



WOMEN ENTREPRENEURSHIP AND INNOVATION IN SMEs: LOOKING FOR THE EFFECTS IN GROWTH PROCESS

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1. Introduction

The growing importance of technological change in world production and employment is one of the characteristics of the last four decades. Technological change is not only a determinant of growth, but also affect the international competition and the modernisation of a

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country. The term "innovation" is somewhat ambiguous: in common parlance it denotes both a process and its result. According to the definition proposed by the OECD in its "Frascati Manual", it involves the transformation of an idea into a marketable product or service, a new or improved manufacturing or distribution process, or a new method of social service. The term thus refers to the process. On the other hand, when the word "innovation" is used to refer to the new or improved product, equipment or service which is successful on the market, the emphasis is on the result of the process. This ambiguity can lead to confusion: when referring to the dissemination of innovation, does one mean the dissemination of the process, i.e. the methods and practices which make the innovation possible, or to the dissemination of the results, i.e. the new products? The distinction is important.

In the first sense of the term (innovation process), the emphasis is on the manner in which the innovation is designed and produced at the different stages leading up to it (creativity, marketing, research and development, design, production and distribution) and on their breakdown. This is not a linear process, with clearly-delimited sequences and automatic follow-on, but rather a system of interactions, of comings and goings between different functions and different players whose experience, knowledge and know-how are mutually reinforcing and cumulative. This why more and more importance is attached in practice to mechanisms for interaction within the firm (collaboration between the different units and participation of employees in organisational innovation), as well as to the networks linking the firm to its environment (other firms, support services, centres of expertise, research laboratories, etc.). Relations with the users, taking account of demand expressed, and anticipating the needs of the market and society are just as important - if not more so - than a mastery of the technology.

In the second sense (result of the innovation), the emphasis is on the new product, process or service. A distinction is made between radical innovation or breakthrough (for instance the launch of a new vaccine, the compact disk) and progressive innovation, which modifies the products, processes or services through successive improvements (e.g. the introduction of 32-bit chips to replace the 16-bit ones in electronic equipment, or the introduction of airbags in cars).

New products, processes or services can appear in all sectors of activity, whether traditional or high-tech, public or market, industrial, agricultural or tertiary. Innovation may also concern services of general interest, such as public health, administrative procedures, the organisation of postal services or public education.

It is difficult to record and to analyse the results from a research and technological policy. It is well known that the adoption and diffusion of new technologies affect the structure and the competitiveness level of the whole economy. The choice of technology depends upon a large number of factors. It depends upon the availability of technologies, the availability of information to the decision maker, the availability of resources, the availability of technology itself and its capacity for successful adoption to suit the particular needs and objectives. The advanced countries which among the leaders in technological change rely on well-functioning large economies have tended to put more emphasis on these policies that aim to encourage the development of research and technological activities.

At the turn of the century the world economy is undergoing a process of profound restructuring. Three developments have set the stage for this process. The first is a technological revolution, centering initially on telecommunications and microprocessors, but now extending to biological science that has created new

industries and changed the methods that many established industries employ for production and distribution. The second has been a managerial revolution, initially associated with the diffusion of Japanese techniques for quality control, team production and supplier relations, but now extending to many innovative forms of production employed around the world including increasing individualisation and diversification of working relationships.

Today, it is widely recognized that technological change is the primary engine for economic development. Innovation - the heart of technological change - is essentially the innovation process that depends upon the accumulation and development of relevant knowledge of a wide variety. Certainly individual firms play a crucial role in the development of specific innovations but the process that nurtures and disseminates technological change involves a complex web of interactions among a range of firms, other organisations and institutions. The systems of innovation approach has recently received considerable attention as a promising conceptual framework for advancing our understanding of the innovation process in the economy. The approach contrasts with previous attempts such as the traditional OECD approach to technological change and innovation that focused on the R&D system in the narrower sense, primarily by analysing resource inputs and outputs of the system. A too narrow focus on R&D overlooks the importance of other types of innovative efforts in the business sectors and, thus, the innovative performance of low-tech sectors in the economy.

New technologies imply some micro effects (such as firms, and organisations) and macro effects (such as industrial sectors) for the whole economy. New technologies play an important role to productivity and to

competitiveness of a country. For instance, the faster the technological progress is, the faster should the factor productivity rise and the less "cost-push" should exert upward pressure on the price level. The principal effects for technological policy can be distinguished in demand and supply sides.

The economic performance of the bulk of manufacturing industries and services that lie outside new technology sectors depends to a large extent on adopting ideas and products developed elsewhere. Since society benefits from research and technology efforts of firms, public policies should provide an environment which stimulates innovation while allowing maximum use of their products. A stable macro-economic environment that encourages investment in the creation and adoption of new technologies is an important prerequisite. More important however, are the micro-economic policies that induce firms to share information, develop absorptive capacity and increase rates of adoption of new technologies, either directly (through subsidies, and financial schemes) or indirectly through alteration of the institutional and regulatory environment.

Those countries that innovate slower will find hard to compete in the world markets where there are many successful innovators and these countries which innovate fast may also enjoy additional gains in productivity, growth, exports, even from licensing and patent fees, (Hall P, 1984). The government policies in new technologies and innovations aims exactly to this point: to reinforce the technological capabilities, in order to enhance the productivity, competitiveness and economic growth of their countries. The government support is usually taken under the form of "direct" and "indirect" measures, (as for instance, different grant, loans, tax concessions, and equity capital).

The importance of diffusion of technology for economic growth has been emphasized by several authors. Specifically, the term *dissemination of technology* is used to include both voluntary and involuntary spread of technology. The term of *technology transfer* is defined as the voluntary dissemination, while the involuntary dissemination is labelled *imitation*. In the literature on the diffusion process, there is considerable agreement about the time pattern of the diffusion which may be expected to follow the first introduction of a new technique (or innovation).

