



Evaluation on policy:

Promotion of Women Innovators and Entrepreneurship



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EVALUATION ON POLICY: PROMOTION OF WOMEN INNOVATORS AND ENTREPRENEURSHIP

DG ENTERPRISE AND INDUSTRY

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Final Report

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TECHNOPOLIS

PROMOTION OF WOMEN INNOVATORS AND ENTREPRENEURSHIP

CONTENTS

1	EXECUTIVE SUMMARY	1
2	INTRODUCTION	13
3	RESEARCH METHOD.....	15
4	ELABORATION OF WORKING CONCEPTS	20
5	THE EUROPEAN LEVEL	27
6	FINLAND	37
7	SWEDEN	42
8	UK.....	46
9	IRELAND.....	56
10	GERMANY	58
11	AUSTRIA.....	64
12	FRANCE.....	66
13	POLAND	68
14	LATVIA.....	75
15	CZECH REPUBLIC.....	78
16	HUNGARY	80
17	ITALY	82
18	GREECE	90
19	SPAIN.....	92
20	EXPERIENCE FROM OUTSIDE THE EUROPEAN UNION	95
21	SUMMARY OF FINDINGS.....	99
22	CONCLUSIONS AND RECOMMENDATIONS	110

1 EXECUTIVE SUMMARY

1.1 This evaluation on policy

EEC (GHK and Technopolis) was commissioned by DG Enterprise and Industry (DG ENTR) to carry out an evaluation on policy on the Promotion of Women Innovators and Entrepreneurship. This report presents the findings of the study.

The aim of the evaluation was to assess the effectiveness, efficiency, utility and constraints on promotion activities across Member States as the basis for policy recommendations to support the contribution of women innovators and entrepreneurship to the Lisbon Agenda. This work involved the completion of a number of research tasks;

- A desk-based review and stakeholder consultation on both EU statistics and information and outside Europe statistics and information on female entrepreneurship in general, women innovators/inventors' entrepreneurs, and women's entrepreneurship in science and technology;
- A review and assessment of the context for, and policy responses to, women innovators/inventors' entrepreneurship in 14 Member States (Austria, Czech Republic, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Poland, Spain, Sweden and the UK);
- An in-depth review of policy responses for women innovators/inventors entrepreneurship in four case study Member States utilising desk research and country fieldwork, including interviews with stakeholders and female beneficiaries. The chosen case studies were Germany, Italy, Poland and the UK; and,
- Analysis and formulation of policy recommendations.

1.2 The policy issue: women innovators/inventors entrepreneurship in Europe

The renewed Lisbon Agenda aims to turn Europe into a modern, dynamic, outward looking knowledge economy. Creating economic wealth through the exploitation of Europe's knowledge triangle lies at the heart of achieving these goals. The European Commission recognises that entrepreneurship and small businesses are a key source of jobs, business dynamism and innovation, and promoting entrepreneurship is a clear objective for achieving the Lisbon goals.

Europe is not fully exploiting its entrepreneurial potential, and lags behind the USA in both business start-ups and self-employment. Moreover, compared with men, fewer women are self-employed in the EU, fewer women start-up businesses or have the ambition to do so, and women generally choose to start and manage firms in industries such as retail and services to people that are often perceived as being less crucial to economic development and the knowledge economy. Women's intellectual potential and their contribution to Europe's competitiveness are not being maximised. DG Enterprise and Industry is seeking to promote female entrepreneurship and, in particular, seeking to support women innovators/inventors who wish to become

entrepreneurs, and women who want to set up a business in science and technology fields.

1.3 Data and information on women innovators/inventors and entrepreneurship

Data and information available on women inventors/innovators entrepreneurs and women entrepreneurs in science and technology is extremely limited. This is also reflected in the lack of an agreed definition of the potential target group across Member States.

In the USA, a specific survey is undertaken annually on female entrepreneurship in general, providing useful information such as the economic sectors within which women entrepreneurs operate, longitudinal analysis of data (such as growth rates in female entrepreneurship), and main challenges encountered.

Proxy indicators, estimates and studies in some of the 14 Member States reviewed are consistent in suggesting that the number of women inventor/innovator entrepreneurs in Europe is low. Table 1.1 summarises the data available at European level and across the Member States which identifies the gender gap and low absolute numbers of women engaged in innovative entrepreneurship.

Table 1.1 Summary table with data and information on female innovative entrepreneurship

Data on women inventors/innovators' entrepreneurs	
European level	
Only 8.3% of patents awarded by the European Patent Office are awarded to women	
Only 20.3% of businesses started with venture capital belong to female entrepreneurs	
Women score less than men when assessing the level of innovation of their own business (innovation of product: 13.9% women compared to 14.5% of men; innovation of process: 4.1% women compared to 7.8% of men; innovation in the organisation 5.2% of women compared to 6.5% of men; marketing innovation 9.1% women compared to 10.45% of men).	
Member States	
Finland	Only 6% of patents registered are granted to women Only 5% of applications for financial support for developing an innovation are made by women
Sweden	Only 4% of patents registered are granted to women
Austria (regional)	Only 10% of beneficiaries of spin-off initiatives at regional level are women
Italy (regional)	33% of beneficiaries of spin-off initiatives at regional level are women

Data on women entrepreneurs in science and technology	
European level	
Only 5%-15% of high-tech business is owned by women	
Member States	
UK	<p>Only 5% of female early stage activity is in the technology sector compared to 12% of men.</p> <p>Only 5% of female established business is in the technology sector compared to 11% of men.</p>
Sweden	Only 1% of the overall rate of female entrepreneurship is in information and technology
Italy	<p>Only 2.5% of the overall rate of female entrepreneurship is in technology</p> <p>Only 1.4% of the overall rate of female entrepreneurship is in R&D</p>
Germany	Only 10%-15% of women start a business in science and technology (estimate)
Latvia	24% of high-tech enterprises (core and moderate) are run by women

1.4 Obstacles and challenges encountered by women innovators/inventors in entrepreneurship

In most of the 14 Member States there is some information available outlining a range of specific challenges and obstacles faced by innovative women in setting up, running and expanding a business, including within the science and technology sectors. The nature and type of challenges faced are consistent across Member States and may be classified under three main headings – contextual obstacles, economic obstacles and soft obstacles. Table 1.2 summarises the obstacles to women's innovative entrepreneurship across the Member States.

Table 1.2: Women's obstacles to innovative entrepreneurship

Contextual obstacles
Women's educational choices, and women's horizontal and vertical segregation in employment, result in the number or stock of women that could potentially set up a business in science and technology or turn an invention into a profitable market product being lower than the number of men.
Science and technology, innovation and inventions are concepts mostly associated with men and male areas making these fields less attractive to women, resulting in women-related invention and innovation being less recognised as valuable business

ideas.

Stereotypes about women: science and technology, innovation and invention are male-dominated sectors, in which women are perceived by market stakeholders as less credible or less professional. This means that women entrepreneurs are sometimes seen with scepticism by potential clients, suppliers and business partners and have to be more persistent to prove their knowledge, skills and capacities.

Traditional views about the role of women in society and greater difficulties in balancing family responsibilities with working in fast-moving and competitive sectors that expect long and flexible working hours and constant training to be up-to-date with new technological development and market opportunities.

Economic obstacles

Difficulties in accessing finance: in general women entrepreneurs find it more difficult than men to access finance. The issue of accessing adequate finance is a greater problem in science and technology sectors and when a woman is trying to develop an innovation or invention for two main reasons, firstly these sectors often require substantial investments (i.e. product development, product marketing, etc.) and, secondly, women attempting to operate in these sectors are seen as less credible by financial stakeholders and investors.

Soft obstacles

Lack of access to relevant technical, scientific and general business networks. Access to these networks is essential to develop business ideas, meet potential clients, suppliers and business partners, understand the market with its developments, opportunities and weaknesses, and get strategic information, cooperation and support.

Lack of business training when undertaking technical and scientific studies presenting entrepreneurship as a possible and achievable employment opportunity for women.

Women's perception that they lack personal/entrepreneurship skills such as self-confidence, assertiveness and risk-taking. In general, women more than men report the lack of these personal and entrepreneurial skills as being an issue in starting a business. This is potentially a greater obstacle in science and technology sectors where both male dominance and levels of risk and uncertainty are higher.

Lack of role models sending positive messages that women can be successful in these sectors and fields of activities and to whom women could turn for mentoring and advice.

1.5

Policy responses: towards women innovators/inventors entrepreneurship

Initiatives for promoting women innovators/inventors entrepreneurship and women's entrepreneurship in science and technology have been implemented in 11 of the 14 Member States (Austria, Finland, France, Germany, Ireland, Italy, Latvia, Poland, Spain, Sweden and the UK). These responses are summarised in Table 1.

Table 1.3: Summary table of policy responses

Women inventors/innovators' entrepreneurs	
Finland	The public venture capital fund has been opened to non-technical investments such as innovative services sectors
Sweden	CORE: teach the teacher: a national pilot project to train business advisors in innovative entrepreneurship to deal with women's different needs through targeted advice and coaching
UK	<p>British Female Inventors and Innovators Network (BFIIN) provides support for women inventors that want to commercialise their ideas by providing information on Information Property (IP) rights and patent application, helping with networking, and raising awareness through seminars and awards.</p> <p>Finance South East has created a programme for facilitating women's access to risk capital such as venture capital and business angels, by providing information and networking opportunities.</p> <p>The University of Essex "Creative Business Enterprise Club" provides a platform for discussion, mentoring, peer learning and exchange of experience for women entrepreneurs in creative industries.</p>
Germany	In Germany the National Agency for Women Start-ups (BGA) has a specific target for funding women enterprises in creative industries.
Austria	Some regional business incubators include child-care facilities.
France	A network of women business angels has been created to facilitate the development of innovative start-ups run by women.
Latvia	The association Lider (Female Leader) has been running a pilot project for fostering young and female entrepreneurship with a focus on the creative and entertainment industry. The programme provided mentoring for aspiring entrepreneurs by experienced businesspersons.
Italy (region Emilia- Romagna)	<p>Regional programme for supporting female entrepreneurship provides for specific actions to foster women's innovative entrepreneurship (i.e. improving data available, training, counselling and mentoring, collection of case stories and dissemination of role models, creation of women's innovative entrepreneurship awards, creation of a network of women operating in the creative industry organisation of seminar and workshops, and gender assessment of innovation policy).</p> <p>CNA, the regional business association undertakes a benchmarking of female innovative business, resulting in a publication and field-trip visits</p>

	for female entrepreneurs.
Women's entrepreneurs in science and technology	
Finland	<p>Pilot project WomEQUAL, helping women networking in technology fields, mentoring and providing entrepreneurial training to women studying and working in technical sectors.</p> <p>Pilot project NaisWAY- Female into Transports and Logistic Sectors, providing training and business skills to aspiring women entrepreneurs and women that have recently started-up a business in the transport and logistics sectors.</p>
Sweden	The association for women in science, engineering and technology has run a pilot project called PREFACE for training and to encourage female students in science and technology to consider entrepreneurship as a feasible career option.
Ireland	The Centre for Entrepreneurship at Dalkan Institute for Technology (DKIT) has recently given attention to the issue of female entrepreneurship in science and technology by starting to cooperate with the US DIANA project for researching and supporting women's access to venture capital.
UK	The Coventry University Technology Park run, in the past, the pilot project DEW-SET for raising awareness, informing and training women in becoming entrepreneurs in science and technology.
Germany	<p>The National Agency for Women Start-ups (BGA) has a Programme for supporting female entrepreneurship in science and technology at national level.</p> <p>Germany has also launched a national programme for the promotion of female entrepreneurship in science and technology. Power for Female Entrepreneurs (Power für Gründerinnen) funds two types of activities: research on the topic and funding innovative pilot projects for unlocking the potential of women entrepreneurs in science and technology. Particularly interesting projects are:</p> <p>NANO4Women to stimulate business ideas from women scientists in nanotechnologies;</p> <p>SWITCH to encourage women to develop business ideas and to provide support to realise it; and</p> <p>P8- Success is female to develop accompanying measures for women starting their business.</p>
Poland	<p>The Regional Development Agency Dolnoslask has run in the past the pilot projects DEW-SET for raising awareness and informing and training women entrepreneurs in science and technology.</p> <p>The Gdansk Entrepreneurship Foundation has also run another pilot</p>

	<p>project for creating a network of female entrepreneurs in science and technology that could mentor aspiring entrepreneurs in the same field.</p> <p>The Wroclaw University is participating to the FemStart initiative for raising awareness and exploring the types of support required by women.</p>
Latvia	<p>FemStart initiative for raising awareness,</p> <p>ProfEQUAL providing counselling and training to women aspiring to become entrepreneurs in technology and knowledge-based sectors, and</p> <p>Lidere (Female Leader) for mentoring women entrepreneurs in technical industries.</p>
Italy (region Emilia- Romagna)	Gender monitoring of already available support for business incubators and spin-off.

In the vast majority of cases, responses are still at an early stage of policy development covering the following major activities:

- Gathering information and raising awareness on the issue (the UK, Poland, Spain, Latvia and Italy);
- Implementing pilot projects (Finland, Sweden, the UK and Germany); and,
- Implementing small scale initiatives at regional and local level (France, Poland, Germany, and the UK).

In Greece and the Czech Republic it was only possible to find initiatives to promote equal opportunities in R&D and scientific research. In Hungary, a regional programme for female entrepreneurship in general makes a reference to female innovative enterprises without having a specific objective or implementing actions.

Most of these initiatives have been rolled out recently or are still in the process of being developed and it is premature to identify good practice. At this stage, however, it is possible to benchmark the types of support provided against the obstacles faced by women, and to identify useful approaches on the basis of stakeholders' consultations.

The benchmarking exercise has shown that the great majority of projects focus on addressing 'soft' factors. Some address contextual problems and a few projects address economic obstacles.

1.6 Evaluation results

To what extent has the promotion of entrepreneurship of women innovators contributed to the Lisbon policy objective of creating more growth and more jobs and achieving 60% employment for women by 2010?

The policy promotion of entrepreneurship of women innovators, referring to women inventors/innovators entrepreneurs and women's entrepreneurship in science and technology, is at a very early stage of development in Member States.

Initiatives have been found in 11 of the 14 Member States reviewed dealing with collecting information on the problems that women encounter, raising awareness on the issue, and testing types of support through pilot projects. These initiatives tend to be small in their scale and scope or too recent to be fully assessed. With the exception of the UK, Germany and Region Emilia Romagna in Italy, clear policy objectives (either by prioritising innovative entrepreneurship in general, support for female entrepreneurship and/or by raising gender awareness in existing innovative policies) have not been formulated in the 14 Member States reviewed.

At this very early stage in promotional activities, the contribution of these initiatives to the Lisbon objectives of creating more growth and more jobs is very limited.

How effective is the promotion of entrepreneurship for women innovators as a mechanism and means to achieve each of their states objectives? What, if anything could be done to render it more effective to achieve these objectives? What is the added value of the promotion of entrepreneurship of women innovators for stakeholders?

An initial issue is that assessment of the effectiveness of the policy intervention is complicated in a methodological difficulty; namely, the definition of women inventor/innovator entrepreneurs as a target group. It is very difficult to have a comprehensive and workable definition of innovative women (technical and non-technical). Innovation can take place in all economic sectors and can be at the level of product, process, organisation and marketing. Similarly, entrepreneurship can be associated with a variety of economic outcomes and levels of innovation. Currently, initiatives that deal with female innovative entrepreneurship tend to be incorporated in programmes for the general promotion of female entrepreneurship or in policy for the promotion of women's entrepreneurship in science and technology. In this regard, the situation is slightly better when considering women entrepreneurs in science and technology. This category is more easily defined, given that it is associated with specific industries.

The majority of initiatives aimed at women innovators/inventors entrepreneurship put in place in the 14 Member States reviewed deal with addressing 'soft' barriers. Addressing such barriers is clearly an important part of any policy for the support of entrepreneurship for women innovators. However, this policy activity needs to be better combined with systematic intervention for tackling contextual obstacles (i.e. addressing underlining issues that prevent women from even considering a career as entrepreneurs in innovative sectors by running informative events and providing entrepreneurship training in schools and universities, challenging stereotypes by raising awareness on women's contribution in innovative entrepreneurship, etc.) and economic obstacles (i.e. enabling women to have access to adequate capital to develop and grow their business ideas).

Data available demonstrate that women are lagging behind when it comes to innovative entrepreneurship and that women encounter a set of specific challenges. The added value of promoting female innovative entrepreneurship is that without

specific policy interventions the gender-related challenges will not be tackled and the number of women innovators becoming entrepreneurs will remain below its potential.

What are the barriers to effective entrepreneurship of women innovators if any? How could such barriers be overcome?

The review and analysis of information available in the 14 Member States has shown that women innovators/inventors face some specific obstacles and challenges both common with, and over and above, those faced by women entrepreneurs more broadly. These can be summarised as contextual obstacles, economic obstacles and soft obstacles (see Table 2 above).

The barriers could be overcome by adequate policy intervention dealing with each specific barrier in a comprehensive and integrated way (see policy recommendations below).

What aspect of promotion of entrepreneurship of women innovators are the most efficient and inefficient? Are there overlaps/complementarities between different actions to promote entrepreneurship for women innovators?

Initiatives for improving the data set and information available on entrepreneurship of women innovators are necessary to assess the scale of the problems and plan for adequate policy intervention.

A range of initiatives exist to deal with contextual, economic and soft obstacles although they are still too early in their life or under development in terms of identifying good practice.

Simply mentioning female innovative entrepreneurship in programmes for the support of female entrepreneurship in general is not a useful approach; unless female innovative entrepreneurship is clearly spelled out as a separate policy objective with specific implementing measures and allocation of funding.

Similarly, merely stating the principle of equal opportunities in innovation policy is not a useful approach, unless the principle is accompanied by measures for ensuring equal opportunities (i.e. women friendly information package, information campaigns targeting women business associations and networks, support with child-care, etc) and monitoring of the women/men participation ratio.

Overlaps/complementarities between different actions to promote entrepreneurship for women innovators have not been observed. In contrast, with the exception of Germany that aims at an integrated approach by involving different stakeholders, the different initiatives in the Member States reviewed and at European level would benefit by more coordination and a joined up approach. The potential remains to support the combination of initiatives to create a comprehensive package of support to women innovators/inventors on the pathway to entrepreneurship.

Are women's ideas for innovation less marketable than the ideas that men develop? Do women innovators lack entrepreneurial qualifications in comparison to their male counterparts? Is existing support for technology transfer and spin-off more appealing to men than to women? And if so, for what reasons? Are there structural factors in

universities etc. that prevent women from developing, testing and realising business ideas?

There is no evidence that women's ideas for innovation are less marketable than ideas developed by men. The problem seems to lie in the contextual barriers that women have to face, namely their innovative ideas not being recognised by predominantly male stakeholders, stereotypes about women in innovative sectors and difficulties in balancing work and family and soft obstacles, such as lack of self confidence in developing and marketing their business ideas.

There is limited evidence that women innovators lack entrepreneurial qualifications in comparison to their male counterparts. The main issue, however, is that women do not immediately consider entrepreneurship as a viable career option, and tend to lack self-confidence in their ability to be entrepreneurs and for building entrepreneurship capacity, such as leadership and assertiveness.

Support for technology transfer and spin-off might result in being more appealing to men than to women if stakeholders are not aware of women's different needs and if there are no measures attempting to attract women.

Overall, the evidence shows that women face specific barriers and challenges (see above).

1.7 Conclusions and recommendations

In light of the findings reported, Table 1.4 summarises the conclusions of the evaluation and associated recommendations for policy development.

Table 1.4: Summary table of conclusions and recommendation

Conclusion	Recommendation
Data and information available on women innovators/entrepreneurs is extremely limited.	<p>Have a European wide survey focusing on female entrepreneurship or improve the current Eurobarometer survey to have more information broken down by gender. The scope would be to obtain information on the economic sectors in which women entrepreneurs operate with a special section on science and technology.</p> <p>A focus group with women innovators entrepreneurs, and stakeholders dealing with innovation policy and female entrepreneurship should be organised at European level in order to explore possible ways of dealing with the gender gap in a joined up way. The findings from the focus group should be disseminated to all stakeholders at national and European level.</p>

Conclusion	Recommendation
	Collecting more gender disaggregated data (i.e. on patents awarded by the European Patent Office, undertaking gender monitoring of the share of women benefitting from DG Enterprise and Industry financial support for business innovation, Framework programme for research.)
It is very difficult to collect data on women innovators/inventors as non-technical innovation takes place in all economic sectors and at all levels (product, process, management and marketing)	The creative industries can be taken as an economic sector in which non-technical innovation take place. At the moment there is no common European definition of the 'creative industry'. However, the UK government definition and classification of creative industry could be taken as an initial basis for developing a definition acceptable at European level and for the process of mapping sectors.
<p>Women in innovative entrepreneurship address specific obstacles that need to be acknowledged and dealt with. These obstacles are can be summarised as being contextual, economic and 'soft'.</p> <p>Contextual obstacles</p> <p>Economic obstacles</p>	<p><i>Dealing with contextual obstacles</i></p> <p>Creating a working group with DG Education and Culture, DG Research, and DG Employment to reduce women's segregation, encourage female students and researchers to consider entrepreneurship, and to challenge stereotypes about women in innovative sectors.</p> <p>Raising the visibility of female innovative entrepreneurship (e.g. creating a European network of women innovative entrepreneurs, and a European award for female innovative entrepreneurship).</p> <p><i>Dealing with economic obstacles</i></p> <p>Organise a round table on women's access to finance, bringing together the venture capital and business angels</p>

Conclusion	Recommendation
Soft obstacles	<p>associations, with the associations dealing with women's entrepreneurship support and with innovation policy.</p> <p>Creating a European network of female business angels.</p> <p>Special grants or funds might be made available for supporting female start-ups in innovative sectors, especially in science and technology, as well as for training and building women's capacity in accessing venture capital.</p> <p>Organise a forum bringing together organisations dealing on the one hand with female entrepreneurship and on the other with innovation to make them fully aware of women's different needs and ensuring that gender issues are fully taken into consideration.</p>
Policy intervention in Member States to promote female innovative entrepreneurship is still at its early development. With only few exceptions clear policy objectives for the promotion of women innovators/inventors' entrepreneurship have not been clearly formulated or prioritised in the 14 Member States reviewed.	<p>Having a Best Initiative in order to raise awareness of national stakeholders on women's specific needs in innovative entrepreneurship, facilitating exchange of experience and mutual learning and providing Member States with broad guidelines on effective approaches that they can adopt.</p> <p>It would be important to formulate a clear policy objective for the promotion of women inventors/innovators' entrepreneurship at European level, both by prioritising innovative entrepreneurship in general support for female entrepreneurship and by raising gender awareness in innovation policy.</p>

2 INTRODUCTION

This final report is the fourth deliverable of the study on the "Promotion of Women Innovators and Entrepreneurship". The assignment has been undertaken by GHK and Technopolis within the framework contract for the provision of studies and other supporting services on Commission evaluations (ENTR/04/093-FC-Lot 1) on behalf of Directorate-General Enterprise and Industry (DG ENTR).

2.1 The purpose, aims and objectives of the study

As outlined in the Task Specifications the overall purpose of the study is to undertake a literature review for informing new policies and actions in the promotion of women's innovators/inventors' entrepreneurship, with a sub-section in the field of science and technology. In addition, the study provides policy recommendations with a view to informing a new Best Project for the promotion of women innovators/inventors entrepreneurship as a way to reach the goals of the Lisbon Agenda.

The specific objectives of the study are to:

- Review the existing information, such as data, statistics and surveys, on women's innovative entrepreneurs with a sub-section on women entrepreneurs in science and technology;
- Identify the challenges and obstacles that women innovators/inventors face in becoming entrepreneurs in general and in the specific field of science and technology;
- Identify good practices in promoting and supporting women innovators/inventors entrepreneurship and female entrepreneurship in science and technology; and,
- Make policy recommendations on how to promote and support women innovators/inventors' entrepreneurship.

