction** between the different players was found of crucial importance for an effective RIS. For a functional RIS, the knowledge transfer is a fundamental aspect for companies to improve their innovation capacity. In particular the triple-helix relations play an important role in stimulating knowledge-based economic development. Effective interaction also involves social networking, cultural diversity, business relationships and mutual trust. If **networks** are not yet functional in a region, it takes a long time to build them and to create trust among the different actors (ERIS Working Group Final Report, 2008).

Openness is the other factor in the success of a RIS. An open innovation system continuously interacts with its external environment, so it can influence and be influenced by the elements outside the system. The openness characteristic in RIS is crucial not only to allow the generation of new ideas, products, services and processes in the region but also to facilitate the relations between the various actors that involved in the system. **Cluster type initiatives and learning platforms** are the required new mechanisms to reinforce cooperation by allowing companies and knowledge institutes using each other's strengths, knowledge, experience and technology infrastructure to achieve more innovations and technology developments (ERIS Working Group Final Report, 2008).

Need orientation is also an important factor affecting the success of innovation system and it should be considered in the preparation of the innovation strategy. Firms can be considered as the actual customers of RIS. Consequently, their innovation support needs should be examined in a systemic way in order to mobilize the right actions and resources towards appropriate measures. The identification of such needs can be done using tools such as innovation demand surveys, market

analysis, competitive intelligence actions, innovation gap analysis and foresight exercise among others (ERIS Working Group Final Report, 2008). These kinds of tools were used by the project team in the preparation stage of the RIS-Mersin project and the needs of the region were attempted to be determined.

Steering is also necessary in order to regulate the effectiveness of RIS through appropriate guidance and coordination of the activities undertaken by the various stakeholders. While functional RIS requires capable steering, it does not seem possible for a single person or organization to assume such a role alone. Thus steering requires engagement of different actors and clarification of their roles in the system. Elements of the steering are clearly articulated strategy communicated to the whole region, leadership, stability in planning, methodology for measuring a “start point” and subsequent impact (ERIS Working Group Final Report, 2008). RIS-Mersin project is also proposed an Innovation Steering Committee including different stakeholders who has leadership qualities.

An innovation **strategy** is a long term plan of action designed to enhance the innovation capabilities of the region. The strategy should encourage harmonized interaction between the public and private sectors. Important aspects to be addressed by an innovation strategy may include among others:

- Mechanisms for better coordination of the innovation system,
- Monitoring and assessment of the innovation system,
- Strengthening of the triple-helix relations,
- Promoting of R&D activities,
- Technology/knowledge transfer actions,
- Development of clusters, supply chains and company networks,
- Supply of economic intelligence/ technology watch services,
- Internationalization and foreign investment,
- Support to high-tech, high-growth entrepreneurship,
- Promotion of an innovation culture and entrepreneurial mindset,
- Provision of innovation financing,
- Boosting innovation in the public sector,
- Promoting innovation in SMEs,

- New legislation favoring innovation,
- Provision of enhanced innovation support services and infrastructure,
- Marketing the regional innovation profile,
- Workforce skills development (ERIS Working Group Final Report, 2008).

The **vision** statement outlines what the region wants to become. It should stimulate all concerned regional players and help them feel motivated and as a part of a bigger whole.

Innovation strategies of IRE network were examined by IRE Working Group in the content of these determined success factors and practical-oriented recommendations have been proposed by the working group regarding the strengthening of RIS. These recommendations are based on experiences and lessons learned from policies, programs, projects and other initiatives carried out in these IRE regions. The summary of these recommendations introduced as:

- **Consult the stakeholders:** governance; an innovation steering committee preparing policies to facilitate networking between different actors.
- **Engage different regional actors:** give power them by providing them with specific roles and appropriate resources for action.
- **Encourage cooperation:** create and maintain channels and processes for cooperation and information flow between the different stakeholders.
- **Avoid fragmentation:** a combination of top down and bottom-up approaches should preferably be applied.
- **Improve regional coordination:** regional innovation governance, coordination mechanisms.
- **Analyze, plan finance, create and coordinate:** create suitable, professional structures for action implementation.
- **Communicate your initiatives:** continuous communication with the regional innovation system players.
- **Ensure strong and legitimate leadership:** the involvement of regional and local leaders to promote strong innovation awareness.
- **Seek stability:** stable policies, strategies and resources building trust and stimulate involvement of regional innovation players.

- **Facilitate regional empowerment:** Involve regional stakeholders and share tasks with them, engage regional champions, create consensus, get political backing from politicians and stakeholders, boost governance by intensive communication/networking, and deploy as far as possible suitable financing and human resources.
- **Promote client-oriented innovation systems:** The innovation support needs of firms should be examined in a systematic way in order to promptly mobilize the right actions and resources.
- **Develop a regional shared vision.**
- **Link innovation policy to other policy domains.**
- **Create new bodies:** to smooth over the development of innovation systems.
- **Prepare to be part of multilevel governance systems:** make an effort to establish long-term policies and strategies with demonstrable impact as a way to better communicate and interact with other governance levels.
- **Plan the use of EU Structural Funds:** The use of funding from Structural Funds within regional operational programs may be a main tool for these regions to shape and develop their innovation policies and strategies, thus boosting their innovation systems.
- **Adopt a “learning innovation policy” approach:** understanding the relevance and effects of innovation policies are absolutely essential. Regional governments and authorities therefore need to find better ways to produce and use policy-relevant knowledge.
- **Monitor and evaluate your achievements:** Monitoring and evaluation of RIS are necessary to optimize and set priorities for the system.
- **Benchmark:** Benchmarking methods should be applied by regions to learn from other regions and countries experiences (ERIS Working Group Final Report, 2008).
- This theoretical discussion of RIS presents that RISTr is the most common policy tool for the realization of the regional development objectives of regions.

This theoretical discussion of RIS presents that RIStr is the most common policy tool for the realization of the regional development objectives of regions. Last decades, innovation, entrepreneurship, learning and knowledge have appeared as the critical success factors for regional development and regional development policy has started to move towards knowledge and innovation policy. Regional innovation strategies are the most common of these regional development policies and established especially by the European regions under the support of European Union. These strategies aim developing the innovation infrastructure and accordingly regional competitive power of regions. Firms in Less favored regions cannot have the ability to connect with this new knowledge based network economy because of their poorly developed human capital and infrastructure in information and communication Technologies. As a regional policy, regional innovation strategies promotes innovation in less favored regions and make them competetable in the new innovation oriented knowledge economy and accordingly accelerate regional development. Regions' specific social, cultural and economic conditions require the development of differentiated strategies for each region. Poorly developed cooperation and confidence networks and its multi sectoral structure are the important factors determining the content of Mersin Regional Innovation Strategy. Strategy aims to accelerate regional development by increasing the attractiveness of the region for new entrepreneurs and investments and also increasing the regional welfare by enhancing job creation, leadership, networking and cooperation culture.

CHAPTER 4

AN EVALUATION OF INSTITUTIONAL AND SOCIAL IMPACTS OF MERSİN REGIONAL INNOVATION STRATEGY: STAKEHOLDERS' PERSPECTIVES

4.1. Description of the Mersin Region:

This part of the thesis will describe first the city of Mersin in terms of its geographical location and economy, then Mersin Regional Innovation Strategy Project and the current institutional structure of Regional Innovation System in Mersin region.

4.1.1. Location and General Information:

Mersin province is located in southern Turkey, on the Mediterranean coast between Antalya and Adana provinces. It is one of the dynamic cities of Turkey with its active economic life, entrepreneurial capabilities of its local institutions and local administration and collaboration culture of its economic actors.

In addition, due to the economic activity in this part of Turkey generated by the GAP Project, Mersin is a value for Turkey. The city is also the biggest Mediterranean port of Turkey, and now has an oil refinery and a free trade zone. There are a number of factories along the road between Mersin and Adana which manufacture glass, detergents, fertilizers and many more products. With all these economic activities, today a modern city has grown with its university and other major facilities. To sum up, Mersin city is now a rapidly growing city with its modern port, free zone and other major industrial and commercial establishments. It is among the ten largest cities of Turkey in terms of industrial, agricultural and commercial potentials. Mersin's strategic, historical and cultural roles between Europe and Middle East are

the potentials for the further growth of the city. Geographical location, wide hinterland and completed infrastructure of the region are the factors that make it attractive for the investors. On the one hand it has industrial parks, qualified labor and high living standards and, on the other, it features numerous plains, beaches, fertile soil and typical Mediterranean climate preferred not only by local, but also foreign investors (www.ris-mersin.info).

Transportation facilities for the region are very improved. The city has highway connections to all provinces and also is connected to the southern railroad hub. There is not an airport in Mersin but Adana Şakirpaşa Airport, which is 65 kilometers away from Mersin, is used for airway transportation. The province is connected to the railway network in the east over Yenice railway station and reaches Central Anatolia from the north and southeast provinces and Syria and Iraq over Adana from the east (www.ris-mersin.info).

Mersin port is one of the biggest ports in the Mediterranean and passenger and cargo transportation activities are conducted from here to all big ports in the world. There are also private harbors operated by Ataş Petroleum Refinery, Free Trade Zone, Petroleum Corporation and NATO. Passenger and cargo transport is being conducted at Taşucu Port to Turkish Republic of Northern Cyprus. The private harbor operated by SEKA is also used whenever needed.



Figure 5: Location of Mersin Province

Source: www.innovating-regions.org

Another important potential of the region is the availability of two universities and a vocational high school. There is also a technology development zone (TechnoScope) established in 2005 and aims to increase the R&D and innovation activities of the companies in region.

4.1.2. Economy:

Mersin is one of the most developed provinces of Turkey. The major causes of this development are its fertile agricultural land, improved industrial sector, wealth in mineral resources and the existence of the Mersin Port and Mersin Free Zone. The leading sectors of the regional economy are industry, agriculture and commerce. Tourism also plays a significant role in region's economic life. With its 1.23 million (TurkStat 2008 ADNKS) inhabitants Mersin is the tenth largest region in Turkey. The population is quite young. Half of the population is under 25 years of age and %18 of the population is between 15-24 years of age. According to the TURKSTAT 2006 and 2009 statistics, the unemployment rate in TR62 region, which covers Mersin and Adana provinces, is 16.2 percent in 2006 and %22 in 2009 which is the highest rate in Turkey. This period is the first stage of the implementation of Mersin Innovation Strategy and it is seen that there is not any decrease in the unemployment rate of the region.

Mersin port is the major source of economic life of the region. It is the largest port of Turkey. Mersin Free Zone, established in 1986, is located adjacent to the port. The Mersin Free Zone is the first free zone established in Turkey. Free Zone contains warehouses, social services, manufacturing, trade, banking, insurance, packing-repacking, labeling, maintenance, assembly-disassembly, engineering, leasing, renting and exhibition activities. The zone is an attractive center for foreign investors because of being close to the major international markets such as Middle East, North Africa, East and West Europe, Russian Federation and Central Asian Republics. The zone territory is publicly owned and modern infrastructure was put in place by the Government.

Agriculture is the major economic activity in region. More than half of the workforce is employed in agriculture sector. 1.6 million hectares surface area of Mersin region

is constituted by agricultural land. Mersin has an important share in the production of citrus fruits, early fruits and vegetables and table grapes. Last years Agro- food industry is also gaining importance.

The industrial sector accounts for 26.6 percent of the region's gross domestic product. Manufacturing industry in Mersin contributes 3 percent share to Turkey's value added. Main industrial sectors include agro-food, machinery, metallurgy, textiles and glass.

94.5 percent of the enterprises operating in region are small size firms employing less than 10 employees. They generate nearly 39 percent of total employment and only 4.7 percent of value added. With 43,754 enterprises, Mersin ranks eight in the country in 2006 (İnovasyon Forum, Regional Strategy of Mersin 2006-2016-draft 1).

Another important economic sector of the region is tourism sector. Tourism types are rather variable in region. There are potentials for culture and faith tourism, ecological tourism, water sports and rafting, convention tourism, archeological tourism and highlands and plateau tourism.

4.1.2.1. Mersin Industrial Inventory Project as a Background Study for RIS-Mersin:

To be able to determine economic conditions and needs of the region, it will be useful to evaluate the results of an implemented project which is called "Preparation of Industrial Inventory of İçel Province and Determination of the Required Precautions for the Development of Region's Industry". This project was prepared with the partnership of State Statistics Institute and Mersin Chamber of Commerce and Industry in 1997. A comprehensive survey comprising 4065 manufacturing firms operating in Mersin was conducted in the content of this Project. The results of this study were also used as a background data for Mersin Province Development Plan. The outcomes of the survey represented industrial inventory and also economic conditions of region and were evaluated as a background study in the formation of a Regional Innovation Strategy.

In the content of this comprehensive economic research, agriculture, services and industrial sectors were determined as the leading sectors of regional economy. Economic growth rate of the region was started to accelerate with the establishment of the Mersin Harbor in 1961. Accordingly, migration to the region and population increased, industrialization accelerated and service sector also developed. Strategic location, transportation facilities and rich agriculture and commerce sectors were stated as the most important factors in the development of the region. On the other hand, public investments also positively affected the regional economy. However; as a result of its sectoral structure and production culture, the region could not be stated as from one of the industrial districts of Turkey appeared in mid 1990s.

The most important characteristic of Mersin economy was stated as being versatile and this versatility is constituted by agriculture, industry, transport, construction activities and rich commerce culture. The emphasized leading sector is agriculture and related with the modernization and development of this sector there occurred new developments in industrial sector, especially in agro-food industry. Region's strategic location also provided the development of services and transportation sectors. On the other hand, 1997 survey data pointed out that the regional economy did not attempt to shift to value added sectors. In order to provide the sustainability of their production and growth, entrepreneurs adopted the strategy of diversifying their investment areas instead of specialization in their existent production fields. Specialization in a specific leading sector which is a distinctive mark of the new industrial districts was not observed in Mersin.

Tourism sector was also indicated as a potential for regional economy. Region has rich and varied tourism potentials. Creating an attractive image for region was also stressed as a necessity to attract new investments, capital and qualified labor from external world.

Developed regional cooperation and confidence networks and social capital and the existence of qualified labor and innovation promoting institutions and organizations are the requirements of a successful innovation system. This comprehensive study

prepared in the year 1997 is a helpful study suggesting the situation of the region about these requirements of an innovation system.

The answers of the entrepreneurs showed the weaknesses of region in terms of the cooperation networks, culture of collaboration dependent on trust relations and social capital. The reasons of these weaknesses were described as the dominance of family owned enterprises, limited partnership and absence of employing professional managers. Another determinant of the networking facilities of regions is the subcontracting relations among firms. The following table represents the outcomes of the survey conducted in 1997. The data in the Table 6 shows the undeveloped cooperation and collaboration culture of the firms operating in Mersin. This situation showed the thickness of the local production networks and the lack of knowledge and experience transfer among firms.

Table 6: Subcontracting Activities of the Firms Operating in Mersin- 1997

	4065 Firms	number of firms carrying out sub-contracting work	number of firms using subcontractors	number of firms not using subcontractors
SME	Quantity	861	90	2893
1-9 employee	%	22%	2%	% 76
Manufacturing firms	Quantity	57	30	134
+10 employee	%	26%	14%	%60

* Questionnaire results containing the opinions of 3844 SMEs located in Mersin

* Question: Is your firm carrying out subcontracting work?

Is your firm using subcontractors in production?

Source: “1997 Yılı İçel İli Sanayi Envanterinin Çıkarılması ve Sanayinin Gelişmesi İçin Gerekli Tedbirlerin Belirlenmesi Projesi”, Küçük Ölçekli İmalat Sanayi İşyerleri Girişimcilik ve Eğilim ve İmalat Sanayi İşyerleri Anketleri geçici Sonuçları, DİE 1999, Ankara.

In accordance with the survey results, the most important problem of the firms were stated as the lack of openness and limited linkages with the external networks and it was seen that the Mersin economy has a closed structure.

Only 66 of the 4065 firms which were evaluated in the content of the survey said that they export their products (See Table 7). The overall opinion of the enterprises was

the absence of the regional competitive power in international markets. Despite its strategic location, being on the important transportation networks and the presence of the harbor, It was agreed that the firms operating in industrial sector conducting weak linkages both with among themselves and also with external world in terms of following new technologies and sharing knowledge and experiences. It was also obvious that the university industry cooperation in Mersin was in quite low levels.

Table 7: Exportation Facilities of Firms in Mersin-1997

SMEs 1-9n employee				Manufacturing firms +10 employee			
YES		NO		YES		NO	
16	%0.4	3722	%99.6	50	%26	142	%74

* Questionnaire results containing the opinions of 4065 firms located in Mersin

* Question: do you export your products?

Source: "1997 Yılı İçel İli Sanayi Envanterinin Çıkarılması ve Sanayinin Gelişmesi İçin Gerekli Tedbirlerin Belirlenmesi Projesi", Küçük Ölçekli İmalat Sanayi İşyerleri Girişimcilik ve Eğilim ve İmalat Sanayi İşyerleri Anketleri geçici Sonuçları, DİE 1999, Ankara.

The dominance of the national policies, ineffectiveness of the local conditions and lack of the local organizations are also the institutional weaknesses of region appeared as the important outputs of survey. It was also seen that there not exist any local institutional organizations and the regional and sectoral development activities were executed by only the provision of the direct public services. It was seen as a crucial point that the region needs an institutional organization which cooperates with the partnership of public institutions and has an autonomous and entrepreneur close structure. Another output of the survey was that the R&D activities of the firms are in quite low levels and the number of firms which have R&D units is also too low.

Table 8: Existence of the R&D Units in Firms- 1997

221 Firm	YES	NO
Quantity	18	203
%	8.1 %	91.9 %

* Questionnaire results containing the opinions of 221 manufacturing firms located in Mersin

* Question: Is there any Official Unit in your firm Executing regular R&D Activities?

Source: 1997 Yılı İçel İli Sanayi Envanterinin Çıkarılması ve Sanayinin Gelişmesi İçin Gerekli Tedbirlerin Belirlenmesi Projesi, İmalat Sanayi İşyerleri Anketleri geçici Sonuçları, DİE 1999, Ankara.

Agro-food sector was appeared as the primary sector in terms of the number of firms having R&D units. By reason of the survey study conducted in 1997, it came across that there is a need for institutionalization in the subjects of education and training, research and development and also in technology. The insufficiency of the region in terms of the innovation promoting institutions was introduced and the formation of a new organizational body by taking the advantage of the existing regional leaders was also one of the important points emphasized in this study.

Most of the firms in the content of the survey indicated that the labor market conditions are too undeveloped in the region. Huge number of unskilled unemployed people also introduced as one of the most important treats of Mersin economy. Removing the institutional deficiencies, adding new local training institutions to the vocational education system, arranging organized training programs were the determined necessities appeared as a consequence of the survey. Increasing the image of the region was also considered necessary to be able to attract the qualified labor from external world.

It was identified that %53.6 of the firms are producing standard products while the others are producing demand oriented products. It was also stated that these demand oriented products are not innovative products that have competitive advantage. It was seen that the firms executes their innovative activities only in the form of product improvement, product diversification or imitation of the new products from abroad, and accordingly the efforts of producing new products and designing new products is in too limited levels. Survey results also presented that the firms can compete only

in national markets and through the factor of product quality. One of the most important results of the survey was that the firms consider themselves insufficient in terms of the activities of marketing, product variety and qualified labor.

Table 9: Firms' Competitive Capabilities in National and International Markets

	marketing strategy	Product variety	product price	product quality	after sales service	Organizational structure	Labor Cost	Qualified Labor
National	42.9%	* 58.1%	* 63.9%	* 84.3%	46.1%	37.7%	39.3%	37.7%
International	14.1%	22%	27.7%	35.6%	12.6%	10.5%	15.7%	13.1%
competitive								

* Questionnaire results containing the opinions of 191 manufacturing firms located in Mersin

* Question: in which dimensions is your enterprise competitive in national and international markets?

Source: 1997 Yılı İçel İli Sanayi Envanterinin Çıkarılması ve Sanayinin Gelişmesi İçin Gerekli Tedbirlerin Belirlenmesi Projesi, İmalat Sanayi İşyerleri Anketleri geçici Sonuçları, DİE 1999, Ankara.

It was also determined that only %10 of the manufacturing firms participated to the survey had patents of production and %2.7 had patents of production process. Limited number of patents and being diffused instead of major in one specific sector are the determinants of weak collaboration networks and absence of sectoral specialization.

Table 10: Innovativeness of the Firms in Mersin- 1997

	Number of firms								
221 Firms	Following the innovations and developments related with production	Not executed activities for innovativeness	Developing existent products and increasing the product Quality	Working on product diversification	Imitation of the existing products	Working on the adaptation of the foreign products to local demand	designing new product	adapting to the new production techniques of the local and foreign firms	developing new original production techniques
number of firms	197	51	123	84	6	20	39	33	14
%	89.1 %	25.9 %	62.4 %	42.6 %	3.0 %	10.2 %	19.8 %	16.8 %	7.1 %

* Questionnaire results containing the opinions of 221 manufacturing firms located in Mersin

* Question: which kind of innovative activities did you execute during the period 1990-1997?

Source: 1997 Yılı İçel İli Sanayi Envanterinin Çıkarılması ve Sanayinin Gelişmesi İçin Gerekli Tedbirlerin Belirlenmesi Projesi, İmalat Sanayi İşyerleri Anketleri geçici Sonuçları, DİE 1999, Ankara.

This survey introduced the industrial and economic base of the region and the precautions and suggestions were stated expressly for the future development of regional industry and accordingly regional economy. The attempts and organized efforts of the regional leaders who have the ability to mobilize regional capabilities have a significant role in attracting more investments, capital and wealth. Development of a **social interaction atmosphere** under the **leadership** of entrepreneurs and regional institutions and establishing a regional organization using the power of existent regional leaders appeared as the most important emphasis. It was agreed that the regional development should be executed by developing a **regional vision and strategy** without profoundly depending on the central government. These outputs of the survey and the impacts of knowledge economy indicated the need for a competition and innovation strategy prepared and implemented in regional level. RIS-Mersin Project was prepared as a result of these requirements and weaknesses of the region and the RIStr has formulated considering the suggestions indicated in this comprehensive background study and the requirements of knowledge economy.

In the content of **RIS-Mersin Project**, demand side issues from regional innovation perspective identified through surveys directed to 649 enterprises and potential entrepreneurs. Demand survey conducted under RIS-Mersin Project showed that %17 of companies carry out R&D activities and the share of firms innovating in the region is % 29. Nonetheless, survey conducted in 1997 was showed that the rate of firms having R&D units was % 8. Majority of the firms expressed that their human resources are the key element for their success and training opportunities to be provided to them are of great importance. They also indicated that there is not sufficient supply of qualified human resources in the region. The demand survey of RIS-Mersin introduced that inter-firm cooperation as well as cooperation between firms and university is low and needs new mechanisms and measures to be strengthened (Mersin İnovasyon Stratejisi 2006-2016, January 2008).

Investments in the intersection points of the regional leading sectors stated as an important policy for the future development of Mersin and this suggestion has been taken into consideration and three sectors were chosen as the leading sectors having innovation potential and competitive advantage. These sectors are **Agro-food sector** which is the interface of the agriculture and industrial sectors, **logistic sector** which is the interface of the transport and commerce sectors and **tourism sector** as a traditional service sector.