The first important point is to distinguish between diffusion and the adoption of technology. In the analysis of adoption one considers the decisions taken by agents to incorporate a new technology into their activities. A typical measure of adoption would be the proportion of eligible firms in an industry which use a given technology. By contrast, in the analysis of diffusion one is concerned with measuring the changing economic significance of a technology with the passage of time. In a sense, the analysis of diffusion is closely related to the analysis of *technological substitution* in which the displacement of one technology by another is the focus of attention. The spread of new technology occurs in a number of dimensions. The potential buyers of a technology can be public institutions, firms and households. The adoption by other users as well as more extensive use by the original innovator. More generally it encompasses all those actions at the level of the firm or organisation taken to exploit the economic benefits of the innovation", (OECD). Thus diffusion cannot be reduced in the introduction of new machinery into the factory floor or into the office or to the adoption by firms of new intermediate goods. This chapter investigates the mechanisms of knowledge economy. In addition, it examines the national system of innovations within the

framework of the European technological policy and its effects to the member states.

Innovation is a key determinant of firm competitiveness in both fast growing high-tech sectors and more traditional sectors. The ability of most Small Medium Enterprises (SMEs) to survive, grow and generate new quality jobs increasingly depends on their capacity to put innovation at the core of their business strategy in order to benefit from technological change and the globalisation of markets for products and resources. However, many SMEs have not yet developed a culture of innovation and those that do invest in innovation may still face obstacles in pursuing this strategy. Here lies a huge potential source of economic growth, job creation and social well being that governments can help realise through the improvement of framework conditions for innovation and more specific measures to correct market and systemic failures that impede or discourage innovation within small firms.

The core element of the political and economic transformation of any country in transition is the creation of a sound private sector and further development of SME and entrepreneurship. These are considered as the principal driving forces in economic development. SMEs promote private ownership, stimulate innovations and develop entrepreneurial skills. Their flexibility enables them to match quick changes in market demands. They generate the majority of jobs, promote diversification of economic activities, support sustainable development and make a significant contribution to exports and trade.

Three million of SMEs in eleven European member states employ approximately 20 million employees in total, while the number of unemployed amounts to more than 10 million. With a purpose to create still more SMEs, facilitate the transition process, increase the competitiveness of the economies and reduce unemployment, a more supportive environment should be created for SMEs.

The EU in order to define an enterprise as medium-sized, sets a limit of 250 employees. In Greece, SME's are defined as the enterprises which employ up to 100 salaried workers on average in the last three years and have an average turnover up to 2,4 million Euro, unless the SME's are capital intensive in which case the maximum number of employees is limited to 50.

Innovation-driven economies increasingly will need to help create privately managed risk pools that build on a track record of successful entrepreneurs - pools with sufficient funds to syndicate deals with the national venture funds that are still focused predominantly on investments on the coasts. Adjusting their economic tool kits to make equity investments, for example, to address leasehold improvement financing for wet labs, some states and regions purchase insurance, others offer tax credits, and some take equity for the improvements. Economic liberalisation and the international integration of markets may also reduce opportunities for firms to remain both small and efficient. Such considerations have been a driver of policy towards the creation of enterprise networks aimed at overcoming the constraints of limited scale.

All firms must be connected to the most prolific sources of new knowledge and expertise, either directly or through multi-layered innovation networks that link the most research-intensive and/or innovative firms to others at regional, national and global levels. For the vast majority of the Small Medium Enterprises, SMEs, creating or reinforcing innovation capacity and promoting their involvement in innovation networks are closely interrelated policy objectives. Three million of SMEs in European Union member states employ approximately 20 million employees in total, while the number of unemployed amounts to more than 10 million. With a purpose to create still more SMEs, facilitate the transition process, increase the competitiveness

of the economies and reduce unemployment, a more supportive environment should be created for SMEs. Small Medium Enterprises need to access external sources of information, knowledge, know-how and technologies, in order to build their own innovative capability and to reach their markets. This chapter is aiming to focus on two critical nodes in such complex innovative networks:

- ♦ in the public/private partnerships for research; and
- ♦ in the geographically-concentrated clusters of innovative firms.

This article provides an overview of what is known about the state of women's business ownership in Greece as well as information about the relationship of women's entrepreneurial activity to the strength of a nation's economy, and a detailed analysis of the characteristics, contributions and challenges of women business owners in Greece and in European Union. This article also presents an overview of some international efforts that are fostering the development of women-owned businesses (beyond typical micro-enterprise development efforts) and policy and program recommendations to foster the growth of women-owned small- and medium- sized enterprises.

2. Small Medium Enterprises, Women Entrepreneurship and Innovation

Access to innovation, in particular technological innovation, is recognized as a key factor for enterprises to be competitive and successful in today's knowledge economy». The main key-points of Small Medium Enterprises and economic growth can be summarized as:

- ♦ SMEs play a key role in world economies;
- ♦ globalisation offers opportunities as well as threats to SME competitiveness, in particular it widens the innovation and technology gap between countries;

- ♦ in order to bridge this gap, better access to financing, information and services that facilitate the innovation process has to be provided to SME through intermediaries;
- ♦ value added for enhancing SME competitiveness can be created by fostering the networking and integration of intermediaries, as well as extending their networks at international and regional level.

To be innovative all SMEs need direct or indirect access to information and external competencies, some of these being only produced in research-intensive and collaborative environments. Such access can be enhanced by networking strategies that many SMEs cannot implement or even contemplate without assistance. Appropriate networking strategies, barriers faced by SMEs in seizing networking opportunities, as well as appropriate responses by government vary greatly depending on the type of firms considered, especially their level of innovativeness and innovation mode.

The expression «knowledge-based economy» refers to the new economic environment in which the generation and management of knowledge play a predominant part in wealth creation, as compared with the traditional factors of production. In developed countries, the rise of the knowledge economy is evidenced by the growth in the knowledge-based industrial and service sectors, which are increasing their share in the overall economy. Despite the economic slowdown in recent years, the knowledge intensity of developed economies continues to increase and private sector investments in R&D continue to rise.