The evaluation questions as set out in the study specification are as follows:

1. *To what extent has the promotion of entrepreneurship of women innovators contributed to the Lisbon policy objective of creating more growth and more jobs and achieving 60% employment for women by 2010?*
2. *How effective is the promotion of entrepreneurship for women innovators as a mechanism and means to achieve each of their states objectives? What, if anything could be done to render it more effective to achieve these objectives? What is the added value of the promotion of entrepreneurship of women innovators for stakeholders?*
3. *What are the barriers to effective entrepreneurship of women innovators if any? How could such barriers be overcome?*
4. *What aspect of promotion of entrepreneurship of women innovators are the most efficient and inefficient? Are there overlaps/complementarities between different actions to promote entrepreneurship for women innovators?*

5. *To what extent could measures be taken to improve the utility of the promotion of entrepreneurship for women innovators?*
6. *Are women's ideas for innovation less marketable than the ideas that men develop? Do women innovators lack entrepreneurial qualifications in comparison to their male counterparts? Is existing support for technology transfer and spin-off more appealing to men than to women? And if so, for what reasons? Are there structural factors in universities etc. that prevent women from developing, testing and realising business ideas?*

The methodology employed by the study to address these objectives is reviewed in Section 3.

2.2 Structure of the final report

The remainder of this report is structured as follows:

Section 3 – Research method summarises the methodology that was developed in response to the objectives of the study;

Section 4 – Elaboration of working concepts provides an outline of the conceptual basis of the study, including working definitions of inventors, innovation and entrepreneurship;

Section 5 – The findings from European level review are outlined;

Sections 6 to 19 – The findings from the review and assessment of information and policy responses on women inventors/innovators entrepreneurs and women entrepreneurs in science and technology in the selected 14 Member States are presented;

Section 20 – The findings from the review outside the European Union are outlined;

Section 21 – A summary of findings is presented; and,

Section 22 – The conclusions and recommendations are outlined.

The report is supported by the following Annexes:

- Annex A: Data on gender segregation in education and employment in the EU-25;
- Annex B: Information reviewed at European level;
- Annex C: Information reviewed in selected 14 Member States;
- Annex D: Summary Table of data and information in selected 14 Member States;
- Annex E: Summary Table of policy responses in selected 14 Member States;
- Annex F: List of stakeholders identified and contacted for desk review;
- Annex G: List of interviews and consultations for in-depth case studies;
- Annex H: Glossary with key terms

3 RESEARCH METHOD

The methodology for the study was outlined in the revised proposal submitted to DG Enterprise and Industry on 28 November 2008, clarified during the kick-off meeting held between the steering group and core members of the study team on 11 January 2008 and finalised in the Inception Report submitted on 1 February 2008. The study was structured around four main tasks:

- Task 1 – Inception and structuring of the study;
- Task 2 – Review and assessment of context and policy responses in selected 14 Member States;
- Task 3 – In depth review and assessment of context and policy responses in 4 case study Member States; and,
- Task 4 – Analysis and formulation of policy recommendations.

Table 3.1 below summarises the way in which these three phases of the study contributed to answering the research questions outlined above.

The remainder of this section consists of a review of the activities undertaken within each of these three phases of the research.

3.1 Task 1 – Inception and structuring of the study

Step 1.1 Set up and Kick off meeting

The first step of the study was to hold a kick-off meeting between the steering group and core members of the study team on 11 January 2008. At this meeting the Commission clarified study objectives and expectations, including the requirement to keep the focus of the study on female inventors/innovators entrepreneurs (as against non-innovative female self-employment), to take a broad definition of innovative entrepreneurship, including non-technical innovation, and to have a separate subsection on female entrepreneurship in science and technology. A discussion on how to conceptualise the most challenging concepts of the study ('women innovators', 'women inventors', 'women innovators/inventors entrepreneurs', 'women entrepreneurs') was held, with the study team pointing out the difficulties of performing a literature review and secondary data analysis on concepts that have not been defined by the stakeholders (for example, policy-makers, researcher organisations and statistics institutes). A decision was taken to integrate secondary data with available proxy indicators and qualitative data (in-depth interview of stakeholders dealing with female innovative entrepreneurship) in 4 case studies.

Step 1.2 Review of EU statistics and information

This task involved the mapping, classification, review and analysis of data and statistics from various sources of information on female entrepreneurship in general, women innovators/inventors' entrepreneurs, and women's entrepreneurship in science

and technology. The task has been undertaken through desk research, and stakeholders' recommendations and consultations.

Step 1.3 Review of statistics and information outside Europe

This task involved the mapping, classification, review and analysis of data and statistics from various sources of information on women innovators/inventors' entrepreneurs, and women's entrepreneurship in science and technology at an international level outside Europe. The task has entailed desk research, and stakeholders' consultations and recommendations. Key documents at international level (i.e. OECD, US and Canada) have been reviewed to identify statistics and examples of policy interventions in US and Canada.

Step 1.4 Choice of 14 Member States

A total of 14 Member States were selected at the kick-off meeting for review. The selection process took into consideration the need for geographical balance (Northern, Central, Southern and Eastern European countries) and size balance (big, medium and small) across the European Union.

Member States selected are:

- *Northern Europe*: the UK, Ireland, Sweden and Finland;
- *Central Europe*: Germany, France and Austria;
- *Southern Europe*: Spain, Greece and Italy; and,
- *Eastern Europe*: Latvia, Poland, Hungary and the Czech Republic.

Step 1.5 Fine-tuning of the methodological approach and the work programme

As discussed at the kick-off meeting, the main challenge of the study has been defining the concepts of "women inventors/innovators entrepreneurs", including non-technical innovation. An elaboration of the working definitions of female innovators/inventors' entrepreneurs, innovation and entrepreneurship, and of proxy indicators has been undertaken and the main challenges encountered presented in the Inception Report delivered on 1 February 2008.

3.2 Task 2 – Review and assessment of the context and policy responses in the 14 Member States

Step 2.1 Desk research

This task was performed by reviewing a large amount of statistics, information and policy responses for the promotion of female entrepreneurship, especially innovators/inventors' entrepreneurs and women entrepreneurship in science and technology. In addition, relevant stakeholders at national and regional levels were

contacted by email and telephone and asked to recommend data, research and policy initiatives.

The stakeholders' recommendations were used to validate and integrate the initial desk research. A variety of stakeholders were identified in each Member State at national and regional level, amongst Ministries, SMEs promotion agencies, SMEs associations, women business associations, universities/research centres, business incubators, regional development agencies, etc. The list of stakeholders identified for the desk research is provided in Annex F. Stakeholders were contacted initially by email and asked to recommend relevant statistics, studies and policy initiatives, including activities of gender mainstreaming, for the promotion of female innovator/inventors entrepreneurs, and female entrepreneurship in science and technology.

Step 2.2 Choice of 4 in-depth case study Member States for fieldwork

Of the 14 selected Member States, four were chosen for in-depth fieldwork on policy responses. The selection was based on Member States that have initiatives and programmes for supporting female innovators/inventors to become entrepreneurs and women's entrepreneurship in science and technology.

The selection included one country for each of the four geographical areas (north, centre, east and south of Europe); namely, the UK, Germany, Poland and Italy.

Upon completion of this work, an Interim Report was submitted to the steering group, and approved following a meeting held on 19 March 2008.

3.3 Task 3 – In depth review and assessment of the context and policy responses in four chosen case study Member States for women innovators and female entrepreneurship

Step 3.1 Further desk research

Further information was collected on approaches, policies and programmes that promote women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology in the four in-depth case study Member States.

Step 3.2 Stakeholders' consultations

A series of consultations took place with identified stakeholders responsible for policy setting, management, implementation and evaluation of female entrepreneurship policies. The purpose of these interviews was to deepen the understanding of the types of policy intervention put in place for promoting women innovators/entrepreneurs

Particular attention has been given to identifying the problems affecting female innovative entrepreneurs and how the challenges have been overcome.

The topic guide for the interviews was presented to the Steering Group for validation and was approved.

Step 3.4 Country fieldwork

Fieldwork was undertaken in four countries. The countries have been visited to obtain more in-depth data and information from relevant stakeholders. This step was very important for assessing and comparing the opinions, perceptions and experiences of different stakeholders, including women beneficiaries of particular programmes.

For the Italian case study: two interviews were undertaken with project managers for innovative female entrepreneurship; two interviews with business associations supporting innovative female entrepreneurship; two interviews with officials responsible for spin-off and business incubators for ICT; two interviews with women beneficiaries of initiatives; and two interviews with business advisors for female entrepreneurship.

For the UK case study: two interviews were undertaken with managers of business incubators; two interviews with female beneficiaries of initiatives; one interview with the British Female Inventors Association; two interviews with academics in the field of female entrepreneurship; and one interview with a national female association promoting women in science and technology.

For the Polish case study: one interview was undertaken with a leading academic professor working on female entrepreneurship in Poland; three interviews with the project managers of initiatives for the promotion of women's entrepreneurship in science and technology; and one interview with a woman beneficiary of the initiative for the promotion of women's entrepreneurship in science and technology.

For the German case study: three interviews were undertaken with government officials responsible for female entrepreneurship; and two interviews with the project managers of spin-off and business incubators for developing women's business ideas. The views of female participants to these programmes were covered through the interviews with project managers as they have undertaken a monitoring of the pilot projects.

A full list of consultations is presented in Annex G.

3.4 Task 4 – Analysis and formulation of policy recommendations

Step 4.1 Analysis and drawing conclusions

In the light of the findings this task has analysed data and information and policy responses. Two analytical tables have been prepared for summarising statistics and information found on women innovators/inventors and women entrepreneurs in science and technology. These are presented in Annex D and E. Responses to the specific questions put forward in the Task Specifications have been addressed and are presented in section 21.

Given the small number of policy initiatives existing in the 14 Member States reviewed and the early stage development of the few initiatives implemented so far, it was too early to identify good practice. However, it has been possible to benchmark these initiatives against the types of obstacles faced by women and to identify actions that are likely to affect positively women innovators/inventors' path to entrepreneurship.

Step 4.2 Formulation of policy recommendations

In light of the findings of Task 1, 2 and 3 and Step 4.1, this step recommends actions that could be taken to develop policy interventions for women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology. In addition, policy recommendations have been made to inform a new Best Project, including a detailed guideline for the promotion of female innovative entrepreneurship.

An initial drafting of conclusions and policy recommendations was developed in the final draft report and discussed at a steering group meeting held on 6 June 2008. Comments received from the steering group were incorporated into this final report.

4 ELABORATION OF WORKING CONCEPTS

The renewed Lisbon agenda aims to turn Europe into a modern, dynamic, outward looking knowledge economy. It acknowledges that this is the most effective means of delivering the economic growth and jobs required across Europe. Creating economic wealth through the exploitation of Europe's knowledge triangle (Research, Education and Innovation, REI¹) is at the heart of achieving these goals.

The European Commission recognises that entrepreneurship and small businesses are a key source of jobs, business dynamism and innovation, and promoting entrepreneurship has been identified as a clear objective for the achievement of the Lisbon goals. The European Commission Communication (2005) "Implementing the Community Lisbon Programme Modern SME Policy for Growth and Employment"² states that:

"The new Partnership for Growth and Employment underlines in particular the need to improve the environment for business, take SMEs' concerns on board and provide them with appropriate support. Indeed, SMEs are indispensable for the delivery of stronger, lasting growth and more and better jobs. Furthermore, to revitalise the economy, Europe needs more people willing to become entrepreneurs, hence the importance of promoting entrepreneurial culture."

The Communication goes on to highlight that the EU is not fully exploiting its entrepreneurial potential and is not producing enough start-ups. It identifies issues such as the imbalance between risk and reward, weak social security coverage, and lack of knowledge of what entrepreneurs really do, that lead to widespread preference for employment rather than self-employment. For example, as much as 61% of US citizens would prefer to be self-employed compared to the EU average of 45%, and levels of entrepreneurship in the EU are generally lower than those found in the USA³.

Moreover, it is further recognised that within Europe the lack of exploitation of entrepreneurial potential is even more acute when analysed by gender. Compared with men, fewer women are self-employed in the EU⁴, fewer women start-up businesses⁵ or have the ambition to do so⁶, and women generally choose to start and manage firms in

1

http://ec.europa.eu/research/eurab/pdf/eurab_07_010_advice_energising_europe_knowledge_triangle_april_07_en.pdf

² http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2005/com2005_0551en01.pdf

³ Flash Eurobarometer Entrepreneurship 2007

http://ec.europa.eu/enterprise/enterprise_policy/survey/eurobarometer2007/eb2007report.pdf

⁴ Eurostat Labour Force Survey

⁵ GEM 2006 Report on Women and Entrepreneurship

http://www.gemconsortium.org/download/1205343618181/GEM_2006_Womens_Report_May_07.pdf

⁶GEM 2006 Report on Women and Entrepreneurship

industries such as retail, services to people, and other service industries, that are often (at least until recently) perceived as being less crucial to economic development and growth than science and high-technology⁷.

Women's intellectual potential and their contribution to Europe's competitiveness are not being maximised, hence the Commission – and in particular the Enterprise and Industry Directorate-General – is seeking to promote female entrepreneurship and create a business environment that facilitates the creation and development of women-led companies, especially within innovative activities and sectors. In particular, it is seeking to support women inventors and innovators who wish to exploit their potential and become entrepreneurs, and women who want to set up a business in science and technology fields.

In order to identify policy recommendations to support the pathway of women inventor/inventor to entrepreneur, especially within the sub-field of science and technology, this section elaborates on the definitions of the key working concepts of this study: innovation, women inventors/innovators, entrepreneurship, and women's entrepreneurship.

4.1 Innovation

Under the Third Edition of the OSLO manual, an innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations⁸.

Importantly, the Third Edition expands the definition of innovation to cover non-technological innovation and, in doing so, encapsulates a much greater proportion of innovative activity undertaken within the service sector. This broadening of definition is expected to expand the coverage of innovative activity by women – who have traditionally been over-represented in non-technological activities and many areas of the service sector.

Following the OSLO manual, a range of (in the main) standardised measures are now used to measure innovative activity across the economy. Examples include:

- % expenditure on R&D;
- Patenting rates;
- Scientific publication rates;
- Knowledge and skill levels of human resources;

http://www.gemconsortium.org/download/1205343618181/GEM_2006_Womens_Report_May_07.pdf

⁷ GEM 2006 Report on Women and Entrepreneurship

http://www.gemconsortium.org/download/1205343618181/GEM_2006_Womens_Report_May_07.pdf

⁸ The 'Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data'

- Activity in high technology sectors.

Measurement by such indicators reveals that levels of innovative activity in the EU vary across both sectors and groups in the economy⁹. One specific finding, for example, is that women are under-represented in the education and labour force of the most innovative high technology and knowledge-driven sectors in Europe¹⁰.

4.2 Women inventors/innovators

No common or consistent definition of women innovators/inventors exists in the literature. Inventors may generally be defined as those who create the original idea or product; innovators more generally are recognised for their ability to make a better idea or version from the original or find new arenas for application. In common usage, the terms are blurred¹¹.

The parameters and indicators of innovation as outlined in the Oslo Manual (see above) can be applied by gender to identify actual, or potential, proportions of women innovators/inventors.

Examples of proxy indicators that have been used in this study to assess and quantify the number of women innovators are:

- Patent awarded by gender;
- Knowledge and skill levels (for example, percentage of doctorate holders by gender, across disciplines);
- Activity in high technology occupations and sectors (for example, percentage of researchers in business sector by gender and percentage of senior academic positions by gender);
- Business owners' perception of their own business innovation by gender; and
- Share of women participating to spin-off and business incubators.

4.3 Entrepreneurship

Despite the lack of an internationally accepted and comparable definition of entrepreneurship, efforts to better define entrepreneurship have increased in recent years¹².

At OECD level, the 2004 Istanbul Conference on SMEs and Entrepreneurship made strong and explicit recommendations on the need for the development of more comprehensive and comparable data. Subsequently, in 2006, the OECD and Eurostat

⁹ See for example Community Innovation Surveys undertaken by Eurostat

¹⁰ See for example European Commission (2006), Women and Science: Statistics and Indicators – She Figures 2006 and also Eurostat (2007), Science, Technology and Innovation in Europe – Eurostat Pocketbooks

¹¹ See, for example, the European Union Women Inventors and Innovation Network; <http://www.euwiin.eu/>

¹² "Defining Entrepreneurial Activity: Definition Supporting Framework for Data Collection" OECD Statistics Working Paper, 24 January 2008 STD/DOC (2008)

launched the Entrepreneurship Indicators Programme (EIP)¹³ to build internationally comparable statistics on entrepreneurship and its determinants. The OECD definition considers three components¹⁴:

- Entrepreneurs are those persons (business owners) who seek to generate value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.
- Entrepreneurial activity is the enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activities, by identifying and exploiting new products, processes or markets.
- Entrepreneurship is the phenomenon associated with entrepreneurial activity.

The connection of entrepreneurs and entrepreneurship with economic activity is taken to be evidenced by the proxy indicators of self-employment, business creation (or start-up) and, to a lesser extent, small and medium-sized enterprises (SMEs). Statistics on such economic activity are available internationally and are generally accepted as proxies of entrepreneurship (even though they do not always fully capture the concept).

Furthermore, within such definitions of entrepreneurship, entrepreneurs are understood generally as being creative and innovative, seeking to exploit new products, processes, practices and markets for economic gain – principally through self-employment, business creation and business expansion. For instance, entrepreneurship is seen a “*major driver of innovation, competitiveness and growth*” in the European Commission “Report on the Implementation of the Entrepreneurship Action Plan”.¹⁵

At an international level, the most well-known initiative to collect comparable data on entrepreneurship is the GEM (Global Entrepreneurship Monitor) Project. GEM has gathered information through both household surveys and specialist interviews since 1998, and now covers over 40 countries¹⁶.

At the European level, Eurostat collects data on self-employment and has recently implemented the first survey on “Factors of Business Success” (FOBS), which included a review of entrepreneurs¹⁷. The European Commission’s Eurobarometer has also undertaken several surveys to measure attitudes towards entrepreneurship¹⁸.

¹³ The aim of the EIP is to create a durable, long-term programme of policy-relevant entrepreneurship statistics. The work involves developing standard definitions and concepts and engaging countries and international Agencies in the collection of data.

See www.oecd.org/statistics/entrepreneurshipindicators

¹⁴ “A Framework for Addressing and Measuring Entrepreneurship” by N. Ahmad and A. N. Hoffmann, 24 January 2008, STD/DOC (2008) 2

¹⁵ “Report on the implementation of the Entrepreneurship Action Plan” SEC(2006) 1132

http://ec.europa.eu/enterprise/entrepreneurship/action_plan/doc/sec2006_1132_en.pdf

¹⁶ <http://www.gemconsortium.org/>

¹⁷ “The Profile of the Successful Entrepreneurs”, Eurostat 29/2006

http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-NP-06-029/EN/KS-NP-06-029-EN.PDF

¹⁸ Flash Eurobarometer Entrepreneurship 2007

4.4 Women's entrepreneurship

Women's entrepreneurship is a key policy agenda for the European Commission. The European Commission Communication "Implementing the Community Lisbon Programme modern SME Policy for Growth and Employment"¹⁹ states that the Commission will work:

"with national authorities to address those areas where the needs for women entrepreneurs are still not being sufficiently met notably in access to finance and entrepreneurial network".

The European Commission's Best Project defines a female entrepreneur as:

'a woman who has created a business in which she has a majority shareholding and who takes an active interest in the decision-making, risk-taking and day-to-day management'.²⁰

Similarly, OECD analysis defines entrepreneurial activity by women as:

'the establishment, management, growth and death of independent firms'.²¹

These definitions of entrepreneurship fit with the international literature on entrepreneurship (see earlier section) such that a broad working definition of women's entrepreneurship and associated indicators may be identified as:

- percentage of women who are self-employed;
- percentage of women-owned business, and
- entrepreneurship rate of women.

For the purpose of this study, GEM data has been used, when available, to undertake cross country comparison.

4.5 The Pathway to women inventor/innovators' entrepreneurship

This study seeks policy recommendations on how to promote and support women innovators/inventors' entrepreneurship. In so doing it seeks to support the movement of a set of women – inventors/innovation – on a pathway towards the economic activity of entrepreneurship and its economic outcomes of jobs and growth (see Figure 3.1).

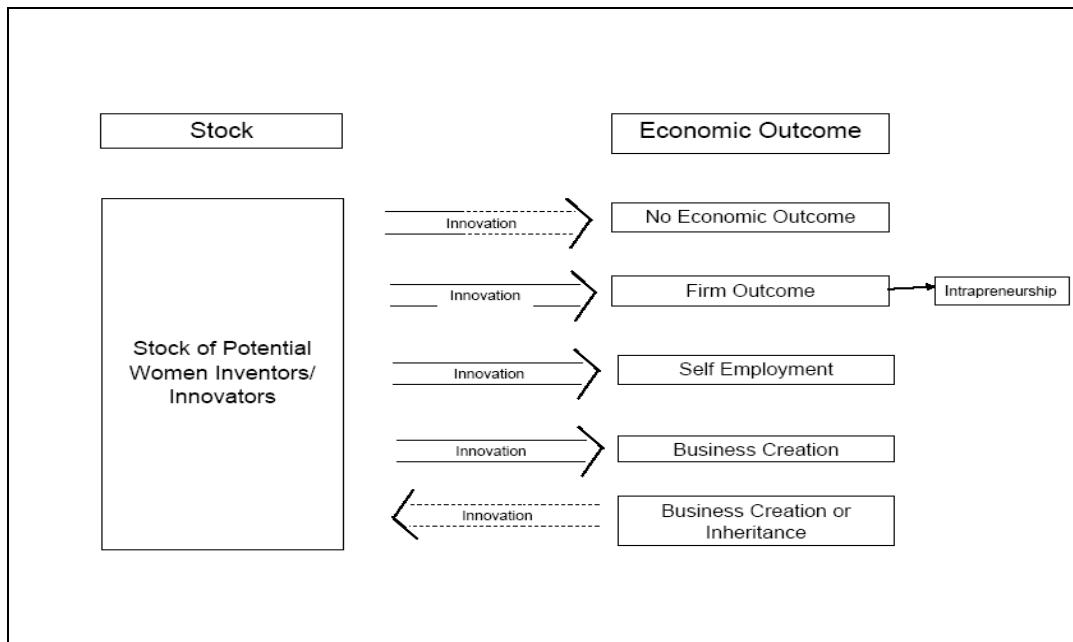
http://ec.europa.eu/enterprise/enterprise_policy/survey/eurobarometer2007/eb2007report.pdf

¹⁹ http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2005/com2005_0551en01.pdf

²⁰ European Commission (2004), Promoting entrepreneurship amongst women - Best Report No 2, <http://ec.europa.eu/enterprise/entrepreneurship/craft/craft-women/documents/bestreport2.pdf>

²¹ OECD (2004), Promoting Entrepreneurship and Innovative SMEs in a Global Economy – Towards a More Responsible and Inclusive Globalisation: WOMEN'S ENTREPRENEURSHIP: ISSUES AND POLICIES, <http://www.oecd.org/dataoecd/6/13/31919215.pdf>

Figure 3.1 The Pathway to Women Inventors/Innovators' Entrepreneurship



At the start of the process is a *stock* of women who may be identified as representing a higher propensity to be inventors/innovators, particularly in science and technology, due to their particular attributes or position in relation to the innovation process. There is no certainty that these women will take the first steps towards entrepreneurship and, indeed, the evidence is that a range of *barriers* impede such a process. In other words, there are a set of women inventors/innovators who are not entrepreneurs.

At the end of the pathway is a set of *women entrepreneurs – self-employed, business creators and SME owners* – who may or may not have been, or be, women inventors/innovators. Examples of non-innovative entrepreneurs might be hairdressers or corner shop owners or the inheritor owner of an innovative company that does not innovate anymore.