Rising trends of the new knowledge economy are described as globalisation, product and service diversification, more technologic production processes and knowledge society and these factors causes the diffusion of e-commerce and enlargement of the market area. All these developments force the firms to establish interactive logistic networks in order not to fail in competition. **Logistic sector** is one of the fastest growing sectors with % 7-9 growth rate in Europe, %25 Growth rate in North America and % 20 growth rates in Asia (www.ris-mersin.org, Mersin İli Lojistik Durumu Raporu, 2007). Thus, sector was chosen as a leading sector having innovation and competition potential.

Agriculture is the major economic activity in region and agriculture beverage exports of Mersin account for %11 of those of Turkey. The region ranks 4th in

Turkey in terms of agricultural production amount and the 2nd in terms of agricultural production value, depending on this it is a sector of strategic significance for the region and also for the country (Mersin İnovasyon Stratejisi 2006-2016, January 2008). Rapidly changing technologies, market conditions and customer demand and also the effects of global competition require the provision of new strategies to make the agro-food sector more innovative. Under these new economic conditions, cost reduction can only generate a temporary competitive advantage. To remain competitiveness in the long-run, it is essential to create a more sustainable agro-food sector by creating new products, services, marketing methods and production processes.

Tourism sector is of particular importance to Mersin; however, potential of the region has not been well exploited so far. Tourism is also one of the fastest growing economic sectors in the world. World tourism arrivals have grown and international tourism receipts have increased considerably during the last years. Thus, tourism makes an important and increasing contribution to economic growth of regions. New destinations are appearing from different parts of the world and achieving winning positions over old destinations and this situation causes the increasing competition between regions in order not to lose market share. The tourism industry is often said to be less innovative than other industries. Innovation in product, service development, marketing strategies and in business processes is determined as key to the future competitiveness of region's tourism sector.

4.1.3. Regional Development Efforts of the Region up to RIS:

Mersin region has been developing policies towards the purpose of regional development since 1998 following the implementation of "Preparation of the Industrial Inventory of İçel Province and Determination of the Required Precautions for the Development of Regional Industry" project. In 1998, activities focused on establishing Mersin Development Agency; and in the year 2000 a Project Coordination Office established at Mersin Chamber of Commerce & Industry to execute studies aiming regional development. Following this important attempt, Mersin Development Agency has gone into operation in 2002. Mersin Chamber of Commerce and Industry represents the Mersin Development Agency. The Agency

has been in operation since 2002 and at that time there was not a legal arrangement for the foundation of regional development agencies. This attempt of Mersin establishing a regional development agency is the first experience in Turkey. The aim of the agency was to achieve regional sustainable growth by improving the competitiveness position of the region in both EU and in international arena. For this purpose, EU Information Office was came on the scene in 2003 and operates to introduce the EU funds and EU standards in the region. In 2004 Mersin Council of Development and Cooperation was established and the aim of this council was the development of Mersin region in terms of economic, social and cultural aspects and improvement of the living standards in region.

Mersin RIStr followed these actions and in 2005 RIS-Mersin Project (the first and only regional innovation strategy in Turkey) started to be prepared. Aim of the strategy is to improve the innovation capacity of Mersin and make it more competitive in the global market. In 2006, following the beginning of Regional Innovation Strategy Project, the law of regional development agencies was introduced by the government. Following the first attempt of establishing a regional development agency in Mersin, new regional development agencies established following the introducing of the law. One of them is the Çukurova RDA. Mersin is also in the action area of Çukurova RDA.

4.2. Mersin Regional Innovation Strategy Project:

In global economic system, the competition doesn't occur only between firms but also between regions and nations to be able to attract labor and capital from other regions and countries. It has been crucial for regions to establish new strategies that are focused on improvement of regional competitiveness, standards of living and expansion of the labor market and business sector in the region. Innovation has been the key driver of this global economic competitiveness and RIS approach has been used as a new tool to boost competitiveness of regions.

Regional Innovation Strategies, which firstly established in 1990s, aim to create Regional Innovation Systems in order to strength regional innovation potential and competitiveness of the regions. Accordingly, RIS-Mersin Project has been introduced

as a new development strategy for Mersin region. RIS-Mersin project is the first RISTr in Turkey and financed by European Commission under the Sixth Framework Program. The fundamental goal of the strategy is to develop innovation capabilities of enterprises in Mersin and it is expected that the quality of life will increase, new jobs will be generated and a sustainable regional economy will be introduced in Mersin region by the achievement of this goal of the project. Logistic, agriculture and tourism, which are the most important sectors stimulating economic development in Mersin, have been the leading sectors of this project and strategy.

RIS-Mersin project started in June 2005. The project was prepared under the leadership of a partnership among Mersin Governorship, Mersin Chamber of Commerce and Industry, Mersin-Tarsus Organized Industrial Zone and METU Technopark in coordination with Epirus (Greece) Business and Innovation Center. In the context of this project, Mersin put innovation at the heart of her economic development strategy. The RISTr is composed of three stages. First stage is the preparation stage, which was planned to be completed in 12 months and this stage contains the activities of introducing innovation concept along with and increasing the awareness of region's actors on innovation. Second stage is the implementation part and this stage was planned to be completed in 12 months. This stage of the strategy project includes the meetings, visits and surveys for the preparation of SWOT analysis and action plans determining the current situation and future needs of the region to become more innovative by improving the innovation capabilities. The last stage was the evaluation stage and completed in 8 months. Pilot projects and testing the strategy are the activities of this stage. RIS Mersin project was completed in 32 months and finished in January 2008.

The innovation promotion activities were carried out in the first year of the Project and in the second year the current situation of the region was analyzed with the SWOT meetings and survey studies and leading sectors which have innovation potential and the needs are defined. However, the preparation stage exceeded the prescribed time period because of the region's inadequate information about the innovation concept. At the end of all these studies, in order to achieve the vision of Mersin which was defined as "becoming a region with high life quality

and knowledge and innovation based sustainable economy”, the first draft of Mersin RIStr is completed in December 2006 and the strategy will be concluded in the year 2016 (www.ris-mersin.info). The two year action plan of the project contains the period of 2008-2009 and covers the activities and studies for the realization of the strategy. Some pilot projects were also envisaged with the aim of gaining experience and testing the strategy.

4.2.1. Main Elements of the Strategy Project:

The fundamental goal of the strategy is to develop innovation capabilities of enterprises in Mersin. To achieve this goal; vision and objectives of the strategy was determined, potentials of the region were analyzed, strategic goals and objectives and future perspectives were also introduced in the context of the project.

The **vision** of Mersin is to become a region with a high quality of life and sustainable economy based on knowledge and innovation. To achieve this vision, there are four **main strategic goals** of the strategy and these are:

1. Improving the innovation system and culture in Mersin,
2. Stimulating investment in innovation,
3. Exploiting regional potentials in key actors,
4. Developing knowledge producers (www.ris-mersin.info).

Promoting a well functioning RIS including all strategic actors in the region is an essential objective of the RIStr and is important to achieve the first strategic goal mentioned above. Increasing the number of patent applications, including also international patent applications, year by year and boosting the creation of fast growing innovative companies and university spin-offs will realize the second strategic goal of the project. Increasing the number of new researchers and R&D activities is another main objective of the project and related with the strategic goal of developing knowledge producers. It is assumed that the unemployment rate will decrease and the GNP (Gross National Product) per capita will increase in the region by the achievement of these goals of the strategy project.

The cooperation culture of region should be strengthened in order to achieve the main objective of the project (to develop innovation capabilities of enterprises in Mersin). These main four strategic goals contain the following **detailed objectives**:

1. To provide a common platform for cooperation among public and private sector, research organizations and universities, and financial institutions in the region through the elaboration of a Regional Innovation Strategy,
2. To promote the establishment and further development of regional innovation infrastructures and to integrate them into the main streams of European research,
3. To create connection between the research centers and the companies, help to transform the established and available knowledge at enterprises and higher education research institutes into innovations, encourage stronger links in the region, country, and the European Research Area,
4. To promote a culture open to innovation and creativity by assessing needs in the enterprise sector in terms of innovation, by using public awareness raising techniques, by educating the players (Businesses, researchers, entrepreneurs),
5. To strengthen diffusion of knowledge and technology in the economy to achieve better economic development performance,
6. To promote collective actions, to establish local interactions envisioning strategic alignments,
7. To encourage collaborative activity between businesses. Whilst the focus of support may be on SMEs, larger businesses will be also included,
8. To increase the number of smaller innovative enterprises by creating or supporting seed and venture capital funds, technology parks and incubators,
9. Human development, determining the directions of human resource development (www.metutech.metu.edu.tr).

Table 11: Main Elements of the Mersin Regional Innovation Strategy Project

MAIN ELEMENTS OF THE MERSİN INNOVATION STRATEGY				
Strategic Vision	The vision Mersin is to Become a region with a high quality of life and sustainable economy based on knowledge and innovation			
Strategic goals	Improving the innovation system and culture in Mersin	Stimulating investment in innovation	Exploiting regional potential in key actors	Developing knowledge producers
Strategic objectives	To strengthen linkages and ensure coordination in favor of innovation	To increase the number of innovative companies with high potential to grow and to generate jobs	To increase innovation activities in the sectors which are vital for the economy of Mersin	To strengthen the knowledge base of the region for increasing innovation performance of companies
Operational objectives	Stimulating the creation of new actors which are important for the system	Developing skills and competences of human resources in companies	Developing long term innovation strategies for tourism, agro-food and logistics	Developing high quality researchers and attracting qualified researchers
	Upgrading the capabilities and capacities of intermediaries	Creating financing mechanisms to support innovation & starting up of innovative firms	Establishing regional, national and global networks, synergies and partnerships	Creating R&D centers in the areas strategic to Mersin
	Establishing a regional governance system	Increasing cooperation within firms and between firms and knowledge producers	Mobilizing financial resources for innovation activities of companies	Improving the existing R&D centers
				Developing mechanisms for transfer of technology and research results to economy
Horizontal Goals	Improving administrative and legal environment and removing the barriers caused by infrastructure.			
	Creating a culture of innovation and building consensus and confidence among the actors of innovation system			
	Building an attractive image for the region.			
	Investment in the development of human capital.			

Source: Mersin İnovasyon Stratejisi 2006-2016, January 2008.

The project implementation will be action oriented and will end up with the development of a RIStr with a concrete action plan for the Mersin region agreed among all major regional actors (www.metutech.metu.edu.tr).

Project success will be measured with the economic growth, results of the researches, ability of technological competitiveness and rate of regional employment after the completion of the RIStr. It is expected that the activities realized in the scope of the RIS-Mersin project will be a case study for the other regional development projects.

4.2.2. SWOT Analysis:

SWOT analysis is an important part of the project in order to be able to determine the potentials and needs of the region from the innovation point of view. Strengths, weaknesses, opportunities and threats of the region are presented in this analysis. With the help of this study; project team analyzed regional situation and technological trends, regional demand (needs of enterprises) and regional supply (the innovation infrastructure). This SWOT analysis was prepared with the participation of 126 of the stakeholders of the project, such as: decision makers including the governor, mayors, and high level representatives from public organizations, chambers and other non-governmental organizations, SMEs, large companies, universities, intermediaries and financial organizations. The outcome of the study is shown in the following Table:

Table 12: SWOT Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Strategic location as a gateway to the Middle East and Mediterranean sea • Renewable energy resources (sun, water, wind) • Natural and historical heritage • Fairly developed infrastructure (harbor, roads, railways, airways, broadband ICT network, industrial free zone, organized industrial zone, technopark, incubators, etc.) • Highly productive soil and the favorable climate for agriculture throughout the year • Young and entrepreneurial human resources • Existence of universities and other reputable education institutes • Existence of life-long learning facilities, and branches of public organizations (like KOSGEB) which deliver company-level training • Existence of a multicultural environment • Diverse and dynamic economic activities caused by simultaneous growth of agriculture services and industry sectors • Existence of an accumulated financial capital in the region • Existence of foreign direct investments and investments from other regions in the country 	<ul style="list-style-type: none"> • Lack of strategies for the renewable energy resources and existing energy problems • Environmental problems and pollution caused by rapid immigration and unplanned urbanization • Need for creating an innovative tourism sector due to high level of competition from neighborhood regions • Need for further improvement of physical infrastructure • Emigration of qualified human resources and immigration of unqualified people • Low levels of demand for lifelong learning • Need for balancing supply and demand for human resources across the sectors • Need to improve the investment climate and attract quality foreign direct investment • Low levels of awareness on innovation among the stakeholders • Need to improve the cooperation and communication between the stakeholders of the Regional Innovation System • Need to improve the regulation and the infrastructure for increasing the research and technology transfer activities • Need to increase the diversity of innovation intermediaries • Low levels of incentives and finance for innovation (e.g. regional funds, venture capital and business angels investments) • Low level of investment in R&D and innovation

Table 12 (continued)

OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Development and successful implementation of the regional innovation strategy • Successful implementation of Mersin’s transportation plan • Active participation in the EU and national programs on research and innovation • Increasing the cooperation with neighborhood regions and countries on innovation • Increased commitment of the government in regionalization and establishment of a regional development agency • Increased commitment of the government in R&D and innovation • Activities to promote the image of Mersin nationally and internationally and developing Mersin brand • Turkey’s integration with the EU 	<ul style="list-style-type: none"> • Lack of regional commitment in implementation of strategies • Macroeconomic and political instabilities • Continued immigration growth • Continued problems caused by unregistered economy • Unsuccessful implementation of national regionalization plans • Tensions and instabilities in the Middle East

Source: www.ris-mersin.info, Regional Strategy of Mersin Draft-1

Region’s strategic location, fairly developed infrastructure, young and entrepreneurial human resources, cooperative-associative culture and open society to learning disposition and change are important potentials for the formation of a strong RIS. Mersin Regional Development Agency is also the most important factor which strengthens the formation and operation of the RIS in region. Existence of the university, research centers and other learning facilities make it easy to formulate an innovating environment in region. Organizational deficiencies in terms of firm and policy level weaken the operation of RIS. Lack of workplace cooperation, migration of skilled labor and increasing the rate of unskilled labor are negative factors that cause the lack of workplace cooperation, accordingly antagonistic labor relations and adaptation instead of innovation. SWOT analysis introduced the weaknesses as needs of the region. Some conditions, such as regional administration decreasing centrality

and regional programs for science and technology, should be provided in order to make the region more favorable to establish a RIS.

4.2.3. Action Plan:

The action plan of RIS-Mersin Project covers the years 2008 and 2009 and includes the activities and project proposals which are required for the implementation of the strategy and achievement of the strategic goals. Each activity in this plan has introduced with a leader institution and a time interval. Mersin Innovation Steering Committee is responsible for the implementation and coordination of the plan and authorized to modify or add new activities to the plan.

Various activities are introduced for the achievement of the main four strategic objectives of the RIS-Mersin project in the context of the action plan (See Appendix B). There are also horizontal objectives and accordingly the action plan contains also the related activities for the realization of these objectives.

First strategic objective of the RIS-Mersin project is the improvement of the innovation system and innovation culture in Mersin. Main activities proposed for the achievement of this strategic objective of the project are the establishment of a regional governance system, stimulation of the creation of new actors which are important for the system and upgrading the capabilities and capacities of intermediaries. Establishment of Mersin Innovation Steering Committee is the primary and most important activity in order to be able to formulate a regional governance system. Establishment of Mersin Innovation Center, which is planned to be a central actor of the innovation system, can be described as the other prior activity introduced under the first strategic objective. Mersin Innovation Network and Mersin Investment Support Office are the other institutional actors which are planned to be established for a well operating RIS. Proposed activities to upgrade the capabilities of the intermediaries are the organization of meetings both in national and international level.

Second strategic objective of RIS-Mersin is the increment of innovation activities of companies and stimulation of investment in innovation. This strategic objective of

the project contains the main activities of improving innovation capabilities of companies, supporting innovation activities in companies and creating financing mechanisms to support innovation & starting up of innovative firms and Increasing cooperation within firms and between firms and knowledge producers. To be able to improve the innovation capabilities of companies, proposed activities are supporting programs, meetings, visits and publications about innovation, finance and project management. One of the four pilot projects of the strategy, that is Expo-33, is also included in this part of the action plan. The proposed activities to support innovation activities and create finance mechanism are the establishment of Regional Business Angel Network and Venture Capital Found and also designing innovation support programs in cooperation with Çukurova RDA. The improvement of the networks of cooperation within firms and between firms and knowledge producers will be achieved by preparing intermediary organizations and data bases. Establishment of a Technology Transfer Office is also an important activity presented in the action plan. This office will be a useful institution to diffuse the knowledge via this institution to all firms and institutions in the region.

Exploitation of regional potential in key sectors is the third strategic objective of the RIS-Mesin Project. Development of long term innovation strategies for each sector, establishment of regional, national and global networks, synergies and partnerships and mobilization of financial resources for innovation activities of companies are the main activities of this objective. The prior activity under these main three activities is the preparation and implementation of sectoral innovation strategies for the three main sectors: logistic, agro-food and tourism. To institutionalize the sectoral platforms in order to make them work as innovation networks, to establish logistic, tourism and agro-food clusters and to link the platforms to the external networks are the activities to satisfy the formation of regional, national and global networks. Preparation of project proposals is another intermediary activity of the action plan in order to find finance for innovation projects of logistic, agro-food and tourism sectors.

The Fourth strategic objective is the development of knowledge producers and covers the main activities of developing high quality researchers and attracting

qualified researchers from other regions and countries, creating R&D centers in the areas strategic to Mersin, improving the existing R&D centers and developing mechanisms for transfer of technology and research results to economy. Organization of academic and international programs and creation of research in Mersin website are the activities to support the development of high quality researchers. Creation of Tourism and Logistic Research Centers, determination of the needs of existing R&D centers in the region and identify financial resources to fulfill these needs are the following activities stated within this strategic objective. The proposed activities for the transformation of the technology and research results are the establishment of the Technology Transfer Office within the Mersin University, supporting patent applications, organizing innovation entrepreneurship courses and developing programs for the exchange of personals between the University and firms.

Besides these four strategic objectives, RIS-Mersin action plan includes the activities for the achievement of 4 horizontal objectives which are supporter objectives. First one is the Creation of a culture of innovation and building consensus and confidence about innovation oriented development among the actors of RIS and covers the activities of organization of annual innovation forums, innovation competition and advertising activities to improve the innovation culture.

Second horizontal objective is the improvement of administrative and legal environment and the action plan contains the activities of removing the barriers caused by infrastructure and organization of lobby activities to overcome those identified disadvantages and improving the innovation infrastructure.

Building an attractive image for the region is the other horizontal objective of the strategy project and preparation of website and catalogs for the presentation of Mersin, development of advertisement and communication strategies are the proposed activities of this objective.

The last horizontal objective is the Investment in the development of human capital. Establishment of an Innovation and Entrepreneurship Certificate Program within the Mersin University, enhancing collaborations between regional and national education

institutions in order to prepare innovation training courses for enterprises are the activities defined in the action plan.

4.2.4. Pilot Projects:

Four pilot projects were developed within the context of RIS-Mersin Project. These are: Entrepreneur-33, Research 33, Export-33 and Invest-33 Projects. Innovation Competition is also a pilot action actualized in the content of the RIS-Mersin Project. These pilot projects have been developed through the first draft of Mersin RISTr. During the implementation of pilot projects some deficiencies were realized and accordingly this first draft of the strategy has been revised.

Entrepreneur-33 Project, which is the first pilot project of RIS-Mersin, aims training of young innovative entrepreneurs in Mersin Province, providing dissemination of innovation culture and innovation based development, formation of a finance mechanism for encouraging innovation in firms, encouraging entrepreneurs for innovative entrepreneurship.

The project name “Entrepreneur-33” means establishment of 33 new firms in region. This project is being coordinated by MCCI and with MEGİAD partnership (www.ris-mersin.info). Current outputs of the project are:

- Provision of entrepreneurship training program for 24 university students. The training program constitutes the subjects of entrepreneurship and innovation, development of a strategy in sustainable development, introduction to law, introduction to accounting, introduction to ICT, project writing techniques, business plan, feasibility Studies, presentation techniques,
- 1500 entrepreneurship handbook was printed and distributed,
- These trained entrepreneurs started to establish their own firms in Mersin Business Development Center,
- Mersin University decided to set up a certificate program of entrepreneurship and innovation and Mersin Technopark (Technoscope) supported this action (www.ris-mersin.info).

Second project is the **Research (R&D)-33** Project. This project aims to develop industry-university cooperation and to provide SMEs to develop their R&D and technology culture. The project name “Research-33” refers 33 new projects benefit from national and international R&D funds in Mersin. The current outputs of this project:

- Firms started to cooperate with University and research centers,
- Mersin University decided to establish a technology and innovation transfer office.

The other pilot project is **Export 333**. The project was started with the cooperation of Mediterranean Exporters Union General Secretariat, Mersin Chamber of Commerce and Industry and Mersin Tarsus Industrial Zone. The aim of the project is to encourage firms for exportation and to increase the number of foreign trade specialists working in the region.

Project label Expo-333 means 3 firms, 3 products, 3 countries. The current outputs of this third project are:

- Given training about foreign trade related issues to selected participants, and chosen ones employed in selected firms’ foreign trade departments,
- Selected firms started to export,
- 2. EXPO-333 project started.

The fourth pilot project is **Invest-33** project. The aim of Invest-33 pilot project is to attract more foreign direct investment into Mersin region. Mersin Tarsus Organized Industrial Zone together with METUTECH is the leading partner for the project. The Project name “Invest-33” refers attracting 33 new and innovative investments to the region. The objectives of the project are defined as follows:

- Increase level of direct (both out of country and out of region) investment especially in priority sectors,
- Open a joint office which is in charge of attracting and assisting investors,
- Define priorities in direct investments (markets, technologies, location, etc) with the involvement of key actors,
- Initiate proper training programs in order to fulfill the human resources requirements,

- Evaluate incentives for the investors,
- Benchmark successful application in EU (www.ris-mersin.info).

The last pilot action of the strategy is **Mersin Innovation Competition**. The aim of this pilot action is to improve the innovation potential of firms and to foster them being innovative. The project prepared and implemented with the partnership of Mersin Chamber of Commerce and Industry and METU Technopark. The objectives of the project are improving the innovation capacity of firms in Mersin, diffusion of innovation concept and improvement of the innovation culture in Mersin.

Firms apply the competition with their products or services, production processes, marketing techniques and organizational and social innovation efforts. The current outputs of this project determined as the success of drawing attention of all firms in the region and the attempt of the Mersin Chamber of Commerce and Industry to make this competition a traditional activity in Mersin.

4.2.5. Current Structure of Mersin Regional Innovation System:

In the preparation stage of the RIS-Mersin project, the project team conducted surveys to regional actors in order to determine their existing innovation capacities and demands. According to the demand survey, only 17 percent of the companies in the region carry out R&D activities and only 29 percent of the firms are innovating firms. RIS-Mersin project has introduced the major players of the Mersin innovation System. These major components of the system are: government bodies, private sector companies, universities and research centers, associations, unions and other non-governmental organizations as intermediaries, innovation infrastructure such as the technology parks and business incubators, and banks as finance providers.

The density and quality of infrastructures for innovation in the region are also extremely important since systemic relations need dense agglomerations where state of the art communication and telecommunication technologies are used. Table 3 shows two types of regions with totally different scopes of jurisdiction and autonomy (Cooke and et al., 1997). According to these two regional profiles presented in Table 3, actors lacking in the current innovation system of Mersin region are institutional

business networks, in other words clusters, technology transfer and mediating structures, innovation financing mechanisms and advanced consultancy services. RIS-Mersin Project will be successful if it can stimulate the region to establish these kinds of institutions which strengthen the innovation capacity.