Tables .1 and 2 show the contribution to the manufacturing trade-balance of medium technology industries, and also the export shares of the medium technology industries for selected advanced countries for various periods, respectively.

Table 1: Contribution to the manufacturing trade balance Medium-high-technology industries

	Total		Aircraft and spacecraft		Pharmaceuticals		Office, accounting and computing machinery		Radio, television and communication equipment		Medical, precision and optical instruments	
	1992	2001	1992	2001	1992	2001	1992	2001	1992	2001	1992	2001
Canada	-4.5	-3.9	0.1	0.9	-0.5	-0.8	-1.5	-1.6	-1.5	-1.3	-1.1	-1.2
Mexico	1.0	2.0	-0.3	0.1	0.2	-0.2	0.2	2.1	1.8	-0.3	0.3	0.3
United States	3.8	5.4	4.2	2.6	0.3	0.2	-0.3	-0.1	-1.4	1.1	1.0	1.5
Australia	-6.8	-6.6	1.0	-0.7	-0.6	0.6	-2.2	-2.2	1.6	-2.5	-1.3	-0.6
Japan	5.3	0.2	-1.0	0.4	-0.9	-0.7	2.3	0.8	4.6	1.9	0.4	0.2
Korea	..	-0.7	..	-0.2	..	0.4	..	1.8	..	0.2	..	2.1
N. Zealand	-10.5	-9.0	-3.0	1.6	-1.4	-1.2	2.6	2.5	-2.2	-2.4	-1.3	-1.2
Austria	-2.4	1.6	-0.3	-0.1	-0.2	-0.3	-1.1	0.9	-0.5	0.1	0.4	-0.4
Belgium	-1.2	-1.6	0.0	0.0	0.1	-0.3	-0.7	-0.3	0.1	-0.3	0.6	-0.5
Czech	..	-3.8	..	-0.1	..	-0.9	..	-1.0	..	-1.0	..	0.7
Denmark	-0.7	0.8	0.0	0.0	1.0	2.4	-1.7	-1.6	-0.5	-1.0	0.6	0.9
Finland	-4.2	-1.2	-0.4	-0.5	-1.0	-1.1	1.3	-2.0	-0.8	2.6	-0.7	-0.3

	1992	2001	1992	2001	1992	2001	1992	2001	1992	2001	1992	2001
France	0.1	0.8	1.4	1.8	0.3	0.4	-0.9	-1.2	-0.5	0.1	-0.3	-0.3
Germany	-2.0	-2.7	-0.5	-0.2	0.3	0.4	-1.4	1.9	-0.7	-1.2	0.4	0.3
Greece	-3.5	-3.6	-0.4	-0.4	-0.8	-0.6	-0.6	-0.8	-0.8	-0.9	-0.9	-0.9
Hungary	-4.5	-0.4	-0.1	0.0	-0.2	-0.2	-2.0	1.1	-1.1	-1.0	-1.2	-0.3
Iceland	-5.6	-6.8	-0.4	-1.8	-1.1	-0.6	-1.3	-1.8	-1.6	-1.8	-1.2	-0.8
Ireland	3.7	4.6	-0.6	-1.0	2.2	3.1	2.8	3.9	-1.3	-1.9	0.7	0.4
Italy	-3.5	-3.7	0.0	-0.3	-0.5	-0.3	-0.8	-1.3	-1.3	-1.2	-0.8	-0.6
Nether.	-1.3	-2.5	0.0	-0.2	-0.1	-0.2	-0.5	-0.1	-0.5	-2.1	-0.2	0.0
Norway	-3.7	-4.3	-0.7	-1.1	0.0	-0.2	-1.4	-2.0	-0.8	-0.8	-0.7	-0.2
Poland	-7.1	-5.5	0.1	0.1	-1.4	-1.9	-1.9	-1.7	-2.4	-1.2	-1.4	-0.8
Portugal	-3.2	-3.1	-0.1	-0.3	-0.6	-0.9	-1.3	-1.1	-0.4	0.0	-0.9	-0.8
Slovak	..	-1.3	..	0.0	..	-1.2	..	-1.1	..	-1.0	..	-1.0
Spain	-3.7	-3.7	0.0	-0.1	-0.3	-0.6	-1.1	-1.0	-1.1	-1.1	-1.2	-0.8
Sweden	-0.9	-0.2	-0.3	-0.2	1.0	1.6	-1.7	2.0	0.4	0.8	0.2	0.3
Switzerland	5.4	5.3	-0.4	-0.4	3.5	3.8	-1.8	-1.9	-0.8	-1.0	4.9	4.8
Turkey	-6.8	-5.1	-1.9	0.3	-0.8	-1.9	-1.3	-1.0	-1.2	-1.2	-1.5	-1.3
U. K.	2.0	3.6	1.6	1.1	0.8	0.9	-0.5	0.0	-0.3	1.4	0.4	0.3
E.U.	-1.2	-1.0	0.2	0.1	0.2	0.3	-0.9	-0.9	-0.6	-0.4	-0.1	-0.1
Total	0.3	0.3	0.6	0.5	0.1	0.2	-0.5	-0.7	-0.1	0.0	0.2	0.3