Several *potential pathways* can be identified in the *move from female innovator to female entrepreneur* – the policy issue in delivering the Lisbon agenda is the barriers to progression along these pathways. Potential pathways (see Figure 3.1) include:

- The woman inventor/innovator who does not utilize such personal activity for economic exploitation – the pathway is not progressed;
- The woman who acts as an inventor/innovator within a (large) company, university, etc. Evidence may exist, indirectly, through patent or other IPR, with economic gain incorporate in potential market activity or productivity by the company. Barriers to entrepreneurship (such as spin-off) may exist or, alternatively, be facilitated through 'entrepreneurship' policies – the pathway is only partially travelled;

- The woman inventor/innovator moves to self-employment status. This pathway may be by necessity (for example, redundancy or outsourcing) or opportunity.
- The woman innovator sets up a company as part of the classic process of entrepreneurship; and,
- The woman who has become an entrepreneur (through business creation or inheritance) but who does not undertake innovative activity. This situation suggests 'reversing the pathway' in the sense of moves to make the firm innovative.

The Application of the Working Concepts

Application has made clear the following issues concerning the use of these working concepts:

- The term women inventor/innovator is rare: across international literature, entrepreneur remains the most common term with inventor/innovator rarely used within policy circles;
- Comparative data on 'stocks': Some data (for example, occupation or educational level) does exist by gender on the stock of individuals who might be innovator/inventors and undertake entrepreneurship; and,
- No systematic international data linking origin and destination exists: no systematic data sets exist that track the pathway of women innovators and entrepreneurship, although a range of qualitative studies of the potential pathways, including barriers to progression are available.

5 THE EUROPEAN LEVEL

5.1 Review of data and information at European level

5.1.1 Female entrepreneurship in general

There are several sets statistics and information available at European level on female entrepreneurship. The most important are presented below:

GEM report on women and entrepreneurship 2006²²

The GEM dataset measures entrepreneurship through two indicators:

- Early Stage Entrepreneurial Activity measures the propensity to be entrepreneurial by capturing nascent entrepreneurs²³ and new business owners²⁴; and,
- Established Business Owners captures individuals involved in owning and managing a business that has successfully survived in the market for more than 42 months.

These two measurements provide different information about the entrepreneurial context. Early Stage Entrepreneurship indicates the dynamic entrepreneurial propensity (i.e. the percentage of the population willing and able to undertake an entrepreneurial activity). This is also commonly referred to as the TEA index (Total Early Stage Entrepreneurial Activity). The established business indicates the percentage of the population involved in running a business that proves to be sustainable. These two indicators are combined in the “Overall Business Owners” measure, showing the level of entrepreneurial activity in countries.

Table 4.1 presents the rate of entrepreneurial activities by gender in 12 of the 14 selected case study member states (Austria and Poland are not covered by the GEM study on female entrepreneurship). The data shows that the rate of entrepreneurial activity for women is, on average, roughly half the rate for men. The largest gap between the genders is to be found in Ireland and the smallest in Sweden.

²² http://www.gemconsortium.org/download/1201794307439/GEM_2006_Womens_Report_May_07.pdf

²³Nascent entrepreneurs are those individuals, between the ages of 18 and 64 years, who have taken some action towards creating a new business in the past year. In order to qualify in this category, these individuals must also expect to own a share of the business they are starting and the business must not have paid any wages or salaries for more than three months.

²⁴ New business owners are individuals who are active as owner-managers of a new business that has paid wages or salaries for more than three months, but less than 42 months.

Table 5.1 - Rate of Entrepreneurial Activity Across Countries by Gender 2006²⁵

Country	Early Stage Entrepreneurial Activity (Nascent + New)		Established Business Owners		Overall Business Owners (Nascent+ New+ Established)	
	Percentage of adult population		Percentage of adult population		Percentage of adult population	
	Male	Female	Male	Female	Male	Female
Czech Republic	10.75	4.93	7.66	3.14	18.41	8.07
Finland	5.92	4.04	11.58	4.81	17.50	8.85
France	6.26	2.53	1.31	1.35	7.57	3.88
Germany	5.79	2.58	3.92	2.10	9.71	4.68
Greece	11.12	4.69	9.32	7.16	20.44	11.85
Hungary	8.09	4.05	9.03	4.48	17.12	8.53
Ireland	10.51	4.20	12.23	3.41	22.74	7.61
Italy	3.87	3.06	4.32	1.72	8.19	4.78
Latvia	9.41	3.92	8.12	3.41	17.53	7.33
Spain	8.83	5.70	7.59	3.30	16.42	9.00
Sweden	4.44	2.43	5.96	4.00	10.40	6.43
United Kingdom	7.88	3.61	7.91	2.85	15.79	6.46

Source: 2006 GEM Report on Women Entrepreneurship

Eurobarometer

Since 2000, Gallup has conducted several surveys on the topic of entrepreneurship. The aim of the **Euro-barometer household surveys on entrepreneurship**²⁶ is to assess the development of entrepreneurship in the EU Member States and to identify the underlying factors influencing entrepreneurial cultures. The applies to some of the questions in the 2007 Eurobarometer survey are broken down by gender, allowing for a number of observations on the characteristic of female entrepreneurs and gender differences in Europe. The main findings of the 2007 Eurobarometer household survey on Entrepreneurship are:

Women seem to be less attracted by the idea of becoming entrepreneurs. More men than women want to be entrepreneurs (39% of women compare to 50% of men). More

²⁶ http://ec.europa.eu/enterprise/enterprise_policy/survey/eurobarometer_intro.htm

women (66%) than men (57%) have never thought about setting up a business or taking steps to realise that end, and more men (38%) than women (26%) consider the possibility of becoming an entrepreneur feasible.

The gender differences in entrepreneurial attitude can be explained by the different perceptions of the attractiveness and difficulties of entrepreneurship (i.e. encouraging and discouraging factors, and barriers) displayed by men and women.

On factors encouraging individuals to become entrepreneurs, women rate in order of importance the possibility of developing their personal interests and having an interesting job, having the freedom to choose the place and time of working and having better income prospects.

Concerning discouraging factors to entrepreneurship, women rate in order of importance not having the security of a fixed income, having to work long hours and lack of social security provision.

On the barriers to becoming an entrepreneur, more women than men consider lack of finances and lack of entrepreneurial skills the main reasons for self employment being unfeasible. On the access to finance, more women (77%) than men (73%) agree with the statement "It is difficult to start one's own business due to a lack of available financial support". Women are also more likely to place the emphasis on the need for necessary financial means (83% of women compare to 78% of men consider this important). On entrepreneurship skills, more women (53%) than men (43%) agree with the statement "One should not start a business if there is a risk it might fail". On the other hand, lack of business ideas is quoted less by women than by men.

On the factors that might have positively influenced the decision to become an entrepreneur, slightly more men (35%) than women (33%) have participated in any course or activity about entrepreneurship in school. Furthermore, men are more likely than women to think that entrepreneurship is the basis of wealth creation and that entrepreneurs are job creators.

Academic studies

A recent study on reducing the causes of gender professional segregation, "**Promoting women's entrepreneurship in technology sectors: good practice examples from the EU and other countries**"²⁷, identified the main difficulties that women face in creating their own business in general:

- Pre-venture labour experience: women's education and labour segregation is replicated in entrepreneurship activity. Women enter entrepreneurship with less managerial experience, training and skills than men;

²⁷ The study was financed by the DG Employment- Equal project and was undertaken by the Latvia Society Integration Foundation in 2006. Its findings on female entrepreneurship in science and technology are presented in the section below.

<http://www.ukrc4setwomen.org/downloads/research/Latvia6.pdf?PHPSESSID=058d6936f221e85a2c09675c8334fa17>

- Finance obstacles: women are disadvantaged in raising initial capital for business start-up, they use a third of the starting capital than men, irrespective of the sector. The guarantee required for external financing may be beyond women's personal assets and credit track record; women experience more difficulties in dealing with banks and entering informal financial networks (e.g. business angels);
- Lack of access to relevant networks: networks are key factors in business success by providing access to information, advice, finance and business contacts;
- Low self-esteem/lack of confidence; and,
- Lack of role models of female entrepreneurship.

5.1.2 *Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology*

The context: the situation of women in potentially innovative educational fields and employment sectors

In recent years, at European level, considerable efforts have been made to collect gender disaggregated data on higher education and employment in R&D²⁸. The data still present some limitations, for example, figures are not always available, especially on the gender distribution in different sectors of employment and gender distribution in senior positions. However the data sets available represent a good basis for drawing some general conclusions on the level of gender educational segregation and horizontal employment segregation. The data are presented in Annex A.

Overall, data available on the proportion of female PhD graduates shows that in the EU-25 there is a low level of gender educational segregation in science but a significant level of gender segregation in engineering. In employment, in the EU-25 there is a significant level of gender horizontal segregation and a high level of vertical segregation in senior academic positions.

In more detail:

- Educational segregation: data on the percentage of female PhD graduates shows a low level of segregation in science, mathematics and computing (40% of all PhD graduates) and a significant level of segregation in engineering, manufacturing and construction (22% of PhD graduates)²⁹ (See Annex A-1).

²⁸ See She Figures 2006, Women in Science, Statistics and Indicators, European Commission, DG Research and Eurostat

²⁹ For the purpose of this study data are discussed only for two broad fields of studies: the first is science, mathematics and computing, the second is engineering, manufacturing and construction. However, data in the annexes are provided also for both broader and narrower fields of studies. It is worth noting that analysis of the narrow field of studies in science, mathematics and computing shows a certain degree of variation in the gender distribution with women outnumbering men in life science (54%), but being underrepresented in physical sciences (33%) and in computing (18.6%). A moderate variation in the gender distribution is also present in the fields of studies of engineering, manufacturing and construction, with women being 17.1% in engineering, 32% in manufacturing, 31.3% in architecture.

- Employment horizontal segregation: data on the percentage of female researchers in business sectors shows a significant level of gender segregation (18% of all researchers)³⁰ (See Annex A-2).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a high level of vertical segregation in senior academic positions in medical sciences (15.6%), in natural sciences (11.3%) and in engineering and technology (5.8%) (See Annex A-3).

Women inventors/innovators entrepreneurs

Specific data at European level on the number of female innovators/inventors' entrepreneurs does not exist. However, some proxy indicators are available.

Patents awarded to women: the European Patent Office (EPO) does not record the gender of the person awarded a patent. However, a study is currently being undertaken to quantify the number of patents registered at the EPO for the time period 2001-2003³¹. Preliminary data available suggests that³²:

- The percentage of females awarded a patent is very low: 8.3% compared to 91.7% of men; and,
- Female patents distribution shows a higher rate in the field of pharmacy (22.7%) and biotechnology (22.2%) and a very low rate in the technology, mechanical and electronic fields (2.5%).

Women's access to venture capital: venture capital is normally associated with highly innovative companies in high-growth sectors. Elaboration of Eurostat data collected for the Survey on Factors of Business Success (FOBS) shows that there is a substantial gender gap in the use of venture capital for start-ups. Start-ups utilising venture capital run by women account for only 20.3% of the total (see Table 4.2)³³. Table 4.2 indicates that Slovakia is the only country where more women than men had used venture capital for their start-up, whereas in Denmark, Estonia, Luxemburg, Portugal and Sweden none of the firms surveyed that used venture capital were run by women.

³⁰ For the purpose of this study, only data on researchers in business sectors is reviewed as these sectors business sector are more likely to be associated with future entrepreneurship.

³¹ This study is undertaken by the Centre for European Studies on Gender Aspect of Invention (ESGI). The number of women awarded a patent is taken as an indicator of women involved in innovative activities. The study is still ongoing and is expected to end in September 2008.

<http://www.esgi.de/home.html>

³² The study infers the gender of the applicants by looking at their first name. In 93% of the cases, it was possible to determine the gender of the applicant.

³³ The survey covers only a selection of Member States: CZ, DK, EE, FR, IT, LV, LT, LU, AT, PT, SI, SK, SE, RO and BG.

Table 5.2 Number and share of start-ups financed by venture capital

	Total	Males	Females	Male %	Female %
Bulgaria	824	625	199	75.8	24.2
Czech Republic	393	378	15	96.2	3.8
Denmark	28	28	0	100.0	0.0
Estonia	10	10	0	100.0	0.0
France	N.A.	N.A.	N.A.	N.A.	N.A.
Italy	221	145	76	65.6	34.4
Latvia	40	25	15	62.5	37.5
Lithuania	581	438	143	75.4	24.6
Luxembourg	26	26	0	100.0	0.0
Austria	228	202	26	88.6	11.4
Portugal	28	28	0	100.0	0.0
Romania	120	82	38	68.3	31.7
Slovenia	62	50	13	80.6	21.0
Slovakia	42	19	23	45.2	54.8
Sweden	94	94	0	100.0	0.0
Total	2697	2150	548	79.7	20.3

Source: Eurostat, FOBS survey, 2006.

Entrepreneurs' innovation self-assessment: the Eurostat Survey on Factors of Business Success (FOBS)³⁴ asked entrepreneurs to rate how innovative their business was. The figures show that:

- On average, across the EU, only 25.6% of women compared to 74.4% of men have set up their business in order to "realize an idea for a new product or service". The figure for women ranged from 17.9% in Luxembourg to 36.1% in Bulgaria (see Table 4.3).
- Slightly more men than women assess their enterprises as being innovative (see Table 4.4 below).

³⁴ The survey covered a selection of countries: CZ, DK, EE, FR, IT, LV, LT, LU, AT, PT, SI, SK, SE, RO and BG.

Table 5.3 Number and share of men and women having “Realising an idea for a new product or service” as motivation for start-up

	Male	Female	Total	% Male	% Female
Bulgaria	3,706	2,093	5799	63.9	36.1
Czech Republic	8,463.00	3,183.00	11,645.00	72.7	27.3
Denmark	2,941.00	793.00	3,734.00	78.8	21.2
Estonia	840.00	271.00	1,110.00	75.7	24.4
France	5,409.00	1,318.00	6,727.00	80.4	19.6
Italy	45,254.00	15,914.00	61,168.00	74.0	26.0
Latvia	584.00	278.00	862.00	67.7	32.3
Lithuania	879.00	268.00	1,147.00	76.6	23.4
Luxembourg	664.00	145.00	809.00	82.1	17.9
Austria	4,311.00	1,395.00	5,706.00	75.6	24.4
Portugal	4,842.00	784.00	5,625.00	86.1	13.9
Romania	7,054.00	3,204.00	10,258.00	68.8	31.2
Slovenia	1,107.00	337.00	1,445.00	76.6	23.3
Slovakia	6,602.00	2,188.00	8,790.00	75.1	24.9
Sweden	5,007.00	1,486.00	6,492.00	77.1	22.9
Total	97,663.00	33,657.00	131,317.00	74.4	25.6

Source: Eurostat, FOBS survey, 2006.

Table 5.4 Entrepreneurs' assessment of innovation in their own enterprise, by gender, in %

	Male	Female
Product	14.5	13.6
Process	7.8	4.1
Organisation	6.5	5.2
Marketing	10.4	9.1

Source: FOBS survey, 2006. Data based on 10 countries (CZ, DK, IT, LT, LU, AT, SK, SE, BG and RO).

Women entrepreneurs in science and technology

There are no specific statistics on the number women entrepreneurs in science and technology but the subject has been recently investigated by a study for reducing the causes of gender professional segregation: **“Promoting women’s entrepreneurship in technology sectors: good practice examples from the EU and other countries”**³⁵. The study acknowledges that there are no data and information on the number of

³⁵ The study was financed by the DG Employment- Equal project and was undertaken by the Latvia Society Integration Foundation in 2006.

<http://www.ukrc4setwomen.org/downloads/research/Latvia6.pdf?PHPSESSID=058d6936f221e85a2c09675c8334fa17>

women owning a business in science and technology, their characteristics, entrepreneurial experience and initiatives targeted at their support.

On the one hand, there is a considerable amount of research focusing on technology-based business that does not take into account the gender dimension. On the other hand, research on women entrepreneurs has generally been based on women's experience in traditionally 'female' industries. Despite the scarcity of data, the study argues that the number of women entrepreneurs in science and technology is still below its potential with the number of high-tech women's owned business to be between 5-15% of all high-tech business owners. This gender gap is explained by the gender segregation in educational choices and gender horizontal and vertical segregation in technical and scientific employment sectors³⁶ as well as by the low propensity of women in general to start their own business. The study also highlights the key differences between women entrepreneurs in high-growth areas and women entrepreneurs in low growth areas. Women in high-growth areas tend to be older and are more educated, they focus more on market expansion and have more risk propensity, they plan for growth, use a team-based approach and use a wider range of financial services for business growth. According to this study, the obstacles faced by women entrepreneurs in the high-tech sectors tend to be similar to those experienced by women entrepreneurs in other sectors³⁷ with a higher degree of difficulties identified in:

- lack of female role models;
- lack of access to substantial economic resources such as venture capital as high level of investments are needed;
- lack of access to high-tech networks;
- difficulties in becoming a credible entrepreneurs in a male-dominated environment.

5.2 Review of policy responses at European level³⁸

5.2.1 Setting the context

Promoting female entrepreneurship is a recognised policy objective of the European Commission Lisbon Strategy, including the European Employment Strategy³⁹ and strategy for SMEs⁴⁰.

There are several DGs addressing the issue female entrepreneurship.

³⁶ Research has shown that most women and men start firms in industry where they have some previous experience and knowledge (see OECD 2003 "Women Entrepreneurship: issues and policies" Working Party on Small and Medium-Sized Enterprises and Entrepreneurship, OECD Paris)

³⁸ See also Annex B for comprehensive review of policy responses.

³⁹ See the European Employment Strategy website:

http://ec.europa.eu/employment_social/employment_strategy/index_en.htm

⁴⁰ See for example the European Commission Communication "Implementing the Community Lisbon Programme for a modern SME policy for growth and employment".

DG Enterprises and Industry provides for specific actions for the support of female entrepreneurship. The main measures have included:

- The inclusion of the objective of promoting female entrepreneurship in the European Charter for Small Enterprises,
- The promotion of projects targeted specifically at women entrepreneurship, such as the 2003 Best Project for identifying good practice in promoting female entrepreneurship⁴¹;
- The creation of a portal on female entrepreneurship⁴²;
- The promotion of networks promoting women's entrepreneurship;
- The promotion of events and public debate on the theme of women entrepreneurship;
- The promotion of studies and reports on women entrepreneurship; and,
- The promotion of entrepreneurship amongst young women.

DG Employment, Social Affairs and Equal Opportunities provides support for women's entrepreneurship under the policy objectives of fighting female unemployment and increasing female employment as well as promoting equal opportunities in all sectors of society. The activities are funded by through the European Social Funds and Equal Fund⁴³.

DG Regional Policy has occasionally provided support for women's entrepreneurship under the policy objective of regional development and employment through funding mechanisms such as the European Regional Development Fund (ERDF) and Urban Initiative for urban development.

DG Research does not have a specific objective for supporting female entrepreneurship but it has founded a programme for raising awareness and improving academic support to female entrepreneurship in science and technology (see section on policy responses below).

DG Education and Culture does not have a specific objective for the promotion of female entrepreneurship but its programmes for training and education, such as Leonardo, have occasionally dealt with the issue.

5.2.2 *Policy responses for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology*

Specific policies for promoting these types of female entrepreneurship have not been developed, however, a few initiatives in the forms of small scale pilot projects exist.

WomEn2FP6 (Enterprising Women into European Research). This initiative aimed to integrate women entrepreneurs into 6th Framework Programme (FP6) projects by

⁴¹ <http://ec.europa.eu/enterprise/entrepreneurship/craft/craft-women/bestproject-women.htm>

⁴² http://ec.europa.eu/enterprise/entrepreneurship/craft/craft-women/womenentr_portal.htm

⁴³ The Equal fund has been incorporated in the ESF under the 2007-2013 funding round.

bringing together the associations dealing with innovation as well as technology and those helping women to set up their own business. The project consisted of supporting trans-regional learning, training, courses and seminars for women and in creating a database of women entrepreneurs. A thematic network ProWomEn across 15 Member States was also organised for the exchange of different approaches and good practice in supporting women to create innovative ideas and start their own business⁴⁴.

FemStart⁴⁵: this programme aims to encourage women in science to choose entrepreneurship as a career path by promoting discussion on female entrepreneurship and types of supporting structure needed in scientific universities. The programme provides for six events to take place in six European cities between 2006 and 2009 and it is funded by DG Research⁴⁶.

DEW-SET⁴⁷: this programme aims to increase the number of women engaged in setting up science, engineering and technology businesses by developing specific training and support service for female entrepreneurs, as well as by establishing a virtual network and a self-diagnostic tool kit. The programme was promoted by the European Info Centre (DG Enterprise and Industry) based at Coventry University Technology Park (UK) in partnership with the Regional Development Agency of Dolnoskaska (PL). It started in 2006 and it is now concluded⁴⁸.

WiTEC-PREFACE: this programme aimed to develop a training programme on entrepreneurship for secondary school female students in Science and Technology areas. The programme was developed by the European Association for Women in Science and Engineering and Technology (WiTEC) under the Leonardo Programme of DG Education and Culture. The programme was led by the Swedish WiTEC partner and was run between December 2002 and May 2005⁴⁹.

A summary of findings is presented in Section 21.1 and Annex B.

⁴⁶The events take place in Stuttgart (DE), Valencia (ES), Wroclaw (PL), Riga (LV), Bucharest (RO) and Twente (NL). The initiative is analysed more in details when considering Poland, Latvia and Spain.
<http://www.femstart.eu/>

⁴⁷ <http://ec.europa.eu/enterprise/networks/eic/pdf/FactSheet22.pdf>

⁴⁸ This initiative is analysed more in details when considering UK and Poland

⁴⁹ This initiative is analysed more in details when considering Sweden.

6 FINLAND

6.1 Review of data and information

6.1.1 Female entrepreneurship in general

International 2006 GEM data on female entrepreneurship suggests that Finland has one of the highest rates of female entrepreneurship (8.85%). In terms of gender gap, gender differences are small in early stage entrepreneurial activity rate (4.04% for women compare with 5.92% for men), but more significant when considering the established business owners' rate: only 4.81% are women compare to 11.58% of men⁵⁰.

The economic sectors in which women entrepreneurs operate tend to be the most traditional such as agriculture (35%), public service sectors (16%) and wholesale/trade (13%)⁵¹.

Information available on the profile of women entrepreneurs indicates that they are most active during the age of 35-44 and are well educated (12.2% of women entrepreneurs have a post secondary degree)⁵². The level of education is higher amongst female entrepreneurs in education/health and finance/commerce sectors⁵³.

A survey⁵⁴ amongst women entrepreneurs suggests that entrepreneurship is an opportunity more than a necessity and that the most important reasons for starting a business is the “*wish to take things into their own hands*” and “*the wish to use their professional skills*”.

6.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Finland indicates that the country has a low level of gender educational segregation in science but a significant level of educational segregation in engineering. In employment, the country displays a significant level of gender horizontal segregation and from a high to a significant level of vertical segregation in senior academic positions.

In detail:

⁵⁰ GEM 2006 Female Entrepreneurship

⁵¹ Finish Statistical Office Annual Survey on Entrepreneurship 2007

⁵² GEM 2003 Finland. To date this is the most recent report.

⁵³ Finish Statistical Office Annual Survey on Entrepreneurship 2007

⁵⁴ Survey commissioned by the Central Association of Women Entrepreneurs in Finland on a sample of 1,000 female entrepreneurs in 1997.

- Educational segregation: data on the percentage of female PhD graduates shows a low level of segregation in science, mathematics and computing (43.1%) and significant level of segregation in engineering, manufacturing and construction (25.5%).
- Employment horizontal segregation: data on the percentage of female researchers in the business sector show a significant level of segregation (18%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a significant level of vertical segregation in senior academic positions in medical science (21.6%), and a high level of vertical segregation in senior academic positions in natural sciences (11.3%) and engineering and technology (6.3%).