In the Table 13, it is obvious that there is not a regional innovation finance mechanism and there is only a small number of knowledge producing organizations in the existent innovation system of Mersin. The table summarizes the important components of the RIS of Mersin region before the implementation of RISTR. First part of the table, that includes the Governmental Organizations, is the most extensive part of the system. The system is too weak in terms of institutions operating in regional level. Knowledge institutes and innovation intermediaries are the most important part of RIS. In Mersin these kinds of institutional structures are too weak in order to make the region more innovative and accordingly more competitive.

Table 13: Current Regional Innovation System in Mersin:

Government bodies for strategy formulation and Implementation	Mersin Governorship		The metropolitan municipality and central and district municipalities						
	District administrations		Çukurova Regional Development Agency						
	Provincial Directorate of Ministries								
	Agriculture & Trade	Industry and Forest	Environment and Forest	National Education	Youth & sports	Culture & Tourism	Public Works & Settlement	Customs & Transport.	
	Regional Directorate Of telecommunication		Directorate of Port Operation		Regional Direc. of Maritime		Directorate of Mersin FZ		Regional Direc. of TSE
Financial System	Regional Branches of Local and Regional Banks (Ziraat Bank, Türkiye İş Bank, Yapı Kredi Bank, Akbank, Türkiye Halk Bank, Türkiye Vakıflar bank, Türkiye Garanti Bank, Şekerbank, Oyakbank, Fortis, Turkish Bank, HSBC, Turk Economy Bank, Finansbank, Denizbank, Tekfenbank, Anadolubank, Kuveyt Turk)								
	Mersin University and Research Center		Çağ University		Lifelong Learning center		Silifke Taşucu Vocational High School of Selçuk University		
Knowledge Institutes	Institute of Marine Sciences of METU				Alata Horticultural Research Institute				
	Mersin Chamber of Commerce and Industry		District Chambers of Commerce and Industry		Mersin Chamber of Shipping				
Innovation Intermediaries	Mersin and Tarsus Commodities of Exchange		Mersin Chamber of Agriculture and District Chamber of Agriculture		Mediterranean Exporters Union of the Under-secretariat of Foreign Trade				
	Industrialists and Businessmen Associations		Entrepreneurial Businesswomen Associations		Other Associations and NGOs				
	Provincial Directorate of KOSGEB		Mersin Business Incubation Centre		Tarsus Business Incubation Centre				
Entrepreneurship Promotion and Other Infrastructures for Innovation	Mersin Technology Development zone (Technoscope)		Mersin Tarsus Organized Industrial Zone		Mersin Free Trade Zone (MESBAS)				
	Business Enterprises in Mersin				Mersin Community				

Source: Regional Innovation Strategy of Mersin, www.ris-mersin.info

RIStr Project aims to establish new cooperative platforms putting together all related actors in the region and operate as a leader for innovation and project preparation. Innovation strategy should strengthen the knowledge generation and diffusion subsystem of the Mersin Innovation System by creating institutional structures, such as technology mediating organizations and incubators. Clusters are also the necessary structures for the achievement of an effective innovation system. Çukurova Development Agency constitutes the regional policy subsystem of Mersin innovation system and the role of the agency should be heightened. Existence of the qualified labor and researchers is important for the knowledge generation and converting the existing knowledge to innovation.

This structure of the Mersin innovation system before the RIS-Mersin Project was similar to a “Territorially Embedded RIS” that is defined by Asheim and Gertler (2005). The system was regionally embedded, based on localized learning processes and geographical, social and cultural proximity and was not have direct links with knowledge organizations. Determinant of the interaction in this type of innovation system is internal networking and networks external to the region are not important.

4.3. Evaluation of the Impacts of Mersin Regional Innovation Strategy:

Before looking at the outcomes of the Mersin Regional Innovation Strategy Project (RIS-Mersin), it will be helpful to overlook the recent innovation picture of Turkey in general. RIS-Mersin project is the first Regional Innovation Strategy implementing in Turkey. The project contains the period June 2005- January 2008 and the strategy will be completed in the year 2016. In the last two years, the outcomes of the project started to appear. The study of European Innovation Scoreboard is a helpful source to see the innovation mark of Turkey for the year 2008. This scoreboard provides a comparative assessment of the innovation performance of EU Member States, under the EU Lisbon Strategy.

The scoreboard includes innovation indicators and trend analysis for the EU-27 Member States and also Croatia, Turkey, Iceland, Norway and Switzerland. 29 indicators were used for the European Innovation Scoreboard 2008 and a classification was made between countries according to their innovation

performances; that is innovation leaders, innovation followers, moderate innovators and catching-up countries. Turkey was placed in the fourth group; that is catching-up countries. Turkey's innovation performance is below the EU average but this performance rate is increasing over the EU average increment rate overtime. Thus, an improvement is seen for Turkey case from 2007 to 2008. Although Turkey's average annual growth in innovation performance is in good levels, total innovation performance is still in low levels. In other words, innovation performance is well below the EU-27 average but the rate of improvement is above that of the EU-27 average (European Innovation Scoreboard 2008). As a result, Turkey is a catching-up country in terms of total innovation performance and a moderate grower in terms of annual innovation growth rate (growth leaders, **moderate growers**, slow growers).

Innovation scoreboard 2008 summarizes the improvements in innovation activities of Turkey in the last five year. According to this study, finance and support, firm investments, throughputs and economic effects have been the main drivers of the improvement in innovation performance over the last five years in Turkey. This growth is the consequence of strong growth in private credit (18.9 %), business R&D expenditures (17.5 %), technology balance of payments flows (19.8 %) and knowledge intensive services exports (31.9 %). Performance in other dimensions, such as human resources, has increased at a slower rate (European Innovation Scoreboard 2008). As a consequence of this scoreboard, Turkey is appeared as one of the fastest growing countries.

RIS-Mersin project started in 2005 and last in 2008. The project, being the first effort to establish a RIStr which covers the period of 2006-2016, has an evident role in the success of Turkey as emphasized in the European Innovation Scoreboard 2008. It has been a good experience and a model for the other regions in Turkey.

First outcome of the project is the accomplishment and enforcement of the "Mersin Regional Innovation Strategy" and improvement of the innovation culture. Mersin region has achieved a strategy to improve its innovation capacity and accordingly its competitive power.

Mersin is the first region practicing a RIStr in Turkey and this strategy increases the image of the city. Project determined the vision and the future development concept of the city.

The two year action plan of the RIS-Mersin Project which covers the years 2008-2009 is now in its terminal stage and the outcomes of the project started to appear. To evaluate the effectiveness of the project, it will be helpful to examine the realization of the strategic objectives of the RIStr covers the establishment of the key actors of the RIS, engagement of the new researchers in the R&D activities and attracting the new researchers and qualified labor from other regions and countries, establishing regional, national and global networks and synergies and partnerships and lastly increment in the number of the patent applications, innovative companies and university spin offs. To sum up; the thesis will attempt to represent the developments in the sub-systems of the regional innovation strategy, that is innovation promoting institutions, qualified labor, cooperation networks and also the products of the RIStr. In this part of the thesis, the social and institutional gains of the Mersin RIS following the implementation of RIS-Mersin project has been evaluated with the aim of searching for the answers of the research questions through three leading sectors and from the stakeholders' point of views.

4.3.1. Methodology:

The thesis will attempt to evaluate the social and institutional gains of Mersin Regional Innovation System following the implementation of Regional Innovation Strategy Project. Since the innovation system is a social system, and the innovation is the result of social interactions between economic actors, in-depth interviews were conducted with the main stakeholders of the project in order to be able to evaluate the outcomes and accordingly effects of the RIS-Mersin Project.

Face-to-face interviews were conducted with thirteen institutional bodies. Public institutions which have an active part in the preparation, implementation and monitoring stages of the project, Sectoral Platforms which are the most important institutional structures established during the project, private sector companies which participates the activities of the project, METU Technopark and Mersin University

were chosen for the interviews. For this study two visits were made to the region. First visit was a pilot study to recognize the region, actors of the RIS and the RIS-Mersin Project. Second visit were made to complete the in-depth interviews which will give the outcomes and achievements of the project from the perspectives of the main stakeholders. Representatives from Mersin Chamber of Commerce and Industry (MCCI), Mersin-Tarsus Organized Industrial Zone (MTOIZ), Mersin University, Mersin Special Provincial Administration, Mersin Chamber of Sea Trade, RIS Mersin Tourism-Logistic-Agro-Food Platforms, METU Technopark and private sector companies answered the questions which are prepared under the four main headings, that are new institutional settings, employment, collaborations and products (projects, products and services, skills). This case study based on interviews with key firms and institutions attempts to assess the achievements of the fundamental components of the RIS and effectiveness of the RISTR.

Table 14: Institutions Chosen for the Interviews:

Institution Person concerned	MCCI Özlem Homurlu- monitoring of the project
Institution Person concerned	MCCI Vuslat Arslan- secretariat of Tourism Platform
Institution Person concerned	MCCI Fevzi Filik- secretariat of Logistic Platform
Institution Person concerned	METU Technopark İlknur İlkyaz Gül- member Management Unit
Institution Person concerned	MTOIZ Pınar Özal- secretariat of Agro-food Platform
Institution Person concerned	Mersin University Tamer Gök- Chairman of RIS-Mersin Executive Council
Institution Person concerned	Mersin University Fikret Zorlu- Member of Logistic and Agro-food Platforms
Institution Person concerned	Olcay Tour- member of the Tourism Platform Numan Olcar- the chairman of Tourism Platform
Institution Person concerned	ATAKO Holding- member of the Logistic Platform Jozef Atat- the chairman of Logistic Platform
Institution Person concerned	ATKA Baharat- member of the Agro-food Platform Seniye Kazanç- the chairman of Agro-food Platform
Institution Person concerned	Mersin Chamber of Sea Trade (MCST) Atahan Çukurova- member of Logistic Platform
Institution Person concerned	Mersin Special Provincial Administration Members of Tourism and Agro-food Platforms
Institution Person concerned	BUMER Tourism Hümeyra Yeni- Members of Tourism Platform

Stakeholders answered the questions by considering the situations appeared following the RISTr in terms of their institutions, region in general and sectors they operate within. It is known that RIS include the cooperation and collaboration activities between the actors of a region and increase the innovative power by building regional organizations and networks. Therefore the question sets were chosen in order to determine the cooperation and collaboration activities and regional organizations and networks which are required for a powerful Regional Innovation System (See Appendix C). Providing R&D infrastructure and educational infrastructure, supporting academic spin-offs, enhancing human capital and enhancing the formation of social capital are also important factors strengthen the innovation performance of regions. Labor market conditions are another important

determinant of a well operating RIS, because knowledge is embedded in labor, especially skilled labor for the innovation process, and transferred among firms and regions by the movement of labor. Therefore the labor market dimension becomes an increasingly important element within RIS approach and used as a determinant in this evaluation part of the thesis.

Research questions answered by the stakeholders are: the existence of new innovation supporting institutions established in region, improvements in labor market facilities with the impact of the strategy, new collaboration and confidence networks formed with the impact of the strategy and new projects, products, services and skills gained during the implementation of the strategy. Following Table 15 shows the four question sets covers the questions that are addressed to the persons interviewed with.

Table 15: Interview Questions

Following the implementation of Regional Innovation Strategy;	
1. Are there any new institutional settings in region and in your institution?	1.1. institution, centre, organization 1.2. branch, office, unit, team 1.3. certificate program 1.4. R&D Unit
2. Are there any improvements in labor market facilities?	2.1. new employment 2.2. improvement in the skill level of labor 2.3. increment in the number of skilled labor 2.4. Increment in the participation to the training facilities, courses, certificate programs, fairs. 2.5. increment in the productivity of labor
3. Are there any new collaborations and confidence relations?	3.1. among local-regional-central institutions 3.2. with educational institutions 3.3. project partnership with national-international institutions or companies
4. Are there any new projects, products, services and skills your region and you gained during the implementation period of the Project?	4.1. new products and services 4.2. increase in business volume 4.3. projects done by itself 4.4. as a partner in different projects 4.5. skills of preparing and executing projects

Following part of the study will evaluate the achievements of institutions, three leading sectors and region in general in terms of institutional settings, production side, labor market situations and collaborations created.

4.3.2. Institutional Achievements of the Region:

Today, regions should improve their innovation infrastructure in order to be attractive for the investments in the new global economy and accordingly improve their competitive power. A well-functioning RIS plays an important role in the development actions of regions. Mersin has Turkey's first and the only Regional Innovation Strategy (RIStr) and this strategy presents a leading light for accomplishing Mersin's vision to become a region having a sustainable economy based on knowledge and innovation. RIS-Mersin Project has provided a strategy including required activities for the formation of a well functioning RIS. In this regard the project can be described as a development action and presents a regional innovation structuring including all local stakeholders. Project prepared the suitable environment to encourage innovation in local level and determined a strong coordination between local and central institutions.

The first research question of the thesis is whether there are any new innovation supporting institutions established in region? During the interviews with the stakeholders of project, institutional gains from the project were asked and it has been seen that there appeared new institutional structures in the region which strengthen the RIS in Mersin. These new institutions are the ones necessary for the implementation of RIStr, the ones operating for the common goal of making the region more innovative and creating a well operating RIS and the ones operating to make logistic, tourism and agro-food sectors more innovative.

During the implementation period of the RIS-Mersin, new institutions have been added to the existing institutional framework of the region (See Appendix D). These new institutions are the necessary structures for the implementation of the strategy and the formulation of a well functioning innovation governance system in the region. Clusters, technology transfer structures, innovation financing mechanisms and advanced consultancy services are mentioned as the required services in order to

strengthen the innovation system of region. These newly established institutions will be described through the institutional subsystems of RIS approach introduced by Cook (2002:137). These three subgroups are: regional policy subsystem, knowledge application and exploitation subsystem and knowledge generation and diffusion subsystem.

4.3.2.1. Regional Policy Subsystem:

Government organizations, public authorities, regional development agencies and other policy agents constitute regional policy subsystem of RIS. These institutions are engaged in formulating and implementing innovation policies and cluster strategies. Regional governments have different roles such as linking regional actors and matching them according to their innovation need and support collaborative activities among different actors and design policies to integrate all actors in a RIS. RIS in Mersin was determined as fragmented and the subsystems were quite underdeveloped. RISTr of Mersin region attempts to establish new governance institutions to overcome these weaknesses and to determine the implementation of the strategy.

4.3.2.1.1. Public and Private Governance Organizations:

Partners of the project constitute the **Management Unit** of the project, i.e. METU Technopark, Mersin Chamber of Commerce and Industry, Mersin University, Mersin Tarsus Organized Industrial Zone and Epirus Region Business Innovation Center. During the implementation period of the pilot projects, new institutional structures (Mediterranean exporters Union and Mersin Technology Development Zone) have participated to the activities of the Management Unit. This team was responsible for the management of the project and directed by the steering committee. Mersin RISTr is an output of RIS-Mersin Project. The strategy was completed in 2006 and the project was ended. Now the implementation stage of the strategy is continuing. It was planned that the Management Unit of the RIS-Mersin Project would be active during the project period, however, the project completed and the Management Unit is still continuing its activities in the context of the innovation strategy.

One of these new institutional structures in this group of governance organizations is the **Regional Innovation Steering Committee** convened under the chairmanship of the governor of Mersin. The committee undertakes the monitoring of the project. Mersin Chamber of Commerce and Industry executes the secretariat of the committee. The Committee composed of the region's decision makers:

- Governor of Mersin
- Mayor of Mersin
- President of Mersin University
- President of Board of Director of Mersin Chamber of Commerce and Industry
- President of Board of Director of Mersin Chamber of Sea Commerce
- President of Board of Director of Mersin Commerce Exchange
- President of Board of Director of Mersin Chamber of Agriculture
- General Secretary of Mediterranean Exporters Union
- President of Board of Director of Mersin Tarsus Organized Industrial Zone
- General Secretary of Union of Chambers of Turkish Engineers and Architects
- President of Mersin Industrialists' and Businessmen's Association
- General Manager of METU-Teknopolis
- Vice President of Mersin University
- General Secretary of Council of Mersin Development and Cooperation
- Manager of Mersin Tarsus Organized Industrial Zone.

All committee members come together periodically and evaluate the project implementation and its outcomes. This committee will help the implementation of the action plans in consensus and in a cooperative manner. This new committee will be placed in the first part of the Mersin Regional Innovation System Table placed above. The system is lack of regional institutions so this new institutional structure will be the first step to move this centrality to regionality. Steering is mentioned as an important success factor of the Innovation Strategies and this responsible body supervises the implementation of the innovation strategy by supplying political support and power to get the activities and decisions of the strategy implemented. Most of the European Regional Innovation Strategies have this kind of a designated regional body responsible for the implementation of the strategy and these steering

committees have their own secretariat. Mersin Innovation Steering Committee is a successful institutional structure since it includes a combination of different skills and the involvement of a number of regional leader organizations both public and private. This leadership structure of the committee provides the promotion of strong innovation awareness, building trust and the promotion of the ability to mobilize regional firms and organizations for innovation activities. However, the secretariat of the committee is being executed by Mersin Chamber of Commerce and Industry and this dependency slow down its activities and reduce its effectiveness in the implementation of RIStr. The person who executes the secretariat of the Committee and also the monitoring of the Strategy stated that:

“There is an Innovation Committee established by the impact of the strategy but it must have its own secretariat and must be much more institutionalized”.

Ö. Homurlu- Monitoring of the Strategy- MCCI

Depending on this, Mersin Innovation Steering Committee should have its own independent secretariat, team and its specific office which is acting as its operational body. RIS Project proposed an **Innovation Center** for the region but this center was not activated and Mersin Chamber of Commerce and Industry operates as an innovation center. Asking for the new institutional structures established during the implementation of the innovation strategy, the coordinator of the RIS-Mersin Project METU Technopark replied that:

“An institution which is in charge of strategy secretariat is missing. Structures like business innovation centers or innovation centers in similar models can handle this task. Then it can become a non-profit corporation executing the implementation of the strategy”.

İ. İlkyaz Gül- METU Technopark

This proposed Innovation Center might also execute the secretariat of the Innovation Steering Committee. Establishment of the Mersin Innovation Center is important for the implementation of the strategy, formulating new stable policies and monitoring and evaluation of the achievements of the strategy. The use of this kind of a special and individual body will support the effectiveness of the strategy, ensure legitimate leadership and facilitate regional empowerment and networking between different stakeholders. BIC of Epirus is a model of this kind of an institutional structure. It has a non-profit character aiming promotion of services for developing innovative enterprises. Mersin Innovation Center is also a required institution moving the

innovation strategy down to firm level by analyzing the needs of the enterprises and will be helpful in improving the innovation infrastructure of individual firms.

Çukurova Regional Development Agency (RDA) is the other important governance organization for RIStr of Mersin. The Agency was established in June 2006, following the start of RIS-Mersin Project, as one of the first two regional development agencies in Turkey. The main purpose of the RDA is fostering regional development in Çukurova Region covering Adana and Mersin Provinces. The Agency is responsible for the preparation of regional strategies and plans, implementation of project based grant schemes, supporting local investors and promoting the region for foreign investments. Being a newly established institution, RDA could not be incorporated to the activities actualized in this first stage of the innovation strategy. The role of the RDA explained by the secretariat of the Strategy:

“It is being thought that Çukurova RDA can be very effective in the next term of the strategy. Up to now they preferred to stay out of the activities of the innovation strategy since it was newly established”.

Ö. Homurlu- Monitoring of the Strategy- MCCI

First action plan of the strategy completed and the second action plan is being prepared. As stated by Homurlu, Çukurova RDA will be more active in this new stage of the innovation strategy. The region is still too weak in using EU structural funds, linking innovation policy to other policy demands and avoiding fragmentation. RDA will be effective to overcome these weaknesses of the region.

These explained institutions have been established in the content of the Innovation Strategy and aim to enable the running of the innovation strategy and accordingly to strengthen the governance side of RIS. Good governance for an innovation system requires a combination of top-down and bottom-up approaches, the top-down approach to have a clearer vision of the big picture and the bottom-up approach to maintain concrete outcomes. This approach was emphasized by one of the interviewed stakeholder who is executing the monitoring of the strategy:

“Strategy remained in policy level, it was not firm-oriented and firm analyses were not made. It was constituted generally on human resources, infrastructure and presentation activities”.

Ö. Homurlu- Monitoring of the Strategy- MCCI

As a result of this statement it is understood that RIS-Mersin has remained in top-down level, dependent to the external intervention and provided the improvement of the general innovation infrastructure of the region but do not applied a complete bottom-up approach yet. Nonetheless, this deficiency of a regional specialized institution that provides the execution of the strategy causes central government dependency as Vice President of Mersin University indicated that:

“RIS Mersin project is being executed but budget, institutional bodies and human resources are still too weak. There must be external support; support of central government must be increased to fulfill these necessities and overcome weaknesses”.

T. Gök- Mersin University

Institutionalization of Innovation Centre and activation of the role of Çukurova RDA will support regionalization of the governance system in Mersin and strategy will shift from the regional economy level to networks of firm and lastly firm level.

4.3.2.1.2. Financial and Consultancy Services:

Poorly developed financial system to finance innovation is stated as one of the ten structural factors affecting RIS in less favored regions. One of the weaknesses of Mersin region was determined as the low levels of incentives and finance for innovation, i.e. regional funds, venture capital and business angels investments. Thus, there was not a regional innovation finance mechanism in Mersin before the RISTr. Financial and consultancy services are the required institutions of the current innovation system of Mersin. MCCI coordinates a new project called “Business Angels and Entrepreneurs Academy and Network for Financing Innovative Business Ideas” and this project was described as:

“The Business Angels Network project is very important for the finance of innovation. It will be very effective to increase the choices of risk capital. Project is being executed with a reference to a center in London. The network in Liverpool is being managed by a center and risk is shared too. There is also a platform and it is institutionalized with the help of development agency”.

Ö. Homurlu- Monitoring of the Strategy- MCCI

The outcome of this implemented project is **Mersin Business Angel Network (Mersin- BAN)** which will complete the required institutional background to form innovation financing mechanisms and consultancy services in the region. The

objective of the network is described as the collaboration of European and Turkish chambers, to facilitate the BAN system within Turkish chambers, as an alternative source of finance for entrepreneurs with innovative ideas, in order to develop the competitiveness of the regional economy.

The **Innovating Regions of Europe (IRE) Network** is another institutional structure having the purpose of determining finance and consultancy services for innovation activities of the region. Its aim is to facilitate exchange of experience and good practice among European regions that are enhancing their capacity to support innovation and competitiveness among regional firms through the development and implementation of RISTrs and schemes. IRE Secretariat provides member regions with new tools, schemes and inter-regional learning opportunities on innovation promotion. Mersin is one of the two Turkish members of IRE Network and provides the region with assistance about the preparation and implementation of the innovation strategy, developing a regional shared vision and using EU Funds.

Mersin has also become a member of **Enterprise Europe Network (EEN)** through the MCCI. This network is the largest network providing information and advice to EU companies on EU matters. It is made up of about 600 partner organizations in more than 40 countries, promoting competitiveness and innovation at the local level in Europe and beyond. The Network offers support and advice to businesses across Europe and helps them make the most of the opportunities in the EU. Services are specifically designed for small and medium enterprises (SMEs) but are also available to all businesses, research centers and universities across Europe (www.enterprise-europe-network.ec). This network supported several projects created in the content of RIS-Mersin and provides the region with information on EU legislation, finding business partners, benefit from innovation networks in regional, national and international level and information on funding opportunities.