Source: OECD: ANBERD and STAN databases, May 2003

Table 2: Export shares Medium-low-technology industries

	Total		Coke, refined petroleum products and nuclear fuel	Rubber and plastic products	Other non-metallic mineral products	Building and repairing of ships and boats	Basic metals and fabricated metal products	Total		Manufacturing n.e.c. and recycling	Wood and products of wood and cork
	1992	2001						1992	1992		
Canada	18,4	16,6	2,8	3,3	2,3	3,3	0,9	0,2	12,3	27,2	25,6
Mexico	13,4	8,1	1,7	0,1	2,5	1,9	2,2	0,0	7,0	15,4	15,3
U. S. A.	11,1	10,6	2,0	1,5	2,3	2,9	1,0	0,4	5,5	17,3	14,3
Australia	40,7	32,5	4,6	5,7	1,0	1,1	0,7	1,3	33,1	34,2	34,2
Japan	11,7	11,4	0,5	0,4	1,2	1,2	1,2	2,4	6,5	6,2	5,6
Korea	..	22,9	..	5,3	..	2,5	..	..	..	..	15,4
N. Zealand	12,6	10,9	0,7	0,2	1,5	1,7	0,4	0,3	9,8	76,6	73,1
Austria	22,0	18,3	0,4	0,7	5,1	3,8	3,3	0,0	19,3	27,0	25,7
Belgium	22,3	18,3	4,1	4,4	3,7	3,3	2,6	0,1	11,8	29,3	24,8
Czech	..	23,5	..	1,3	..	4,7	..	..	..	..	19,5
Denmark	15,7	12,9	1,8	1,8	3,6	3,5	1,9	2,5	5,9	44,3	37,4
Finland	21,1	18,9	3,2	3,1	2,1	1,8	1,3	2,3	12,2	43,9	31,4

	1992	2001	1992	2001	1992	2001	1992	1992	1992	1992	2001
France	17,0	14,7	2,1	2,0	3,3	3,0	2,1	0,7	8,9	24,4	19,7
Germany	15,9	14,6	1,1	1,3	3,5	3,4	1,7	0,6	9,0	17,0	13,7
Greece	26,6	34,8	6,0	12,5	1,8	3,3	5,4	0,5	12,9	62,5	41,1
Hungary	19,4	11,3	3,5	1,7	2,4	2,7	2,5	0,1	10,9	43,5	20,0
Iceland	14,0	27,0	0,1	0,2	0,2	0,4	0,1	0,7	13,0	84,9	66,0
Ireland	7,4	3,0	0,4	0,3	2,5	1,0	1,1	0,1	3,3	38,2	15,0
Italy	18,5	18,0	2,0	1,9	3,5	3,6	4,2	0,3	8,5	33,5	31,3
Netherlands	20,0	17,3	6,7	8,0	3,4	2,4	1,4	0,6	7,9	33,3	23,9
Norway	43,6	39,3	9,3	10,9	1,4	1,2	1,0	12,5	19,4	23,3	22,9
Poland	35,6	27,1	3,5	2,4	1,4	4,1	3,4	4,3	22,9	33,7	32,8
Portugal	13,2	13,3	2,9	1,6	1,4	2,7	4,6	0,9	3,4	59,6	43,8
Slovak	..	29,3	..	6,2	..	3,9	..	..	..	..	22,1
Spain	21,9	19,2	3,1	2,9	3,2	3,8	3,7	1,9	9,9	22,0	23,8
Sweden	19,5	17,4	3,4	3,7	2,8	2,6	1,1	0,8	11,4	26,9	22,8
Switzerland	11,8	12,0	0,1	0,3	2,7	2,5	0,9	0,0	8,0	17,2	12,9
Turkey	24,1	23,1	1,9	1,4	2,1	3,2	4,4	1,1	14,6	59,3	47,8
U.K.	15,6	11,9	3,0	2,6	2,9	2,3	1,3	0,3	7,9	19,4	13,8
F.U.	17,7	15,3	2,5	2,6	3,3	3,0	2,2	0,6	9,0	25,7	20,8
Total	16,2	14,2	2,1	2,1	2,8	2,7	1,8	0,9	8,6	22,0	18,6

Source: OECD: ANBERD and STAN databases, May 2003

Figure 1: High, Medium and Low technology industries

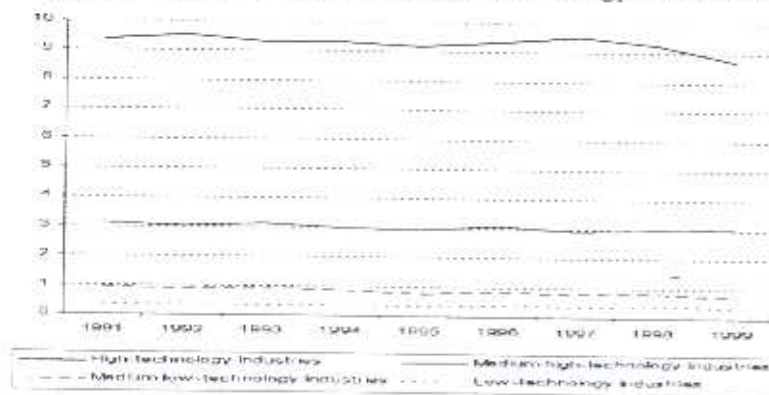
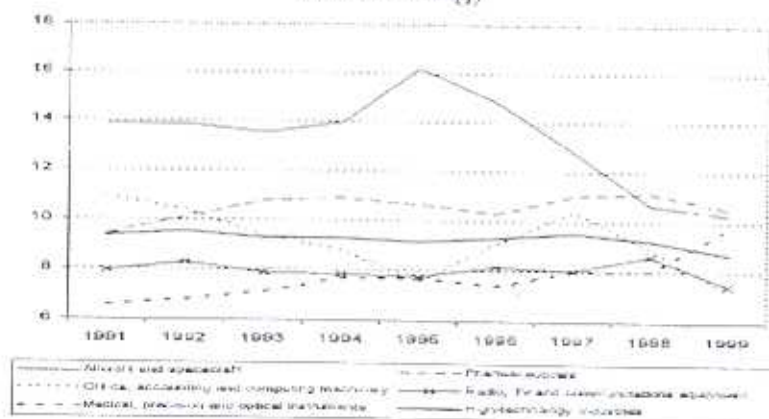


Figure 2: Classification of manufacturing sectors base on technology



Finally, Figures 1 and 2 illustrates the classification and the structure of high, medium and low technology industries, and also, the classification of manufacturing sectors based on technology, respectively.