Women inventors/innovators' entrepreneurs

There are no statistics on women inventors/innovators' entrepreneurs. However some proxy indicators are available.

The **Finnish National Board of Patents and Registration** keeps a register of female innovators/inventors that have received a patent for their innovation. The record includes both individual female innovators, individual female innovators employed by companies and groups of researchers of which at least one is woman.

Although the number of women awarded a patent has increased from nearly 200 in the 1980s to around 700 in the 1990s, it remains extremely low when compared to men: only 6% of patents registered involved women in 2002.

The **Foundation for Finnish Inventions** supports individuals to develop their inventions. The Foundation keeps a record of individuals that have received financial support for the development of their innovation and that have been able to apply for a patent. The majority of the innovations that have received support are in the science and technology field. A gender analysis of this record shows that in 2006 only a small percentage of these individuals were women (only 4 out of 96, less than 4%). This also reflects the very low number of applications for financial support by women (5% in 2002).

Data and information on women entrepreneurs in science and technology

There are no statistics in Finland on the number of women entrepreneurs in science and technology sectors. However, there has been an academic study which aimed to identify the barriers that women face in becoming entrepreneurs in the ICT sector⁵⁵. The difficulties have been identified as:

- ICT is a male dominated sector. Business ideas put forward by women in the ICT industry tend to be ignored more easily than those put forward by men. Decision-makers in the ICT industry (i.e. those responsible for public ICT

⁵⁵ <http://hsepubl.lib.hse.fi/pdf/diss/a207.pdf>

policies and practices) do not always see the value of business ideas that are aimed at women (e.g. digital media services for women and girls);

- Women that want to set up a business in ICT industry have to provide more credentials (i.e. higher level of education, business skills and professional experience) than men.
- Women entrepreneurs in ICT are often described by the media as exceptional and powerful women, conveying the message that only a very small number of women can adventure into this career path.

6.2 Review of policy response in Finland

6.2.1 Setting the context

Encouraging and supporting female entrepreneurship is part of mainstream policies in Finland. It has been recognised that aspiring female entrepreneurs need programmes and projects aimed specifically at them.

At national level, there are several agencies dealing with female entrepreneurship. Finvera,⁵⁶ the state owned Export Credit Agency specialising in financing companies, runs a micro-credit programme for female entrepreneurs. The Women's Enterprise Agency⁵⁷ provides multiple and integrated services, from individual advice to thematic sections, training, mentoring and networking, to women who are starting or have already started their own business.

In addition, employment and economic centres have a dedicated female advisor for women entrepreneurs: TE-KESKUS information and guidance for female entrepreneurs. Studies have showed that aspiring female entrepreneurs could be better encouraged if they are advised and supported by other women. Women have reported that male advisers often did not see the value of their business ideas in health and social sectors. The centre is also very active in providing women with access to women entrepreneurs' networks.

Other particularly interesting initiatives for supporting female entrepreneurship include Lady Business Schools and the SIBA pilot project.

Lady Business School is management school dedicated exclusively to women entrepreneurs and women executives. The School runs three/four programmes per year with over 20 participants on each course. Over 800 women executive and entrepreneurs have taken part in different training programmes with several 'managing director courses' provided to women entrepreneurs and women aspiring to become entrepreneurs.

SIPA Project⁵⁸ is a pilot project to train and provide substitutes for female entrepreneurs during holiday periods, in case of sickness and maternity leave, and for other more general support. The project has the main objective of developing new

⁵⁶ <http://www.finnvera.fi/index.cfm?id=1903>

⁵⁷ <http://www.naisyrittajyyskeskus.fi/>

⁵⁸ <http://www.sipa.fi/>

employment models, allowing for more flexibility so to meet women's needs for balancing work and family life. The main beneficiaries of this project have been women running micro-enterprises.

6.2.2 Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology

Women innovators/inventors' entrepreneurs

An initiative exists to help women entrepreneurs access the **Public Venture Capital Fund**. The fund was created typically to finance early stage companies operating in technology. However, as the majority of female companies operate in service sectors, it has been recently decided to open the fund also to companies operating in innovative services sectors. The opening up of the Public Venture Capital Fund to service sectors is seen as a way that will help more women to have access to venture capital⁵⁹. The fund has been renamed as Public Venture Capital Financing for Business in New Technology and Innovative Services.

Women entrepreneurs in science and technology

WomEQUAL⁶⁰: this was a three-year EQUAL project, which ran between 2005 and 2007, aimed at promoting women's entrepreneurship in science and technology by:

- Promoting networking amongst women working in technology fields;
- Creating a mentoring programme for women that are working or studying in technology fields; and
- Providing business/entrepreneurship education for post-graduate students in technology fields.

NaisWAY⁶¹- **Female into Transport and Logistic Sectors**: this project ran between 2004 and 2007 and aimed to increase women's entrepreneurship in technology sectors such as logistics and transport, by supporting aspiring women entrepreneurs and women that have recently set up their own business in the sector. The project encouraged women to enter traditionally male-dominated sectors by:

- Developing different training methods and ways to deliver them according to women's specific needs;

⁵⁹ The recommendation to include the service sectors came out from the Inter-Ministerial Entrepreneurship Policy programme as a recommendation for the support of female entrepreneurship to increase women's access to venture capital. It has been observed that women enterprises in technical fields are rare, and thus, for the purpose of increasing women access to venture capital it was better to set up a venture capital fund focusing on the service sector.

⁶⁰ <http://www.weme.fi/>

⁶¹ <http://www.jakknet.com/naisway/fin/default.asp>

- Supporting women already working as entrepreneurs in transport/logistic sectors with a specialist vocational qualification in entrepreneurship and management.
- The specialist vocational qualification has been the most well-received and successful element of the project, with 17 women gaining the qualification in 2006. The participants met their trainer once a month in a group training section and also had their own e-learning platform which functioned as a virtual classroom.

This project won a European award for being one of the most innovative projects in the field of equal opportunities.

7 SWEDEN

7.1 Review of data and information in Sweden

7.1.1 Female entrepreneurship in general

International 2006 GEM data on female entrepreneurship in Sweden suggests that the entrepreneurship gender gap is higher at early stage entrepreneurial activity (2.43% for women compare with 4.44% for men) than for established business owners (4% for women compare to 5.96% for men)⁶².

National data on the economic sectors in which women operate indicates that the majority of women entrepreneurs concentrate in sales & marketing and food and health economic sectors (see Table 7.1 below).

Table 7.1 Share of women entrepreneurs by sector of activity (NUTEK 2007)

Field of activity of SME	% of women 2005
Sales & marketing	26
Construction & real estate	6
Industry	5
Hotel & tourism	12
Business, finance, insurance	8
Security and transport	2
Culture, media, design	8
Food & health	17
Healthcare	8
Administration, law, politics	3
IT & Telecoms	1
Pedagogy	3

Source: NUTEK Yearbook 2007⁶³

Information on the profile of women entrepreneurs indicates that they tend to be more educated than men: 48% of women have a higher education degree as opposed to 34% of men entrepreneurs⁶⁴.

According to a survey undertaken in 2007, there are significant differences between men and women as to which sectors in which they would prefer to start a company. The top three sectors preferred by women are hotel and tourism, sales and marketing and culture/media/design⁶⁵.

⁶² 2006 GEM Report on Women Entrepreneurship

⁶³ www.nutek.se

⁶⁴ 2006 NUTEK booklet Entrepreneurship of women and men –a statistical description www.nutek.se

⁶⁵ 2006 NUTEK booklet Entrepreneurship of women and men –a statistical description www.nutek.se

Another major research project has pointed out that the link to traditional roles is visible also in entrepreneurship, and women entrepreneurs in non-traditional female economic sectors have usually had a male mentor that introduced them to the business⁶⁶.

7.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Sweden indicates that the country has a moderate level of gender educational segregation in science but a significant level of educational segregation in engineering. In employment, the country presents a significant level of gender horizontal segregation and a high level of gender vertical segregation in academia.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a moderate level of educational segregation in science, mathematics and computing (34.8%) but a significant level of educational segregation in engineering, manufacturing and construction (26.4%).
- Employment horizontal segregation: data on the percentage of female researchers in the business sector shows a significant level of horizontal segregation (25%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff indicate a significant level of vertical segregation in medical sciences (15.3%) and a high level of vertical segregation in natural sciences (11.7%) and engineering and technology (7.1%).

Women inventors/innovators' entrepreneurs

There are no statistics on women inventors/innovators' entrepreneurs although a range of proxy indicators exist.

Table 7.1 above by NUTEK 2007 suggests that 8% of women entrepreneurs are active within the culture, media and design sectors.

According to the Swedish Patent Register in the period 1991-1998, the percentage of patents granted to women was only 4%⁶⁷.

Women entrepreneurs in science and technology

There is very little data available on women entrepreneurs in science and technology sectors. Table 7.1 above suggests that only 1% of women entrepreneurs are active within the IT and Telecommunications sectors.

⁶⁶ FEM Research program <http://www.fsf.se/fem/>

⁶⁷ Nyberg (2002); Women and Technological Creativity: The patented inventions of Swedish women 1885 – 1998

Research in the field of gender and innovation suggests that gender stereotypes are strong in technologies, that technology is typically associated with men and male activities, and that innovation supporting organisations perceive women as technologically incompetent. The studies also suggest that women tend to innovate in sectors different from hard technology and that women's led innovation might not be taken seriously⁶⁸.

7.2 Review of policy response in Sweden

7.2.1 Setting the context

There are several support programmes for women entrepreneurs in Sweden promoted by **NUTEK**, the Swedish Agency for Economic and Regional Growth. NUTEK has run programmes specifically targeting women entrepreneurs since 1993. The programmes have included capacity building, developing networks to ease access to finance, individual mentoring, training business advisers on gender equality, making women entrepreneurs more visible, promoting role models and promoting female entrepreneurship within higher education⁶⁹.

7.2.2 Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology

Women innovators/inventors' entrepreneurs

One pilot project has been implemented for the promotion of women's entrepreneurship: **CORE – Teach the Teacher**. This is a national pilot project to spread the CORE methodology to women active in innovation support organisations in Sweden. It is not targeted directly at women but to those working with them. The CORE methodology is a nine month programme for personal development.⁷⁰ It includes education sessions in groups and personal coaching, aiming at inspiring women to become more entrepreneurial. The project aims at encouraging more women to start businesses by training 20 "CORE coaches" among women who are working within the innovation support systems in Sweden (e.g. business incubators). The CORE coaches will spread the method further and use it to support women who approach the innovation support organisations.

Another initiative was **PREFACE- Preparing female students for academic entrepreneurship** which was run from December 2002 to May 2005. This was a trans-European project run by WiTEC Sweden (Women Association for Women in Science, Engineering and Technology) with Leonardo da Vinci Programme Funds (DG Education and Culture)⁷¹. The project aimed to develop a training programme especially targeted at female students in science and technology and to motivate and

⁶⁸ Pettersson (2007); Men and Male as the Norm?– A Gender Perspective on Innovation Policies in Denmark, Finland and Sweden;

Nyberg (2002); Gender and innovation

⁶⁹ In 2007, NUTEK was awarded 80 million SEK (8 MEUR) for a new program for supporting women's entrepreneurship

⁷⁰ <http://www.coreexperience.se/>

⁷¹ http://www.eupreface.org/about_preface.html

encourage them to set up their own enterprise in the field of their studies. The training programme provided for an entrepreneurship self-assessment, with an entrepreneurship test and SWOT analysis; tools for entrepreneurship (i.e. motivating people, idea-development, business plan, marketing, etc.) toolbox for start-ups, role models and mentoring.

Women entrepreneurs in science and technology

The CORE –Teach the Teachers and PREFACE covers science and technology.

8 UK

8.1 Review of data and information

8.1.1 Female entrepreneurship in general

International GEM data on female entrepreneurship show a significant gender gap both at early stage entrepreneurial activity (3.61% for women compare to 7.88 of men) and for established business owners (2.85% for women compare to 7.91% of men)⁷².

Information available on the profile of female entrepreneurs suggests that women with a high level of post-graduate qualification, such as doctorate or master degree, have the highest level of entrepreneurial activity and that women are less likely to use equity finance⁷³.

The perceived barriers in setting up a business cited by women tend to be 'soft' factors such as⁷⁴:

- Lack of confidence in their capacity to build a business. Lack of confidence has been reported also in graduate women.
- Lack of knowledge of the financial and legal language to set up a business;
- Fear of failure. For example, fear of failure amongst female graduate is 36.9% against 32.2% of men.

In addition, entrepreneurial training and work experience in SME's at college/university appears to be positively associated with female entrepreneurship activity⁷⁵.

8.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for UK indicates that the country has a low level of gender educational segregation in science (41.9%) but a significant level of educational segregation in engineering and technology (19.6%). In employment, the country displays from a high to a significant level of vertical segregation in senior academic positions.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a low level of segregation in science, mathematics and computing

⁷² GEM 2006 Female Entrepreneurship

⁷³ GEM 2006 United Kingdom Report <http://www.gemconsortium.org/document.aspx?id=579>

⁷⁴ GEM 2005 United Kingdom- Women Report http://www.gemconsortium.org/files.aspx?Ca_ID=107

⁷⁵ GEM 2005 United Kingdom- Women Report http://www.gemconsortium.org/files.aspx?Ca_ID=107

(41.9%); and a significant level of segregation in engineering, manufacturing and construction (19.6%).

- Employment horizontal segregation: data are not available for the UK
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a high level of vertical segregation in senior academic position in engineering and technology (4.9%) and natural sciences (8.2%), and a significant level of vertical segregation in medical sciences (22%).

Women inventors/innovators' entrepreneurs

There are no statistics available on women inventors/innovators' entrepreneurs. However, there are some studies arguing that the number of women inventors/innovators successfully turning their ideas into commercial propositions remains woefully small, and women inventors and innovators remain only a small proportion of entrepreneurs. A number of barriers, evident throughout the pathway of invention and enterprise, have been identified and are presented in Box 8.1

Box 8.1: Obstacles encountered by women inventors/innovators entrepreneurs

- Services 'designed for men by men': The on-going cultural bias of mainstream support organisations (professional, sectoral, services) despite increasing moves towards female-friendly services and activities⁷⁶.
- 'Low tech and low growth': Continued perceptions of investors that women inventors/innovators represent low tech and low growth arenas (for example, home-based items and technology, service activities, and lifestyle businesses).
- Life position and pathway: The continued dominance of gender roles – for example, 'supportive wife', 'family rock' or 'female returner' – reduces the individual resources of the female inventor/innovator, whether that be confidence, time, knowledge of latest developments, emotional and unpaid support from family members, potential for business partnership, etc.,.
- 'Access to finance': life position and pathway combined with investor perceptions are major determinants in the under-capitalisation of female-owned businesses in general⁷⁷ and the tendency to choose sole trader status amongst female inventors and innovators.
- The complex route to market and success: addition of gender-based barriers to those prevalent in innovation and entrepreneurship result in complex and lengthy journeys to success. Support exists across many of the stages to success, often delivered by a range of organisations, but knowledge of, and access to the diversity of support remains a barrier⁷⁸.

⁷⁶ See "Engaging Inventive & Innovative Women Entrepreneurs in London"

⁷⁷ See Carter, S. (2006) Women's Business Ownership: Recent Research and Policy Developments

⁷⁸ See, for example, Inspire Innovation Network Innovation Route Map to Success: Guide to Successfully exploiting the Knowledge Base for London's diverse businesses

Women entrepreneurs in science and technology

There are two important sources of information on women entrepreneurs in science and technology.

The first is the **GEM UK: Technology and Entrepreneurship in the UK 2006⁷⁹**. It presents gender breakdown data showing that there is a significant gender gap in entrepreneurship in the technology sectors:

- Early stage activity in technology sector is 5% for women compared with 12% for men, and established business in technology sector is 5% for women compared with 11% for men;
- Women are more likely than men to develop new technology product and service in collaboration with universities and research institutions (9% of women compare to 4% of men).

The second is the report on “**Under the Microscope: Female Entrepreneurs in SECT 2006⁸⁰**” produced by the UK Resource Centre for Women in Science, Engineering and Technology (SET)⁸¹ and PROWESS⁸². This publication suggests that:

- Across the SET industries there are 10 times more male entrepreneurs than women. In some sectors, such as mechanical engineering and IT the number of female entrepreneurs is too small to draw any statistically reliable conclusion;
- 46% of female entrepreneurs in SET said they have left their previous job as an employee to start up a business offering similar services.

Box 8.2 presents the assessment of the Under the Microscope initiative.

⁸⁰ The study is based on quantitative research integrated with interviews with 61 female entrepreneurs and 20 case studies.

http://www.prowess.org.uk/documents/UndertheMicroscope_000.pdf

⁸¹ The UK Resource Centre for Women in Science, Engineering and Technology is an organisation funded by the UK Department for Trade and Industry.

<http://www.ukrc4setwomen.org>

⁸² PROWESS is a UK-wide advocacy network that supports the growth of women's business ownership through the development of an effective women-friendly business support infrastructure and enterprise culture

<http://www.prowess.org.uk/>

Box 8.2: Assessment of the initiative Under the Microscope: Female Entrepreneurs in SEC 2006

The objectives of the research have been to understand more about female business in these sectors, raise awareness on this target group within enterprise policy, and support the development of policy. Activities included a Stakeholders Map, development of a database of female SET entrepreneurs, a national conference, the production of video case studies, and development of initiatives to overcome specific identified barriers (for example, women-friendly incubation units).

Elements of strength

'Under the Microscope' undertook the first ever national survey of female business owners in SET sectors in the UK, providing key research findings and some role models and case studies of successful female SET business owners. The research has also created a database of SET female business owners and has the benefit providing knowledge and information to support the development of policy by identifying barriers and making suggestions on how to overcome them (i.e. promotion of role models).

Challenges

The research encountered several difficulties in creating a database of female SET business owners. The list had to be created from scratch including:

- compiling from individual lists provided by a range of business support providers; and,
- self-completion forms by women accessing the site of Prowess and similar organisations seeking business support.

The study included a collection of 'life stories' on successful women entrepreneurs in science and technology. Through the qualitative analysis of the 'life stories' it is possible to identify key obstacles encountered by women (see Box 8.3).

Box 8.3: Barriers and ways to overcome the barriers- summary of women entrepreneurs' experience

Barriers

Science and technology is still a male dominated industry in which crucial stakeholders, such as buyers, suppliers, and investors, look down on women.

Getting finance is harder for women than for men. For example, according to Anne, an entrepreneur in technology sector, financing is the most relevant problem. She would not have been able to develop her business product without initial public grants. However, the problem of financing does not end at product development, investments are necessary at the later stage of business development as well (i.e. for commercialisation, identifying buyers, marketing, etc.)

Psychological barriers: fear of failure and lack of confidence.

It is harder to have work and family balance in a fast moving sector, requiring knowledge to be constantly updated.

Ways to overcome the barriers

The need for SET women networks to meet other female entrepreneurs in SET and bounce ideas off each other.

Business awards play a big role in boosting motivation, developing innovative projects and gaining public recognition.

Seeing another female business owner in SECT is considered as being highly motivational. 92% of consulted women entrepreneurs believe that the promotion of role models in SET would encourage women going into SET entrepreneurship.

8.2 Review of policy support and initiatives in UK

8.2.1 Setting the context

In the UK support for female enterprise is well established and developed. At national level *Business Link*⁸³ is the agency in charge of business creation and support and which has women's entrepreneurship as a policy objective.

Other relevant initiatives at national level include:

PROWESS a network involved in improving and developing a women-friendly business support infrastructure. Its objectives are to influence policy development, disseminate relevant research, promote new research on the subject of women's enterprise, support networking and providing information about training and conferences.

The Women's Enterprise Task Force⁸⁴ supports policy making on female enterprise at national and regional level (i.e. by working with the Regional Development Agencies).

Women's Ambassador Network is a network of successful women's entrepreneurs that aims at encouraging women to set up their own business by providing role models.

The national initiatives are integrated and supported at regional level by the Regional Development Agencies. For example, Enterprising Women is a regional initiative (East of England) for supporting female entrepreneurs by bringing together all stakeholders (such as jobcentres, learning and skill councils, libraries, business support agencies, chambers of commerce, colleges) to provide individual support⁸⁵.

⁸³ Business Link is part of the Department for Business Enterprise and Regulatory Reform

<http://www.businesslink.gov.uk/bdotg/action/home?domain=www.business.gov.uk&target=http://www.business.gov.uk/>

⁸⁴ http://www.womensenterprise.co.uk/about_wetf.asp

⁸⁵ <http://www.enterprising-women.org/>

8.2.2 Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology.

Women innovators/inventors' entrepreneurs

We highlight two initiatives for supporting women innovators/inventors entrepreneurs.

British Female Inventors and Innovators Networks (BFIIN) aims to provide inspiration to women seeking to turn their ideas into commercial propositions⁸⁶. The networks provide information on IP rights, patent applications, help women network and promote an award dedicated exclusively to women inventors and innovators (see Box 8.4)

Box 8.4: British Female Inventors and Innovators Networks (BFIIN)

BFIIN⁸⁷ is the British, and most longstanding, part of the Global Women Inventors and Innovators network (GWIIN) whose mission is to increase the percentage share of women inventors and innovators amongst worldwide entrepreneurs. Additionally, in 2007, with support from the Centre for Micro Enterprise (CME) at London Metropolitan University, the European Union Women Inventors and Innovators Network was launched⁸⁸.

Fundamentally, a profile raising and networking organisation, BFIIN also provides access to information on issues for women inventors and innovators such as IP rights and patent applications. A major annual activity is the British Female Inventor and Innovator of the Year Award which recognises and celebrates the success of female inventors in the UK. The Awards act as 'market animation' activity with the publicity created 'bringing other potential female inventors and innovators out of the woodwork' who might then be engaged by support organisations who are themselves made aware of the target group by the Award activity. A conference and exhibition is also held alongside the Awards to both support knowledge transfer and allow showcasing of actual ideas, products and available support. Press coverage of the Awards continues to grow each year.

In the UK, BFIIN remains reliant on short term and ad hoc funding and individual project consultancy work although both free and subscription membership is available and levels of (corporate) sponsorship are growing. Internationally, BFIIN is a member of GWIIN which continues to grow year-on-year through adoption of a similar network approach in countries across the world.

The overarching lesson of BFIN is that female inventors and innovators are on a complex and likely lengthy journey to commercialisation – from recognition of the label ascribed to them to ultimate commercialisation routes ranging from licensing to sole trader to equity partnership. Along this journey are a range of barriers and BFIN would strongly argue for the need for women to make informed decisions along the journey,

⁸⁶ BFIIN is part of the Global Women Inventors and Innovators network (GWIIN)
<http://www.bfiin.com/index.html>

⁸⁷ See <http://www.bfiin.com/index.html>

⁸⁸ See www.euwiin.eu

including utilisation of the range of support available in a manner which meets their particular needs as women. The starting point is to create a platform for discussion of what remains an under-recognised group in enterprise and entrepreneurship.

Another initiative includes the **Creative Business Enterprise Club** launched very recently by the School of Entrepreneurship and Business (SEB) at the University of Essex to support women's entrepreneurial skills in the creative industry⁸⁹. The initiative aims at creating a platform for creative and innovative women entrepreneurs to share experiences, network with peers locally and globally and develop initiatives for businesses in the creative industries. The members meet regularly to discuss new ideas, business opportunities, new markets and networks. Women are encouraged to raise work-related issues with a view to supporting each other for both individual and collective projects⁹⁰.

Women in science and technology

DEW-SET Coventry⁹¹: Coventry University Technology Park in cooperation with the Polish Regional Development Agency of Dolnoskaska implemented the DEW-SET project for "Developing the Entrepreneurial Capabilities of Women in Science, Engineering and Technology". DEW-SET aimed to increase the number of women setting up new science, engineering and technology businesses by providing:

- Training guide for business advisors responsible for delivering entrepreneurial education for women entrepreneurs;
- Self-diagnostic tool kit for female entrepreneurs to help them to define their training needs; and
- Virtual network of female entrepreneurs in science, engineering and technology;

As a result, 15 women enrolled on business-related courses or received direct business start-up support, 25 business support advisors were trained on women's

⁸⁹ <http://www.enterprising-women.org/show.php?page=3485>

⁹⁰ The UK Government Department for Culture, Media and Sport (DCMS) has produced a definition of the Creative Industries as:

"those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property." (Creative Industry Mapping Document, DCMS 2001, p. 04).