Another institutional gain following the RISTr is the establishment of new **Project Offices and Teams** within the private sector companies and also within the public institutions and NGOs such as Mersin Chamber of Sea Trade. These institutional

units with their qualified teams attempt to create innovative projects, to find financial support and partners for their projects.

“Within the chamber, new institutional formations have been done. Important projects were started to be executed in 2009 by the effect of RIS. Efforts to constitute a project unit and a project team are still going on”.

A. Çukurova- MCST

Establishment of regional BAN and venture capital found and also designing innovation support programs in cooperation with Çukurova RDA are the successful activities actualized with the impact of RIS-Mersin and these new institutional formations aim to support innovation activities and create a regional finance mechanism for region. Moreover, region’s participation to the networks of Innovating Regions of Europe and Enterprise Europe provides her to use the funds from structural funds to shape and develop her innovation policies and strategies and also to benefit from consultancy services of these organizations.

4.3.2.2. Knowledge Application and Exploitation Subsystem:

This subsystem of RIS refers to the region's business sector including the industrial and service companies as well as their clients, suppliers, competitors and cooperation partners at the regional level, i.e. regional clusters. Proximity and geography have strong role in knowledge generation and application and matter in the knowledge and innovation process. Consequently, clusters are regarded as an integral part of RIS. Mersin RIStr includes activities for the improvement of this subsystem of the innovation system by establishing new institutional bodies.

4.3.2.2.1. Sectoral Associations:

Sectoral Platforms are the most important institutional structures that the region has gained as a result of RIS-Mersin Project. The leading economic sectors of Mersin region are agriculture, logistics and tourism sectors. Innovation strategy is being executing through these three sectors which are determined as the most suitable sectors to be innovative. Sectoral Platforms get together the representatives of these three important economic sectors. These collaboration platforms have been established in 2007 as one of the primary activities of RIS-Mersin, and still work actively for the implementation of the strategy and being more effective day by day.

The platforms include the representatives of public, academic and private sectors. Tourism Platform is working under the secretariat of Mersin Chamber of Commerce and Industry, Logistic Platform operates under the secretariat of Mersin Chamber of Commerce and Industry and Mersin Chamber of Sea Trade, and Agro-Food Platform operates under the secretariat of Mersin-Tarsus Organized Industrial Zone. Among these three platforms Agro-Food Platform has made a difference and found financial source to fulfill its institutional structure by setting its own secretariat and team. Sectoral Platforms of RIS-Mersin Project can be described as a core of cluster model and they work as cluster. Another important feature of these institutions is that the chairmen are the leader firms of related sectors. The involvement of regional and local leaders ensures the promotion of strong innovation awareness, coordination and also promotes the ability to mobilize regional groups for innovation activities. Platforms allow the participation of all actors and create consensus for common goals necessary for the growth of sectors and accordingly development of the region. One of the leaders of the platforms emphasized this success of platforms as:

“RIS Mersin Project improved collective thinking within the sector and the region. The established platforms made this by bringing together all stakeholders. Institutions have also become close to the firms with the impact of these cooperation platforms”.

S. Kazanç,-Chairman of Agro-food Platfor- ATKA Baharat

This collective thinking activity actualized by the platforms has strengthened the Interaction, which was pointed as one of the success factors of an effective innovation system by IRE Secretariat. Platforms are successful to establish high level of interaction and coordination between the different actors of the determined three economic sectors and their activities have concrete, short termed and clustering supporter character.

These three platforms are the main institutional elements of RIS-Mersin. As a result of the operations of these platforms, new institutional structures were added to the existing innovation system of Mersin region. Some of the lacking institutions in the current system has been established in the last three years since the RIStr was started to be implemented.

Logistic is one of the three important economic sectors determined in the content of RIS-Mersin. RIS-Mersin **Logistic Platform** was created to determine the future roadmap of the logistic sector in Mersin region and aims to convert Mersin province into a logistic base serving Commonwealth of Middle East and Independent States and the other provinces located in her hinterland. Organization attempts to create a culture of cooperation and communication among the actors of logistic sector. Platform operates under the secretariat of Mersin Chamber of Commerce and Industry and Mersin Chamber of Sea Trade which are the important institutions of RIS-Mersin Project. Members of the platform are the representatives of Mersin Chamber of Commerce and Industry, Mersin Chamber of Sea Trade, Mersin Metropolitan Municipality, Roder (ro-ro Association of Ship Operators and Combined Transporters), Directorate of Port Operation, Mersin University, Çukurova Regional Development Agency, Turkish State Railways, International Transportation Association, Directorate of Mersin Free Zone and private sector companies operating in the sector (See Appendix A).

Mersin Logistic Platform Action Plan, which is the first activity of the platform, was completed and the future activities of the platform were introduced in this plan. Main activities emphasized in the action plan are: the activities about planning and infrastructure improvement (Logistic master plan, determination of logistic needs in region, completion of logistics needs in Mersin Harbor), formation of sub-groups of the platform (education, highway transportation, railway transportation, airway transportation and transportation working groups), emergency activity plan/priorities (activities for arranging the system after privatization -Free Zone and harbor, contraction of logistic centre project at local and national level, opening the Mersin Marina to operation, contracting the railway terminal, development of Mersin subway, construct two new rails between Mersin-Yenice, promotion of constructing the dockyard in the region). The main objective of the platform is described by Filik who is executing the secretariat of the platform:

“We are carrying out researches to make the sector more innovative. We give much importance to create high value added logistics. We are trying to provide services other than just storage facilities like packaging and labeling. It is essential to diversify the services, to create awareness and high value added”.

F. Filik- Logistic Platform Secretariat- MCCI

Thus, the platform aims to make difference, to become attractive and accordingly to gain competitive advantage.

The agricultural sector plays a dominant role in the regional economy and also in the regional development efforts of the region. The sector was chosen as one of the main three leading sectors in regional economy by the team of RIS-Mersin Project. **Mersin Agro-Food Platform** has been established in 2007 as an important action of the project. Main objective of the platform is to make the region “a pioneer region with its economically viable R&D actions in agricultural and food technologies, as well as plant diversity”.

Platform operates under the secretariat of Mersin Tarsus Organized Industrial Zone. Members of the platform are the representatives of Mersin Special Provincial Private Administration, Provincial Directorate of Agriculture, Provincial Directorate of Control Division, Mersin Chamber of Agriculture, Mersin Tarsus Organized Industrial Zone, Mediterranean Exporter Unions, Mersin University, Mersin Commodity Exchange, Mersin Chamber of Agricultural Engineers, Mersin Chamber of Food Engineers, ALATA Horticultural Research Institute and the private sector companies operating in sector (See Appendix-A).

Mersin Agro-food Platform was also prepared an action plan to introduce the future activities of the platform. The vision of the platform is to create sustainable coordination networks and enhance the interaction and intercommunication between producers, suppliers, traders, industrials and researchers in the region. Main activities emphasized in the action plan are: preparation of the master plan and educational programs regarding to the crop variety, lobby (promotion, marketing etc.) activities, creation of innovative project market, establishment of Organized Agricultural Zone and Agricultural Teknopark (Agro-park) and establishment of Agro-Food Cluster. Agro-Food Platform is described as a nucleus of a sectoral cluster model and the platform will be supported in order to be institutionalized. Constitution of the institutional structure is the first action of this institutionalization project and team of the cluster and this activity is in progress of completion. Agro-Food Platform is the

first platform which completes its institutional structure and becoming a real cluster.

Chairman of the platform commented on the institutionalization of the platform:

“Platform is in need of a corporate identity because things are going very slow just with volunteerism and it is an obstacle for realization of strategy”.

S. Kazanç- Chairman of Agro-food Platform- ATKA Baharat

As indicated by the chairman of the platform, the institutionalization process of the platform is an essential activity and now it is in progress for the Agro-Food Platform and should be actualized for the other two platforms.

The third Sectoral Platform of the strategy is **Tourism Platform**. Mersin has a wide potential for tourism activities but the sector lags behind the region’s other economic sectors. RIS-Mersin Project has determined the sector as one of the leading sectors of the region and an important potential for regional development. The Tourism Platform for Mersin Region has been established in 2007 as an important activity of RIS-Mersin Project. Platform’s main aim is to create and implement projects and activities with innovative ideas to develop the tourism sector. Members of Tourism Platform are the representatives of Mersin Metropolitan Municipality, Mersin Chamber of Commerce and Industry, Tarsus Municipality, Taşucu Municipality, Silifke Municipality, Mersin University, Turkish - Arab Businessmen Association, Mersin Tourism Operators, Provincial Director of Culture and Tourism, Mersin Development and Business Council, Çukurova Development Agency, Special Provincial Administration, Turkey Association of Travel Agencies, Çukurova Hotel Business Association, Çamlıbel Platform, İçel Art Club and private sector companies operating in the sector (See Appendix-A).

All activities and projects prepared by the platform object to reach the vision of “development of the tourism sector in international, national and regional levels to make Mersin a brand for tourism sector and a potentially feasible investment location for tourism investments”.

Action plan of Tourism Platform was completed and the future activities of the platform were introduced in this action plan. Important actions introduced in the action plan are the preparation of the master plan, diversifying the tourism activities

(Eco-tourism, Faith Tourism, Agro-tourism, Accessible tourism, Heritage Tourism), advertisement, research and development, planning and infrastructure. There are numerous projects implementing under these main Project packages.

Sectoral platforms of RIS-Mersin improved cooperation among the actors of leading sectors of regional economy and created a synergy for the creation of new projects to strengthen the innovation capacity of these three sectors and accordingly whole regional economy. On the other hand, the absence of their institutional structures, self budget and team is the primary factor retarding the implementation of the activities. Voluntary institutions executing the secretariat of the platforms indicated that they can not allocate enough time for the activities of the platforms:

“Our platform works as a voluntary association so it is not a legal entity. It receives consultancy from a professional. To work more effectively we have to be institutionalized and have our own institutional structure and working staff. People can attend to the activities of the platform in their limited time rest from their personnel work. Establishing its own team is a must for the platforms to be able to effectuate the activities more rapidly”.

F. Filik- Logistic Platform Secretariat- MCCI

“Intermediary institutions to provide innovation are missing in the sector; platform does not have an institutionalized body so can not be effective. Institutional structures required for the success of the projects have not been established yet”.

V. Arslan- Tourism Platform Secretariat- MCCI

“Platform improved the relations between the firms and the institutions in the sector. It generated new collaborations. But, as it is not an independent institutionalized body, the projects are proposed by the name of the firms or public institutions, not by the platform. In the near future, the platform will complete its institutional structure and the projects promoting innovation in the sector will be accelerated”.

P. Özal- Agro-Food Platform Secretariat- MTOIZ

Here it is seen that the institutionalization of the cooperation platforms is a necessity to accelerate the implementation of the action plan and innovation strategy and accordingly to strengthen the knowledge application and exploitation subsystem and cooperation and confidence networks of the innovation system.

4.3.2.2.2. Sectoral Clusters:

A cluster may be defined as a group of firms, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialized expertise, services, resources, suppliers and skills (www.ec.europa.eu/enterprise). As stated in the previous chapters of the thesis, innovation system requires spatial proximity for the generation and transmission of knowledge that is transferred to innovation. Accordingly, clusters which sustain their competitiveness by learning, adaptation and innovation processes are the necessary structures for the achievement of an effective RIS.

Important projects of the Agro-Food Platform in terms of creating new innovation promoting institutional bodies are the establishment of the Agro-Food Cluster and Agricultural Teknopark. **Agro-Food Cluster** financed by Undersecretariat of Foreign Trade and Çukurova RDA is the controlled project manager. Agro-Food Clustering Project of Mersin Agro-Food Platform is supported by Undersecretariat of Foreign Trade as one of the 10 pilot implementations in Turkey. The project is now in progress to completion and the leader of the Agro-Food Platform described this clustering action as a successful model for other regions in Turkey:

“We gained sympathy at home and abroad. Our clustering study was one of the ten pilot projects in Turkey. While the clustering examples in Turkey were being examined, our platform was recognized as a cluster core in this context and Mersin was accepted as a cut above. We enrolled as a member of European Food Cluster with AGFORISE Project in which we are not a stakeholder but the owner of the project”.

S. Kazanç- Chairman of Agro-food Platform- ATKA Baharat

Thus, it can be said that the RISTr of Mersin region has a strong impact on the execution of the clustering activities of firms in regional and also in national level. RIS-Mersin has been effective in building sectoral clusters which are the areas of cooperation, trust, interaction, knowledge diffusion and innovation.

Foundation of **Mersin Logistic Centre** is the most important project of the Logistic Platform and financed by Undersecretariat of Foreign Trade. The project is based on the scenario of the rapid growth of the port volume and contains activities such as clustering, technological improvement and training. Main objectives and content of

this new institutional structure can be summarized as: modern storage, customs services, saving the city from pollution and strengthen the port and railway connection. This center will be more than a storage area, will contain other various activities of logistic sector and will create difference, produce innovative products and services. Location has been selected for the realization of the center and demand collection activities still continue. It was emphasized that there is a high demand for the center from the region and also out of the region, demand from large famous companies operating in Istanbul:

“Logistic Center project of the Platform is very important. We are expecting to host local, national and international firms. Despite the effects of economic crisis on the sector, there is a huge demand for our logistic center. We are planning to complete the center in 2010 and it will give acceleration to logistic sector”.

A. Çukurova- Chamber of Sea Trade

“Logistic Center is an important project started with RIS-Mersin. The location has been chosen. There is a huge demand and there are 33 firms already demanded a plot in the center. We are in touch with the big firms from Istanbul; they are also interested in the center. There are also some foreign firms but they prefer to rent”.

J. Atat- Chairman of Logistic Platform- Atako Holding

“Primary activity of our platform is the Logistic Center; it is planned as a center of attraction. There will be space for 46 firms. It will be a logistic base for Middle East, Commonwealth of Independent States and for the provinces in region’s hinterland”.

F. Filik- Logistic Platform Secretariat- MCCI

This shows that the attractiveness of Mersin for the new investments from out of the region and accordingly her competitive power has started to increase. Undersecretariat of Foreign Trade is the main stakeholder of the project and Mersin Chamber of Sea Trade and Mersin Chamber of Commerce and Industry are also active stakeholders of the project. Mersin Logistic Center will be completed in 2010 and it will contribute to the RIS as an innovative sectoral cluster. It is also emphasized that following the completion of this first case, establishment of new similar centers is being planned.

4.3.2.3. Knowledge Generation and Diffusion Subsystem:

This subsystem of the RIS has the role of generation and diffusion of new knowledge and having the ability of continuous learning. Business consultants, technology centers, R&D centers, university departments, laboratories, technology transfer and R&D centers are constitutes this subsystem.

4.3.2.3.1. Research Centers:

Establishment of the **Tourism Research Centre** is an important activity of RIS-Mersin that has been introduced within the Project package including the research and development subjects. Tourism Research Centre has been established within the Mersin University but not operating effectively yet. This institutional body is the only innovation promoting institution of the sector and compared with the other sectors, tourism sector showed a weak development effort in terms of establishing new innovation oriented institutional structures.

Logistic and Foreign Trade Research Centre is one of the new institutional structures added to the current institutional framework of Mersin RIS. Logistic and Foreign Trade Research Centre established within the Mersin University is an important structure which will provide linkages and collaborations between the University and logistic sector. It will operate as a regional research institution. This research center is also one of the important institutional achievements of the University gained from the RIStr. Nonetheless, the research center is not working actively yet because of the lack of researchers to be employed and this deficiency of research centers are described as:

“Knowledge is produced at universities and research centers. So with RIS Logistic and Tourism Research Centers were established but there are not any employed experts or researchers yet. Field personnel and researchers studying in foreign countries must be employed. Some institutional structures to encourage innovation were established but they are still empty. Research centers must be activated in order to add value to production and services and also in order to produce beneficial knowledge”.

T. Gök- Mersin University

Innovation strategy has stimulated the establishment of research centers; however, deficiencies of financial resources and researchers in region cause these centers remain nonfunctional. RIS in Mersin is still too weak in terms of research centers which are necessary institutions for the improvement of the innovation capabilities and competitive power of the sectors.

4.3.2.3.2. Education and Training Organizations:

Non-bureaucratized educational and training system linked to the productive system is a necessity for the systemic quality in an innovation system. **Food Technologies Vocational High School** which is a new institutional structure formed with the impact of the RIStr and is a successful model for these kinds of linked institutions. The Vocational High School was established with the cooperation of Mersin University and Organized Industrial Zone and operates in Organized Industrial Zone. This is a new institution that is promoting the innovation activities in agro-food sector and strengthening the knowledge institutes part of Mersin RIS.

Mersin Agro-Food Training Centre (METGEM) is an important training project of the Agro-Food Platform. Establishment of the center is still in progress. Logistic platform is also dealing with the activation of the **Logistic Certificate Program and Graduate Program** to strengthen the educational and training infrastructure of the sector. Establishment of an **Innovation and Entrepreneurship Certificate Program** is also a continuing project proposed in the content of the RIStr.

Looking at the current situation before the innovation strategy, it is seen that the educational infrastructure of Mersin is one of the strongest part of innovation system. It can be said that the RIStr has started to achieve the provision of a more developed educational infrastructure to strengthen the innovation performance of region.

4.3.2.3.3. Scientific Organizations:

Lower quality and quantity of scientific and technological infrastructure and scarcity or lack of technological intermediaries were introduced as the two important structural factors affecting the Regional Innovation Systems in less favored regions by Landabaso and et al. (1999). Scientific institutions are important innovation

supporting institutions and Mersin is too weak in terms of knowledge institutes and innovation intermediaries which are the most important part of RIS. The region needs to improve the regulation and the infrastructure for increasing the research and technology transfer activities. Mersin University and Mersin Technology Development Zone (Technoscope) are the most important institutions promoting innovation. The importance of the University and other scientific organizations in this process of making the regional economy more innovative and competitive was emphasized as:

“University has a role as a motivator in the innovation systems”.

T. Gök- Mersin University

This statement emphasizes the importance of the University for an effective RIS and Mersin University is an important component and facilitator of the Mersin RIStr and should be strengthened by the provisions of the government in terms of financial support, employment of researchers and academicians.

High-tech sector is also important for an efficient RIS. Landabose(1997) indicated that RIStr should present practical applications in the field of research-business collaboration, support for high-tech Spin-offs and start-ups and clustering. ERIS Working group was also introduced the action of supporting high-tech, high-growth entrepreneurship as an Important aspect to be addressed by an innovation strategy.

The importance of high-tech sector emphasized by Gök as followed:

“RIS-Mersin Project aims socio-economic development. Knowledge is the tool for competition. Products with high value added must be developed, so from this point of view high-tech sector is very important and should be developed”.

T. Gök- Mersin University

Thus this scientific organizations subsystem of RIS should be strengthened in the next stage of the RIStr by promoting new policies and supports.

RIStr has strengthened the innovation capabilities of non-governmental organizations operating in the region. On the other hand, the innovation capabilities of the firms still lag behind. Despite the main objective of developing innovation capabilities of

enterprises in Mersin, the strategy has not reach the firm level and become too general and this failure of the region is emphasized as:

“With the project, innovation capacities of the NGOs have increased but scientific institutions like research centers could not be established. Though, this kind of institutions is essential to sustain innovation and to get desired outputs from the project”.

İ. İlkyaz Gül- METU Technopark

It can be said that the strategy has been effective in developing the regional awareness of all local actors including NGOs, public institutions and firms as well as the innovation infrastructure of the region. The progressive step of project is determined as the development of the innovation capabilities of firms. The institutional structure that is required for the technological innovation and university industry cooperation is still inadequate in Mersin. The suggestions of METU Technopark for these weaknesses of RIS in Mersin were stated as:

“After the RIS-Mersin Project, some activities had been done for the collaboration of University and industry but could not be improved enough. Technopark must be developed. New intermediary institutions, like incubators, R&D innovation centers and technology transfer offices are needed in order to improve collaboration and cooperation”.

İ. İlkyaz Gül- METU Technopark

Thus, the structure and operation area of the only technopark of the region should be enlarged. Support services for innovating firms and incubating activities are important structures for the development of the infrastructure for technologic innovation. **Incubation Centers, R&D Innovation Centers and Technology Transfer Offices** are the primary institutions that might be established in region. These publicly supported institutions aim at promoting technologic development through three primary functions: tech-based business incubation, the provision of technology transfer services, provision of product design and development.

Incubation Centers provide entrepreneurs with physical premises, financial resources, professional guidance and administrative assistance. The projects and supports of the Çukurova RDA should be used for the establishment of an incubation center which is an important structure in order to support entrepreneurs at the earliest stage of their technological entrepreneurship process.

R&D Innovation Center is thought as an institution executing the secretariat of Mersin RIStr. Innovation Centre is a similar structure with a business innovation centre and it was one of the activities of the RIS-Mersin action plan; however, it is not achieved yet. R&D Innovation Centre will provide firms with technologic evaluation, technical assistance, market analysis, product development, market research and access to national information database. The foreseen structure of the Innovation Centre is in the form of a non-profit firm and might be established within the METU Technopark.

Technology Transfer Offices are also important elements of the innovation systems. RIS-Mersin project proposed a Technology Transfer Office for Mersin but establishment of such an institution is not achieved yet. Majority of the activities which was planned to carry out by the technology transfer office are now undertaken by Mersin Technology Centre, i.e. Techno-scope. This necessity of establishing a regional Technology Transfer Office was emphasized as:

“Technology Transfer Offices are important to record and register produced knowledge and also to transform it into an asset. This kind of a structure is very essential for the success of the system and must be established immediately”.

T. Gök- Mersin University

The achievement of this activity is necessary for the promotion of technology and innovation in region and it will be appropriate to establish this institutional structure within the University or Techno-scope as an independent department.

Another important institutional structure introduced within the context of innovation strategy is the **Agro-Food Techno-park** Project of Agro-Food Platform. Ministry of Industry and Trade supports the project and the establishment of the Techno-park is planned to be completed in the year 2010. This institution will promote the production of innovative products, services and production methods and accordingly improve the competitive power of the sector.

Economic, institutional and historical context is very important and provides to learn from other regions and countries experiences. Thus, it is important creating a

regional database to be able to realize the activities of monitoring, benchmarking and evaluation of the strategy. The stakeholder from METU Technopark indicated that:

“Collection of regional data is very important. Yet, there is not such a system yet. This kind of a system is necessary to make comparisons and benchmarking with other regions. RIS Mersin aims to set up a data collection system in the next term; actually it is a planned activity in the content of the next action plan which is being prepared nowadays”.

İ. İlkyaz Gül- METU Technopark

This database can include geographical information system databases of firms and might be created to be able to identify the needs of the firms and to facilitate the policy discussions. Mersin University, Mersin Techno-scope and MCCI can organize the preparation of these regional databases and evaluate the improvements in different dimensions including labor market, sectoral statistics, production statistics, data presenting market conditions and exportation and firm statistics.

The person executing the secretariat of the RIStr summarized the institutional content of the RIS:

“In the region there is a lack of institutions required to be connected to the networks. There are efforts which are confronted with financial difficulties to build up a technology transfer office and for an innovation Center. Intermediary establishments and technology producing institutions are missing and should be completed”.

Ö. Homurlu- Monitoring of the Strategy- MCCI

It is seen that there occurred limited improvements in the formation of new scientific and technology based institutions in the third year of the RIStr. This situation is the reason of the slow progress of the RIStr. The next stage of the RIStr should contain the activities, projects and supports for the completion of undeveloped part of the RIS.