Women's entrepreneurship is gaining increasing recognition in public policy circles. National governments and international organizations alike are coming to realize that fostering women's economic development through enterprise creation can have a positive impact in a number

of areas. First and foremost, it enhances economic growth and provides employment opportunities for the owners and their workers. In addition, providing economic opportunities for women can also improve the social, educational and health status of women and their families.

Entrepreneurship is a term that can be used in many ways and has several different definitions. Most narrowly, it refers only to businesses started by their owners with a goal of wealth and job creation. Most broadly, it is used to describe the full extent of business activity. In this article, the terms «entrepreneurship» and «entrepreneurial» are used in a broad sense to refer to business creation and ownership. Thus, in some instances, it can refer to micro-enterprises as well as small- and medium-sized enterprises (SMEs), both non-employer and employer firms. Small and Medium enterprises refer and corresponding to the medium and low technology sectors.

3. The Policy towards SMEs and Women Entrepreneurship in E.U.

Europe's 20 million small and medium-sized enterprises (SMEs) already make a significant social contribution by creating and securing jobs, providing products and services to society and paying taxes. They are also increasingly recognised as a driving force for innovation, entrepreneurial spirit and competitiveness. SMEs are therefore key to achieving the European Union's strategic Lisbon goal for 2010, which is based upon the three pillars of sustainable development: economic growth, social cohesion and environmental protection.

The European Union supports the SMEs. The increasing importance of small and medium-sized enterprises (SMEs) in economic growth, job creation, regional and local development and social cohesion, also through the role played by women and young entrepreneurs. That entrepreneurship and a dynamic SME sector are important for restructuring economies and for combating poverty.

The European policy on SME Policies recognises both the vital contribution of innovation to SME competitiveness and the central role played by SMEs in national innovation systems, and recommends that in developing SME policies, the following be considered;

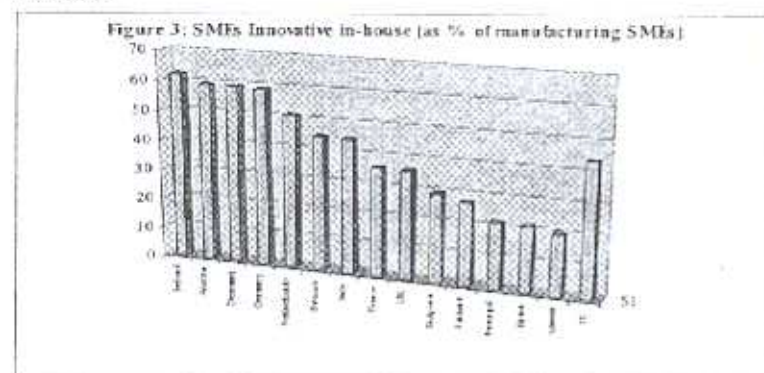
- SME access to national and global innovation networks should be facilitated and their participation in public R&D programmes should be encouraged.
- Partnerships involving private actors, NGOs and different levels and sectors of public administration in local clusters and networking development strategies should be facilitated.
- The regulatory environment (e.g. competition policy, tax regimes, IPRs) should be improved to provide SMEs with greater incentives and capabilities to innovate.
- *Type and variety of partners.* Partnerships between small firms, large firms and public research organisations, are gaining in importance because they are efficient ways of refining the division of labour within innovation systems to the benefit of all.
- *Innovation mode.* Many networks have still a strong sectoral focus but others, which span across industries and technological fields, are becoming more frequent.
- *Geographic scope.* Networks can be local, regional, national, international or global in scope depending on the type of partners and the predominant innovation mode.
- *Organisation and relations between partners -from loose networks to structured multi-actor partnerships.* Network relationships vary considerably, ranging from highly informal, flexible and trust-based relations to more formalised and stable arrangements, such as partnerships. However, behind every formal network (research co-operations, joint ventures, etc.) there are

various informal networks which give it life and sustainability.

- Education and human resource management policies that: foster an innovative and entrepreneurial culture, including continuous training and lifelong learning; encourage mobility of human resources; and reduce skill disparities by improving the match between education and labour market demand.
- Effective access to financial services, particularly to seed, working and development capital, including innovative financial instruments to reduce the risks and transaction costs of lending to SMEs.
- An environment that supports the development and diffusion of new technologies for and by SMEs to take advantage of the knowledge-based economy.
- Strengthening public-private partnerships and political and social dialogue involving territorial and institutional actors as a tool for exchange of information, utilisation of knowledge and elaboration of policy.
- Ensuring the cost-effectiveness of SME policies and their consistency with other national policies, as well as with existing international programmes.