The current DCMS definition is very comprehensive and recognises eleven creative sectors: Advertising, Architecture, Arts and Antique Markets, Crafts, Design, Designer Fashion, Film, Video and Photography, Software, Computer Games and Electronic Publishing, Music and the Visual and Performing Arts, Publishing, Television and Radio

http://www.culture.gov.uk/reference_library/publications/4632.aspx

⁹¹ <http://ec.europa.eu/enterprise/networks/eic/pdf/FactSheet22.pdf>

The project was sponsored by Europe Info Centre. See also section on Poland

needs, female friendly training guide and promotional activity were developed to enable further development and future sustainability across the EIC (European Information Centre) network. This pilot project has received international recognition by the EIC network, and has been considered a good practice for the support, encouragement and development of new innovative female companies.

Another initiative was found at regional level which stated the principle of equal opportunities in supporting females in science and technology. **YTKO**⁹² is a private business incubator in science and technology working with 9 scientific universities in the region, providing highly personalised training sessions, from pre start-up to business growth, including support to find potential partners, suppliers, clients and peers support. YTKO works both with other commercial organisations and with the public sector and universities.

YTKO is running a one-year enterprise programme for post-doctoral researchers in bioscience: **Bioscience Yorkshire Enterprise Fellowship**. The programme does not have any specific targets on women but the principle of equal opportunities is taken into consideration and there is a gender monitoring of people participating at information events, applying for fellowship and participating to fellowship programme. The share of women applying and participating to the fellowship is generally around one-third (9 women out of 30 participants in 2007).

Women scientists participating in the programme tend to be senior academics with a PhD, they are highly motivated and in proportion have been more successful than men in setting up their company: i.e. women recruited in the fellowship were only a third of participants, but more than half of the businesses set up were led by women.

The Yorkshire Enterprise Fellowship Scheme addresses the pre-incubators stage of start-ups. Scientists receive entrepreneurial skills' training and training on how to commercialise their product, while still being able to continue their job in academia.

To qualify for funding, applicants had to present their research to a scientific committee, explaining the background science and the concept they wanted to commercialise. Fellowship money is used to develop the commercialisation of the scientific product (Box 8.5 provides a female participant's views on the fellowship).

Box 8.5 Bioscience Yorkshire Enterprise Fellowship- participants' views

Ruth participated in the Bioscience Yorkshire Enterprise Fellowship and set up a company for the commercialisation of a test kit for early screening of breast cancer.

Assessment of the programme

The Fellowship provided financing and business support which made setting up the company possible. The mentor provided within the Fellowship was the single most useful component especially because it provided guidance on the single steps necessary to create a business and it put her in contact with the right people (potential supplier, buyers, etc). The flexibility of the Fellowship is also crucial for its success, as it enables support to be tailored to individual needs.

The participants have to agree with the University to participate to the fellowship programme. The programme is completely flexible, apart from a half-day training section, the other activities are developed in fellows' own time and according to their specific needs.

Each fellow is provided with an individual fund manager who will help to prepare a 'roadmap' for scientific development and enterprise development, with the development of the scientific research being monitored by the University. In addition, each fellow follows an individualised personal development programme for acquiring business skills and market knowledge (Box 8.6 provides an assessment of the fellowship). The support available includes:

- Business mentoring (management, financial, legal, marketing, IP);
- Science mentoring (specific business market such as medical devise, healthcare, pharmaceutical, consumers);
- Visits to healthcare, medical devices, life science and pharmaceutical organisations are arranged to define market opportunities, routes to market, supply chains;
- Visits and presentations to private and institutional investors (i.e. venture capitalists, business angels);
- On-line resources with dedicated extranet on science information and business skills, covering also financial and management help. Information on-line also include biotech events, support facilities, contact and checklists.

Box 8.6 Bioscience Yorkshire Enterprise Fellowship- assessment

Strength

Individual and flexible approach: Yorkshire Enterprise Fellowship puts the focus on the individual, providing individual services, tailored to the specific needs of each participant and offering an individual training path. If women have specific needs, these are dealt with as part of the individual approach.

Providing business skills at the pre-incubator stage: scientists are able to continue their academic work and at the same time are learning entrepreneurial skills and shaping their research for commercialisation.

The well targeted informative sections with a small number of individuals (informative sections take place in the academic department and have from 15 to 100 people).

The cooperation of Universities which oversee the scientific research development.

Type of support needed

⁹² <http://www.ytko.com/>

According to consultees the key is to offer highly personalised support services under which it is possible to accommodate each individual's needs, without making generalisations or assumptions on gender about potentially different needs.

9 IRELAND

9.1 Review of data and information

9.1.1 Female entrepreneurship in general

International GEM data on female entrepreneurship suggests that in Ireland there is a significant gender gap. The overall business owners percentage is 22.74% for men compare to 7.61% for women. This gender gap is also reflected in early stage entrepreneurship (10.51% for men compare to 4.20% for women) and in established business (12.33% for men compare to 3.41% for women).

Further data indicates that women have less self-confidence in their own capacity to become entrepreneurs, as fewer women than men believe that they have the skills and knowledge to start a business⁹³.

9.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Ireland indicates that the country has no gender educational segregation in science with women outnumbering men and only a moderate level of educational segregation in engineering and technology. In employment, the country displays significant levels of gender horizontal segregation.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows no gender segregation in science, mathematics and computing, on the contrary, women outnumber men (56.6%); and only a moderate level of segregation in engineering, manufacturing and construction (31.2%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows a significant level of horizontal segregation (20%).
- Employment vertical segregation (academia only): data are not available for Ireland.

Women inventors/innovators' entrepreneurs

There are no statistics available on women inventors/innovators' entrepreneurs.

Women entrepreneurs in science and technology

⁹³ GEM Ireland 2006

There are no available statistics on women entrepreneurs in science and technology. However, according to a government report, the number of women entrepreneurs in ICT and life science is low⁹⁴.

9.2 Review of policy support and initiatives in Ireland

9.2.1 *Setting the context*

At national level the Women Network Ireland is a forum to provide a mechanism whereby women can exchange ideas and create business contacts. At local level there are several initiatives for training women in business skills (for example, the Women Entering Business Training Programme) and for supporting existing business women (E-Learning for Female Entrepreneurs).

9.2.2 *Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology.*

Women innovators/inventors' entrepreneurs

There are no specific initiatives for supporting for women innovators/inventors' entrepreneurs.

Women entrepreneurs in science and technology

The **Centre for Entrepreneurship at Dalkan Institute for Technology (DKIT)**⁹⁵ has recently given more attention to the issue of female entrepreneurship in high growth businesses. The Centre has started to cooperate with the US DIANA Project⁹⁶ and will host the next DIANA research symposium. In addition, the Centre is participating to the creation and launching of the new International Journal for Gender and Entrepreneurship.

⁹⁴ Entrepreneurship in Ireland in 2004- Irish Department for Enterprise, Trade and Employment

⁹⁵ http://ww2.dkit.ie/r_and_d/cer/about_us

⁹⁶ The Diana Project was launched in 1999 by the US Babson College, to study the phenomenon of women's entrepreneurship in the United States, focusing on women entrepreneurship in high-growth sectors and women access to venture capital.

<http://www3.babson.edu/ESHIP/research-publications/dianaproject.cfm>

10 GERMANY

10.1 Review of data and information

10.1.1 Female entrepreneurship in general

International GEM data on female entrepreneurship indicates that in Germany the overall business owners percentage is 9.71% for men compare to 4.68% for women. The gender gap is higher in early stage entrepreneurship (5.79% for men compare to 2.58% for women) and lower in established business (3.92% for men compare to 2.10% for women).

Further data from the GEM 2006 Germany report also indicates that women start companies at an older age than men; tend to run smaller business with little or no intention to growth; and they start a business with less financial capital than men and tend to rely on family and friends support. Women also have less self-esteem in their capacity to be entrepreneurs and have a higher fear of failure.

10.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Germany shows significant gender educational segregation in science and a high level of educational segregation in engineering and technology. In employment, the country displays a high level of gender horizontal segregation and a high level of employment vertical segregation in academia.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a rather significant level of segregation in science, mathematics and computing (29.9%), and a high level of segregation in engineering, manufacturing and construction (11.4%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector show a high level of horizontal segregation (12%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a high level of vertical segregation in senior academic positions in medical science (5.8%), in natural sciences (5.6%) and engineering and technology (3.8%).

Women Inventors/Innovators' entrepreneurs

No statistics are available on this group of women entrepreneurs.

Women entrepreneurs in science and technology

There are no statistics on the number of women entrepreneurs in science and technology sectors. However, according to an estimate, only 10-15% of new businesses in high-tech sectors are run by women⁹⁷.

The topic of a gender gap in science and technology entrepreneurship is receiving increased attention from stakeholders, and there are a number of studies currently being undertaken. For example, the University of Potsdam is currently undertaking a study to analyse the long-term success factors of female entrepreneurs in high-tech sectors⁹⁸. Furthermore, the Female Academic Entrepreneurs Agency⁹⁹ is undertaking a study for investigating how academic institutes can help women to start up their own business in knowledge-intensive services.

10.2 Review of policy support in Germany

10.2.1 Setting the context

Germany has a highly diversified support system for female entrepreneurship both at national and Länder level. Supporting women's entrepreneurship is a clear policy objective of the German government, which has also set the specific target of increasing the number of women entrepreneurs by 40%. This policy objective is supported by several Ministries through the National Agency for Women Start-ups (BGA)¹⁰⁰ which funds services for female entrepreneurship in general as well as in specific sectors such as science and technology (see below). In addition, in 1997, the National Female Network for the Promotion of Start-ups (*Gründerinnenforum*) was formed to support female entrepreneurship by providing exchange of experience, defining women's training needs, developing specific projects (for example on new financial models), as well as providing network and lobbying opportunities at national and regional level.

10.2.2 Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology.

Women innovators/inventors and entrepreneurs

⁹⁷ The estimate has been made by the Federal Agency for Funding Women Entrepreneurship in 2006. The Agency acknowledged that it is difficult to obtain data on this subject because available statistics on high-tech start ups do not provide any information on the owners' gender. Female entrepreneurs 'low rate is believed to reflect girls' educational choices in secondary and higher education and women's career path. The Agency suggests increasing the number of female students in science and engineering and encouraging women to set up their own business in the technology field.

<http://www.gruenderinnenagentur.de/>

⁹⁸ The study aims to investigate gender-specific obstacles in accessing finance for high-tech business and to develop a tool to improve the assessment of women business ideas in high-tech sectors. The study is still ongoing and there are no findings available for the moment.

<http://www.ceip.uni-potsdam.de/cms/index.php?id=18>

⁹⁹ The study is still ongoing and there are no findings available at the moment.

<http://www.face.inmit.de/projekt/index.htm>

¹⁰⁰ <http://www.gruenderinnenagentur.de/>

The National Agency for Women Start-ups (BGA) has a selected target group on women in the creative industry.

Women entrepreneurs in science and technology

The gender imbalance in science and technology entrepreneurship has been acknowledged and the issue of promoting female entrepreneurship in science and technology has recently become part of the policy agenda at national and regional levels (Länder)

The National Agency for Women Start-ups (BGA) has a selected target group on women in science and technology. The initiatives undertaken so far have consisted of:

- Organising two conferences to discuss the development of a policy for supporting women entrepreneurship in science and technology: research needed, possible approaches to be implemented; and,
- Activities of awareness raising for stakeholders.

The main strength of the BGA is that it is based on inter-ministerial cooperation involving three different ministries (Education and Research, Family and Women, and Economy and Technology). This makes it possible to consider the issue from an integrated policy perspective and to assure commitment and a joined up approach.

Since 2005, Germany has launched a national programme for the promotion of female entrepreneurship in science and technology: **Power for Female Entrepreneurs (Power für Gründerinnen)**. This programme is run by the Federal Ministry for Science and Technology, funding two types of activities: research on the topic (i.e. knowledge society and female start ups, exploring different types of support, profile of women entrepreneurs in science and technology, etc), and funding innovative pilot projects for unlocking the potential of women entrepreneurs in science and technology (i.e. promoting technology transfer by involving successful business women as role models, assessing the utilisation of business incubators by women, assessing gender-specific types of support, finding innovative approaches to increase the share of women participating to spin-off, developing gender-training for intermediaries institutions of business support and finance providers). These projects started in 2007, and it is too early to assess their results. Particularly interesting projects are: NANO4Women-NEna, SWITCH and P8- Success is female.

SWITCH-spin-off support for women in information and technologies¹⁰¹ is a pilot project initiative started in 2007 and ran by the Fraunhofer, a network of 56 research institutes, which aim to promote women business ideas in science and technology. The objective is to encourage women to develop business ideas and to provide support to realise it. The project has developed a set of instruments for raising awareness, motivating and encouraging women, and mentoring. SWITCH comprises the following activities focusing on female researchers:

- Questionnaires and interviews with female researchers to explore their attitude towards entrepreneurship;

¹⁰¹ <http://www.switch-iuk.de>

- Running workshops for information and encouraging female scientists to develop their own business ideas;
- Identification of relevant business ideas through interviews;
- SWITCH Summer School: a training course lasting several days on preparing a business plan, on entrepreneurship skills, and providing individual coaching and group sessions for exchanging of ideas; and,
- Mentoring and coaching programme provided by experienced female entrepreneurs in ICT sectors.

Box 10.1 provides the stakeholders' assessment, including beneficiaries, of the SWITCH initiative.

Box 10.1. Stakeholders and beneficiaries' assessment of the SWITCH initiative

The pilot project relied on the cooperation of an extensive network of research institutes. In total 219 female researchers were identified and interviewed. The average number of participants for informative workshop was four. The business ideas submitted were 15, with 10 female researchers participating in the Summer School and 5 moving forward to the coaching programme. As a result of this project, one company has been founded and two are in the start-up phase.

Strength highlighted by project managers and female beneficiaries

It was important to have an extensive pool of female researchers to generate business ideas.

Informative workshops have been a good way to raise awareness and provided information to female scientists. Role-models were presented during the workshop.

Women's business ideas were discussed with senior scientists and business experts.

The Summer School was an excellent way to concentrate on the development of the business ideas and test its business feasibility.

Coaching was very important for moving into the pre-start up and start-ups stage.

The support was provided over a certain amount of time, allowing women to receive regular support during the different stages, from ideas development, to looking for finance, to start-ups.

Weaknesses highlighted by female beneficiaries

The project did not provide for child care or make provisions for supporting female scientists to arrange child-care.

Types of policy responses needed

It is important to undertake gender mainstreaming on existing funds and support measures for start-ups in science and technology. In the past these programmes have not been able to provide adequate support to women entrepreneurs in science and

technology.

Policy makers need to set out the promotion of female entrepreneurship as a clear and specific objective and priorities.

Pilot projects, raising awareness, exchanging of information and good practice are effective way to raise political visibility on this issue and to increase the number of women entrepreneurs in science and technology.

The **NANO4Women and NEra** (Entrepreneurship Academy for Women) is a recently started national pilot initiative for the promotion of young female scientists in the sector of nanotechnologies. The project is led and managed by the University of Halle in cooperation with other research partners at national and regional level. The objective of the initiative is to stimulate business ideas from women scientists in nanotechnologies. The programme consists of a series of three "Nano Entrepreneurship Academies" at different German Universities. It comprises the following activities:

- One weeks training in entrepreneurship skills, business planning, development of business idea;
- Promising business ideas are matched with potential partners from industry and finance;
- Interdisciplinary cooperation and team-work is encouraged as a way of developing the business idea;
- The number of participants to each NANO Academy is limited to 32;
- At the end of each NANO Academy the best business ideas are selected and the winning team is awarded a three-month internship in a nanotechnology company in US; and,
- Coaching is provided after NANO Academy.

Box 10.2 provides for an assessment of the NANO4Women project.

Box 10.2. Stakeholders and beneficiary's assessment of NANO4Women

The project is still ongoing (due to end in 2009). So far two NENA Academies have taken place with a total of 53 participants, with the first winning team just starting their internship in the US.

Strengths highlighted by project managers and female beneficiaries

The support for the development of business idea, including the interdisciplinary and teamwork approach. This helps the development of innovative ideas, the creation of synergy between different disciplines and the formation of business partnerships with other women working in scientific and technological sectors.

The matching with industry and funding institutions has been extremely helpful as it enables women to access relevant networks to present their business ideas to those

stakeholders that are essential for developing a successful business (i.e. finding financial support, potential clients, business partners, etc.).

P8- Success is female - *Erfolg ist weiblich* is another recent pilot project promoted by the technical University of Berlin and Stuttgart for the promotion of female entrepreneurship in science and technology. The project intends to deepen the knowledge of the specific motivations and obstacles faced by women entrepreneurs in science and technology. The project is developed around the following themes:

- Raising awareness through the presentation of role models;
- Developing measures to unlock women's entrepreneurial potential through individual coaching but also through on-line tests on entrepreneurial spirit and business games; and,
- Developing accompanying measures for women starting up their business.

11 AUSTRIA

11.1 Review of data and information

11.1.1 Female entrepreneurship in general: Austria

International GEM data on female entrepreneurship do not cover Austria. However, the 2005 GEM report for Austria shows that in 2005:

- 35% of new businesses were started by women; and,
- 34% of established companies were owned by women.

Data also indicates that women's attitude towards entrepreneurship is more negative compared to men with respect to their own capability and qualifications for starting a business. Women also tend to be more afraid of failure and less involved in business networks¹⁰².

11.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Austria shows a moderate level of gender educational segregation in science and a significant level of educational segregation in engineering and technology. In employment, the country displays a high level of gender horizontal segregation and a high level of employment vertical segregation in academia.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a moderate level of segregation in science, mathematics and computing (30.2%), and a significant level of segregation in engineering, manufacturing and construction (18.9%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows a high level of horizontal segregation (10%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a high level of vertical segregation in senior academic positions in medical science (8.9%), in natural sciences (4.4%) and engineering and technology (3.7%).

Women inventors/innovators' entrepreneurs

¹⁰² GEM (2006), Austria GEM National Report 2005, http://www.gemconsortium.org/files.aspx?Ca_ID=183

AplusB- academia plus business¹⁰³- is a national programme for promoting young innovative entrepreneurship in the academic sector. The gender disaggregated data on the beneficiaries of business support programme in academia (AplusB- Academia plus business) show that in 2007 only 10% of people supported were female.

Women entrepreneurs in science and technology

A recent study by the Federal Ministry for Economics and Labour stated that the exact number of women entrepreneurs in high-tech sectors and R&D is not known, even if from the analysis of the context (i.e. number of women with a higher degree in scientific and technical discipline, number of women starting a business), the number can be estimated to be around 10%¹⁰⁴. In another study on independent work by women in technical fields it was found that in Austria there are only 11% women architects, 3% women consulting engineers and 6% businesswomen working as registered consulting engineers¹⁰⁵.

11.2 Review of policy support and initiatives in Austria

11.2.1 Setting the context

Policy support for female entrepreneurship is provided by the Austria Chamber of Commerce (Frau in der Wirtschaft- Women in the Economy¹⁰⁶), and by the Federal Ministry for Labour and Economy ("Frauen gründen" -Women start companies¹⁰⁷).

11.2.2 Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology

Women innovators/inventors and entrepreneurs

Several Austrian provinces¹⁰⁸ have started **business incubators or incubation services with specific initiatives for women**¹⁰⁹. The programmes provide affordable office space, marketing support, consulting, and in some case childcare facilities as well.

Women entrepreneurs in science and technology

At the moment there are no programmes for supporting women entrepreneurs in science and technology although the government is considering introducing some specific support based on the German experience.

¹⁰³ AplusB activities include: raising awareness on the possibilities of starting a company, providing consulting services and business skills, support in fundraising.

<http://www.ffg.at/content.php?cid=66>

¹⁰⁴ Federal Ministry for Economics and Labour (2008), 'Promotion of Female Entrepreneurship in High-Tech- and Research-intensive Sectors – International Comparison' (yet to be published).

¹⁰⁵ Federal Ministry for Economics and Labour (2007), Go My Own Way – The Situation of Self-employed Female Engineers in Austria, <http://www.w-forte.at/de/knowledge-base.html>

¹⁰⁶ <http://wko.at/unternehmerin>

¹⁰⁷ <http://www.frauengruenden.info/>

¹⁰⁸ Styria, Vorarlberg, Vienna, Tyrol, and Carinthia

¹⁰⁹ For example, Gründerinnenzentren (<http://www.gruenderinnenzentrum-stmk.at/>; <http://www.gzo.at/>)

12 FRANCE

12.1 Review of data and information

12.1.1 *Female entrepreneurship in general: France*

International GEM data on female entrepreneurship shows that France has one of the lowest rates of female entrepreneurship (3.88%). Gender difference exists in the overall business owner rate (3.88% for women compare to 7.57 for men) and the gender gap is significant in early stage entrepreneurship (6.26% for man against 2.53% for women). However, there is no gender gap in the established business rate (1.35% for women and 1.31% for men)¹¹⁰.

National data on the profile of women entrepreneurs indicates that they are well educated (54% hold a secondary degree compare to 46% of men) but have less professional experience (20% of men entrepreneurs had previous work experience as executive in a private company compare to only 14% of women entrepreneur with the same professional experience)¹¹¹. The majority of women start their business in retail and catering sectors (50% of women) and in the service sector such as services to individuals, health/education and services to companies (41% of women)¹¹².

12.1.2 *Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology*

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for France shows a very moderate level of gender educational segregation in science but a significant level of educational segregation in engineering and technology. In employment, the country displays a significant level of gender horizontal segregation and a high level of employment vertical segregation in academia.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a moderate level of segregation in science, mathematics and computing (38.4%), but a significant level of segregation in engineering, manufacturing and construction (25.9%)¹¹³.

¹¹⁰ The data also indicate that before starting up their business, women had previous work experience in more junior positions. It has been pointed out that less work experience in high positions means that women became entrepreneurs with less business skills than men;

¹¹¹ INSEE, Professional equality in business creation. The French female business creation compared to other countries http://www.insee.fr/fr/insee_regions/lor/publi/pub_elect/femmes/egalite_creation_activite.htm

¹¹² Men and women (pure business creation and takeovers) http://www.femmes-egalite.gouv.fr/grands_dossiers/dossiers/entreprendre_au_feminin/docs/acpe_0705.pdf

¹¹³ These data on Greece are taken from the publication: "Statistics in focus, Doctorate holders", 131/2007, Eurostat and they refer to year 2004.

- Employment horizontal segregation: data on the percentage of female researchers in business sector shows a significant level of horizontal segregation (20%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a significant level of vertical segregation in senior academic positions in medical science (15.3%) and in natural sciences (12.3%), and a high level of vertical segregation in engineering and technology (6.5%).

Women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

Statistics on these types of women entrepreneurs are not available.

12.2 Review of policy response in France

12.2.1 Setting the context

The main initiative for the support of female entrepreneurship consists of guarantee funds for women entrepreneurs (F.G.I.F. -*Fonds de Garantie à l'Initiative des Femmes pour la création, la reprise ou le développement d'entreprises*)¹¹⁴. The fund is managed in a decentralised way at local level.

12.2.2 Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology

Women innovators/inventors and entrepreneurs

An initiative that is likely to have a positive impact on women innovators/inventors entrepreneurs is the creation of a network of **Female Business Angels (FBA)**¹¹⁵. The network was created in 2003 to facilitate women's access to business investments and participation in innovative start-ups¹¹⁶. FBA support both male and female business creation, and despite the fact that there are no gender targets, nearly 50% of the projects financed have gone to women entrepreneurs. The FBA also undertakes activities of training and mentoring for women entrepreneurs.