4.3.3. Labor Market:

In the previous chapters, it was emphasized that the regional knowledge economy is improved by skilled labors that create new knowledge and ideas and the competitiveness of regions is related to their social, cultural and physical environment where these well educated, talented labor live in. Labor force of the

region provides the intensive interactions and knowledge flows between the RIS subsystems and accordingly highly qualified labor force is a central feature of highly innovative regions.

Difficulties in attracting skilled labor were also determined as one of the important structural factors affecting operation of the RIS in less favored regions. Therefore the labor market dimension becomes an increasingly important element within RIS approach, since processes of learning and knowledge transfer occur through regional workforce in which the knowledge is embedded in.

Second research question of the thesis is whether there are any improvements in the labor market facilities of region with the impact of the innovation strategy? Stakeholders of the project introduced the outcomes of the project in terms of the labor market dimensions. Indicators, which are required to evaluate the effectiveness of Innovation Strategy in terms of labor market dimensions, are the existence of new employment, improvement in the skill level of labor and increment in the number of skilled labor, productivity of labor and participation to the training facilities.

RIS-Mersin Project provided implementation of new projects to train and improve the skill level of labor force for the production of innovative products and services and to train labor force employed by the firms that operate in the region. RIS-Mersin Project also contains employment oriented pilot projects and some of them implemented in three times, that are Entrepreneur-33 and Export-33. In general, it can be said that the strategy has provided limited improvements in the training of new skilled labor and employed them in the region. Interviews showed that there occurred different gains in the content of labor market in terms of different stakeholders and different sectors. While certain sectors have obtained limited improvement, other sectors have become more successful to improve their labor market conditions.

Logistic Platform prepared research papers about the sector and examined the successful cases in Europe. These researches showed that the sector has a huge potential in creating employment as the secretariat of the logistic platform stated that:

“It is observed that in foreign countries logistic sector creates lots of employment. There is a Logistic Centre in Bremen – Germany with coverage of nearly 1000 acre and 45 firms providing employment for 1200 people. With the completion of our Logistic Centre, unemployment will start to decline in region by the improvement of the employment facilities in logistic sector and also in related sectors”.

F. Filik- Logistic Platform Secretariat- MCCI

EU and Çukurova RDA supported employment projects were executed by the Logistic Platform during the implementation period of RIS-Mersin Project. In the context of these five projects, 300 university graduates with knowledge of language were chosen and trained by the partnership of institutions from France and Spain. The candidates were provided to attend to the logistic certificate programs and vocational training programs in foreign countries. Technical trips were arranged to European Countries for point-vision actions and the vision of the candidates about the logistic sector has been developed. About 150 of these candidates were also employed in the firms operating in region. Since their skill level improved by the help of these training projects, their position in their firms were also changed. Moreover, about 60 of the other 150 candidates of the projects have been employed in the region. The activities and success of the Logistic Platform in terms of improving labor market conditions were evaluated by the stakeholders as:

“Project participants have gone abroad to take point-vision courses, good examples, and good investment areas were shown. They improved their visions. Then new participants have gone up to them, so the multiplier effects of the project have increased”.

F. Filik- Logistic Platform Secretariat –MCCI

“Project proposals are being written for EU and Çukurova RDA. We are getting finance for education projects. We are choosing bilingual young people with a university degree. There is a huge demand for these projects in which we train qualified personnel for logistic sector. Opportunities of internship and employment in the foreign countries are provided. RIS Mersin Logistic Platform accomplished by the means of creating employment and training skilled labor”.

J. Atat- Chairman of Logistic Platform- Atako Holding

Logistic platform of RIStr has turned to a brand which trains labor for logistic sector in regional and national level. This is emphasized by the stakeholders as:

“Logistic Platform has become a trademark which provides qualified labor force to the logistic sector. Firms employ their staff with consulting our platform”.

F. Filik- Logistic Platform Secretariat- MCCI

These projects of Logistic Platform have provided new employment facilities in sector and with the completion of the logistic center these facilities will increase and more people will be employed in the sector. When the Logistic Center goes into operation, a many of firms will invest in region and establish their own production plants. Now training activities and projects are continuing and it is predicted that there will not be a deficiency of skilled and qualified labor needed by the centre in the future:

“There is a lack of qualified personnel in the sector and this job vacancy will increase with the completion of logistic center and after the firms locate in the center. Within the scope of RIS, projects were made to meet firms’ primary personnel needs and employments were provided”.

A. Çukurova- Chamber of Sea Trade

“When we look at Europe, there is no production, but the consumption is evident. Production changed location. Logistic is a sector depending on consumption. It is important to store consumption goods and deliver them to the consumer on time. So, the sector is becoming an important investment field and also very important to cope with unemployment”.

J. Atat- Chairman of Logistic Platform- Atako Holding

The impact of RIStr in the labor market facilities of logistic sector can be summarized as: the improvement of the skill levels of the labor employed in the logistic sector, increment in the number of skilled, educated labor and the increase in the employment.

Agro-food sector being the other leading sector of the regional economy needs so many skilled labors in order to improve the innovativeness and competitiveness of the sector. RIS-Mersin Agro-Food Platform has carried out a number of training projects; however, these projects contain only the training of agricultural producers, that is to say training of the farmers. These training programs have been implemented with the partnership of Alata Horticultural Research Institute, Chamber of Agriculture, Chamber of Food Engineers, Provincial Directorate of Agriculture

and Chamber of Agricultural Engineers. Secretariat of the Agro-food Platform stated that:

“The sector is in need of researchers and high skilled intermediate staff. But the only education project was for the producers. Required institutions to attract and train qualified staff must be established”.

P. Özal- Agro-Food Platform Secretariat- MTOIZ

Besides these training programs, agro-food platform is preparing projects to provide the sector with more qualified and educated personnel to be able to improve its innovativeness and to foster it to produce innovative products. The leader of the platform evaluated their activities in terms of labor market dimensions and indicated that:

“It’s very essential to train qualified labor force for the innovation system. Vocational School of Food Technologies is an educational institution established with the effect of RIS-Mersin Project and working hard on this issue. It is a joint project of university and industry. We can define it as an important intermediary establishment to build collaboration between university and the industry, to educate qualified labor for the sector and also to make the sector more innovative”.

S. Kazanç- Chairman of Agro-food Platform- ATKA Baharat

With the impact of RISTr new projects have been prepared; however, only the project of establishing Vocational School of Food Technologies has been completed. Now there is not any new qualified personnel in the sector appeared following the implementation of the strategy. One of these planned projects is the establishment of the Agro-food Training Center. The other one is the Agro-food Technopark. These two institutional structures will provide the needed qualified labor for the innovative production in the sector. The impact of RISTr on the labor market conditions of the agro-food sector is still weak but in the long turn, with the completion of the Agro-Food Cluster, Agro-Food Training Center and Agro-Food Technopark projects, sector will start to accelerate its potentials to make its labor force more qualified.

Tourism Platform has also carried out employment projects for job creation in the sector. Platform prepared projects for the training of woman and youth people and provided their integration to the local labor market. Tourism Platform has a CV pool and aims employment growth in sector. The activities of the platform in terms of the

labor market dimensions of the tourism sector summarized by the secretariat of the Tourism Platform:

“Platform gained a success by the means of employment in the sector. With the project of ‘Being an Innovative and Productive Woman’, 60 women had been trained about the production of souvenir in tourism sector. Project was financed from UNDP funds. With the project of ‘Vocational Training of Unemployed Women and Young People and Their Integration to Local Labor Market’, 80 unemployed women had been trained in tourism sector, and 57 of them had been certificated and employed in the sector”.

V. Arslan- Tourism Platform Secretariat- MCCI

This explanation shows that the Tourism Platform has an impact on the creation of new employment opportunities for unemployed people in region; however, there have not been any projects for the improvement of the skill level of labor and increment in the number of qualified labor employed in the sector. More qualified labor needed to be able to make the sector more innovative and RIStr has not yet created any impact on the skill level of the labor market of tourism sector.

In region, the number of researchers employed in the sectors promoting innovation is still in too low levels. The quantity of the labor in high-tech sectors is one of the best indicators of how an economy introduces and diffuses innovation. The deficiency of Mersin is described as:

“There is also a lack of researchers in the sectors that implement innovation. Incubators must be established. Technology-oriented entrepreneurs must be trained and university students must be encouraged to entrepreneurship”.

İ. İlkyaz Gül- METU Technopark

As indicated above, technology based labor force and entrepreneurs are the important elements in RIS and Mersin is still too weak in this field. It might be useful to take the advantage of the power of Çukurova RDA by establishing Incubation Centers to encourage the university students in their entrepreneurship activities and increase the number of researchers and technical based entrepreneurs in region. There should be flexible and international career paths for knowledge workers and researchers. Their mobility between university, industry and government should also be enforced. The Incubation Centre, R&D Innovation Centre and Technology Transfer Office are the

important institutions which are planned to be established in the content of the innovation strategy to overcome these barriers in the innovative labor market.

4.3.4. Cooperation Networks:

In knowledge economy, innovations are increasingly seen as the driving force of regional competitiveness and economic growth and considered to be a result of cooperation in social and economic activities. The creation of unique capabilities and products, which generates competitive advantage, depends on the production and use of tacit knowledge (Asheim and Gertler (2005)) since codified knowledge is accessible by everyone. Tacit knowledge is not transferred and exchanged over long distances like codified knowledge and needs social interaction, close proximity and interactive learning processes and also networks of external environment of firms and other organizations, in other words needs a system approach. Regional Innovation Systems represent crucial arenas for localized learning and tacit know-how sharing. Thus, innovative regions are regions that succeed to formulate networks between and within firms and other institutions.

Third research question of the thesis is whether there are any new collaborations and confidence networks formed with the impact of the strategy? Stakeholders of the project introduced the outcomes of the project in terms of the new collaborations that they participated in. The indicators required to evaluate the effectiveness of the Innovation Strategy in terms of networking dimension are the existence of new cooperation among local-regional-central institutions, with educational-research institutions, project partnership with national-international institutions and companies.

The general gain of the region from the RIStr is the newly occurring cooperation networks firstly among all regional actors including firms, research centers, university and governmental organizations, then between the regional institutions and central institutions and also the linkages with international networks. Following the implementation of the RIStr, central institutions' interest to the region has also increased and they have started to support the activities and projects executing in the region. State Planning Organization, Undersecretariat of Foreign Trade, Turkey

Employment Authority, Çukurova Development Agency, and Ministry of Industry are some of these central institutions which have tended to the region.

Sectoral Platforms of RIS-Mersin have created a common dialogue platform and enhanced the regional cooperation networks. The newly established institutions of clusters and sectoral learning platforms in region has made it more open to joint innovation and allowing firms and other institutions using each other's knowledge, experiences and technology infrastructure to achieve the creation of more innovative ideas.

Regional networks in Mersin contain the linkages between firms and education and research, firms and public sector as well as firms and regional intermediaries. Strategy has strengthened the links between **firms and Education and Research**. R&D-33 pilot project is the first experimental action for this purpose of linking the firms to educational and research organizations. Firms have started to attempt developing innovative product, service and production processes with the help of the educational and research institutions which can provide them with expertise and R&D services. Links between **firms and the public sector** have also been developed following the implementation process of the RISTr. In this network, the public sector has the role of developing the operational preconditions and environment within which firms operate by implementing different programs and provision of financing. Links between **firms and intermediaries** is the other regional network improved by RISTr. The intermediary organizations' role is to identify the R&D needs of firms and to ensure that these needs are provided by different organizations.

As intensive cooperation and knowledge spillovers occurs via networks, Logistic, Agro-Food and Tourism Platforms of RIS-Mersin provide a local regional network for the diffusion of tacit knowledge among the all actors of these sectors. Network externalities are generated by the active involvement of all actors in the system (Eraydın, 2002) and sectoral platforms of RIS-Mersin are successful cooperation bodies to generate these network externalities which strengthen the competitiveness of the region.

Logistic Platform provided internal networking among the regional innovative agents at local, regional and sometimes at national level. A strong public-private partnership is an important gain obtained from the RIS-Mersin project. RIStr enhanced the networks between firms operating in logistic sector by the establishment of Logistic Platform. Firms started to be in consensus with the local institutions and they have taken joint action in sectoral and regional development activities. These internal networks enable the exploitation of local capabilities and satisfy the confidence between the actors of the region. All decision makers of the logistic sector meet in a platform and share their knowledge and experience to create new projects to make the sector more innovative, more attractive for the new investors and accordingly more competitive. Logistic Platform has also achieved the development of linkages between firms and R&D infrastructure. Cooperation linkages between firms and the university has also influenced positively. Leader of the Logistic Platform presented his opinions about the impacts of strategy on networking activities of the sector as:

“RIS-Mersin developed collaboration in the sector. There are joint projects and collaboration with EU and Çukurova RDA. We are getting support from university. Logistic and Foreign Trade Research Center was established. A department in the university will also be founded in the future”.

J. Atat- Chairman of Logistic Platform- Atako Holding

Logistic Platform has succeeded to link local institutions with national and even global sources. Undersecretariat of Foreign Trade and EU supported and participated to some projects and activities of the platform. The platform could effectuate its projects through these collaborations.

There also occurred new collaborations in international level. Attempts of the Logistic Platform provided the formation of new networks between local actors of RIS and global R&D units and Universities. Mersin Logistic Centre is planned as an innovative regional cluster and to be an open gate for the region to be able to enter to the global markets. The newly appeared international networks of the region's logistic sector are described as:

“Platform have set international collaborations, protocols were conducted with France and England. Joint training programs were organized. We have also attended abroad organizations, and invited them as speaker to the organizations in Mersin”.

F. Filik- Logistic Platform Secretariat- MCCI

Protocols and joint education programs have prepared with the logistics centers in France, Spain and England and the region started to take the advantage of external expertise and knowledge sharing. In summary, RIS-Mersin project has a strong impact on the networking efforts of the logistic sector. Linkages between local-regional-national institutions and also international institutions have provided a strong confidence atmosphere and synergy that maximizes the capacity for research and innovation activities.

Agro-Food Sector has also achieved to form network relations in regional, national and global level. Regional cooperation network through the Agro-Food Platform, Joint project networks and export linkages are the new collaboration and confidence networks formed with the impact of the RIStr. Collaborations with Çukurova RDA, Mersin Special Provincial Administration and Undersecretariat of Foreign Trade have evolved via the project partnership.

Agro-Food Platform has also provided a common dialogue platform and a confidence atmosphere for the actors of the sector to share knowledge and experiences embedded in the individual firm or institution. Firms operating in the agro-food sector have started to work together for a common goal of making the sector more innovative by creating more innovative products and production processes. Platform has also provided the recognition of the firms by the local and national institutions and enhanced the cooperation between the firms and the University. The leader of the Agro-Food Platform indicted that:

“Agro-Food Techno-Park will constitute an infrastructure for R&D activities and help to develop innovative products and production systems. RIS built collaboration between university and industry. Firms started to hold consultations with university. Required synergy to attract investors to the region is created and we can see that there is more interest and demand”.

S. Kazanç- Chairman of Agro-food Platform- ATKA Baharat

A many of agro-food firms consult with the university to make their production more innovative and improve their exportation skills. Especially with the implementation of the R&D 33 Pilot Project, so many firms operating in agro-food sector have developed collaborations with Food Engineering, Environmental Engineering, Agricultural Engineering and Mechanical Engineering Departments of Mersin and

Çukurova University and also with the Alata Horticultural Research Institute. Table-16 shows that the many of the firms cooperate with the Universities and research institutes in the content of the R&D 33 Pilot Action are the firms operating in agro-food sector.

Table 16: New Collaborations Appeared as an Output of R&D 33 Project:

Sector	Firm	University- Department
1-Agro-Food	Atka Baharat	Mersin University- Food Engineering
2-Agro-Food	GKM Gıda Katkı Maddeleri	Mersin University- Food Engineering and Environmental Engineering
3-Agro-Food	Cemre Tarım	Alata Horticultural ResearchInstitute/ Çukurova University-Faculty of Agriculture
4-Agro-Food	Pulp Tarım	Çukurova University- Faculty of Agriculture
5- Industry depends on soil and Stone	Trakya Cam	Mersin University- Mechanical Engineering
6-Machinery	Veldo Mekanik ve Bilişim Teknolojileri	Mersin University- Mechanical Engineering
7- Industry depends on soil and stone	Aşut Fiberglass	Mersin University- Mechanical Engineering
8-Machinery	Altunorak Kalıp ve Makine Sanayi	Mersin University- Mechanical Engineering
9-Agro-Food	Orgün Tarım Ürünleri-Gıda San.	Mersin University- Food Engineering and Environmental Engineering
10-Agro-Food	Dövenci	Çukurova University- Faculty of Agriculture
11-Agro-Food	Sami Mustafi (Entrepreneur)	Mersin University- Food Engineering and Environmental Engineering

Source: AR-GE 33 Pilot Action Publication

It is assumed that when the establishment of the Agro-Food Cluster is completed, network relations between firms, clients/customers, competitors and consultants and also between firms and R&D infrastructure will be stronger.

AGFORISE Project was appeared as an impact of RIS-Mersin project. The project, which is providing a joint project network, is an important attempt enables agro-food firms to reach external markets and new sources of knowledge and information. AGFORISE Project aims to form an agro-food clusters platform with common long-term research and innovation strategy towards economic growth and prosperity. The

partners of the project are three regions from Italy, Spain and Turkey. These three partners are Mersin, Murcia in Spain and Emilia-Romagna in Italy. This platform provides information dissemination and technology transfer between local actors of Mersin region and firms, research centers and universities in Murcia and Emilia-Romagna. This complementariness and synergy between three regions provide the maximization of the capacity for research and benefit from each other's research infrastructures in order to achieve improvement in economic growth, sustainable development and global competitiveness of the region. The project owner in Mersin Region is Mersin Special Provincial Administration and they explained the impacts of the innovation strategy:

“Special Provincial Administration is the member of Tourism and Agro-Food Platforms. We are included in the activities of the cooperation platforms but there is not any individual innovative activity which is executing by our institution. It can be said that we are influenced by RIStr in terms of project creation. AGFORISE project executing by Special Provincial Administration can be introduced as an important impact of the innovation strategy. This project puts the key actors of the agro-food sector together and also renews the regional potentials”.

Mersin Special Provincial Administration

RIS-Mersin Project has provided the formation of new cooperation networks in tourism sector. Tourism Platform of RIS-Mersin is an important institution enhancing the cooperation between local actors of the sector. Networking between firms, local institutions and university has influenced positively. Cooperation between firms is described as the strongest among all these collaborations. This cooperation networks and the other activities of the platform criticized as:

“RIS Mersin is very successful by the means of creating cooperation especially in regional level, between firms. RIS-Mersin became an example for Turkey. There are 37 projects being executed by Tourism Platform in collaboration with public and private institutions. This number could have been less. We need government support for advertising and budget. Advertising activities for Mersin must be increased”.

H. Yeni- Member of Tourism Platform- Bumer Tourism

With the projects of the Tourism Platform, new collaborations developed with local, national and also with international institutions. Mersin University, EEN, Turkish Employment Authority (İŞKUR), Ministry of Culture and Tourism, Geneva (Greece) Development Agency and Austrian Federation of Business (FADE) are

some of these institutions participated and supported the projects developed by the Tourism Platform. The secretariat of the platform summarized the new collaboration networks appeared with the impact of the RISTr:

“Cooperation and collaboration activities have accelerated in the sector. We have started to attend to the expositions as a group. Platform’s coverage area and the number of members have increased. Joint projects are being executed with EEN, there is also collaborations with the University. A certificate program is being tried to build up with the cooperation of MCCI – Mersin University and İŞKUR”.

V. Arslan- Tourism Platform Secretariat- MCCI

“Developing Effective Marketing Tools in Tourism Sector’ project was executed with the cooperation of Greece Greneva Development Agency and FADE, i.e. Austria Entrepreneurs Federation. Mersin Tourism Strategy is developed by IBM-UNDP-DOT. Marketing Strategy Plan and SWOT analysis were made”.

V. Arslan- Tourism Platform Secretariat- MCCI

Tourism sector is lagging behind the other two sector in terms of reaching external markets and new sources of knowledge and information. The reason of this is stated by the secretariat of the strategy as:

“Tourism is the least developed sector. Logistic and agriculture sectors are in a certain development level but there is almost no tourism sector. So platform activities are going very slow. Tourism sector is tried to be developed. The activities to make the sector more innovative and to produce more services with high value added have not been started yet”.

Ö. Homurlu- Monitoring of the Strategy- MCCI

Tourism Platform has an important role in the formulation of cooperation culture between the actors of sector. Regional actors attend to the every kind of decisions important for the future of sector. Platform is working actively in an interactive collective manner for the elimination of the negative factors treating tourism, such as the prevention of fish farms and nuclear plant. The leader of the platform stated that:

“The platform has an important role in the elimination of the threats effecting development of the sector negatively. We are also carrying on new activities including the activities of evaluation of the unused tourism resources, restoration in the historical city centers and urban transformation. These projects are the result of the strong cooperation and trust relations between the actors of the sector built with the impact of the platform”.

N. Olcar- Chairman of the Tourism Platform- Olcar Tour

Mersin has founded new linkages with the international networks and become a member of Enterprise Europe Network (EEN). EEN provides supporting facilities including the subjects of technology transfer and innovation, research and commercial cooperation, EU Legislation and financial resources. These activities are executed by 600 associate enterprise of the network.

RIStr has achieved building intense cooperation networks between firms, between firms and the regional and national institutions, between local and national institutions and between the regional institutions, firms and the international institutions. Stakeholders of RIS-Mersin project are all of one mind that the effectiveness of the strategy is in high levels in terms of the networking activities. Sectoral Platforms constitute the base of the cooperation and collaboration networks in the region and their scope should be enlarged. Government support is essential to strengthen the Sectoral Platforms and also developing the ability of region to reach the external networks.

4.3.5. Projects, Products, Services, Skills:

As mentioned in the previous sections, regional competitiveness is based on regional resources and region's socio-institutional capability that satisfy it renewing this resource base in an interactive and collective learning process in order to increase regional productivity and innovativeness. To be able to gain competitive advantage in the global market, regions should host innovative enterprises which can create new products, services and production processes. The ability of regions creating projects is also important for the improvement of its innovation base and achievement of competitive advantage. Eraydın (2002) emphasized that the participation in the large international projects can give the region a high profile and initiate the trust between partners and teach the integration of work processes. Innovation process is a social and interactive process which has outputs such as new products and services, new skills, new production methods and new organizational set-ups. This part of the study will attempt to display the region's ability of producing new knowledge or combining knowledge in new ways and turning it into economically profitable products, services and processes and also the ability of creating new projects in order to strengthen her innovation infrastructure.

The last research question of thesis is whether there are any new projects, products, services and skills gained during the implementation of the strategy? Stakeholders of the project introduced the productivity side outcomes of the project as new projects, products, services and skills gained and increments in business volume and being in a project partnership. It is seen that there appeared new innovative projects in the region which provide to use regional resource base in an interactive and collective learning process in order to increase regional productivity and innovativeness and strengthen the innovation infrastructure of the region. If the projects offered to the Çukurova RDA were examined, it is seen that Mersin is in the front rank compared with the other provinces in terms of the number and quality of projects.

“The project creation, managing, timing, financing and budgeting skills of the firms have been developed during this implementation period of innovation strategy. Among the project proposals, given to Çukurova Regional Development Agency, Mersin got the first place by the quantity and the quality of the projects proposed”.