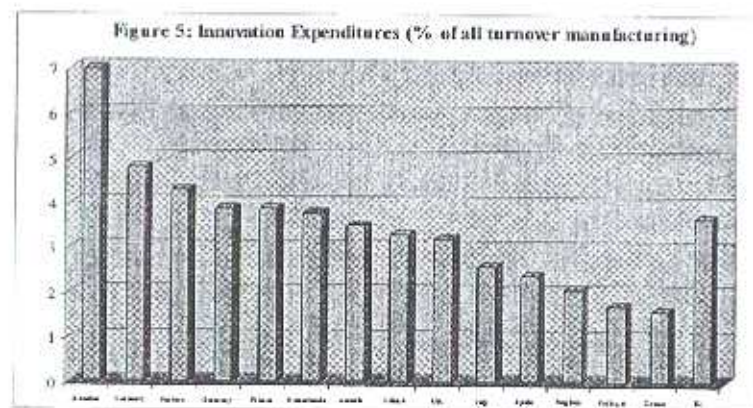
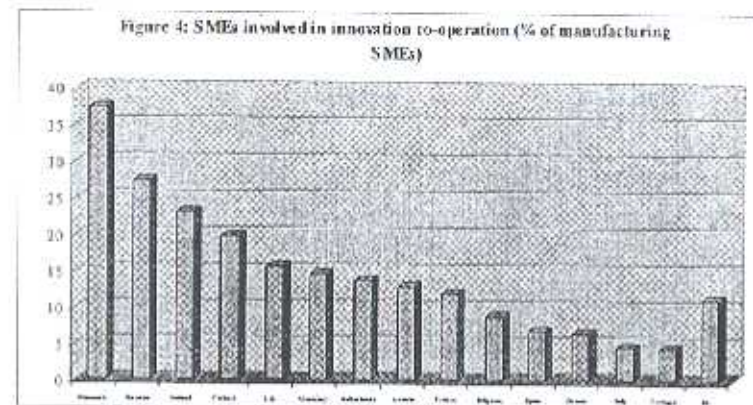
According to the European findings from a Eurostat study of Scoreboard, the first indicator is the percentage of all manufacturing SMEs (including non-innovators) with 20 or more employees that had any co-operation agreements on innovation activities with other enterprises or institutions. The main indicators including all manufacturing firms with 20 or more employees. Innovation expenditures includes the full range of innovation activities: in-house R&D, extramural R&D, machinery and equipment linked to product and process innovation, spending to acquire patents and licenses,

industrial design, training, and the marketing of innovations. Total innovation expenditure by all firms in each country is divided by total turnover. This includes firms that do not innovate, whose innovation expenditures are zero by definition. The medium-high and high technology sectors include chemicals NACE (24), machinery (NACE 29) office equipment (NACE 30), electrical equipment (NACE 31), telecom equipment (NACE 32), precision instruments (NACE 33), automobiles (NACE 34), and aerospace and other transport (NACE 35). The total workforce includes all manufacturing and service sectors.



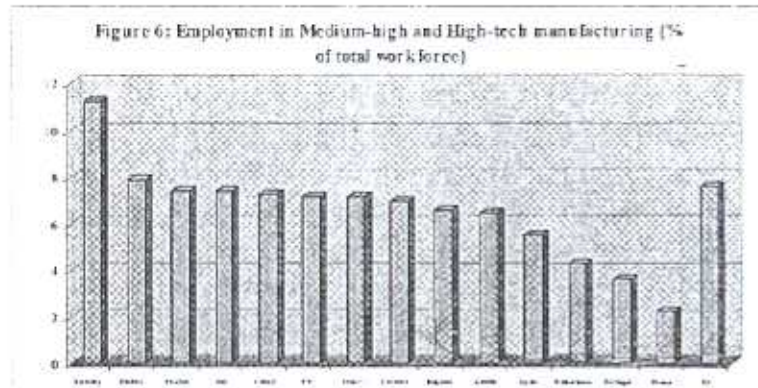
Complex innovations, particularly in ICT, often depend on the ability to draw on diverse sources of information and knowledge, or to collaborate on the development of an innovation. This indicator measures the flow of knowledge between public research institutions and firms and between firms and other firms. The indicator is limited to SMEs because almost all large firms are involved in innovation co-operation. This indicator also captures technology-based small manufacturing firms, since most are involved in co-operative projects. However, the indicator will miss high-technology firms with no product sales, such as many biotechnology firms, because these firms are assigned to the service sector. Several of the components

of innovation expenditure, such as investment in equipment and machinery and the acquisition of patents and licenses, measure the diffusion of new production technology and ideas. Overall, the indicator measures total expenditures on many different activities of relevance to innovation. The indicator partly overlaps with indicator on R&D expenditures.



Figures 3-4 illustrate the small and medium enterprises innovative in-house, and also, in-cooperation as a percentage of manufacturing small and medium enterprises, for a number of selected European member

states, respectively. Whereas, Figures 5-6 illustrate the innovation expenditures as a percentage of total manufacturing turnover, and also, the employment in high-technology manufacturing as a percentage of total workforce, for a number of selected European member states, respectively.



The percentage of employment in medium-high and high technology manufacturing sectors is an indicator of the share of the manufacturing economy that is based on continual innovation through creative, inventive activity. The use of total employment gives a better indicator than using the share of manufacturing employment alone, since the latter will be affected by the hollowing out of manufacturing in some countries.

For many SME owner/managers, however, personal values rather than expected business benefits are the main driver for societal engagement, especially when it comes to activities in favour of the local community. While these activities are often carried out on an ad hoc basis and are unrelated to business strategy, they demonstrate the truly «voluntary» character of SME engagement whereas in other fields, such as health and safety or the environment, regulation or supply chain pressure play a greater role.

Responsible entrepreneurship can also contribute to creating a more positive image of entrepreneurs in society and encourage more young people to choose self-employment as an attractive career option. It therefore contributes to the EU's objective of fostering an entrepreneurial spirit in Europe as outlined in its recent Green Chapter on the topic.

The term «responsible entrepreneurship» denotes voluntary business strategies to achieve sustainable development and is fully in line with the EU definition of corporate social responsibility:

«Corporate social responsibility is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis».

Corporate social responsibility is a rather complex notion developed for large companies, which is perhaps not the most appropriate term for communicating with and engaging SMEs. It is for this reason that 'responsible entrepreneurship' has been chosen as the theme of the present publication.

Responsible entrepreneurship associates the individual entrepreneurial drive and attitude necessary for creating and running a small business with a wider sense of societal responsibilities that often forms part of the personal values of the SME owner/manager. This is the kind of entrepreneurial spirit that the European Union seeks to promote not least with a view to fostering innovation, job creation and competitiveness in Europe.