Women entrepreneurs in science and technology

The initiative presented above for women innovators/inventors entrepreneurs also covers women entrepreneurs in science and technology.

¹¹⁴ <http://www.franceactive.org/fiches/institfina/fqif.php>

¹¹⁵ http://www.europeanpwn.net/files/fba_10_06.pdf

¹¹⁶ Currently it is estimated that only 3% of business angels are women in France

13 POLAND

13.1 Review of data and information

13.1.1 Female entrepreneurship in general: Poland

It is difficult to quantify the gender gap in entrepreneurship for Poland. International GEM data on female entrepreneurship are not available for this country and the Polish Central Statistical Office which collects data on the number of business created does not record the data by gender. If self-employment is taken as a proxy, the share of self-employed women in Poland is 26.7% of the overall number of self-employed¹¹⁷. However, it is estimated that only 35% of Polish self-employed women can be considered as entrepreneurs¹¹⁸.

Despite the lack of statistics on women entrepreneurs, a number of national and international studies have been conducted on the barriers and obstacles that women face in becoming entrepreneurs. The findings suggests that women have to overcome several difficulties, such as cultural stereotypes on women's position in society, lack of training and business skills, difficulties in having access to finance, and lack of self-confidence¹¹⁹. The studies conducted have also suggested that women would benefit from following entrepreneurship modules at schools and university¹²⁰, from having dedicated training programmes covering personal development topics¹²¹, such as leadership and confidence building, as well as access to finance¹²².

13.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Poland shows that there is no gender educational segregation in science but a significant level of educational segregation in engineering and technology. In employment, the country displays a significant level of gender horizontal segregation and from a high to significant level of employment vertical segregation in academia.

¹¹⁷ Eurostat Self-Employment in Europe, 2005. The percentage does not include people working in the agricultural sector.

¹¹⁸ World Bank reports, 2004.

¹¹⁹ Ewa Lisowska, Oska biuletyn, Przedsiębiorczość w Polsce Kilka danych statystycznych
<http://www.oska.org.pl/biuletyn/b5/lisowska.html>

¹²⁰ The World Bank, "Poland, Country Gender Assessment", March 15, 2004, Poverty Reduction and Economic Management Unit Europe and Central Asia Region
<http://siteresources.worldbank.org/INTECAREGTOPGENDER/Resources/PolandCGA.pdf>

¹²¹ Waclaw Jarmolowicz, Barbara Kalinowska-Nawrotek, Women's employment and flexible working,
<http://mikro.univ.szczecin.pl/bp/pdf/41/23.pdf>

¹²² Hanna Mizgajska, Economic Academy in Poznan, Influence of education on the limited female entrepreneurship in the Wielkopolska region,
http://www.fundacja.edu.pl/przedsiebiorcosc/_referaty/sesja_Illa/25.pdf

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows no gender segregation in science, mathematics and computing (50.1%), but a significant level of segregation in engineering, manufacturing and construction (24.1%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows a significant level of horizontal segregation (28%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a significant level of vertical segregation in senior academic positions in medical science (28.2%) and in natural sciences (16.9%), and a high level of vertical segregation in engineering and technology (8.7%).

In addition, national data suggest that employment vertical segregation is persistent given that women working in new technologies enterprises have less career opportunities and are promoted less¹²³.

Women inventors/innovators' entrepreneurs

There are no data available on these types of women entrepreneurs¹²⁴.

Women entrepreneurs in science and technology

Specific statistics on women's entrepreneurship in science and technology are not available at national level¹²⁵. However, the University of Wrocław has conducted a small survey on the factors that women working in science and technology perceive as barriers in setting up a business. According to the interviewees, women in science and technology struggle more in finding adequate finance, are not familiar with the requirement for creating a company, lack entrepreneurial skills (i.e. taking risks), and have more difficulties in combining professional and family life¹²⁶.

The main difficulties that women entrepreneurs in science and technology face are due to the fact that the science and technology environment is still dominated by men, making it even harder for women to overcome cultural stereotypes, and that higher investments and capital are required (i.e. for the technological equipment)¹²⁷.

¹²³ Report of the Polish Agency for enterprise development (PARP) on the "role of women in the innovative entrepreneurship of new technologies"; PARP, ROLA KOBIET W INNOWACYJNEJ PRZEDSIĘBIORCZOŚCI WYSOKICH TECHNOLOGII RAPORT KOŃCOWY Z BADAŃ JAKOŚCIOWYCH DLA POLSKIEJ AGENCJI ROZWOJU PRZEDSIĘBIORCZOŚCI Warszawa, sierpień – październik 2007

¹²⁴ The World Bank, "Poland, Country Gender Assessment", March 15, 2004, Poverty Reduction and Economic Management Unit Europe and Central Asia Region <http://siteresources.worldbank.org/INTECAREGTOPGENDER/Resources/PolandCGA.pdf>

¹²⁵ The GUS- Główny Urząd Statystyczny (Central statistical office) collects data on the number of companies created by women every year but there is no classification by sector.

¹²⁶ In the frame of the FemStart project.

13.2 Review of policy response in Poland

13.2.1 Setting the context

Supporting women entrepreneurship is becoming an important issue in Poland. Although the Polish government does not have a specific policy for supporting female entrepreneurship, gender mainstreaming of programmes for business creation is increasingly becoming important.

Furthermore, initiatives for the promotion of female entrepreneurship are undertaken by organisations for the promotion of women in society, such as the Centre for the Advancement of Women Foundation; the International Forum for Women; the International Women's Foundation of Łódź; and the Polish Association of Women Company Owners (PSWF). The initiatives typically consist of providing information, training, consulting and implementing pilot project¹²⁸.

13.2.2 Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology

Women innovators/inventors and entrepreneurs

There are no specific policy programmes and initiatives for supporting women innovators/inventors' entrepreneurship. This group of women entrepreneurs is not separated from the group of women entrepreneurs in science and technology.

Women in Science and Technology

Several pilot projects have been implemented for the promotion of women's entrepreneurship in science and technology.

DEW-SET project (Developing the Enterprise and Entrepreneurial Capabilities of Women in Science, Engineering and Technology) was run from July 2006 to December 2006 in three countries (UK, Poland and Bulgaria) under the European Information Centre (EIC). In Poland it was managed by the Regional Development Agency of Dolnośląsk (Dolnośląska Agencja Rozwoju Regionalnego) with the support of the Wrocław Centre for Technology Transfer (WCTT).

DEW-SET was targeted exclusively at women. It aimed to increase the number of women setting up new science, engineering and technology businesses by providing;

- A training guide for business advisors;
- A self-diagnostic tool kit for female entrepreneurs to help them to define their training needs; and
- A virtual network of female entrepreneurs in science, engineering and technology.

In total, 35 women participated to the project's activities. Of these, 26 were employees, nine were students and two unemployed; seven had already had experience of running

¹²⁸ These organisations tend to be small with limited financial and managerial resources. In most cases, the initiatives are driven by European funds.

a business while three were considering running a business for the first time. In total, 25 business support advisors were also trained on women's needs, with a female friendly training guide and promotional activity developed.

Box 13.1 presents the assessment of DEW SET

Box 13.1 Polish DEW-SET – Stakeholders' assessment of the project

Definition of the problem

The pilot project was implemented because women enrolled in technical universities do not consider setting up a business in these fields after their studies, despite the fact that there are a high number of women with a scientific and technical degree (40% of students at the Wroclaw Polytechnic are women, with female presence in environment and health being very strong). It is hard to estimate the gender gap in female entrepreneurship in science and technology because there are no data. However, according to a Wroclaw Polytechnic student's survey women are often not even aware of the business support initiatives, such as centre for technology transfer, business incubators and entrepreneurship services offered by the Chamber of Commerce. Furthermore, stakeholders experience suggests that women have less confidence in their skills to create a business in science and technology and have to overcome some cultural stereotypes. Women's obstacles also seem to concentrate at the pre start-up and start-up stage.

Elements of strength

One very helpful approach of the programme was the self diagnosis tool kit which was intended to assess the entrepreneurship potential of women and to identify specific training needs.

Challenges

A challenge of the project was to have a sufficient number of participants as initially the project had problems in finding enough women. The Regional Development Agency overcame this problem by promoting the project amongst women business associations, career development services in scientific and technical universities and amongst the regional network for innovation.

Type of policy response needed

According to consultees, the assessment of participants needs made it clear women entrepreneurs in science and technology need a more complex and articulated support. However, it is believed that programmes exclusively targeted at women might not always be the best way to narrow the gender gap (i.e. the number of women in these sectors is far too low to justify a specific programme only for them). Gender mainstreaming of general programmes of business support should be sufficient for supporting women becoming entrepreneurs in science and technology industries.

Box 13.2 provides DEW-SET participants' views

Box 13.2 : Polish DEW-SET- participants' view

Magda is finishing a PhD at Wroclaw Polytechnic and is about to open a business in the energy audit sector (building energy consumption certificates). Magda decided to join the project as she needed practical advice and information on how to open a business.

Assessment of the programme

The services provided through DEW SET were rated very positively. Besides being provided with basic information on how to open a business in technical sector and where to go for further support (i.e. business incubators, technology transfer centres), the most useful activities were counselling and personal development, as well as a voucher to be spent for buying individual training and consulting services. Furthermore, one of the main benefits was the creation of a virtual network of women entrepreneurs giving the possibility of meeting other business women in technical sectors, with which to share experiences, information and learning on how to overcome women's related difficulties. A group of women were mentored by other more experienced female entrepreneurs and some others decided to work together as a business idea by creating a consortium. DEW SET has also had the merit of building women's confidence and showing that women can become entrepreneurs in technical sector.

Obstacles faced

Discussing the obstacles, Magda mentioned that science and technology is a male-dominated world, in which stereotypes still exist and women are perceived as less capable of working in these sectors or less reliable because of family commitments. The stereotypes are stronger in some sectors, such as ICT and construction. Stereotypes represent a real barrier for women wanting to create a business. For example, if women's capability is questioned, it might be very difficult to find clients. Finding adequate finance is also an issue.

Another project is **FemStart**, an initiative funded by the European Commission's sixth Framework Programme for Research and Technology within the Science and Society Priority. The Polish partner involved in the project is the Wroclaw University of Technology – Wroclaw Centre for Technology Transfer. FemStart was launched in September 2006 and is planned to end in March 2009.

The project specifically targeted two groups: women scientists' entrepreneurs (to explore their needs) and policy makers (to increase their awareness on the issue). The objective is to generate a public debate on how to motivate female scientists to start their own businesses through a series of events at six universities in different European regions¹²⁹. Women entrepreneurs or scientists that have already started a business are also involved to share their personal experience during the events.

¹²⁹ See section on European level and those on Spain and Latvia.

Box 13.3 presents an assessment of FemStart.

Box 13.3 Polish FemStart – Stakeholders' assessment of the project

Definition of the problem

FemStart is a pioneer project. There are some issues affecting both men and women: business creation is still seen in a negative way and not as a viable alternative, there are few structures for supporting the development of an enterprise from scientific research, and there is not adequate capital for financing such initiatives (i.e. low venture capital investments in Poland). In addition, women have to face other difficulties: in a male-dominated sector they are not seen as credible business partners and have even more difficulties in finding finance.

Elements of strength

FemStart main strengths was that it raised policy-makers awareness on a largely overlooked issue and brought together a variety of stakeholders that had hardly communicated with each other before, from academics, to female associations, female entrepreneurs, and local development agencies. Another positive element was that a survey was undertaken on women scientists to assess the type of support they need. The main findings, in order of importance, are that women need to receive coaching by experienced entrepreneurs; help in networking with potential customers/clients, training on entrepreneurial skills, creating networks of female entrepreneurs in science and technology, as well as having access to research facilities, to venture capital and help with child care¹³⁰.

Challenges

Engaging all the stakeholders and finding women entrepreneurs in science and technology. An extensive information campaign had to be run: posters have been distributed within academic bodies across all Poland, an article about the event was published in the regional press, the event was also publicised on the websites of organisations supporting women and information centres for scientists and academic bodies.

Type of policy response needed

The vast majority of the survey's respondents (85%) believed that women need special support to start a business in science and technology. According to consultees raising awareness about women's need is the first step to develop initiatives that should be targeted specifically at women (e.g. guidelines could be drafted at European level) Entrepreneurship should become a subject taught at scientific university, as women benefit more than men, by such projects.

A further pilot project is called **DIONE (Diversity Into Networks Across Europe)** and is funded by the European Community under the gender equality framework (2001-

2005). The partner organisations are the Gdansk Entrepreneurship Foundation and the City Council of Gdansk, which runs special educational and advisory programmes for new business start-ups. The project aimed to mentor female entrepreneurs in the technology sectors and help them with networking.

14 LATVIA

14.1 Review of data and information

14.2 Female entrepreneurship in general

International GEM data on female entrepreneurship indicates that the overall business owners rate is 7.33% for men compare to 17.53% for men. The gender gap is significant both for early stage entrepreneurship activity (3.92% for women compare to 9.41 of men) and for established business owners (3.41% compare to 8.12%).

Further information on female entrepreneurship is provided by GEM data on Latvia. Women entrepreneurs tend to be highly educated, with a large proportion of women with a university and master's degree in the start-ups¹³¹. In addition, in contrast with findings from other member states, women do not display a higher fear of failure than men and are as interested as men in business growth¹³².

14.2.1 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Latvia show that there is no gender educational segregation in science and only a moderate level of educational segregation in engineering and technology. In employment, the country displays no gender horizontal segregation and a moderate level of employment vertical segregation in academia (medical science only).

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows that there is no gender segregation in science, mathematics and computing, on the contrary women outnumber men (57.1%), and there is only a moderate level of segregation in engineering, manufacturing and construction (37.5%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector show that there is no level of horizontal segregation (54%).

¹³¹ GEM 2005 Latvia Report, Dombrovsky et al.

¹³² GEM 2006 Latvia Report, Dombrovsky et al.

The overall high preference of Latvian female entrepreneurs for growing their business does conform with other studies for Post-Soviet countries in illustrating that a high proportion of female entrepreneurs are in fact growth-orientated (e.g., Wells et al. 2003; Welter et al. 2006). However, this phenomenon is often closely connected to the sectors where women create their businesses or to economic motives such as the need to increase business income in order to provide a living for families.

- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows only a moderate level of vertical segregation in senior academic positions in medical science (38.5%). Data are not available for other academic disciplines.
- In addition, national data shows a high employment vertical segregation in technical industries where only 4.3% of women are in high level occupational positions¹³³.

Women inventors/innovators' entrepreneurs

GEM 2006 Latvia Report had a section on innovation in entrepreneurship which presented some gender disaggregated data. According to the data presented the entrepreneurship gender gap is even bigger in innovative firm, as only 24% of innovative companies (core and moderate) are run by women, whereas the percentage of women among non-innovating entrepreneurs stands at 37%¹³⁴.

Women entrepreneurs in science and technology

Statistics on the number of women entrepreneurs are not available. However a study was undertaken to investigate the factors facilitating and hindering women's entrepreneurship in engineering and technical sectors. According to the findings of the study women find it difficult to access the male dominated network in technical sectors, making it harder for women to obtain the necessary informal support and cooperation, women lack adequate access to finance and business knowledge and have less self-confidence than men and less family support. The study also indicated that women would benefit from targeted counselling addressing women's needs specifically¹³⁵.

14.3 Review of policy support and initiatives in Latvia

14.3.1 Setting the context

Latvia does not have official policies specifically targeted at female entrepreneurship. However, separate projects and initiatives exist, providing information and implementing pilot projects for supporting women entrepreneurs¹³⁶.

¹³³ Recommendations for Education Institutions, Carrier Development Support Institutions, and Sector Enterprise Associations Cooperation in Attracting Potential Employees to the Perspective Sectors in Latvia- Nováková, Jolana (Society Integration Foundation SIF) – Riga 2007.

REKOMENDĀCIJAS IZGLĪTĪBAS IESTĀŽU, KARJERAS ATTĪSTĪBAS ATBALSTA IESTĀŽU UN NOZARU UZNĒMUMU ASOCIĀCIJU SADARBĪBAI POTENCIĀLO DARBA NĀMĒJU PIESAISTĪŠANAI PERSPEKTĪVAJĀS NOZARĒS LATVIJĀ. The study is part of the EQUAL project 'Reducing Causes of Professional Segregation'.

¹³⁴ GEM 2006 Latvia Report

¹³⁵ "Factors Promoting and Hindering Women Involvement in Entrepreneurship in Latvian Engineering and Technical Sectors" Technology Development Forum (ProfEQUAL Project) Latvia 2006/2007.

Biedrība „Tehnoloģiju attīstības forums”. Pētījums „Veicinošie un kavējošie faktori sieviešu iesaistei uzņēmēdarbībā inženiertehniskajās nozarēs Latvijā”

The study carried out interviews on factors fostering and hindering women's entrepreneurship in these sectors.

14.3.2 *Women innovators/inventors' entrepreneurs*

The association **Lider (Female Leader)** has been running a pilot project for fostering young and female entrepreneurship since 2006, including a focus on creative and entertainment industry and non-traditional agriculture¹³⁷. The programme is particularly innovative as each aspiring entrepreneurs and nascent entrepreneur is mentored by an experienced businessperson. So far, the project has matched 19 aspiring women entrepreneurs with 13 mentors and has resulted in three companies to be established and eight in the process of being created.

Women entrepreneurs in science and technology

Latvia participates in the **FemStart** project (**Universities debate female start-ups**)¹³⁸. A conference took place in Riga in January 2008 to raise the visibility of female entrepreneurship in science and technology and to discuss how supporting structures in universities can be improved to encourage women's entrepreneurship.

Under the **ProfEQUAL** initiative, a pilot project has been implemented for encouraging female students to start their own business in technology and knowledge-based sectors¹³⁹. The programme targeted women enrolled in studies leading to a university or master degree in science and technology sectors (i.e. maths, physics, engineering, IT or natural science). The project provides for a six-month process of entrepreneurship motivation, training courses and counselling services, and for ten-months of mentoring. Grants are also available. The initial evaluation of this pilot project shows positive results, with 12 female enterprises being set up, which overall employed 86 people after six months¹⁴⁰.

The association **Lidere (Female Leader)** has developed since 2006 a pilot project for mentoring aspiring female entrepreneurs in science and technology. Lidere supported 16 women with the most promising business ideas in Science and Technology¹⁴¹. This mentoring programme for women entrepreneurs in technical industries started in April 2006.

¹³⁶ These initiatives tend to be part of European projects and funding programmes.

¹³⁷ The initiative is part of ProfEQUAL Project

¹³⁸ FemStart is a European initiative (see European section) that consists in a series of events for discussing female entrepreneurship in science and technology. The events have taken place in Stuttgart (DE), Valencia (ES), Wroclaw (PL), Riga (LV), Bucharest (RO) and Twente (NL).

¹³⁹ Pilot project: "Support for women who are willing to become employers in perspective fields". The European Enterprise Awards Entry Form.

http://www.em.gov.lv/em/images/modules/items/item_file_17777_sif_en.doc

¹⁴⁰ The project has also been identified as good practice for the European Enterprise Awards in the category Enterprise Support Award.

¹⁴¹ The initiative is part of ProfEQUAL Project.

15 CZECH REPUBLIC

15.1 Review of data and information in Czech Republic

15.1.1 Female entrepreneurship in general

International GEM data on female entrepreneurship indicates that the overall business owners rate is 8.07% for women compared to 18.41% for men. The gender gap is significant both at early stage entrepreneurial activity (4.93% for women compare to 10.75 for men), and for established business owners (3.14% for women compare to 7.66% for men).

GEM 2006 for Czech Republic suggests that only 32% of women are confident in their entrepreneurial skills, compared to 50% of men¹⁴².

15.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for the Czech Republic shows a moderate level of educational segregation in science and a significant level of educational segregation in engineering and technology. In employment, the country displays a significant level of gender horizontal segregation and a high level of employment vertical segregation in academia.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a moderate level of gender segregation in science, mathematics and computing (36.7%), and there is a significant level of segregation in engineering, manufacturing and construction (22.3%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows that there is a significant level of horizontal segregation (20%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a high level of vertical segregation in senior academic positions in medical science (14.2%), in natural sciences (9.2%) and in engineering and technology (4.5%).

Women inventors/innovators' entrepreneurs

No statistics are available on women innovators/inventors.

¹⁴² GEM (2007), Czech Republic GEM National Report 2006,
<http://www.gemconsortium.org/document.aspx?id=583>

Women entrepreneurs in science and technology

No statistics are available on women entrepreneurs in science and technology. However some proxy indicators suggest that the number is low. For example, the gender breakdown of data on scientific grants awarded to women for original research indicates that women received only 22.88% of the total number of grants awarded in 2007¹⁴³. Likewise, the gender analysis on the annual award for “best personality in science and technology” show that women were only 17.58% of the nominees and 12.50% of the award winners¹⁴⁴.

15.2 Review of policy response in Czech Republic

15.2.1 Setting the context

The Ministry of Industry and Trade run a programme to support **entrepreneurship activities** that include a focus on women in order to enhance the equal opportunities of women and men¹⁴⁵. The programme provides guidance and training to women entrepreneurs, as well as support for national and transnational cooperation for fostering equal opportunities. Furthermore, the Operational Programme for Industry and Enterprise sets a specific target of supporting at least 25% of women-run companies.

Women innovators/inventors' entrepreneurs

There is no specific policy for women innovators/inventors' entrepreneurs.

Women entrepreneurs in science and technology

There is no specific policy to promote women entrepreneurs in science and technology. However, a number of projects in the Czech Republic aim to develop the position of women in science and technology. For example, in 2000 a new national **Contact Centre for Women and Science** was set up in Prague by the Ministry of Education, Youth and Sports, with a view to promoting equal opportunities in research and development, providing institutional support for Czech women scientists and supporting their involvement in European research activities¹⁴⁶. The Centre not only contributes to the integration of the gender in Czech research, but also provides an interface between Czech women scientists and the broader European research sector. The centre publishes a newsletter focusing on women in science and regularly publishes portraits of successful Czech women scientist and young women scientists.

¹⁴³ The awards are given by the Czech Science Foundation, an independent institution for the promotion of scientific research in the Czech Republic

http://pala.gacr.cas.cz/wordpress/?page_id=27

¹⁴⁴ <http://www.mpo.cz/dokument22072.html>

¹⁴⁵ <http://download.mpo.cz/get/25985/28539/312413/priloha003.doc>

¹⁴⁶ <http://www.zenyaveda.cz/html/>

16 HUNGARY

16.1 Review of data and information in Hungary

16.1.1 Female entrepreneurship in general

International GEM data on female entrepreneurship shows that the rate of overall business owners is 8.53% for women compare to 17.12% for men. The gender gap is reflected in early stage entrepreneurial activity (4.05% for women and 8.09% for men) as well as in established business owners (4.48% for women and 9.03% for men).

National statistics provide further information on the profile of women entrepreneurs. For example, there are no major differences between men and women in terms of age and educational background and companies owned by men tend to be larger with higher revenues, more women start their own business with a very low amount of capital and report having difficulties in accessing adequate finance¹⁴⁷.

National data also provide information on the main barriers to female entrepreneurship. According to a study, women lack necessary business/entrepreneurial skills and have to balance their work commitments with family responsibilities¹⁴⁸. The study recommends creating positive discrimination in support programmes for business development, training women in finance and business skills, having business advisors specifically trained for providing assistance and advice to women, and helping women entrepreneurs in networking with other entrepreneurs.

16.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Hungary shows a moderate level of educational segregation in science and in engineering and technology. In employment, the country displays a significant level of gender horizontal segregation. Data are not available on employment vertical segregation in academia.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a moderate level of gender segregation in science, mathematics and computing (37.5%), and in engineering, manufacturing and construction (29.7%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows that there is a significant level of horizontal segregation (25%).