S. Kazanç- Chairman of Agro-food Platform- ATKA Baharat

The total number of accepted projects in the content of the Çukurova RDA 2008 program are 94 and 51 of these projects are from Mersin region and 43 is from Adana region (www.cka.org.tr). Projects with international partners and joint projects developed in the content of RIStr are summarized in the following table. It is seen that RIS-Mersin has provided new linkages with foreign regions and international organizations and this collaboration provides the diffusion of knowledge, experiences and skills across the borders and give Mersin a high profile and attractiveness for new investments and partnership. Table 17 presents fourteen large international projects executing with the partnership of foreign regions and international organizations.

Table 17: Joint Projects with International Organizations

	Name	Coordinator	Partners-Associates
1	EKOLOG-33: Young Ecological Entrepreneurs in MERSİN	Mersin Young Businessman Association	Legambiente- Roma-Italy Antigone Information and Documentation centre on Racism, Ecology, Peace and Non- Violence- Salonika-Greece
2	Developing a Chain of Rural Youth Between Turkey and Europe	İçel Art Club	Bulgaria, EUROPARTNERS 2000 Foundation Associates: schools, associations and educational institutions in France, Netherlands, Spain, Portugal, Denmark, Romania, Estonia, England, Slovenia, Slovakia, Germany, Greece, Macedonia, Albania
3	Training of Qualified Intermediate Personnel in Service Charges of The Tourism Sector	MCCI	Mersin University, Alsaca Vocational Training Centre- France, Mersin Anatolian Girls Vocational High School
4	AGFORISE-Clustering in Agricultural Food Sector	Mersin Special Provincial Administration	Mersin, Emilia Romagna Region- Italy, Murcia Region-Spain
5	CASE	TOBB	European Union of Chambers of Commerce and Industry (EUROCHAMBRES), TOBB, Bulgaria Union of CCI, Croatia Chamber of Economy, Romania CCI
6	IBM-DOT Social Responsibility Project	IBM	United Nation Development Program(UNDP), State Planning Organization, Private Sector Volunteers Foundation- Associates: MCCI, TechnoScope, Mersin University, MCST, Mersin Tourism and Logistic Platforms
7	Business Angels Network and Entrepreneur Academy Project for Financing of Innovative Business Ideas	MCCI	Şanlıurfa CCI, Liverpool CCI, Thames Valley Trade and Industry Chamber Group - Associates: Mersin TechnoScope, Çukurova Development Agency, Innovation Association, the European Business Angels Network (European Business Angel Network - Eban)
8	Training of Innovation Managers for the improvement of Innovation Capacity of SMEs	MCCI	Institute of Technology-Castilla Leon (Spain), Atlantis Research Institute (Greece), METU Technopolis, Adana Chamber of Commerce, Delhi KOSGEB, KOSGEB Mersin, Mersin University
9	Çukurova Region Innovation Based Energy Cluster	British Embassy and Technopolis	Private Sector, Public Sector and Civil Society Organizations Operating in Energy Sector in Mersin and Adana
10	How Green is My Firm	İstanbul Chamber of Industry	MCCI, Valencia Chamber of Commerce- Spain
11	Development of the vocational Qualifications of Logistic Planning Staff	MCCI	France - Drome Chamber of Commerce and Industry
12	Mediterranean Business Support Network	EEN- KOSGEB- K.Maraş Bussiness Development Center	Adana Chamber of Commerce, MCCI, Antalya CCI, Kahramanmaraş CCI
13	Accessibility Network For Turkish - Greek Societies (Actus)	Mersin University	Salonika Aristotle University
14	Mersin and Drama Municipalities Cooperation on Accessible Tourism	EU Secretariat	Local Union Of Communities And Municipalities Of Drama District- Greece, Toroslar Municipality

On the other hand, region is still too weak in the creation of innovative products and their marketing and distribution. As mentioned above, region also lacks efficient institutional bodies that facilitate the appropriation of innovation, effective mechanism for technology diffusion and learning, support services for innovating firms and incubating activities in order to support entrepreneurs at the earliest stage of technological entrepreneurship process. Mersin has started to establish these institutions in the content of the innovation strategy, but not the whole structures have completed yet. The necessity of diffusion of knowledge in the form of an innovative product is described as:

“Knowledge must reach to the end-user to become valuable. To export and being profitable is very important. So, you need new products produced with innovative knowledge and you have to export in order to deliver those products to the end-users to get profit”.

T. Gök- Mersin University

However, innovation strategy is at its preliminary stage and thus we cannot just see any concrete outputs in terms of the creation of innovative products, production processes and services. The first two year action plan has been completed; however, not all of the activities introduced in this plan were achieved. Moreover, the preparation stage of the strategy, which was containing the activities of the introduction of innovation concept along with and increment of the awareness of region’s actors on innovation, has got over the expected time period and covered a long time interval in the ten year implementation stage of the strategy. This ten year innovation strategy attempts to establish the necessary institutional structures, policy instruments and social capital to support the production of innovative products. When these objectives of the strategy are achieved, firms and the sectors in region will start to produce innovative products and the number of patents and innovating firms will be expected to increase. The activities of RISTr for the promotion of production of innovative products and region’s ability explained as:

“We are arranging innovation competition annually and third one was completed recently. However, I can not say that these winning products are literally innovation. The aim is to teach the firms innovation and to encourage them produce innovative products”.

İ. İlkyaz Gül- METU Technopark

Innovation competition has not yet achieved its objective in the proper sense; however, it can be said that it is a successful action for the encouragement of innovation. Evaluation of the outcomes of RIS-Mersin project from the production side is done via the three leading economic sectors. The common gain of these economic sector and region in general is the four **Pilot Projects** that have arisen following the implementation of the innovation strategy. Pilot Projects, which are beneficial experimentations and experiences, have become successful and repetitions of the projects still continue. Region has gained the skills of adoption to the clustering approach, creation of collaboration culture and development of the skills of project creation, execution, timing and financing. Stakeholders agreed on the thought of the effectiveness of the RIS-Mersin in terms of providing new skills:

“After RIS, the project creation and management skills of the firms and institutions in the agro-food sector are improved”.

P. Özal- Agro-Food Platform Secretariat- MCCI

“Awareness was created in the region, new skills and experiences were obtained. Projects are being executed but infrastructure has not been completed yet”.

İ. İlkyaz Gül- METU Technopark

“The most important acquisition of the university from the project is the research centers and the publications. We have become a reference guide for RIS; we have gained new skills and experiences. RIS Mersin and Mersin University has become a trademark and university made itself a reputation”.

T. Gök- Mersin University

In logistic sector, being one of the important economic sectors of the region, successful projects have been created to enhance the innovative and competitive power of the sector and accordingly competitiveness of the region. Important projects of the platform completed up to now are:

- The preparation of the logistics master plan by the Mersin Governorship,
- The foundation of the Logistics and Foreign Trade Research Centre within Mersin University,
- Preparation of research papers about the current situation of the sector in Mersin and in Turkey and about the successful cases in Europe,
- Collaboration activities among the training institutions operating in logistic,

- The preparation of the project of Mersin Logistics Centre.

Mersin Logistic Centre is planned for 46 firms and majority of these places have been allocated to the new investors from region and also out of the region. Thus, new investments and capital have attracted by the region. This center will work as a cluster containing various activities necessary for a well operating logistic sector. Logistic Center Project is an innovative product appeared with the impact of RIS-Mersin project.

Mersin Logistic Platform has also developed projects to improve the labor market conditions in sector. These projects are:

- Academy Logistic Project (second turn of the project)
- Mersin Logistic Professionals Project (Çukurova RDA)
- Development of Professional Qualifications of the Staff Working in Sea Transportation (AB)
- Development of the Professional Qualifications of Logistic Staff.

Number of these projects increases regularly and it is obvious that logistic sector in Mersin has started to be more innovative by creating new innovative ideas and projects to make it differentiated from its competitors.

Implementation of these projects provided firms and institutional actors of the sector to generate new projects and learned new skills such as project management, financing, timing and establishment of new partnerships.

Mersin Agro-food Platform has been executing several projects with the impact of the RIStr. These projects aim to improve the competitiveness of the sector by satisfying the production and marketing of innovative products. These new continuing projects of the platform are:

- Marketing Innovation for Exportation (RDA, State Planning Organization),
- Traceability and Raising Awareness in Agriculture Sector (Special Provincial Administration),
- Development of Clustering Projects (Undersecretariat of Foreign Trade),

- Agriculture Master Plan (Mersin Special Provincial Private Administration).

Establishment of the Agro-food Cluster is the most important activity of the Agro-Food Platform in order to improve the creation of innovative production processes and innovative products. The cluster will contain the facilities of production, training advertising, sample farms, product development, consultancy, R&D and University-Industry collaboration. Establishment of the Agro-Food Technopark will be completed in parallel time period with the establishment of the cluster. The number of innovative products will increase after the beginning of the operation of the cluster and the Agro-Food Technopark.

These activities and projects generated under the scope of RIStr created a positive environment for new projects in agriculture sector. AGFORISE project is a new project prepared by Mersin Special Provincial Private Administration and aims to create a common dialogue platform and a joint action plan among the agro-food clusters. The project is supported by the “Regions of Knowledge (ROK)” initiative which is a pilot action presented in the content of EU 7. Framework Program. The Project has a consortium formed by 3 partners from 3 different regions, i.e. Mersin in Turkey, Emilia-Romagna in Italy and Murcia in Spain, and this joint action of agro-food clusters from different regions aim to maximize capacity for research and create a synergy for innovativeness in the sector. Thus these collective activities of agro-food clusters will make a contribution to sustainable development, prosperity, economic growth and global competitiveness of the region.

Private sector companies operating in the agriculture sector started to create their own projects to improve their innovation infrastructure. There are a number of firms being in project partnerships with the university and the research centers located in the region. Regional actors of agriculture sector have started to carry out new projects and entrepreneurship and innovation activities started to increase in the sector. As a result, agriculture based activities and projects of the RIStr generated an increase in innovation activities and entrepreneurship of agricultural firms.

The last sector examined in terms of its gains from the RIStr is the tourism sector. The number of projects prepared for Tourism sector is more than the other two sectors. There are 37 projects generated by tourism platform. Some important projects of the platform completed up to now are:

- Göksu Delta – Eco-tourism Project,
- Training of Qualified Intermediate Personnel of The Tourism Sector Project,
- Innovative And Productive Women Project (for the production of souvenirs),
- 2008 Year of St. Paul & 2008 Year of Intercultural Dialogue Opening Event Project,
- St. Thecla Faith Tourism Project,
- Regeneration of Mersin Historical City centre Project.

There are much more projects still goes on and new ones are added to these existing ones. One of the most important activities of the tourism platform not completed yet is the preparation of Tourism Master Plan by Mersin Special Provincial Private Administration.

New products generated by the sector are new tourism destinations and tourism types. Development of new tourism destination actions is still in progress. New actions are being planned to create new investments in various alternative tourism types, such as eco-tourism, winter tourism and faith tourism. 2008 Year of St. Paul is an innovative product of the tourism sector formed with the impact of innovation strategy. Production side gains of the tourism sector and barriers expressed by the stakeholders as:

“There are not any product or service outputs received from RIS-Mersin in tourism sector yet. New destination and product development activities are still going on. Creating awareness is very important and we are aiming to do so by faith tourism and eco tourism”.

V. Arslan- Tourism Platform Secretariat- MCCI

“A catalog activity were made for faith tourism and presented to foreign countries but we have not received any outputs yet. We give more importance to projects on faith and cruise tourism but there is a budget problem. There are many good expositions abroad but we cannot participate”.

H. Yeni- Member of Tourism Platform- Bumer Tourism

Platform also launched a project in order to support the production of souvenirs and memories carrying traditional motifs. Innovative souvenirs were designed by Mersin University Faculty of Fine Arts with the partnership of Mersin Chamber of Craftsmen and Artisans, Mersin University, İçel Art Club, Tarsus Municipality, İçel Foundation of Crafts and Education and Public Education Centre.

Private sector firms in the sector have also started to make an effort to turn their products and services into more innovative forms. Most of the firms prepared new activities for faith tourism and they printed catalogues and sent them to foreign countries. New projects and ideas are continuously generated in the sector.

Stakeholders of RIS-Mersin indicated that the production of innovative products, services and production processes is still limited in the region. On the other hand, it will be useful to look at the number of patent, trademark and industrial design applications following the implementation of RIStr. The number of applications for patent and useful model, trademark and industrial design are determinants of the attempts for innovative production in a region. As for the Turkish Patent Institute data, the numbers of patent and useful model applications from Mersin were 20 in 2006, 37 in 2007, 42 in 2008 and 42 in 2009. The number of industrial design applications was 20 in 2006, 32 in 2007, 33 in 2008 and 23 in 2009. Applications for trademark were 852 in 2006, 752 in 2007, 801 in 2008 and 838 in 2009. One of the main objectives of RIS-Mersin Project which is needed to be reached for the realization of the vision of the Project is that “at least 50 patent applications will be filed until 2016”. In the year 2009, there are 42 patent applications from Mersin. Following the year 2006, which is the origin of the Innovation Strategy, the number of applications for trademark, patent and industrial design were started to increase year by year and this increment shows the region’s ability to turn its products in a more innovative and valuable form.

Table 18: Trademark, Patent, Useful Model and Industrial Design Applications from Mersin Region

Year	Trademark		Patent+Useful Model		Industrial Design	
	Application	Registry	Application	Registry	Application	Registry
1995	69	37	1	0	0	0
1996	77	30	2	0	1	0
1997	173	36	4	1	2	1
1998	94	44	4	3	2	3
1999	197	109	1	2	4	3
2000	206	118	4	1	4	1
2001	143	80	8	0	1	4
2002	192	119	12	2	11	7
2003	267	86	17	2	9	8
2004	443	161	14	10	12	8
2005	738	242	18	10	27	16
2006	852	447	20	9	20	17
2007	752	518	37	13	32	24
2008	801	479	42	18	33	24
2009	838	433	42	21	23	20

Source: Statistics of the Turkish Patent Institute

4.3.6. Evaluation of the Effectiveness of Mersin Regional Innovation Strategy:

RIS was described as ‘the institutional infrastructure supporting innovation within the innovation structure of a region’ (Asheim and Gertler, 2005). It was also emphasized in the previous chapters that RIS in a region determines the effectiveness and efficiency of the generation and transfer of the regional knowledge among the different integrating parts of the system, including individual firms, sectoral/value-chain clusters, business consultants, technology centers, R&D centers, university departments, laboratories, technology transfer offices, development agencies and other similar institutions and this transfer occurs through networks and labor. Institutional structure, cooperation networks and the labor market conditions of a region are important for the establishment of an efficient and well operating innovation system. Institutions; that are government bodies, knowledge institutes, innovation intermediaries and entrepreneurship promotion infrastructures and networking characteristics; that is cooperative culture, interactive learning and associative consensus, are the important determinants of an innovation system and required to be satisfied.

In the content of the thesis, in depth interviews were conducted with the stakeholders and the achievements of the region in terms of networks, institutions, labor market conditions and production side improvements were graded. The following table has been prepared as an output of this study. Stakeholders were stated that the strategy has become most influential on the networking subsystem of the RIS. The weakest system part is also introduced as the labor market conditions of the region.

Table19: Evaluation and Grading of the Stakeholders’ Opinions

SECTOR	ACTOR	Institutional structures	Employment, labor market dimensions	Cooperation Networks	New projects, products, services, skills
Logistic	MCCI	*****	*****	*****	*****
	MCST	*****	*****	*****	*****
	Atako Holding	*****	*****	*****	*****
	Mersin University	*****	*****	*****	*****
Tourism	MCCI	***	****	***	**
	Olcara Tour	**	****	**	*****
	Bumer tourism	**	***	***	**
	MSPA	**	**	***	****
Agriculture	MTOIZ	*****	*	*****	*****
	Atka Baharat	*****	**	*****	*****
	Mersin University	*****	**	*****	*****
	MSPA	*****	*	*****	*****
impact on the region	MCCI Monitoring	*****	***	*****	*****
	METU Technopark	**	**	*****	**

MCCI: Mersin Chamber of Commerce and Industry

MCST: Mersin Commerce of Sea Trade

MSPA: Mersin Special Province Administration

MTOIZ: Mersin Tarsus Organized Industrial Zone

***** Influence and effectiveness of Regional Innovation Strategy is in high level

* Influence and effectiveness of Regional Innovation Strategy is in low level

Cooperation networks have appeared as the most influenced part of RIS as a result of the RIStr. Networking among different actors of RIS is the basic activity of the system. Networks of firms, regional government organizations, sectoral associations, technology centers, business services and technology consultants, business intermediaries and clusters enable knowledge transfer among these different parts of

the system. The linkages of these various actors provide to turn knowledge into innovation and accordingly into competitive advantage. Before RIS-Mersin Project, the cooperation networks between institutions of innovation system of Mersin were very poor and also there were missing institutional structures that were necessary for an efficient innovation system. After the strategy the system has gained new institutional structures which support cooperation, local-regional and also global-national networks and innovation based growth. Strategy has been effective in supporting to form an efficient RIS with its financial organizations, innovation promoting organizations, sectoral associations, public and private governance organizations, innovative production clusters and scientific organizations. Newly established institutions of clusters and sectoral learning platforms in region has made her more open to joint innovation and allowing firms and other institutions using each other's knowledge, experiences and technology infrastructure to achieve to create more innovative ideas.

Sectoral Platforms of RIS-Mersin have created a common dialogue platform and enhanced especially the regional cooperation network and described as the base of the cooperation and collaboration networks in the region. Networking activities of the sectoral platforms have become effective in developing cooperation and confidence linkages between the different actors of the sectors and also between the different sectors in both national and international level. Logistic sector has developed successful linkages between local-regional-national institutions and also international institutions and these networks have provided a strong confidence atmosphere and synergy that maximizes the capacity for research and innovation activities of the sector. Agro-Food Sector has also achieved to form network relations in regional, national and global level. Tourism sector has gained new networks between firms, local institutions and university and especially cooperation between firms operating in the sector is described as the strongest among all these collaboration networks. However, tourism sector is lagging behind the other two sector in terms of reaching external markets and new sources of knowledge and information.

Interaction and openness are the two critical success factors of effective regional innovation systems introduced by Innovating Regions of Europe Secretariat working group. Mersin RIStr has stated to establish new and strong linkages and interactions between different parts of the innovation system. Since the current networks are not functional in Mersin, it is obvious that building these networks and creating trust among the different actors will take a long time. The triple-helix relations play an important role in stimulating knowledge-based economic development; however, improving the university-industry-firm relations have limited only with the implementation of the R&D 33 pilot project. Mersin RIStr has not made a good start in this field of action up to now and it is essential to strengthen the triple-helix relations and to develop new mechanisms for better coordination of the innovation system. **Openness** is also a crucial success factor not only to allow the generation of new ideas, products, services and processes in the region but also to facilitate the relations between the various actors that intervene in the system. Mersin has founded new linkages with the international networks and become a member of Enterprise Europe Network and Innovating Regions of Europe Network. Moreover there are several projects being executed with foreign partners. In spite of these efforts, the innovation system still has a closed characteristic and the external linkages should be strengthened.

Practical-oriented recommendations have been proposed by the working group regarding the strengthening of the networks in the RIS are consulting the stakeholders, engaging different regional actors, encouraging cooperation and improving regional coordination. These recommendations should be considered in the next action plan of the innovation strategy and new tools and organizations should be introduced for these purposes.

Institutional gains of the Mersin RIS were stated as in good levels by the stakeholders and it was also indicated that there is a need for the creation of more new essential bodies to accelerate the development of innovation systems. Agro-food sector is seen as the most successful sector establishing new innovation promoting institutions. Logistic sector is also in a good condition in terms of establishing new institutional bodies. Tourism sector is the weakest leading sector in terms of creating

new institutional structures and needs much more new bodies to increase the innovation base.

Diagrammatic representation of a RIS, which was presented in the third chapter of the thesis, shows these socio-institutional components of an innovation system. First part of the system is the knowledge generation-diffusion subsystem contains the educational organizations, research centers and technology mediating organizations. Second part is the knowledge application and exploitation subsystem covers the regional clusters. R&D competencies and skilled labor determines the linkages between these two parts of the system. Finance-subsidies-innovation and cluster policies are the third important part of the innovation system and these policies also support these regional clusters.

RIS-Mersin Project has introduced the major players of the Mersin Innovation System and the current innovation system in the region was presented in the previous chapters. These introduced major components of the system are: government bodies, private sector companies, universities and research centers, associations, unions and other non-governmental organizations as intermediaries, innovation infrastructure such as the technology parks and business incubators, and banks as finance providers. Actors lacking in this current system were also presented as the institutional business networks, in other words clusters, technology transfer structures, innovation financing mechanisms and advanced consultancy services. The activities of RIS-Mersin Project have stimulated the region to be able to establish these kinds of institutions which are necessary to strengthen the regional innovation capacity.

It is obvious that there is not a regional innovation finance mechanism and there was only a small number of knowledge producing organizations in the current innovation system of Mersin. The Business Angels Network Project of the Mersin Chamber of Commerce and Industry, which is an impact of RIS-Mersin project, is a new institutional structure aims to complete the institutional parts which are missing in the current RIS of Mersin. Business Angels Network will work as an innovation

financing mechanism and an advanced consultancy service which are the important factors to support the innovative entrepreneurs.

Mersin University, Çağ University, Silifke Taşucu Vocational High School of Selçuk University, Institute of Marine Sciences of METU and Alata Horticultural Research Institute are the existing knowledge producing organizations in the system. After the implementation period of the innovation strategy new institutions have been added to the system. Logistic and Foreign Trade Research Center and Tourism Research Center which have been established within the Mersin University are the two of these new organizations. Food Technologies Vocational High School, established with the partnership of Mersin University and Mersin-Tarsus Organized Industrial Zone, is another knowledge producing organization appeared with the impact of RIS-Mersin project. There are also two new knowledge generating organizations which are still planned to be established. The two of these institutions are Agro-food Training Center and Agro-food Technopark. These new institutions constitute the knowledge generation and diffusion subsystem of the region and also the components of science base and technology centers parts in the Figure 6 of An Efficient Regional Innovation System. Mersin RIS is still too weak in terms of these knowledge generating institutions, especially scientific organizations. The existing institutional bodies and also the newly established ones are not operating effectively and weak in promoting innovation. Innovation Strategy should create new tools, institutional bodies and policies to promote R&D activities and technology/knowledge transfer actions.

A well prepared **strategy** is also one of the success factors of an efficient RIS and the strategy should include activities promoting the development of clusters, supply chains and company networks. Agglomerations (clusters), networking and social capital (institutional background) are also the main drivers of the RIS. **Clusters**, described as the institutional business networks, are stated as the missing actors in the current RIS of Mersin. Clusters are the knowledge application and exploitation subsystems of the RIS. RIS-Mersin project achieved the formation of new sectoral clusters in the region. Logistic Center and Agro-Food Platform are the new clusters created with the impact of RIStr. These clusters are composed of large firms, SMEs,

sectoral associations and R&D centers and the cooperation links between these units. RIS-Mersin Project aims to establish new cooperative platforms putting together all related actors in region and operate as leader organizations for innovation and project preparation. These platforms have formed the sectoral association part of the innovation system. Mersin Tourism, Logistic and Agro-Food Platforms are the sectoral associations which are the core of the sectoral clusters and provide cooperation networks between firms and other institutions and technology centers. Knowledge application part of the Mersin RIS is more developed compared with the other two institutional subsystems; however, needs a more institutionalized form and the engagement of more actors and strong leaders.