Across the EU-25, five key trends can be identified from recent policy developments:

- ♦ (a). A significant effort to increase the availability and the breadth of competencies of skilled people

contributing to innovation and to strengthen linkages and knowledge flows both nationally and internationally;

- ♦ (b). A strong regional role in the implementation of many recent initiatives, fuelled by the Structural Funds in the new Member States, and the corresponding need for coordination with national targets and initiatives;
- ♦ (c). A push to increase the overall intensity of innovation activity through stimulating private enterprises to invest more in R&D, specifically, and other forms of innovation more generally.
- ♦ (d). An accent on the role of regulations, public procurement and other business environmental factors influencing the performance of the innovation systems of the Member States.
- ♦ (e). The formation of partnership based initiatives to create linkages aimed at improving the functioning of innovation systems through increased stakeholder cooperation to break down barriers and give increased momentum to innovation.

Greece is the laggard in terms of overall innovation performance among the EU15 and has already been overtaken by a number of the new Member States in terms of innovative performance. Although major changes have taken place in the economic, educational and research landscape in Greece over the last two decades, and several growth indicators outperform the EU average, the Greek innovation system remains insufficient. The relation between innovation performance and per capita GDP clearly demonstrates that economic growth is based on other sources than innovative production and this may imply a considerable danger for future competitiveness.

Emphasis is increasingly put on innovation policy, partly due to the funding offered by the Community

Support Frameworks. However, the concept of innovation still does not receive appropriate attention from the policy makers, neither in the economy and finance area nor in the research and technological development sphere.

The contribution of the SME's in the development, the employment and social coherence in the European Union and in Greece is substantial. About the 92% of the enterprises in the EU are very small and family businesses which employ up to 10 people whilst 6% are medium-sized enterprises. In Greece, enterprises employing 50 persons and below form about 99,55% of the total number of enterprises and they employ 74% of the work force of the private sector. Apart from the above mentioned data, it should be mentioned here that the SME's provide 70% of the new jobs, reinforce the regional development and financial balance of the regions and make part of a cohesive financial and social link in Greek society. The role of SME's in the national economy and employment is vital, since the main business model in Greece is and it will remain the micro enterprise which employs less than 10 persons.

The public initiatives promoting innovation are a record 20 years old and over. The federations of entrepreneurs now include innovation on their agenda. Under the pressure of the Lisbon targets, the successive governments raised the transition to the knowledge-based economy as a policy priority, linked to the promotion of entrepreneurship and regional development. However, overall innovation policy and governance still need to be consolidated and need to find a prominent position in the public debate in favour of economic and social development.

The most crucial challenge is lifelong learning, where Greece lags behind almost all advanced countries considered. While a substantial share of the EU structural funds are directed towards education including lifelong learning, the effectiveness of the system is contested and

the government struggles to improve the infrastructure and quality standards.

The *very low business R&D expenditure is also a challenge* that the country has to face. Despite slight signs of catching up, these are clearly insufficient in the pursuit of the Barcelona target. The restructuring of the industrial landscape and business strategies is the major challenge to be faced by innovation policy, since the present structure of the economy does not contribute to the rapid growth of knowledge demand and the delivery of product innovation. Traditional sectors of slow technological development, including small firms addressing local markets with minimal international linkages, and low educational levels of entrepreneurs, still dominate this landscape.

Newer measures need more time to prove their effectiveness and impact, but the reception of their announcement by the business and research communities shows that the time for maturation will be long and will require positive action by the competent authorities for familiarisation.

Employment in high-tech manufacturing and services is also a major challenge, where the country is not catching up due to the slow and limited restructuring of the business sector. Traditional sectors of slow technological development, small firms addressing local markets with limited international linkages, entrepreneurs with a low educational level still dominate this landscape. The prime concern of entrepreneurs, relevant to innovation, is here again the modernisation of production equipment and quality improvement.

Although there is no formal assessment of their effectiveness, it is claimed that they have so far had some impact on an individual basis. The broad set of more recent

measures, decided after the overall thematic evaluations of the first and second Community Support Frameworks, are expected to be more appropriate and effective but more time will be required to prove their effectiveness and impact. The applications and general reaction from the business and research communities following their announcement show that, despite the international competitive pressures and the declining competitiveness of the Greek economy, the time needed to catch up will be long and will require substantial positive action by the competent authorities with regards to awareness-raising. To a large extent the problem goes well beyond innovation policy into the general climate of confidence and business expectations of the Greek economy.

The main external obstacles that public policies may help reduce are:

- * Limited access to finance;
- * Lack of qualified human resources: the skills of the staff are fundamental to enterprises' capacity to obtain knowledge and to use it to innovate. Human capital and knowledge are key factors;
- * Internal market: high level of regulation and red tape, bureaucracy, taxation and rigidities of the labour market;
- * Lack of strong links between research (academic and public research bodies) and industry;
- * Policy Makers at international and sub-national level should build and strengthen their innovation strategies, adopting an approach that is well coordinated across all government departments with areas of responsibility having a bearing on the conditions for innovation. Coordination should take place at a high political level. The public-private partnership approach is important;

- * Well-designed services (information, networking, partnership, benchmarking); operated in an efficient manner, contribute to a good climate for innovation. While, the internal obstacles in the SME itself are:
- * Cultural (resistance to structural change, worries about intellectual property protection) lack of qualified human resources;
- * Low level of trust in public services and programmes for SMEs.

4. Policy Implications and Conclusions

Policymakers are growing more interested in fostering the development of women's entrepreneurship because it is in a nation's best economic interest not to ignore the potential contributions of half of the adult population. In addition, there is some research-based evidence that fostering entrepreneurial activity in general, and women's entrepreneurial development in particular, is associated with greater economic growth.

While it may be obvious that increasing the entrepreneurial activity of women would boost the overall rate of entrepreneurial activity in a nation, it may be less obvious that this activity could have a significant impact on overall economic growth. There is a huge literature and evidence that there is indeed, a relationship between the level of female entrepreneurial activity and national economic growth. Further, this relationship is distinct from and stronger than the impact that either women's economic activity rates in general or their relative share of managerial or administrative positions appear to have on economic growth.