¹⁴⁷ Szerb (2007), Women entrepreneurs and firms owned by women in Baranya county 2001-2004, University of Pécs

¹⁴⁸ SEED Foundation (2004); Support to women entrepreneurs in Vas County

Women inventors/innovators' entrepreneurs

Specific information and statistics on women inventors/innovators are not available.

Women entrepreneurs in science and technology

Statistics are not available on women entrepreneurs in science and technology in Hungary.

16.2 Review of policy response in Hungary

16.2.1 Setting the context

After Hungary's EU accession in 2004, the number of programmes and measures enhancing equal opportunities for women in enterprise development significantly increased. The support programmes are typically focusing on competence development and target entrepreneurship in general.

Within the framework of the first National Development Plan supported by the EU, the second component of the Human Resources Development Operative Programme focused on women in the labour market and female entrepreneurs, emphasising the importance of training and networking.

The Regional **Forum of Enterprising Women (VERA)** is a programme for enhancing competence and networking with the support of e-learning and e-mentoring in the region of Central Hungary. It aims to improve entrepreneurial knowledge, develop complex training programmes for competence development and networking and to generate partner co-operation between the participating enterprises and women.

A number of civic organisations and associations carry out various projects targeting women entrepreneurs that are typically financed by the above mentioned operative programme.

Women innovators/inventors' entrepreneurs

Attempts have been made to stimulate innovative entrepreneurship amongst women but without success.

The **SEED Foundation** carried out a project entitled "Entrepreneurs in the beginning of the 21st century: Learning, Knowledge and Innovation" involving training, advice and mentoring for women wanting to start or having their own business. In theory, innovative activities were to be given specific attention within the programme, but in practice the participants were women aiming at traditional forms of self-employment (e.g. language teachers, beauticians or cleaners).

Women entrepreneurs in science and technology

There are no specific policies or measures targeting women in science and technology.

17 ITALY

17.1 Review of data and information

17.1.1 Female entrepreneurship in general

International GEM data indicates that the overall business owners rate is 4.78% for women compared to 8.19% for men. This gender gap is mainly due to the differences in established business owners (1.72% for women compare to 4.32% for men) whereas there is almost no gender difference in early stage entrepreneurial activity (3.06% for women compare to 3.87% for men).

National data from the business register shows that the number of female enterprises is higher in traditional sectors, such as health and social services and personal & domestic sectors and hotels and restaurants¹⁴⁹. In addition, the large majority of female entrepreneurs are solo entrepreneurs (70.3% in 2007).

17.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors.

Eurostat data for Italy shows no educational gender segregation in science and a moderate level of gender segregation in engineering. However, the country displays a significant level of horizontal gender segregation in employment and a high level of vertical segregation in senior academic positions.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows that there is no gender segregation in science, mathematics and computing, with women outnumbering men (54%), and there is a moderate level of education segregation in engineering, manufacturing and construction (31.2%).
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows that there is a significant level of horizontal segregation (19%).
- Employment vertical segregation (academia only): data on the percentage of female grade A academic staff shows a significant level of vertical segregation in academic positions: 11.1% in medical science, 15.9% in natural sciences and 6.1% in engineering.

Women inventors/innovators' entrepreneurs

¹⁴⁹ Unioncamere, the national association of the Chambers of Commerce has created a National Observatory on Female Entrepreneurship which every year presents some figures on women's enterprise based on analysis of the business register. Business registration at the Chamber of Commerce is compulsory in Italy for all businesses, and thus data are comprehensive.

Statistics on women inventors/innovators' entrepreneurs do not exist at national level.

Box 17.1 summarise stakeholders' views on the difficulties of collecting information

Box 17.1 Difficulties in collecting data on women inventors/innovators entrepreneurs - Stakeholders views

There is a structural difficulty in collecting data on female entrepreneurship in non-technical innovative sectors. Non-technical innovation is not related to any specific sectors, but can be found in any industry, even the most traditional, and thus it can be identified only through a case by case analysis or by taking a micro/qualitative approach. Traditional sectors can be highly innovative, and in reality women are driving this type of innovation. For example, the traditional sector of services to women (i.e. beauticians) has now become a highly innovative and highly profitable sector called "well-being and fitness".

As a proxy, it would be possible to associate non-technical innovation with the creative industry, covering culture, media and design. However, the creative sector does not exist in official statistics as a separate economic sector, not making it possible for the moment to find data.

Women entrepreneurs in science and technology

There is no systematic collection of data and information on women entrepreneurs in science and technology. However, according to a recent study¹⁵⁰, female enterprises in technology sectors are only 2.5% (31,272) of the overall total of women enterprises; 56% of these are in ICT and only 1.4% are in R&D¹⁵¹.

The region Emilia-Romagna collects data on the gender of participants to business incubators and spin-off initiatives. The number of women participating in ICT and multimedia spin-off activities is very low: 17%, while the number of women participating in other programmes of business incubators is higher (33.7% projects for business creation and 42% of projects for technology transfers to female enterprises). These figures reflect closely the rate of male/female applications for support. Women entrepreneurs in science and technology tend to operate more in the sectors of environmental protection, health, chemical and pharmaceutical and biotechnologies and less in engineering.

Additional information on the difficulties and profile of women entrepreneurs in science and technology has been provided by a focus group organised by the region Emilia-Romagna in 2007 and by business organisations also supporting female entrepreneurship¹⁵². The findings are presented in Box 17.2 below:

¹⁵⁰ The Chamber of Commerce of Milan has analysed the national business register to find out the number of female enterprises operating in technology sectors. The figures are from 2006. Donne e Tecnologia www.mi.camcom.it

¹⁵¹ In Italy the overall number of female enterprises in R&D is 460

¹⁵² In particular by Emilia Romagna CNA – Confederation for Artisans

Box 17.2 Main barriers faced by women entrepreneurs in science and technology and their profile

Main barriers

Access to finance: women have less access to credit and financial instruments, despite the fact that women entrepreneurs have more positive rates of investment return. Access to adequate investments is crucial in science and technology and the development of a product and its commercialisation (i.e. participating to fairs) tend to require substantial investments.

Lack of credibility: women entrepreneurs in science and technology are perceived as less credible by financial and market stakeholders.

Internationalisation and market growth is not possible in countries where it is not acceptable to do business with a woman.

Lack of entrepreneurial skills and entrepreneurial culture. The fact that universities do not encourage entrepreneurship affects women more than men.

Lack of soft skills: women find it more difficult to be assertive, they also receive less peer-support and see few role-models.

Women have more family responsibility

Profiling

They tend to have a degree or PhD in physics, engineering information and communication, sciences, natural and biological sciences;

They tend to have previous professional experience;

They tend to have an average age of 35 years;

They tend to create enterprises for the commercialisation of their products or B2C sector; and

Their motivation to set up a business tends to be the desire to work independently and in autonomy.

17.2 Review of policy responses in Italy

17.2.1 Setting the context

Italy has a long tradition of initiatives dealing exclusively with the promotion of female entrepreneurship. Since 1992, a national programme has been created for the support of women's enterprise. The programme, normally referred as Law 215, provides for different types of financial help for business creation; for the acquisition of existing business; for the introduction of innovation in an already existing business (with innovation being defined as product innovation, process innovation and organisation

innovation); and for purchasing services for increasing productivity, implementing technological transfer, promoting internationalisation and marketing.

Analysis of the support provided to female entrepreneurs indicates that the majority of financial support is allocated to business creation (76.8%), followed by the introduction of innovation in already existing business (20.7%).

The support at national level is integrated by specific policies at regional and local level. Each regional government has a specific policy action for fostering female enterprise, and each chamber of commerce at provincial level has a committee on female entrepreneurship for the implementation of programmes and activities targeted at women, including also business advisors dealing exclusively with women. Recently, a single portal – Female Entrepreneurship - has been created to provide integrated information on the activities and projects run by the chamber of commerce¹⁵³. The activities tend to concentrate on access to finance advice, business advice, support for the preparation of a business plan, tutoring and training, and granting awards. In addition, seminars and conferences on female entrepreneurship are regularly organised.

The approach of **region Emilia-Romagna** is particularly interesting, because innovation has been made a priority of the programme for female entrepreneurship and because the gender dimension is considered in main programmes for innovation and business support.

17.2.2 Policy responses for women innovators/inventors entrepreneurs and women entrepreneurs in science and technology

Women inventors/innovators

The national law 125 for the promotion of female entrepreneurship contains a specific measure for financing innovation of product and process in female entrepreneurs. However, data presented above indicates that the take up of this option is rather low (20.7%). Furthermore, stakeholders have explained that the concept of innovation has been used in a very flexible way, to include any action that was going to increase company growth.

At regional level, the **Region Emilia-Romagna** has foreseen specific actions for the support of female innovative business which consist of:

- Improving data available on women in innovative sectors by monitoring women's participation in regional programmes for innovation (namely spin-off and business incubators), and by organising focus groups with stakeholders involved in the promotion of innovation and female enterprises, as well as with women entrepreneurs.
- Training, counselling and mentoring specifically addressed to women, aimed at increasing business skills in innovative sectors and entrepreneurial confidence.

¹⁵³ <http://www.if-imprenditoriafemminile.it>

- Collection of case stories and dissemination of role model stories on innovative female entrepreneurs.
- Creation of an award for women entrepreneurs with innovative ideas.
- Creation of a network of women operating in creative sectors defined as multimedia and design has been designed.
- Planning for events such as seminars and workshops for raising awareness on women's innovative entrepreneurship and discussing problems.
- Gender assessment of innovation policy, including spin-off and business incubators.

CNA Emilia Romagna, a business association, also runs several programmes to support women's innovative enterprises:

Gain Club benchmarking managerial innovation. The initiative consists in benchmarking competitive enterprises, collecting good practices, exchanging of information, organising visits and study trips (even abroad). Gain Club is divided in Gain Club for all enterprises and Gain Club for female enterprises.

Women Entrepreneurs Club: is a network of female entrepreneurs created in 2003. It helps in promoting role models, good practise in female entrepreneurship and networking.

In addition CNA offers:

- Start-up awards (open to men and women); and,

Tailored services to female entrepreneurs, including personal development training (e.g. speaking in public, negotiation, etc.).

Box 17.3 provides an assessment of the initiatives of Region Emilia Romagna and CNA and Box 17.4 provides an account of a women's experience with the service.

Box 17.3 Assessment of the initiatives of Region Emilia Romagna and CNA

Definition of the problem

According to consultees, there is an information gap on female entrepreneurship in innovative sectors, both quantitative and qualitative. However, the fact that there is a gender gap and that women are underrepresented in science and technology entrepreneurship can be inferred from three sources of information:

- Data on female entrepreneurship in general showing that women are more active in more traditional sectors such as social services, in solo or micro-enterprises, and underrepresented in venture capital societies;
- Data on women receiving support in innovation programme showing that women are underrepresented;
- Qualitative data coming from focus groups of women entrepreneurs in science

and technology and anecdotal stories suggesting that women are facing specific problems.

Strengths

Increased visibility of the issue of female innovative entrepreneurship and initial collection of information to inform policy-makers. Focus groups have helped to clarify the main problems, issues and policy intervention gaps; they are also a very good way for brainstorming about future policy intervention. Benchmarking innovative female entrepreneurship is helpful for inspiring other female entrepreneurs.

Challenges

Prioritising innovation in the programme for female entrepreneurship has been a challenge: policies for the support of female entrepreneurship are still perceived as measures to fight female unemployment rather than to promote economic growth. A second challenge is that the number of women operating in these sectors is so low that it is difficult to have proper statistics.

Type of policy intervention needed

According to consultees, without specific focus on women, business creation in science and technology remains a male prerogative.

Policies for the support of female entrepreneurship need to have specific actions to foster innovation. In innovation policy it might be sufficient to undertake gender mainstreaming; however, to make it work, clear indicators and proper monitoring are necessary. Innovation policies need to have a clear gender dimension or the gender gap will only increase.

Training programmes targeted exclusively at the promotion of women in science and technology might not always be the best way and in some case they might even be counterproductive (i.e. it would prevent women from interacting with other men aspiring to become entrepreneurs in the same sector, with whom women can forge useful business partnership).

Action of 'intermediate support', as opposite to 'direct support' or positive discrimination, might be sufficient to narrow the gender gap. Intermediate support might take the form of actions to increase the visibility of women entrepreneurs in science and technology, having women-friendly information available (i.e. rebranding the information, presenting positive role models), creating a forum with all stakeholders (i.e. business associations, research centres and women entrepreneurs), making sure that female innovative entrepreneurship is seen as a priority by all stakeholders, training women to build their self-confidence in male-dominated sectors, and having business advisors dealing specifically with women aspiring to become entrepreneurs.

Box 17.4 : Beneficiary of CNA support views

Irene has a degree in electronic engineering. She developed an interest in entrepreneurship at university and wrote a dissertation on business. Her first work experience was in a company dealing with CE marking and after a while she decided

to open her own business in CE marking with a colleague. Her main reason for becoming an entrepreneur was to introduce elements of innovation in the process of CE marking – experimenting with new materials, extending the range of tests undertaken to create added value.

Assessment of the support received

The business idea won the CNA start-up awards which consisted in a grant plus access to a guarantee fund. Without this initial investment the business would have never happened. The individual support targeted to the specific need of the single entrepreneur (i.e. individual advisors on fiscal, legal issue and access to fund, and the training sections on management, marketing, and internationalisation) was also very positive.

The support that was most helpful from a female prospective was training on conflicts management, public speaking, leadership – especially how to be assertive with male clients, male employees, and male stakeholders. Another positive form of support was the meeting organised with a successful female entrepreneur in a similar economic sector to see how she had overcome cultural stereotypes and proved her professionalism in a male-dominated environment.

Main obstacles

The technical aspect was the easiest part. Having access to finance has been the most difficult part. Substantial investments were needed – machine, laboratory, technical equipment. The Bank did not provide for any finance at the beginning. Even now that the company has been started, the bank is being difficult. Other obstacles were to acquire entrepreneurial skills and deal with a male-dominated sector. It is a bit harder and it takes longer for a woman to be considered knowledgeable and professional, by male clients, suppliers and employees.

Women entrepreneurs in science and technology

The Region Emilia-Romagna does not have a programme targeted exclusively at women entrepreneurship in science and technology. However it has recently introduced a system for considering the gender dimension in innovation policy¹⁵⁴. This means that on one hand there is a gender analysis of the business support provided (i.e. gender breakdown of data) to identify any gender gaps, and on the other women's participation in business development is encouraged.

The business incubators I Tech-Off offers:

- pre-incubator services: individual consulting for the preparation of the business plan;

¹⁵⁴ The Emilia Romagna region has developed a network of business incubators and support services for new technological enterprises. These services have been developed by regional institutions with the involvement of universities, research bodies, often with the support of private economic bodies.

- incubator services: consulting services in ICT, management, finance, marketing, communication, legal and fiscal issues, IP and patent, fund raising support and support for the identification of commercial and technical partners;
- post-incubator services: accompanying services to enter the market;
- support to participate to sectoral fairs and events, and help with networking and promoting the product or service provided by the start-up.

Box 17.5 provides an account of a women's experience with the service.

Box 17-5 | TECH-OFF business incubators: participant's views

Silvia has a PhD in ICT plus several years of work experience in R&D in public sector. She has participated in the TECH-OFF business incubators to develop a business based on the creation of an interactive electronic tourism guide that can be downloaded on a mobile telephone.

Assessment of the support received

The main benefit of the business incubator was that it provided basic elements of entrepreneurship, such as understanding cash-flow, preparation of business plan, IP rights, how to employ people and protecting the IP. Without this, the business would have failed immediately. Then, participation in ICT fairs was important to meet investors such as business angels.

However, other types of support would have been beneficial, such as marketing and communication, selling skills, mentoring from other entrepreneurs in the same field and services for identifying potential clients.

In addition, women would definitively need more personal development training than men, such as negotiation skills, leadership, assertiveness, risk-taking, time management and life-and work balance. Women would also benefit to a great extent from being mentored by other women entrepreneurs. Women have needs that are different from men, but having programmes targeted exclusively to women might not be the best solution (i.e. it is like putting women into a box, there might be not enough women participating to the programme). Women's needs might be also accommodated by undertaking gender mainstreaming of already existing programme for developing business in technical sectors.

Obstacles encounter

Women are still seen as less capable and less reliable in the technical sectors. Credit and financial institutions are less likely to invest in a technical company run by women. In addition, women are less risk takers, are less confident, and are less capable of managing conflicts.

18 GREECE

18.1 Review of data and information on female entrepreneurship

18.1.1 Female entrepreneurship in general

International GEM data on female entrepreneurs shows that the rate of overall business owners is 11.85% for women compared to 20.44% for men. The gender gap is much higher in early stage entrepreneurial activity (4.69% compare to 11.12% for men) than in established business owners (7.16% for women compare to 9.32% for men).

The 2007 GEM data for Greece suggests that female entrepreneurs are more educated than men (7% of women establishing a business are educated to postgraduate or doctoral level, compared to 6% of men). However, over 40% of women engaged in entrepreneurial activities did so out of need, compared to only 22% of men¹⁵⁵.

18.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Greece shows that there is a moderate gender educational segregation in science but a significant level of educational segregation in engineering and technology. In employment, the country displays a moderate level of gender horizontal segregation. Data are not available on employment vertical segregation in academia.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a moderate level of gender segregation in science, mathematics and computing (32.3%), and a significant level of segregation in engineering, manufacturing and construction (21%)¹⁵⁶.
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows a moderate level of horizontal segregation (35%).

¹⁵⁵ GEM (2007), Female Entrepreneurship in Greece 2006 -07, Prof Stavros Ioannides, <http://www.iobe.gr/media/epixeirimatikotita/womepix.zip>

¹⁵⁶ Data refers to 2004 and is from "Statistics in focus, Doctorate holders, 131/2007", Eurostat

Women Inventors/Innovators' entrepreneurs

Statistics and information on women inventors/innovators' entrepreneurs are not available. However, according to a recent study, women entrepreneurs are still not present in more profitable business sectors, such as utilities¹⁵⁷.

Women entrepreneurs in Science and Technology

Statistics and information on women inventors/innovators' entrepreneurs are not available.

18.2 Review of policy response in Greece

18.2.1 Setting the context

The Hellenic Organisation of Small and Medium Sized Enterprises (EOMMEX) run several programmes targeted exclusively at female entrepreneurs. For example, the programme 'Reinforcement of Female Entrepreneurship' supported women in creating their own business by providing grants from 2000 to 2006¹⁵⁸. This programme has been followed by the new programme "Enhancing Female Entrepreneurship".

Policy response for women innovators/inventors' entrepreneurs and women entrepreneurs in science and technology

There are no policies dealing specifically with these types of female entrepreneurship. However, the EOMMEX programme "**Reinforcement of Female Entrepreneurship**" encouraged the development of enterprises for the promotion of local culture as well as enterprises producing or trading new or improved products¹⁵⁹.

¹⁵⁷ "The Entrepreneurial gap between men and women in Greece" by Nikos Dermanakis December 2004

¹⁵⁸ Funding was provided for up to 50 % of the entrepreneurial plans, including expenses for purchasing the manufacturing equipment, research and consulting services, training and marketing services.

¹⁵⁹ Information on how many female innovative enterprises have been supported is not available.

19 SPAIN

19.1 Review of data and information in Spain

19.1.1 Female entrepreneurship in general

International GEM data on female entrepreneurship indicates that the rate of overall business owners is 9% for women compared to 16.42% for men. The gender gap is higher for established business owners (3.30% for women compare to 7.59% for men) than for early stage entrepreneurial activities (5.70% for women compare to 8.83% for men).

The 2005 GEM data¹⁶⁰ suggests that women are slightly less likely to access business/institutional support than males, although the difference is not significant. Women also tend to have a greater fear of failure when starting a business and have weaker business networks than men. However, in Spain, women expressed more interest in entrepreneurship than males, representing 52% of potential entrepreneurs. The report also suggests that there needs to be more business support geared specifically for the “female entrepreneur”.

19.1.2 Data and information on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

The context: situation of women in potentially innovative educational fields and employment sectors

Eurostat data for Spain shows that there is a low level of gender educational segregation in science and significant level of gender segregation in engineering. In employment, the country displays a significant level of gender horizontal segregation. Data are not available on employment vertical segregation.

In detail:

- Educational segregation: the data on the percentage of female PhD graduates shows a low level of gender segregation in science, mathematics and computing (46.6%) and a significant level of gender segregation in engineering, manufacturing and construction (21.3%)
- Employment horizontal segregation: data on the percentage of female researchers in business sector shows a significant level of horizontal segregation (27%).

Women inventors/innovators' entrepreneurs

There are no available statistics on women inventors/innovators' entrepreneurs. However, the 2005 GEM data for Spain indicates slightly more men than women participate in institutional support for financing, R&D support, market and product analysis, and new business ideas (i.e. from 1 to 2% higher for men than females).

¹⁶⁰ GEM (2006), Spain GEM National Report 2005, <http://www.gemconsortium.org/document.aspx?id=523>

Women entrepreneurs in science and technology

There are no available statistics on women entrepreneurs in science and technology. However, according to the conclusions of a workshop on women entrepreneurs in science and technology this number is very low¹⁶¹. The workshop pointed out that there are few women in senior positions in academia and in research organisations, and that research organisations are still male-orientated allowing for little flexibility.

19.2 Review of policy response in Spain

19.2.1 Setting the context

There are a number of initiatives aiming to promote entrepreneurship and self-employment amongst the female population in Spain:

The Women Institute (El Instituto de la Mujer) have created a programme to financially assist female entrepreneurs and self-employed business women. The programme facilitates access to financial assistance with favourable conditions and interest rates¹⁶². Furthermore, the Institute administer a course of Business Management for women aspiring to become entrepreneurs.

The Women World Bank (Banco Mundial de La Mujer) also manages an online consulting and information tool for females interested in entrepreneurship and self-employment¹⁶³. The website contains a wide-variety of information: general advice, advice on business planning, an on-line technical/economic dictionary, and a list of relevant links, legal regulations, marketing advice, as well as any news of changing regulations.

Women innovators/inventors' entrepreneurs

Specific policies and initiatives targeted at women innovators/inventors are not available.

Women entrepreneurs in science and technology

Specific policies and initiatives targeted at this type of women entrepreneurs do not yet exist. However, a debate on how to promote female entrepreneurship in science and technology has been launched under the initiative FemStart. The workshop ‘Fostering the Public Debate on University Support of Female Scientist to Start a Business’ pointed out that Spanish universities and research centres do not have a strong tradition of entrepreneurship and have only recently started to address the issue of gender equality in research. At the moment, the promotion of female entrepreneurship in science is not seen as a separate objective. It has been suggested that such a policy might be premature for the Spanish context and for the time being it is necessary to

¹⁶¹ “Fostering the Public Debate on University Support of Female Scientist to Start a Business” Workshop in Valencia, 26 April 2007, under the FemStart Initiative

¹⁶² The programme has been created in collaboration with the Department of SMEs, the Ministry of Industry, Tourism and Trade and the bank La Caixa.
http://www.mtas.es/mujer/programas/empleo/apoyos_financieros.html

¹⁶³ The initiative has been funded by the Ministry of Labour and Social <http://www.autoempleomujer.com>

improve the overall support for scientific entrepreneurship while keeping a strong gender focus in the development of these initiatives.

20 EXPERIENCE FROM OUTSIDE THE EUROPEAN UNION

This section presents a brief review of information and actions for the promotion of female entrepreneurs in innovative sectors and science and technology at OECD level and in US and Canada.

20.1 OECD

The OECD has not undertaken specific studies on women's entrepreneurship in innovation and science and technology sectors¹⁶⁴. However, there is a publication on women working in science and technology sector which is based on a workshop held in 2005¹⁶⁵. The main points of the publication are:

Stock of data available needs to be improved: Eurostat and OECD have worked closely to improve the provision of gender disaggregated statistics in this area. However, simple statistics on the share of women working in certain fields or being in senior positions are not sufficient for policy makers to plan for adequate solutions. More and better data, both quantitative and qualitative, are necessary to understand the obstacles that women face in science and technology. In particular, there are substantial data gaps on the situation of women researchers in business sectors and on the creation of science-based start-ups.