RIS approach is highlights that regional authorities can shape local learning and innovation processes in such a way by providing R&D infrastructure and educational infrastructure, supporting academic spin-offs, enhancing human capital and enhancing the formation of social capital. In this innovation system, regional **governments** have different roles such as a catalyst, a facilitator and a broker in the articulation of a RIS. Public and private governance organizations can be summarized as trade associations, chambers of commerce and vocational training organizations and we can see that the RIStr of Mersin covers all these governmental organizations as the members of the cooperation platforms and the improvement of the innovation infrastructure of the region is being realized through these platforms. Regional Innovation Steering Committee is a new institutional structure of the RIS and this new institutional structure will be the first step to move the centrality of system into a more regional form. **Steering** is also necessary in order to regulate the effectiveness of the innovation system through appropriate guidance and coordination of the activities undertaken by the various stakeholders. RIS Mersin project is achieved the formation of an Innovation Steering Committee including different stakeholders who has leadership qualities. The institutional structure of the committee should be strengthened and be turned to an independent institutional body that will execute the activities of monitoring and assessment of the innovation system and also benchmarking, which are the indicated recommendations of the IRE Working Group for an effective innovation system.

The **labor market** dimension is an important element within RIS approach, since processes of learning and knowledge transfer occur through regional workforce in which the knowledge is embedded in. RIS Project provided implementation of new projects to train and improve the skill level of labor force and these projects contain successful employment oriented pilot projects (Entrepreneur-33 and Export-33). In general, it can be said that the strategy has provided limited improvements in the training of new skilled labor and employed them in the region. Interviews showed that there occurred different gains in the content of labor market in terms of different stakeholders and different sectors as presented in the table 19. The impact of RIStr in the labor market facilities of logistic sector is in high level and indicated achievements are the improvement of skill levels of the labor employed in sector, increment in the number of skilled labor and the increase in employment. The impact of RIStr on the labor market conditions of agro-food sector is still weak but in the long turn with the completion of the Agro-Food Cluster, Agro-Food Training Center and Agro-Food Technopark projects, sector will start to accelerate its potentials to make its labor force more qualified. On the other hand, RIStr has not yet created any impact on the skill level of labor employed in tourism sector. Moreover, it is seen that the number of researchers employed in the sectors promoting innovation is still in too low levels. Workforce skills development and supporting the high-tech, high-growth entrepreneurship is the necessary recommendations which should be considered while preparing the activities, policies and projects directed to the improvement of the labor market conditions.

Following this brief discussion of the effectiveness of Mersin RIStr through the evaluation of the achievements of fundamental parts of innovation system, effectiveness of RIStr on the fourth part of the thesis research frame will be discussed. In other words, the effectiveness of RIS-Mersin in the improvement of the ability of region to create innovative **products, services, production processes, projects** and to gain new **skills** will be discussed. Innovation strategy is a new attempt and thus there still are not any concrete outputs in terms of the creation of innovative products, production processes and services.

A lot of new innovative projects have been developed in the content of RISTr and some of these have international partners and joint projects. On the other hand, region is still too weak in the creation of innovative products and their marketing and distribution. RIS-Mersin is still a general strategy and not reaches the firm level. The strategy has established the required institutional organizations, social environment, labor market conditions and networks through the activities and projects in this first stage of three years. Innovation support needs of firms should be examined in a systematic way in the next stage of RISTr in order to mobilize the right actions and resources to improve the regions ability to create innovative outputs and to be attractive.

Region has gained new skills, such as the adoption to the clustering approach, creation of collaboration culture and project creation, execution, timing, financing skills. Stakeholders agreed on the thought of the effectiveness of the RIS-Mersin in terms of providing new skills and creating new projects.

There are a lot of projects executing by RIS-Mersin Logistic Platform and it is seen that the sector has started to be more innovative by creating new innovative ideas and projects; for instance, Logistic Center Project. Establishment of the Agro-food Cluster and Agro-Food Technopark is also important projects of the Agro-Food Platform that have been prepared to improve the creation of innovative production processes and innovative products and created a positive environment for new projects in agriculture sector, i.e. AGFORISE project. The other leading sector of the strategy, that is tourism sector, is the leader sector in terms of the number of projects prepared. There are 37 projects prepared by the tourism platform. In spite of these projects, the sector is still weak in producing innovative products and services. On the other hand, it is also seen that tourism firms have also started to make an effort to turn their products and services into more innovative forms.

Table 19 shows the stakeholders' opinions about the production side achievements of region. Stakeholders considered only the number of projects prepared and skills they gained following the implementation of the RISTr and accordingly graded this part of the thesis research as in high success level. On the other hand, they also indicated

that the production of innovative products, services and production processes is still limited. Furthermore, it is seen that the number of applications for trademark, patent and industrial design increases year by year and this increment shows the effectiveness of RIStr in improving region's ability to turn its products in a more innovative and valuable form.

This newly occurring form of the Mersin RIS resembles the **Regionally Networked RIS** definition of Asheim and Gertler (2005). As stated in the previous chapters, this Regionally Networked RIS is also regionally embedded and characterized by localized interactive learning. Its structure of being planned by policy interventions and cluster of firms surrounded by a regional supporting institutional infrastructure and its openness to the external world through networks differentiate it from the Territorially Embedded type of RIS.

CHAPTER 5

CONCLUSION

This study has attempted to evaluate the social and institutional achievements of Mersin Regional Innovation System with the aim of exploring the effectiveness of Regional Innovation Strategy.

Forces of globalization and the emergence of the innovation oriented knowledge economy have increased the importance of knowledge and innovation for regions to be able to sustain their regional competitive power and it is also emphasized that the competitiveness in regional term is based on regional resources and social and institutional capabilities in order to be able to innovate and attract the flows of the global economy. Being an innovation oriented regional policy; RIS is a social system provides regions to use their potentials and network relations for continuous innovativeness and regions have started to prepare RIStr in order to improve their innovative capacity and establish a well functioning RIS.

Support for the promotion of innovation in less developed regions has been generally inadequate in quality and quantity to require their economic development needs and Regional Innovation Strategies have been encouraged to overcome these problems. In 1990s, European Commission provided new supports for European regions to encourage them for carrying out RIStr Projects. Today, innovation oriented regional policies are seen as the important tools to sustain competitive power in the knowledge economy and these strategies are also beneficial policy tools to be able to formulate efficient RIS. The RIStr of Mersin (RIS-Mersin) Project is the first RIStr in Turkey and financed by the European Commission under the Sixth Framework Program. The vision of Mersin has been defined in the strategy as “becoming a

region with high life quality and knowledge and innovation based sustainable economy” and the fundamental goal of the strategy is to develop innovation capabilities of enterprises in Mersin. The strategy aims the increment in quality of life, generation of new jobs and a sustainable regional economy with achievement of the defined fundamental goal. Logistic, agriculture and tourism, which are the most important sectors stimulating economic development in Mersin, have been chosen as the leading sectors of the Innovation Strategy. It was emphasized that the RIS approach generally focuses on SMEs but is not limited only with high tech sectors and contains also the traditional sectors as well as the service sectors which tend to be important in less favored regions. Mersin RIStr is different from the strategies of the other regions in IRE network, because of being a general strategy and not only focuses on SMEs in high-tech sectors, but also contains the traditional and service based sectors.

The thesis aims to evaluate the social and institutional achievements of Mersin RIS following the implementation of Mersin RIStr. The main question of the thesis is whether the RIStr of Mersin (RIS-Mersin) has been effective for the improvement of innovation system in Mersin. It was emphasized that the RIS is a social system with an emphasis on institutions and their networks. In accordance with this description of RIS, the thesis has attempted to evaluate the social and institutional achievements of Mersin RIS following the RIS-Mersin project by searching for the answers of research questions through three sectors and from the stakeholders’ point of views. Research questions answered by the stakeholders are: the existence of new innovation supporting institutions established in region, improvements in labor market facilities with the impact of the strategy, new collaboration and confidence networks formed with the impact of the strategy and new projects, products, services and skills gained during the implementation of the strategy. Answers of these questions have displayed the improvements in the main components of RIS and the improvements in the ability of region in producing new knowledge or combining knowledge in new ways and turning it into economically profitable products, services and processes and also the ability of creating new projects in order to strengthen her innovation infrastructure.

This part of the thesis will attempt to present the achievements of the region in general terms and also the achievements of the three leading sectors in terms of institutional settings, labor market situations, collaborations created and production side. General achievements of region can be summarized as the preparation of Regional Innovation Strategy, development of urban consciousness, improvement of the innovation culture, increment in the image of the city and determination of the vision and the future development concept of the city. With the impact of Innovation Strategy, all regional actors have begun to work together for the future of city and carry out new projects to improve the innovation capacity and infrastructure of the region. Moreover, the interest of young people to the entrepreneurship and innovation activities started to increase and RIS-Mersin project generated an increase in firms' innovation activities and also entrepreneurship activities. During the implementation period of the strategy, new connections have been created with firms and institutions in EU. All in all, it can be said that the future perspectives of the project achieved in the sense that a regional culture based on innovation and entrepreneurship culture has been developed and region has gained an attractive image to attract external investments, human resources and financial resources.

The improvements in the main subsystems and components of RIS in Mersin have been evaluated in the thesis to be able to measure the effectiveness of RIStr in the development of an efficient RIS for the region. These subsystems constitute RIS are the institutional settings, labor market and networks. The fourth dimension that has been studied is the production side achievements of region, which is the determinant of the ability of region to direct its production in a more productive form. The achievements of the leading sectors of region following the implementation of RIStr have been evaluated by the stakeholders. Moreover, sectoral platforms achieved the development of long term innovation strategies for tourism, agro-food and logistic sectors. The impact of the RIStr on tourism, logistic and agro-food sectors has been evaluated from the perspectives of active participants of the platforms by considering the improvements in their institutional setups, labor market conditions, cooperation networks and production side.

Sectoral Platforms, RIS Mersin Management Unit and Regional Innovation Steering Committee are the most important **institutional structures** that the region has gained as an impact of RIS-Mersin Project. That is to say, RIStr is driven from the highest authority level and ensure legitimate leadership. Platforms allow the participation of all actors and create consensus for common goals necessary for the growth of sectors and accordingly development of the region. Platforms have also provided the creation of a culture of innovation and building consensus and confidence among the actors of innovation system. Thus, a regional innovation governance system has been started to put in place in Mersin and an institutional infrastructure has started to be formed in order to exploit the regional potential of three key sectors in region. Moreover, the creation of R&D centers in the areas strategic to Mersin is also an important impact of the strategy. The project has stimulated the creation of new actors which are important for the operation of the Mersin RIS.

As the stakeholders of Logistic and Agro-Food Platforms emphasized, stimulating the creation of new **institutional** actors which are important for RIS have been started to be established and now operate actively. All these new institutions appeared following the RIS-Mersin Project presented that institutions necessary for the improvement of innovation infrastructure of agro-food and logistic sectors have started to be formed in order to make these two leading sectors of the region more innovative. Compared with the other sectors, tourism sector showed a weak development effort in terms of establishing new innovation oriented institutional setups. It is also seen that there occurred limited improvements in the formation of new scientific and technology based institutions. This situation is the reason of the slow progress of the RIStr. The next stage of the RIStr should contain the activities, projects and supports for the completion of this undeveloped part of the innovation system.

In this last three years of the implementation period, Mersin RIStr has become effective to provide Mersin RIS operate more efficiently. Strategy supplied the establishment of innovation promoting and mediating institutions that were missing in the existing innovation system. However, establishment of some essential institutions, i.e. Innovation Centre and Technology Transfer Office, was not

effectuated and existing institutions in the system have committed the responsibilities of these foreseen institutions. Establishment of institutional business networks; i.e. clusters, sectoral associations, innovation financing mechanisms and advanced consultancy services are the achieved objectives of the strategy. Establishment of these kinds of institutions is still in progress. However, we cannot say that these institutions are enough for the system. The system still needs some intermediary institutions and scientific organizations to be able to strengthen its innovation base and links with the national and international networks. The role of the Çukurova Development Agency in this strategy should be enhanced. The financial and consultancy support of the central government should also be raised.

Activities of offering an annual innovation prize to the enterprises (Innovation Competition Pilot Project), creation of new entrepreneurship projects for young people (Entrepreneur-33 Pilot Project), establishment of new innovation and entrepreneurship certificate programs and development of new mechanisms for the cooperation of university and industry (R&D-33 Pilot Project) are the important achievements of the **labor** market of the region. These developments in human resources show that a mechanism was started to be formed to transfer technology and research results and entrepreneurial culture among the actors of the region. RIStr attempts to develop skills and competences of human resources in sectors and companies and to develop high quality researchers and attract qualified researchers. However, the impact of the strategy in the improvement of the labor market conditions is in low levels compared with the other three dimensions forming RIS.

Interviews showed that there occurred different gains, in terms of the labor market conditions, for different stakeholders in different sectors. While certain sectors have obtained limited improvement, other sectors have become more successful to improve their **labor market conditions**. The impact of RIStr in the labor market facilities of logistic sector is in high levels compared with the other two sectors. The improvement of the skill levels of labor employed in the logistic sector, increment in the number of skilled labor and the increase in the employment are the achievements of logistic sector. The impact of RIStr on the labor market conditions of agro-food sector is still weak but in the long turn with the completion of the Agro-Food Cluster, Agro-Food Training Center and Agro-food Technopark Projects, sector will start to

accelerate its potentials to make its labor force more qualified. Tourism Platform has an impact on the creation of new employment opportunities for unemployed people in region; however, there have not been any projects for the improvement of skill level of labor and increment in the number of qualified labor employed in the sector. Compared with the other sectors, impact of the innovation strategy in the labor market conditions of tourism sector is still in low levels.

Mersin RIS is lacking the qualified **labor** force that turns the knowledge into a more valuable and profitable form, that is innovation. Skilled labor is important for the creation of innovative production processes, products and services. Projects have been executed in the context of the RIStr to improve the labor market situations, skill level of existing labor and to attract the qualified labor from outside the region. However, the outcomes of these activities of strategy are not evident and obvious still. There are ongoing projects of the platforms executing to realize this purpose and the qualified labor needs of the region and companies will be achieved when these projects completed. University and research centers are important to produce the innovative knowledge. New research centers have been established in the context of the strategy but these are not operating actively yet. The employment of researchers and specialists should be determined for the efficiency of RIS.

Stakeholders' opinions displayed that the impacts of RIStr in the evolution of cooperation **networks** is in the highest levels compared with the other three subsystems of RIS approach. New cooperation and confidence networks have emerged firstly among all regional actors, then between the regional institutions and central institutions and also with the international networks. Central institutions' interest to the region has also been increased and they have started to support the activities and projects executing in the region. Establishing regional, national and global networks, synergies and partnerships and increasing cooperation within firms and between firms and knowledge producers are the realized operational objectives of RIS-Mersin project.

The general gain of the region from the innovation strategy is the Establishment of the regional, national and global **networks**, synergies and partnerships. RIS-Mersin

Project has a strong impact on the networking efforts of the logistic sector. Linkages between local-regional-national institutions and also international institutions provided a strong confidence atmosphere and synergy that maximizes the capacity for research and innovation activities. Agro-food sector has also achieved to form network relations in regional, national and global level. Tourism sector is lagging behind the other two sectors in terms of reaching external markets and new sources of knowledge and information.

A RIS aims to increase the innovativeness of a region and consists of different kinds of multi-actor innovation networks. The effectiveness of RIStr to form these innovation networks is in good level compared with the development of high qualified researchers. The regional cooperation and communication networks in Mersin are in quite advanced levels. Moreover, Innovation Strategy has become effective especially in the improvement of university-industry linkages. With the implementation of Pilot Projects, many firms have started to cooperate with the university to improve their production system and their products, as well as the creation of new projects is still in progress. Nonetheless, the research-industry interface at the local universities and also the regional technology transfer system should be strengthened in the next stage of the strategy.

Stakeholders of the project introduced **productivity** side outcomes of the project as new projects, products, services and skills gained and increments in business volume and being in a project partnership. Pilot projects being a beneficial experimentation and experience have become successful to encourage the new ones and strategy achieved the production of new projects and accordingly new innovative products, services, skills and collaborations. The number of projects produced in the region is increasing regularly and this production side of RIS in terms of project creation is experienced a high level of impact from the RIS-Mersin Project (See Table 19). On the other hand, it was also indicated that the production of innovative products, services and production processes is still limited in region. RIS and RIStr should host the firms at the centre. However, RIS-Mersin is still a general strategy and not has still reached the firm level. Innovation support needs of firms should be examined in

a systematic way in order to mobilize the right actions and resources to improve the regions ability to create innovative outputs and to be attractive.

The numbers of projects which are being produced by the platforms and individual firms as well as institutions in the region have been increasing regularly. It is obvious that logistic sector in Mersin has started to be more innovative by creating new innovative ideas and projects to make the sector differentiated from its competitors. The agricultural sector based activities and projects of RIStr have also generated an increase in innovation activities and entrepreneurship of agricultural firms. The number of projects prepared for the improvement of innovation capacity of tourism sector is more than the other two sectors. There are 37 projects generated by the Tourism Platform; however, projects generated by the Logistic and Agro-Food Platforms are more comprehensive projects promoting innovative production.

To sum up, Mersin RIStr was prepared for the aim of producing policies and projects in order to strengthen the RIS in Mersin. The strategy has covered a ten years period; however, it has been just three years since its implementation has started. As being a recently implemented project, the achievements of the region based on RIStr are at a beginning phase. Emerging social and institutional impacts that the strategy has added to the current RIS have been evaluated throughout the thesis. In conclusion, it can be stated that RIStr has achieved to be influential in the enhancement of the innovation system by strengthening the main components of the system and also by improving the ability of region to adapt to innovative production.

Mersin strategy was written in a broader context and has not still reached the firm level. Strategy remained in policy level, it was not firm-oriented and firm analyses were not made. The strategy contained only the activities of constructing an innovation infrastructure in regional level. Because of the weaknesses of regional infrastructure, regional organizations, regional sectoral specialization and cooperation and confidence networks, the strategy first required a capacity raising throughout the region. Thus, the preparation stage of the strategy, which was covering the activities of the introduction of innovation concept along with and increment of the awareness of region's actors on innovation, got over the expected

time period and covered a long time interval within the ten year implementation period of the strategy. Lack of financial support, long preparation stage exceeding the determined time interval and weak innovation awareness of regional actors are the reasons of the delay of achieving the proposed activities of strategy within the planned time period. As a general criticism, strategic tools, supporters and prioritization of the strategy were not strongly specified, and the determined time period of the strategy were too long. On the other hand, two year action plan has changed a number of things in Mersin. The strategy has achieved the development of a **social interaction atmosphere** under the **leadership** of entrepreneurs and regional institutions and established a number of regional organizations using the power of existent regional leaders. A **regional vision and strategy** not fully depending on the central government has been developed to execute the regional development. Mersin has realized her locally embedded potentials and started to use them as an input for her regional development efforts. The experiences of Mersin should be widely shared by the other regions of Turkey in the quest to encourage them to create their own Regional Innovation Strategies to promote innovation at regional level, and enhance their innovation system along with competitiveness. However, absence of the regional consultancy and finance providing institutions and networks in Turkey prevent the appearance of the Regional Innovation Strategies as properly running policy tools. Çukurova regional development agency preferred to stay out of the activities of Mersin RIStr in this first stage. It is now more effective in the new stage and new action plan of the strategy. Newly establishing regional development agencies of Turkey should be effective in terms of consultancy and financial support for the development of regional visions and innovation strategies. In other words, Regional Development Agencies have the capacity to commit the task of the diffusion of innovation strategies throughout the country. Hence, these newly establishing regional development agencies might undertake the task of supporting the diffusion of Regional Innovation Strategies throughout the other regions in Turkey.

REFERENCES

- Amin, A., and Trift, N, 1995, 'Globalization, Institutional Thickness And The Local Economy', *Managing Cities: The New Urban Context*, P.91-108, Healey P., Cameron S., Davoudi S., Graham S., Madani A. (Editors), John Wiles & Sons Ltd Chichester, UK.
- Archibugi, D., and Michie, C., 1995, 'Technology and Innovation: An Introduction', *Cambridge Journal of Economics*, 19: 1-4.
- Asheim, B. T., and Gertler, M., 2005, "The Geography Of Innovation: Regional Innovation Systems", Faregberg J., Mowery D., and Nelson R. :(Editors), "The Oxford Handbook Of Innovation", Oxford University Press, Pp. 291-317.
- Ayata, S., 'İçel'de Kent Dokusu, Kent Ekonomisi, Kent Kimliği', İçel Sanayisini Geliştirme Sempozyumu Tebliğleri, 24-25 Haziran 1999, Devlet İstatistik Enstitüsü- Mersin Ticaret ve Sanayi Odası, p.197.
- Berg, L. Van Den, Pol, P. M. J., Winden, and W. Van, Woets, P, 2005, 'European Cities in the Knowledge Economy', European Institute for Comparative Urban Research, ASHGATE Publishing, U.K., U.S.A.
- Braczyk H.J., Cooke P., and Heidenreich M., 1998, *Regional Innovation Systems: The Role Of Governance In A Globalised World*, UCL Pres, U.K.
- Castells, M., 1996, 'The Rise of the Network Society', Cambridge, Mass.: Blackwell Publishers.
- Cooke, P., Laurentis, C.D., Tödting, F., and Trippi, M., 2007, 'Regional Knowledge Economies- Markets, Clusters And Innovations', Edward Elgar Publishing, Cheltenham UK, Northampton, MA, USA.
- Cooke, P., 2002, 'Knowledge Economies', London: Routledge.

- Cooke, P., 2002, 'Knowledge Economies: Clustes, Learning And Cooperative Advantage', London:Routledge.
- Cooke, P., 1998, 'Regional Systems of Innovation: An Evolutionary Perspective', Environment and Planning- A, 30, P.1563-1584.
- Cooke, P., 1992, 'Regional Innovation System: Competitive Regulation in the New Europe', Geoforum 23, P.365-82.
- Cordis Focus-Research Policy Supplement, September 2006, Issue number 1, p. 18.
- David, P., and Foray D., 2003, 'Economic Fundamentals of the Knowledge Society', Policy Futures in Education, 1, P.20-49.
- Doloreux, D., 2002, 'What We Should Know About Regional Systems Of Innovation', Technology In Society, 24, P. 243-263.
- Eraydın, A., 'İçel Sanayi Gelişiminin Önündeki Olanaklar ve Darboğazlar: Dinamikler, Gelişme Ortamı ve Destekleme Mekanizmaları', İçel Sanayisini Geliştirme Sempozyumu Tebliğleri, 24-25 Haziran 1999, Devlet İstatistik Enstitüsü- Mersin Ticaret ve Sanayi Odası, p. 217.
- Eraydın, A., 'İçel Sanayinin Gelişimi, Sorunları ve Geleceğine Yönelik Kestirimler', İçel İl Gelişim Planı Araştırma Raporları, Eylül 2001, İçel Valiliği- Mersin Üniversitesi.
- Eraydın, A., 2002, 'Global Networks As Open Gates For Regional Innovation Systems', Paper Presented to IGU Commission on the "Dynamics of Economic Space", Residential Conference, Johannesburg, South America, July 30-August 2 2002.
- Eraydın, A., 2003, 'Knowledge Economy and The Importance of Innovation for New Urban Spaces', Paper Prepared for "Science Parks" Conference, Budapest 16-18 October 2003.
- ERIS Working Group Final Report: "Effective Regional Innovation Systems", Innovating Regions in Europe (IRE) Secretariat, May 2008.