The fundamental policy problem regarding innovation is related to the presence of research externalities, i.e. the fact that the innovative knowledge created by an individual

or a company can be learnt by other individuals or companies without paying for it. In economics terms, this implies that the private returns to innovation are lower than social returns. Firms have three main ways of mitigating this problem.

First, they can try to make knowledge difficult to imitate, avoiding too much codification or communication with other individuals or firms; this solution may be difficult to implement however, for instance due to industrial spying.

Second, they can try to internalise externalities, by making the new knowledge available in industrial associations, by signing collaborative R&D agreements, or acquiring or merging with other firms that may use their knowledge. Such a solution allows the firm to take all the returns from the innovative knowledge, but it is quite costly, in particular due to the costs of internal coordination which rise as the group to coordinate gains in dimension.

Third, the company can try to be a first mover in the likely applications of its new knowledge, and gain a first-mover advantage.

All such actions help protecting the innovation from appropriation, but the problem is that they hinder the diffusion of the new knowledge to the economy, although this might be favourable to economic development. Thus there is a fundamental trade-off between providing the incentives to innovate and ensuring diffusion.

In terms of public policies, the traditional solution to the research externalities problem have been:

- (a). Setting-up market for knowledge, especially with the allowance of property rights over the new knowledge, in the form of intellectual property rights;

- (b). Subsidies: given that knowledge can be easily appropriated and therefore that it easily becomes a public good, incentives to innovate can be maintained if R&D activities are subsidised; the problem with subsidies is that it is difficult for the policy maker to assert that R&D activities would not have been performed by the firms even in the absence of subsidies; there is information asymmetry and firms can easily hide some information in order to get maximum subsidies;
- (c). Public production of new knowledge: innovative activities are performed IN public research centres or other institutions and the new knowledge is then made available to firms; the problem with such a solution is that first, it may lead to a duplication of research efforts, as when different levels of government, regional, national or European, set the same research topics; second, the research priorities might be guided more by political votes or by lobbies than by welfare motives;
- (d). R&D collaboration: the government can favour R&D collaboration at the pre-competitive phases of research.

Summarising the basic key policy recommendations, we can classify according to the following lines:

- * Ensure stable macroeconomic and framework conditions to underpin the entrepreneurial business environment.
- * Ensure the reduction and simplification of administrative regulations and costs which fall disproportionately on SMEs.
- * Promote an entrepreneurial society and entrepreneurial culture, in particular through education and training.
- * Integrate the local development dimension into the promotion of entrepreneurship.

- * Ensure that programmes in support of SMEs and entrepreneurship are realistic in terms of cost and are designed to deliver measurable results.
- * Strengthen the factual and analytical basis for policymaking so that policy makers can take decisions in an informed manner based on empirical evidence.
- * Increase the ability of women to participate in the labour force by ensuring the availability of affordable child care and equal treatment in the workplace.
- * Listen to the voice of women entrepreneurs.
- * Incorporate a women's entrepreneurial dimension in the formulation of all SME-related policies.
- * Promote the development of women entrepreneur networks.
- * Periodically evaluate the impact of any SME-related policies on the success of women-owned businesses and the extent to which such businesses take advantage of them.
- * Improve the factual and analytical underpinnings of our understanding of the role of women entrepreneurs in the economy.
- * Concentrate policies for promoting availability of risk capital to innovative SMEs mainly on early stages of the financing of the firm.
- * Recognise the need for proximity between suppliers of funds and those who require finance, particularly for small-scale investment.
- * Increase the managerial and technical expertise of intermediaries whose role is to evaluate and monitor companies.
- * Facilitate international transfer of institutional infrastructure and expertise.
- * Subject new regulations which could adversely affect the provision of risk finance to cost-benefit tests of their

- likely effect before implementation and monitor their subsequent impact.
- * Improve SMEs access to information about networking opportunities.
 - * Increase the participation of SMEs in research networks and technology markets.
 - * Support the emergence and maintenance of innovative clusters.
 - * Identify and promote best practice policies which support company innovation through cluster development.
 - * Enhance SME awareness and knowledge of all elements of the intellectual property system.
 - * Strengthen the integration of intellectual property issues in programmes and policy initiatives aimed at fostering innovation in SMEs.
 - * Facilitate the use of the intellectual property system by promoting the development of cost-effective mechanisms for application and for the resolution of intellectual property disputes.
 - * Promote the role that foreign direct investment can play as a vehicle for SMEs to access international markets.
 - * Encourage the smooth, cross-border growth of SMEs by reducing the need for internationally active SMEs to comply with multiple sets of rules or requirements.
 - * Facilitate access to the information SMEs need to operate internationally.
 - * Enhance incentives for new public-private partnership initiatives that would help SMEs reach global markets for innovative products and access foreign sources of advanced technologies and knowledge.
 - * Move beyond policies for basic connectivity and ICT readiness to facilitate more widespread uptake and use

- of complex ICT applications and e-business uptake by small firms.
- * Encourage rollout of affordable quality broadband networks to underpin the competitiveness and growth of SMEs.
 - * Strengthen the infrastructure for trust, security (including spam and viruses), privacy and consumer protection.
 - * Expand, in conjunction with business and consumer groups, SMEs' use of low-cost on-line dispute resolution mechanisms.
 - * Develop and distribute digital content, including by expanding the commercial use of information about the public sector, education and health care.
 - * Embed strategies toward the private sector and SMEs in countries' broader national development and poverty reduction programmes.
 - * Strengthen SME capacities to improve their competitiveness in domestic, regional and global markets.
 - * Promote policy coherence at regional, national and international level.
 - * Maximise the spillover of management skills and knowledge from multi-national enterprises to local SMEs.

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