- European Innovation Scoreboard 2008- Comparative Analysis of Innovation Performance, January 2009, European Commission Enterprise and Industry.
- Evangelista, R., Jammarino, S., Mastrostefano, V., and Silvani, A., 2002, 'Looking for Regional Systems of Innovation: Evidence from the Italian Innovation Survey', *Regional Studies*, Volume: 36, number 2, 173-186.
- Fine, B., 1998, 'Labor Market Theory: A Constructive Reassessment', London; Newyork, Routledge.
- Freeman, C., and Soete, L., 1997, 'The Economics of Industrial Revolution', Cambridge, Ma.: MIT Press.
- Florida, R., 1995, 'Toward the Learning Region', *Futures*, 27, 5: P. 527-536.
- Gertler, M., 2003, 'Tacit Knowledge and the Economic Geography of Context or the Indefinable Tacitness of Being (There)', *Journal Of Economic Geography*, 3, p.75-99.
- Homme, L., and Doloreux, D., 2003, 'Is The Regional Innovation System Concept At The End Of Its Life Cycle?', Paper Presented to the Conference 'Innovation In Europe: Dynamics, Institutions And Values', September, Roskilde University, Denmark.
- Homurlu, Ö., 2008, 'Türkiye'de Bölgesel Kalkınma Çalışmaları İçin Yeni Bir Model: Mersin İnovasyon Stratejisi', Mersin Sanayi ve Ticaret Odası.
- International Conference of regional development agencies, 26-27 October 2007, İstanbul Center of Policies, presentation of RIS Mersin project team: 'Mersin- a Leading Light in Innovation in Turkey'.
- Landabaso, M., 1997, 'The Promotion of Innovation in Regional Policy: Proposals for Regional Innovation Strategy', *Entrepreneurship & Regional Development*, volume.9, p.1-24.

- Landabaso, M., Oughton, C. and Morgan, K., 1999, 'Learning Regions in Europe: Theory, Policy and Practice through the RIS experience', 3rd International Conference on Technology and Innovation Policy: Global Knowledge Partnerships, Creating value for the 21th Century, Austin, USA, August 30-September 2 1999.
- Lundvall, B. A., and Borrás, S., December 1997, The Globalizing Learning Economy: Implications For Innovation Policy, EU TSER Programme, DG XII, Commission of the European Union, Brussels.
- Lundvall, B. A., 1992, 'National Systems of Innovation: Towards A Theory of Innovation and Interactive Learning', London: Pinter Publishers.
- Lundvall, B.A., and Johnson, B., 1994, 'The Learning Economy', Journal of Industry Studies 1, P.23-42.
- Niosi, J., Saviotti, P., Bellon, B., and Crow, M., 1993, 'National Systems of Innovation: In Search of a Workable Concept', Technology in Society, 15, P. 202-227.
- OECD, The Knowledge-Based Economy: Organization For Economic Co-Operation And Development, Paris 1996, Copyright OECD, 1996.
- Porter, M.E., 1990, 'The Competitive Advantage of Nations', Newyork, Free Press.
- Power, L, and Lundmark, M, 2004, 'Working Through Knowledge Pools: Labor Markets Dynamics, The Transference of Knowledge and Ideas and Industrial Clusters', Urban Studies, 41, P. 1025-44.
- RIBN Business Forum, Ferreira A., 'Innovating Regions in Europe', Nova Gorica, 13 June 2006.
- Sassen, S., 2002, 'Locating Cities in Global Circuits', Global Networks-Linked Cities, Routledge, London, Newyork.
- Smith, K., 2002, 'What Is the "Knowledge Economy" -Knowledge Intensive and Distributed Knowledge Bases', United Nations University, Institutes for New Technologies Discussion Paper Series, Maastricht.

Storper, M., 1995, 'The Resurgence of Regional Economies, Ten Years Later: The Region as Nexus of Untraded Interdependencies', *European Urban and Regional Studies*- (2), P.191-221.

Yılmaz, A., December 2001, *Regional Innovation Systems: Literature Review and the Picture for Turkey*, M.S., Program Of Science And Technology Policy Studies, The Graduate School of Social Sciences of Middle East Technical University.

İçel Sanayisini Geliştirme Sempozyumu Tebliğleri, 24-25 Haziran 1999, Devlet İstatistik Enstitüsü- Mersin Ticaret ve Sanayi Odası.

İçel İl Gelişim Planı Araştırma Raporları, Eylül 2001, İçel Valiliği- Mersin Üniversitesi.

'Küçük Ölçekli İmalat Sanayi İşyerleri, Girişimcilik ve Eğilim Anketi Geçici Sonuçları', 1997 Yılı İçel İli Sanayi Envanterinin Çıkarılması ve Sanayinin Gelişmesi için Gerekli Tedbirlerin Belirlenmesi Projesi, Mart 1999, Başbakanlık Devlet İstatistik Enstitüsü Başkanlığı, Ankara.

'İmalat Sanayi İşyeri Anketi Geçici Sonuçları', 1997 Yılı İçel İli Sanayi Envanterinin Çıkarılması ve Sanayinin Gelişmesi için Gerekli Tedbirlerin Belirlenmesi Projesi, Mart 1999, Başbakanlık Devlet İstatistik Enstitüsü Başkanlığı, Ankara.

Regional Strategy of Mersin 2006-2016, First Draft.

Mersin İnovasyon Stratejisi 2006-2016, January 2008.

Handbooks of Pilot Projects: EXPO-333, Invest-33, R&D-33, ENTREPRENEUR-33, Mersin Chamber of Commerce and Industry.

Innovating Regions in Europe (IRE) Secretariat, www.innovating-regions.org, last visited on 30 April 2009.

RIS Mersin, www.ris-mersin.info, last visited on 10 December 2009.

METU Techno-polis, www.metutech.metu.edu.tr, last visited on 12 May 2010.

The Club of Rome, www.tt30.org, last visited on 10 December 2009.

RIS-Mersin Tarım-Gıda Platformu, www.mersintarimplatformu.com.tr, last visited on 12 May 2010.

RIS-Mersin Turizm Platformu, www.mersinturizmplatformu.org.tr, last visited on 12 May 2010.

RIS-Mersin Lojistik Platformu, www.mersinlojistikplatformu.org.tr, last visited on 12 May 2010.

Regional Innovation Strategy in Zlin Region, www.inovace-zlinkykraj.cz, last visited on 12 May 2010.

Enterprise Europe Network, www.enterprise-europe-network.ec, last visited on 12 May 2010.

European Commission- Enterprise and Industry, www.ec.europa.eu/enterprise, last visited on 12 May 2010.

Çukurova Regional Development Agency, www.cka.org.tr, last visited on 12 May 2010.

APPENDIX A

MEMBERS OF THE SECTORAL PLATFORMS

RIS Mersin Logistic Platform		
	Name	Institution
1	Josef Atat	MCSC- ATAKO Holding
2	Atahan Çukurova	MCSC
3	Bülent Yürekli	Mersin Metropolitan Municipality
4	Fuat Özdemir	Private sector representative
5	Tuğrul Yazıcıoğlu	Şişe Cam Logistic
6	Mehmet Deniz	RODER
7	Kürşat Tezkan	Mersin International Port Operation A.Ş.
8	Cumhur Şanlı	MARTAŞ
9	Halil Delibaş	MCSC
10	Turan Gören	Regional Office of Cam İş Logistic
11	Ayşe Şahin	Mersin University
12	S. Özerk İlbeyi	Mersin University
13	Erkut Altıntop	Cukurova Development Agency
14	Murat Torun	Cukurova Development Agency
15	Nevaf Kılıç	Association of International Transporters
16	Yusuf Zencirden	Turkish State Railways
17	Betül Babur	MESBAŞ

RODER : ro-ro Association of Ship Operators and Combined Transporters

MCSC : Mersin Chamber of Sea Commerce

RIS Mersin Agro-Food Platform		
	Name	Institution
1	Cengiz Gökçel	Mersin Chamber of Agriculture
2	Gürhan Dayıcık	Mersin Chamber of Agriculture
3	Mehmet Kılınç	Control Laboratory of PDA
4	İbrahim Karayel	Control Laboratory of PDA
5	Mehmet Işıl	Provincial Directorate of Agriculture
6	Aydoğan Arı	Provincial Directorate of Agriculture
7	Hilmi Dulkadir	MSPPA
8	Mehmet Ateş	Mersin Chamber of Agricultural Engineers
9	Bekir Demirtaş	ALATA Horticultural Research Institute
10	Selami Gedik	Mediterranean Exporter Unions
11	İsmail Sarı	Mersin Commodity Exchange
12	Rişal İrmak	SEVAN Dış Ticaret
13	Pervin Atıcı	AN-ON Gıda
14	Yusuf Değirmenci	Mersin Chamber of Food Engineers
15	Mahir Turhan	Mersin University
16	H. Sefa Çakır	Bate Tarım
17	Fikret Zorlu	Mersin University
18	Cenk Cenkçimenoglu	MTOIZ
19	Seniye Kazanç	Atka Baharat
20	Pınar Özal	MTOIZ
21	Maria Louisa Kaya	Mediterranean Exporter Unions
22	Mehmet Özcan	Cukurova Development Agency
23	Ayşe Sakarya	Provincial Directorate of Agriculture
24	Orhan Özbaba	Özvet Veteriner Polikliniği
25	Güçer Kafa	ALATA Horticultural Research Institute
26	Ruhi Bayık	

PDA :Provincial Directorate of Agriculture
MSPPA : Mersin Special Provincial Private Administration
MTOIZ : Mersin Tarsus Organized Industrial Zone

RIS Mersin Tourism Platform		
	Name	Institution
1	Ali Dođan	MIBA/MATO
2	Canan Soyaslan	Pinepark Hotels
3	Celil akıcı	Mersin University
4	Fevzi Boyraz	Kalykadnos Tourism
5	Hümevra Yeni	Bumer Tourism
6	Meral Aktürk	Provincial Director of culture and Tourism
7	M. Kemal Taş	Tarsus Municipality
8	Murat Durukan	Mersin University
9	Numan Olcar	Olcar Tour
10	Sedat Kutlu	TURAB
11	Semihi Vural	İel Art Club
12	Sinan Şakar	Selefkos Tourism
13	Süleyman Cengiz	Mersin Metropolitan Municipality
14	Serkan Arıcı	MCCI
15	Tolga Ünlü	Mersin University
16	Mehmet Özcan	Cukurova Development Agency
17	Ersin Yılmaz	Institute of Forestry Research
18	Fatih Aytar	Institute of Forestry Research
19	Hakan Keleş	Institute of Forestry Research
20	Ebru Şaman	Mersin University
21	Erkut Altuntop	Cukurova Development Agency
22	Duygu Nesli	Special Provincial Administration
23	Vuslat Arslan	MCCI

MCCI : Mersin Chamber of Commerce and Industry
MIBA : Mersin Industrialists and Businessmen Associations
MATO : Mersin Association of Tourism Operators
TURAB: Turkish - Arab Businessmen Association

APPENDIX B

ACTION PLAN OF RIS-MERSİN 2008-2009

<i>No</i>		<i>Coordinator</i>	<i>Time</i>
Strategic Goal 1: Improving the innovation system and culture in Mersin			
1.1. Establishing a regional governance system			
1.1.1.	Establishing the 'Regional Innovation Council' with the representation of the key regional stakeholders as the highest level body responsible for innovation governance and implementation of the strategy	Governorship	Q1 2008
1.1.2.	Define and agree the tasks and operating principles and procedures of the 'Regional Innovation Council'	Governorship	Q1 2008
1.1.3.	The Council becomes operational with the organization of the first meeting	Governorship	Q2 2008
1.1.4.	Developing a monitoring and evaluation system for the implementation of the Regional Innovation Strategy	Regional innovation council	Starting from Q1 2008
1.2. Stimulating the creation of new actors which are important for the system			
1.2.1.	Define the structure, duties and operational procedures and means of delivering services for a 'Business and Innovation Centre' (BIC) (a) to act as the secretariat of the BIC (b) to design and implement innovation programs for the industry, (c) to coordinate innovation related activities of the intermediary organizations	Regional innovation council	Q2 2008
1.2.2.	The BIC is established and becomes operational (application for membership to European BIC Network) Create 'Mersin Innovation Network' to connect regional business support	Regional innovation council	Starting from Q2 2008
1.2.3.	Institutions, consultancies and innovation intermediaries which provide information, training and consultancy services to companies related to innovation	BIC	Q3 2008 starting from

<i>No</i>		<i>Coordinator</i>	<i>Time</i>
1.2.4.	Establish cooperation between Regional Innovation Council and the Mersin Investment Promotion Office to attract quality investments from other regions of the country and the world	Çukurova RDA	Q2 2008
1.2.5.	Initiate a study to collect regional innovation statistics regularly based on international standards	BIC	Q4 2008
1.3. Upgrading the capabilities and capacities of intermediaries			
1.3.1.	Design and implement a training program for intermediaries on innovation	BIC	Starting from Q4 2008
1.3.2.	Organize regular meeting for innovation intermediaries for information and experience exchange	BIC	Starting from Q1 2009
Strategic Goal 2: increasing innovation activities in existing firms and stimulating innovative entrepreneurship			
2.1. upgrading innovation related skills in enterprises			
2.1.1.	Design and implement a program for providing support services to companies on innovation related topics (innovation, R&D and technology management, knowledge management, design, IPR management, business planning, project preparation, etc.)	BIC	Starting from Q3 2008
2.1.2.	Publish guidebooks on innovation related topics for companies	BIC	Q4 2008
2.1.3.	Organize international study visits for companies at regular intervals	BIC	Starting from Q1 2009
2.1.4.	Conduct regular innovation needs analysis for companies	BIC	Starting from Q1 2009
2.1.5.	Identify and appoint local units in each town (project units) for guiding companies and helping them prepare projects for regional, national and international (in particular EU) funding resources	Regional Innovation Council	Q2 2008
2.1.6.	Provide training to the staff of project units and ensuring coordination among them	BIC	Starting from Q3 2008
2.1.7.	Take actions to identify an experienced IPR consultancy company to open a branch in Mersin and work with the regional companies and research centers on IPR issues (in particular in the identification and filing of patent applications)	BIC	Q3 2008

<i>No</i>		<i>Coordinator</i>	<i>Time</i>
2.1.8.	Provide guidance and consultancy to help internationalization of companies in Mersin	Mediterranean Exporters Unions	Q1 2008
2.1.9.	Continue to organize Export 33	Mediterranean Exporters Union	Q1 2008
2.2. Supporting innovation activities in companies and creating financing mechanisms to support innovation & starting up of innovative firms			
2.2.1.	Initiate actions to establish a regional business angels network	BIC	Q3 2008
2.2.2.	Attract foreign business angels to invest in the region	BIC	Starting from Q3 2009
2.2.3.	'Mersin Business Angels Network' becomes operational take steps to create a venture capital fund (approaching the 'İstanbul Venture Capital Initiative' to explore the opportunities for utilizing this fund-of-funds option	Regional Innovation Council Governorship	Q3 2009 starting from Q3 2008
2.2.4.	Identify a fund manager from abroad with experience in establishing and managing early stage venture capital funds which invest in innovative business.	Mediterranean Exporter Union	Q4 2008
2.2.5.	Attract foreign investors to the venture capital fund	Mediterranean Exporter Union	Q4 2008
2.2.6.	Venture capital fund becomes operational	Regional Innovation Council	Q2 2009
2.2.7.	Work with the Çukurova Development Agency to design and implement an innovation support scheme to finance innovation projects of the companies in the region	Regional Innovation Council	Q4 2008
2.3. Increasing cooperation within firms and between firms and knowledge producers			
2.3.1.	Organize brokerage events between companies, universities and research centers regularly	BIC	Starting from Q3 2008
2.3.2.	Work in coordination with the technology transfer office to be establish at the university to ensure that information and knowledge is disseminated effectively to the companies	BIC	Starting from Q1 2009
2.3.3.	Create and maintain a database of skills and knowledge available at the universities available in the neighboring regions	BIC	Q2 2009

<i>No</i>		<i>Coordinator</i>	<i>Time</i>
Strategic Goal 3: Exploiting regional potential in key sectors			
3.1. Developing long term innovation strategies for each sector			
3.1.1.	Initiate and coordinate sectoral foresight studies for agro-food, logistic and tourism sectors	Regional Inno. Council (in cooperation with the sectoral platforms (SP))	Q3 2008
3.1.2.	Initiate and coordinate the design of sectoral innovation strategies making use of the results of foresight studies	Regional Inno. Council (in cooperation with the SP)	Q2 2009
3.1.3.	Start implementing the sectoral innovation strategies	Regional Inno. Council (in cooperation with the SP)	Q1 2010
3.2. Establishing regional, national and global networks, synergies and partnerships			
3.2.1.	Start working for institutionalization of sectoral platforms for tourism, agro-food and logistics to act as innovation networks	BIC	Q2 2008
3.2.2.	Initiate and study to develop clusters for tourism, agro-food and logistics and analyze their needs	Regional innov. Council (in cooperation with the SP)	Q3 2008
3.2.3.	Take part in the establishment of the innovation centers to be established by DASIFED in logistics and agro-food sectors.	Regional innov. Council	Q1 2008
3.2.4.	Identify national and international networks active in tourism, agro-food and logistics sectors and take steps to integrate sectoral platforms in Mersin to these networks	BIC (in cooperation with the SP)	Q4 2008
3.3. Mobilizing financial resources for innovation activities in the sectors			
3.3.1.	Identify the areas of common interest for collaborative research and innovation projects of the companies in tourism, agro-food and logistics sectors	BIC (in cooperation with the sectoral platforms)	Q2 2009
3.3.2.	Prepare projects proposals to apply for funding for the identified collaborative projects	BIC (in cooperation with the sectoral platforms)	Q4 2009

<i>No</i>		<i>Coordinator</i>	<i>Time</i>
Strategic Goal 4: Developing knowledge producers			
4.1. Developing high quality researchers and attracting qualified researchers from other regions and countries			
4.1.1.	Review and upgrade the curricula together with the industry according to the research and innovation needs in the region	Mersin University(MU)	Starting from Q2 2008
4.1.2.	Design and launch a website 'Research in Mersin' to raise the profile of the region in the national and international research community	MU	Q3 2008
4.1.3.	Organize scientific national and international events on regular basis	MU	Starting from Q4 2008
4.2. Creating R&D centers in the areas strategic to Mersin			
4.2.1.	Initiate studies to establish an R&D centre for logistic and tourism sectors	MU	Q1 2008
4.2.2.	Logistics R&D centre becomes operational	MU	Q3 2008
4.2.3.	Tourism R&D centre becomes operational	MU	Q3 2008
4.3. Improving the existing R&D centers			
4.3.1.	Initiate a study to map the skills, knowledge and technologies existing at the R&D centers in the region and identify gaps and areas for improvement	Technoscope	Starting from Q2 2008
4.3.2.	Identify resources and initiate actions to improve the centers according to the results of the above study	Technoscope	Starting from Q4 2008
4.4. Developing mechanisms for effective transfer of technology and research results to economy			
4.4.1.	Establish a technology transfer office at the university	Mersin University	Q3 2008
4.4.2.	Identify the research results with commercialization potential, take steps to file patent application for such research results where appropriate, and prepare and maintain a database of these research results	TTO	Starting from Q4 2008
4.4.3.	Organize regional brokering events at regular intervals to promote and transfer the research results	TTO	Starting from Q1 2009
4.4.4.	Organize innovative entrepreneurship courses to the university researchers at the R&D centers	TTO	Starting from Q1 2009
4.4.5.	Design and implement a scheme to exchange of personnel between universities and companies and promote research that solves technological or organizational problems	TTO	Starting from Q1 2009

<i>No</i>		<i>Coordinator</i>	<i>Time</i>
Horizontal Objectives			
A. Creating a culture of innovation among the actors of the innovation system and building consensus and confidence on innovation based development			
A.1.	Continue to organize annual regional innovation forums	Regional Innov. council	Q4 2008
A.2.	Continue to organize annual innovation contest for regional companies	Regional Innov. council	Q4 2008
A.3.	Continue to organize business plan competitions	Technoscope	Q1 2009
A.4.	Develop cooperation with national and regional media to promote actions rising innovation culture in the region	Regional Innov. Council	Q1 2008
A.5.	Promote good examples and successful innovations in companies in the region as a tool to raise awareness.	BIC	Starting from Q4 2008
A.6.	Continue to TID (Technology and Innovation Days)	Technoscope	Q2 2008
A.7.	Develop a communication strategy to promote RIS	BIC	Q3 2008
B. Improving administrative and legal environment and removing the barriers caused by infrastructure.			
B.1.	Initiate a study to identify the legal and administrative barriers inhibiting innovation activities at enterprises	Regional Innov. Council	Q1 2009
B.2.	Using the results of the above study, start lobbying at the government level to improve the legal and administrative environment for innovation	Regional Innov. Council	Q1 2009
B.3.	Initiate a study to identify the infrastructural needs for innovation	Regional Innov. Council	Q1 2009
B.4.	Cooperate with the relevant regional and national bodies to address the infrastructure requirements	Regional Innov. Council	Q1 2009
B.5.	Initiate a study to identify the areas where eco-innovation activities can be carried out in the innovation to be implemented by agro-food, tourism and logistics sectors in the short and medium term	Regional Innov. Council	Q1 2009
B.6.	Initiate studies to design a collaborative eco-innovation project which will contribute to the efforts to address the regional challenges on energy and environment and identify possible regional challenges on energy and environment	Regional Innov. Council	Q1 2009

<i>No</i>		<i>Coordinator</i>	<i>Time</i>
C. Building an attractive image for the region			
C.1.	Design, develop and maintain a website and pressed materials promoting the region	BIC (cooperation with 'investment promotion office' to be established)	Starting from Q2 2008
C.2.	Coordinate a study to develop and implement a publicity, promotion and communication strategy for the region together with the other relevant regional bodies	Regional Innovation Council	Starting from Q1 2008
D. Investing in the development of human capital			
D.1.	Carry out a study to map supply and demand for human resources in the region	Mersin University	Q3 2008
D.2.	Using the results of above study, take actions to balance supply and demand for human resources	Mersin University	Starting from Q3 2009
D.3.	Design and initiate an 'innovation and entrepreneurship certificate program' at the university	Mersin University	Q4 2008
D.4.	Design and implement –in cooperation with regional and national training providers- innovation training courses for enterprises	BIC	Q2 2008
D.5.	Contribute to the implementation of 'technology and design' course at the primary schools in which innovation is thought to pupils (by providing trainings to the teachers and helping students and teachers interact with innovative companies and entrepreneurs)	BIC	Starting from Q2 2008

APPENDIX C

QUESTION SET FOR THE THESIS INTERVIEWS

Following the Implementation of Regional Innovation Strategy;	
1. Are there any new institutional settings in region and in your institution?	1.1. institution, centre, organization 1.2. branch, office, unit, team 1.3. certificate program 1.4. R&D Unit
2. Are there any improvements in labor market facilities?	2.1. new employment 2.2. improvement in the skill level of labor 2.3. increment in the number of skilled labor 2.4. Increment in the participation to the training facilities, courses, certificate programs, fairs. 2.5. increment in the productivity of labor
3. Are there any new collaborations and confidence relations?	3.1. among local-regional-central institutions 3.2. with educational institutions 3.3. project partnership with national-international institutions or companies
4. Are there any new projects, products, services and skills your region and you gained during the implementation period of the Project?	4.1. new products and services 4.2. increase in business volume 4.3. projects done by itself 4.4. as a partner in different projects 4.5. skills of preparing and executing projects

APPENDIX D

THE STRUCTURE OF MERSİN REGIONAL INNOVATION STRATEGY