Women face horizontal segregation (or the concentration of women in certain research fields). Several factors were identified as contributing to horizontal segregation: gender stereotypes, lack of role model and networking, male-orientated organisation structure with very little flexibility, societal attitudes, and subtle forms of sex discrimination discouraging women from pursuing a career in scientific fields.

Women face vertical segregation (or low share of women among senior research staff and academia). Several factors were identified: difficulties to reconcile professional careers with child-care responsibilities, research agendas that are not attractive to women's research interests, and a working environment that is more competitive than cooperative.

20.2 United States

Data and information

In the US, data on female entrepreneurship is collected systematically and regularly. An annual report, *Key Facts about Women-Owned Business*¹⁶⁶, is produced each year, providing a very good information base on women entrepreneurs' economic contribution, industry distribution, trends, longitudinal analysis and challenges faced by women. According to the 2007 report, women owned businesses account for 41% of

¹⁶⁴ The OECD Women Enterprise Directorate was consulted

¹⁶⁵ "Women in Scientific Career: Unleashing the Potential" OECD, 2005

http://www.oecd.org/document/13/0,3343,es_2649_34269_37682893_1_1_1_1,00.html

¹⁶⁶ <http://www.cfwbr.org/facts/index.php>

all privately held firms in the USA and in the past decade they have continued to grow¹⁶⁷. The report is particularly helpful as it provides the detailed industry breakdown, showing that:

- 15.2% of female business owners are in science and technology; and,
- 4.5% of female business owners are in arts, entertainment and recreation services.

The longitudinal analysis of data also indicates that the rate of growth for female entrepreneurship is 82.7% in science and technology, and 116.8% in arts, entertainment and recreation services.

Information is also available on the difficulties that women entrepreneurs are facing in having access to equity capital and venture capital. There is evidence that women entrepreneurs have been ignored by the venture capital industry which remains predominantly male-dominated. For example, according to *Key Facts about Women-Owned Business 2007*, women business owners who obtain capital had to be very persistent: they have made on average 22 attempts before obtaining equity capital, compared to 'only' four attempts to obtain bank loans and credit line¹⁶⁸.

In 2004, the topic of women's difficulties in accessing venture capital was the object of a specific research project "Gatekeepers of Venture Growth: A Diana project"¹⁶⁹ report on the role and participation of women in venture capital industry" commissioned by the Kauffman Foundation¹⁷⁰ and Diana Project. The study shows that there are very few women employed in the venture capital industry (only 9% compared to 91% male)¹⁷¹ and, furthermore, the venture capital industry in US has been flourishing in the last years but women businesses represent only 7% of venture capital deal flows (approximately 5% of money invested each year). The study concluded that women are under-represented in the venture capital industry and have less access to venture capital for the following reasons:

- Venture capitalists tend to be mostly attracted by sectors in which women are under-represented, such as engineering, biotechnology and physics;
- Women entrepreneurs have fewer network connections with the venture capital industry. Referral networks are essential to have access to venture capital and the chances of receiving venture capital are enhanced by network connections; and,

¹⁶⁷ Female entrepreneurship is defined as a 51% or more women-owned business.

¹⁶⁸ <http://www.cfwbr.org/facts/index.php>

¹⁶⁹ The Diana Project is specifically dedicated at promoting international academic research on female entrepreneurship in high growth sectors. Understanding why women have more difficulties in accessing venture capital and finding ways to help women to have access to this type of financing is seen as crucial to promote female entrepreneurship in science and technology.

¹⁷⁰ The Kauffman Foundation focuses on advancing and promoting entrepreneurship by undertaking research and supporting programmes for fostering entrepreneurship

¹⁷¹ According to the study the rate is even lower in Europe with only 6% of women employed in venture capital industry

- Women sometimes lack, or are perceived as lacking, the necessary education, experience and management skills required by venture investors. Few women are viewed as equipped to compete within the highest growth sectors, although some improvements have been noticed, especially in the software sector.

Policy response

In the US there are some initiatives for facilitating women's entrepreneurship in science and technology and women's access to venture capital, the most interesting are:

Business incubators specifically targeting women in science and technology: for example, the **ASTIA (Women Technological Cluster)**¹⁷² is a San-Francisco business incubator exclusively dedicated to the support of women's entrepreneurship in high-potential and high-growth sectors, such as high-tech, life science, clean technology and health. ASTIA provided the following support:

- Leadership skills development and coaching;
- Advice on fundraising, legal issues, and strategic planning;
- Customised education programmes targeting your greatest area of need;
- Access to an extensive network of investors; and,
- Training and coaching on access to finance, including pre-funding, venture capital and company growth.

Building women's capacity to access venture capital: the Centre for Women & Enterprise's Venture of Boston¹⁷³ is a joint initiative of the Boston Centre for Women and Enterprise and the Federal Reserve Bank of Boston¹⁷⁴ for improving women's access to venture capital by raising awareness and creating a supportive network to connect women entrepreneurs with the right investors. Women are also provided with technical assistance and networking support. The main strength of the programme is that it improves knowledge, communication and information sharing by bringing together stakeholders dealing with women's entrepreneurship support and women entrepreneurs with financial investors and stakeholders from the venture capital industry. This is seen as a two-way learning process, on the one hand, women entrepreneurs become informed on investment opportunities and better understand the needs of the venture capital industry and, on the other, investors have the chance to see the business opportunities that are available.

Helping women to enter venture capital industry: for example, the "Centre for Venture Education Support" of the Kauffman Foundation runs a two-year programme

¹⁷² <http://www.wtc-sf.org/about/>

¹⁷³ http://www.cweonline.org/index.php?option=com_content&task=view&id=25&Itemid=38

¹⁷⁴ <http://www.bos.frb.org/news/speeches/cem/1998/112098.htm>

(the Kauffman Fellow Programme¹⁷⁵) for educating and training people in working in the venture capital industry. The programme is open to everybody, but the Centre has a diversity policy in place meaning that women are especially encouraged to apply (for example, there is a separate information package and application form for women candidates, and real-life examples of women that have been successful are provided¹⁷⁶). Activities undertaken include case studies, individual development plans, individual coaching and mentoring, peer learning and networking.

Gender analysis of the wider policies and programmes for SMEs: for example, the **Centre for Women Business Research** monitors US mainstream programmes for SMEs and undertake a gender analysis with the view of identifying and pointing out any gender bias in the allocation of economic resources. To this end, the Centre for Women Business Research operates more like a lobbying group, as its positions are non-binding for the government.

20.3 Canada

Policy Response

A programme for the support of women's entrepreneurship in ICT has been developed by the **Canadian Wired Woman Society (WWS)** since 1996. The programme provides education, training, mentorship, on-line services and research for women who want to develop a business in ICT or grow their already existing business. The initiative has been selected as a 'good practice' by the Foundation of Canadian Women Entrepreneurs¹⁷⁷, which has identified the strengths of the programme as being:

- It creates an open learning environment that encourages women to explore opportunities in technology and to build successful business;
- It organises monthly meetings which provide a forum for women to hear guest speakers and share their experience in running business in technology sectors;
- It provides for networking opportunities, career resources, community and academic presentations;
- It provides training and mentorship from other women business-owners in technology fields; and,
- It has developed a toolkit providing guidance to mentors and participants in the programme.

A Summary of Findings is provided in Section 21.3.

¹⁷⁵ <http://www.kauffmanfellows.org/s/267/onecolumn.aspx?sid=267&gid=1&pgid=1216>

¹⁷⁶

http://www.kauffmanfellows.org/s/267/images/editor_documents/content/The%20Kauffman%20Fellows%20Program%20Welcomes%20Minority%20Applicants%20%20%28/KFP_Women_Final.pdf

¹⁷⁷ "Best Practices for Women Entrepreneurs in Canada" Foundation of Canadian Women Entrepreneurs (2004)

http://www.bdc.ca/nr/rdonlyres/eel5csbw3gs2xpni3wyipm5zejlqegy23nxexku6hlivthrfow7gzy7epbryy56yc2sbcxrswryshiv4yjak3k7pmze/best_practices_2004.final.pdf

21 SUMMARY OF FINDINGS

The following provides a Summary of Findings for Section 5, Sections 6-19 and Section 20.

21.1 Summary of findings at European level

21.1.1 *Data and information*

A survey dealing exclusively with the issue of female entrepreneurs at European level does not exist.

Information available (GEM Report on women entrepreneurship, the Eurobarometer surveys on entrepreneurship and Eurostat survey on Factors of Business Success) suggests that there is a gender gap in entrepreneurship and that women face some specific challenges in becoming entrepreneurs. However, further information, such as the economic sectors in which women entrepreneurs operate is fragmented.

Specific statistics on women inventors/innovators entrepreneurs and women entrepreneurs in science and technology do not exist. An alternative is to identify proxy indicators which highlight innovative activity or assets and skills that might be expected as the basis for entrepreneurship incorporating innovative elements. Analysis of such indicators suggests the likely number of women inventor/innovator entrepreneurs to be low. For example:

- In the EU-25, the level of education segregation is low in science (40% of PhD graduates are female) but significant in engineering (22% of PhD graduates are female). However, the level of horizontal segregation in employment is high (only 18% of female researchers are to be found in the business sector) and the level of vertical segregation in senior academic positions is high as well (the share of female grade A professionals is only 15.6% in medical sciences, 11.3% in natural sciences, and 5.8% in engineering and technology).
- There are only very few women being granted a patent for an invention (8.3% of total patents) and using venture capital in setting up their own business (20.3% of the overall business started with venture capital). Furthermore, women score less than men when assessing their own business level of innovation.
- More specifically on women entrepreneurs in science and technology, a European study has estimated the number to be only around between 5 and 15% of all high-tech business owners.

The obstacles and difficulties that women face in becoming entrepreneurs in science and technology can be summarised as being:

- Contextual: science and technology are still considered as a 'male' sectors and women have difficulties in being recognised as credible entrepreneurs;
- Economic: women encounter more problems in accessing substantial and suitable economic resources, such as venture capital, to cover the high level of

investments that are needed to develop a scientific and technical business; and,

- Soft: women have less access to science and technology networks, that are important for understanding the market, creating business contacts, and meeting potential clients; and positive role models are lacking.

21.1.2 Policy responses

Promoting female entrepreneurship is part of the policy objective of the European Commission Lisbon Strategy.

Besides DG Enterprises and Industry, which has set out a specific and clear objective of promoting female entrepreneurship, the issue is dealt with by several other DGs, such as DG Employment and Social Affairs and Equal Opportunities, DG Regional Policy, DG Research and, even if very marginally, DG Education and Culture.

A specific and comprehensive policy for promoting female innovators/inventors entrepreneurs and women entrepreneurship in science and technology has yet to be formulated. So far, the promotion of female entrepreneurship in these specific sectors has been addressed through small-scale and temporary pilot projects such as:

DWE-SET to train and support women entrepreneurs in science and technology. This was a very small scale project implemented by the Euro Info Centres in 3 member states (the UK, Poland and Romania). It is now concluded.

WiTEC-PREFACE trained secondary female students in science and technology areas in entrepreneurship skills. This was a very small scale pilot project funded by DG EAC (Leonardo Programme) and developed by the European Association for Women in Science and Engineering and Technology (WiTEC). The programme was led by the Swedish WiTEC partner and it is now concluded.

WomEn2FP6 (Enterprising Women into European Research) integrated women entrepreneurs in the sixth Framework Programme (FP6). It brought together associations dealing with innovation as well as technology and those helping women to set up their own business and created a database of women entrepreneurs and a thematic network ProWomEn across Member States.

FemStart promoted a debate on female entrepreneurship and supporting structures in scientific universities. The programme provides for six events to take place in six European cities between 2006 and 2009 and it is funded by DG Research.

21.2 Summary of findings of the review of 14 Member States

21.2.1 Data and information

Female entrepreneurship in general

Data and statistics on female entrepreneurship exist across the 14 Member States. However, statistics collected at member state level are not comparable as different collection methods and definitions of female entrepreneurship are used. To date, GEM data on female entrepreneurship are the only comparable statistics, even if Austria and Poland are not covered by GEM. GEM data shows that there is an entrepreneurship gender gap, to a greater or lesser extent, in all 14 Member States reviewed.

The stock of potential women inventor/innovator entrepreneurs

Data on stock of women that have the potential to move into innovative entrepreneurship, either because, for example, they hold a PhD in science and technology or they work as researchers in business sectors or hold a senior position in academia in science and technology fields, suggest that women tend to be underrepresented in these fields:

- *Educational segregation:* a certain degree of educational segregation exists in all 14 Member States when it comes to scientific and technical fields. However, in all Member States the level of educational segregation is much higher in engineering than in science. In science, in fact, the gender gap is narrowing and in some Member States the share of women with a PhD in science is higher than 50%.

In science, the level of educational segregation is only moderate in most Member States: the number of female PhD graduates is near or above 30% in Sweden, France, the Czech Republic, Hungary, Greece, Austria and Germany. In two cases the level of segregation is low with the number of female PhD graduates being above 40% (Finland and the UK), and in four cases there is no gender segregation with women's share being more than 50% in Ireland, Poland, Latvia, and Italy. Only in Spain can the level of educational segregation be considered significant as the number of female PhD graduates is below 30%.

In engineering, the level of education segregation tends to be significant in most Member States: the number of female PhD's is below 30% in Finland, Sweden, the UK, Austria, France, Poland, the Czech Republic, and Greece. In one case, namely Germany, the level of segregation is very high with the number of female PhD graduates being below 15%. Only in four cases can the level of educational segregation be considered moderate, with the number of female PhD graduates being near or over 30% in Ireland, Hungary, Latvia and Italy.

- *Employment horizontal segregation:* in all Member States reviewed, with the exception of Latvia, there is a certain level of employment horizontal segregation, with fewer women than men working as researchers in the business sector. Horizontal segregation tends to be significant in the majority

of Member States with the number of women being researchers in business sectors below 30% in Finland, Sweden, Ireland, France, Poland, the Czech Republic, Hungary, Italy and Spain. In one case, Greece, the level of segregation is moderate with the number of female researches in business sector being over 30%. Only in Latvia is the number of women researchers in the business sector over 50%.

- *Employment vertical segregation (academia only):* in all 14 Member States the level of vertical segregation in academia remains high. For engineering and technology and natural science the number of female grade A staff is less than 15% in all 14 Member States. In medical sciences, the number of grade A staff is less than 15% in the great majority of cases, with the exception of Finland, the UK and Poland where it is over 15% but still below 30%.

Statistics on women inventors/innovators' entrepreneurs

There are no specific statistics on women inventors/innovators entrepreneurs across Member States. The collection of such data is made very difficult by the fact that these types of entrepreneurship are not linked to a specific economic sector or type of innovation and could potentially be found across the economy. Some proxy indicators do, however, suggest that the number of women inventor/innovator entrepreneurs is low across Europe. For example, in Sweden and Finland the information on patent awarded by gender indicates that the percentage of women granted a patent is marginal, being 6% in Finland and 4% in Sweden. Likewise, the number of women applying for financial support for the development of their innovation is equally low, being 5% in Finland. In some member states there are figures, at local level, on the percentage of women participating in activities of spin-off, indicating that women are underrepresented, as the share of women tend to be from 10% (i.e. Austria) to 33% in Region Emilia-Romagna in Italy and the UK.

Statistics on women entrepreneurs in science and technology

Specific statistics on women entrepreneurs in science and technology are extremely rare within Member States. In the UK, two quantitative sets of data have been identified. In Sweden and Italy some data can be extracted from statistics on female entrepreneurship within economic sectors. Germany and Latvia have acknowledged the lack of reliable quantitative data and have provided estimates. Austria has investigated the topic and concluded that there is no quantitative data available.

In the UK, GEM data show that early stage activity in the technology sector is only 5% for women compared with 12% for men, whereas established businesses in the technology sector is 11% for men compared with 5% for women. According to the study "Under the Microscope: Female Entrepreneurship in SECT 2006", there is only one female owned business for every ten male businesses in science and technology sectors. This study also demonstrates that in sectors such as mechanical engineering and information and technology the number of female entrepreneurs is so small that statistically reliable conclusions cannot be drawn.

In Sweden, the 2007 NUTEK Yearbook shows that only 1% of female entrepreneurs are active within the Information and Communication sector. In Italy, data from the Chamber of Commerce show that female enterprises in technological sectors are only 2.5% of the overall number of women enterprises and only 1.4% operate in R&D.

Research undertaken in other member states has acknowledged that there are no statistics available on this subject (i.e. Germany, Austria and Latvia). It has been pointed out that it is difficult to obtain data as available statistics on high-tech start-ups do not provide information on the owner's gender. Germany has actually estimated the number of women starting a business in science and technology to be between 10% and 15% of the overall number of enterprises in this sector, whereas Latvia has estimated that 24% of all high-tech enterprises, including both core and moderate innovation, are run by women.

Beside statistics or estimates of the number of women entrepreneurs in science and technology, proxy indicators can be used. The Czech Republic provides a gender breakdown of scientific grants awarded to women for original research showing that the percentage of women is still low (22.88% in 2007). Likewise, the share of women nominated for the Czech annual award for best personality in science and technology is only 17.5% and the share of women winning this award is only 12.5%. In Italy, the regional business incubator I Tech-Off has only 17% of women amongst its beneficiaries.

The statistics, estimates and proxy indicators on women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology across the 14 Member States are consistent and confirm the existence of a gender gap in these fields.

Obstacles and challenges encountered by women inventors/innovators' entrepreneurs and women entrepreneurs in science and technology

In most of the 14 Member States there is some information outlining that women are faced with specific challenges and obstacles in setting up, running and expanding a business in these sectors (e.g. Finland, Sweden, the UK, Germany, Austria, Poland, Latvia, Italy and Spain). The nature and types of challenges are consistent across Member States. Anecdotal evidence provided by stakeholders supporting women entrepreneurs and real-life stories of female entrepreneurs support this conclusion.

It is possible to classify the nature of the obstacles faced by women under three main headings:

Contextual obstacles

- women's educational choices and women's horizontal and vertical segregation in employment resulting in the number or stock of women that could potentially set up a business in science and technology or turn an invention into a profitable market product being lower than the number of men;
- science and technology, innovation and inventions are concepts mostly associated with men and male areas making these fields less attractive to women and resulting in women-related invention and innovation being less recognised as valuable business ideas;
- stereotypes about women: science and technology, innovation and invention are male-dominated sectors, in which women are perceived by market stakeholders as less credible or less professional. This means that women entrepreneurs are sometimes seen with scepticism by potential clients,

suppliers and business partners and have to be more persistent to prove their knowledge, skills and capacities; and,

- traditional views about the role of women in society and greater difficulties in balancing family responsibilities with working in fast-moving and competitive sectors that expect long and flexible working hours and constant training to be up-to-date with new technological development and market opportunities.

Economic obstacles

- Difficulties in accessing finance: in general women entrepreneurs find it more difficult than men to access finance. The issue of accessing adequate finance is a greater problem in science and technology sectors and when a woman is trying to develop an innovation or invention for two main reasons. Firstly these sectors often require substantial investments (i.e. product development, product marketing, etc.) and, secondly, women attempting to operate in these sectors are seen as less credible by financial stakeholders and investors.

Soft obstacles

- Lack of access to relevant technical and scientific networks. Access to these networks is essential to develop business ideas, meet potential clients, suppliers and business partners, understand the market with its developments, opportunities and weaknesses, and get strategic information, cooperation and support.
- Lack of business training when undertaking technical and scientific studies presenting entrepreneurship as a possible and achievable employment opportunity for women.
- Women's perception that they lack personal/entrepreneurship skills such as self-confidence, assertiveness and risk-taking. In general, women more than men report the lack of these personal and entrepreneurial skills as being an issue in starting a business. This is potentially a greater obstacle in science and technology sectors where both male dominance and levels of risk and uncertainty are higher.
- Lack of role models sending positive messages that women can be successful in these sectors and fields of activities and to whom women could turn for mentoring and advice.

Annex D provides an analytical summary of the data and information available at Member States level.

21.2.2 Policy responses

All 14 Member States have some forms of policies, funding mechanisms, information activities and programmes focusing on the development of female entrepreneurship in general. However, the support for women inventors/innovators' entrepreneurship and women in science and technology is much less institutionalised, tends to be very recent, and to come in the form of data gathering and awareness raising projects, and small scale pilot initiatives.

Women inventors/innovators' entrepreneurship

The main challenges of supporting this group of women consist in the fact that its specific target is not easily defined given that women inventors/innovators' entrepreneurs are not linked exclusively to an economic sector, particular innovative activity or economic outcome (employment and business formation). A further difficulty is that in several cases these types of female entrepreneurs are included in programmes for general female entrepreneurship or for science and technology, without making a distinction.

Initiatives for promoting women inventors/innovators' entrepreneurs have been found in Finland, Sweden, the UK, Germany, Austria and France.

In Finland the public venture capital fund has been opened to non-technical investments, with the view of making it easier for women operating in services sectors to have access to risk capital and to introduce innovation.

In Sweden, a national pilot project (CORE: teach the teacher) has been implemented to train business advisors in innovative entrepreneurship to deal with women's different needs through targeted advice and coaching.

In the UK, the British Female Inventors and Innovators Network (BFIIN) provides support for women inventors that want to commercialise their ideas by providing information on IP rights and patent application, helping with networking, and raising awareness through seminars and awards. The association Finance South East, a subsidiary of the South East of England Regional Development Agency, has created a programme for facilitating women's access to risk capital such as venture capital and business angels, by providing information and networking opportunities. Furthermore, women in creative industries have been the focus of the University of Essex "Creative Business Enterprise Club" providing a platform for discussion, mentoring, peer learning and exchange of experience.

In Germany the National Agency for Women Start-ups (BGA) has a specific target for funding women enterprises in creative industries.

In Austria, some regional business incubators include child-care facilities.

In France, in the region of Paris, a network of women business angels has been created to facilitate the development of innovative start-ups run by women. The network supports both men and women and decisions are made exclusively on business grounds, without setting a target on the percentage of female entrepreneurs to be supported. Nevertheless, this initiative has proven very successful for the promotion of female innovative entrepreneurship: resulting in nearly 50% of the financed projects going to women.

In Latvia, the association Lider (Female Leader) has been running a pilot project for fostering young and female entrepreneurship with a focus on the creative and entertainment industry¹⁷⁸. The programme provided mentoring for aspiring entrepreneurs by experienced businesspersons.

¹⁷⁸ The initiative is part of ProfEQUAL Project

In Italy the Emilia-Romagna regional programme for supporting female entrepreneurship provides specific actions to foster women's innovative entrepreneurship. The measures implemented include: improving data available, training, counselling and mentoring addressed at women, collection of case stories and dissemination of role models, creation of women's innovative entrepreneurship awards, creation of a network of women operating in the creative industry (defined as multimedia and design), organisation of seminar and workshops for raising awareness and discussing problems with all the stakeholders, gender assessment of innovation policy, including gender monitoring of beneficiaries of spin-off and business incubators. Furthermore, the regional business association CNA undertakes a benchmarking exercise of female innovative business, resulting in a publication and field-trip visits for female entrepreneurs.

In other cases the policy responses are much more indirect, such as by mentioning the importance of promoting women's innovative entrepreneurship in general programmes for female entrepreneurship, but without making it a specific objective with specific supporting actions. The approach has been found in the Hungarian regional programme "Entrepreneurs in the beginning of the 21st century: learning, knowledge and innovation", in the Italian national programme providing economic support to female entrepreneurship, and in the Greek EOMMEX programme 'Reinforcement of Female Entrepreneurship'.

Women entrepreneurs in science and technology

Initiatives for promoting women entrepreneurship in science and technology have been found in Finland, Sweden, the UK, Ireland, Germany, Poland and Latvia.

In Finland, two pilot projects have been launched for the support of women's entrepreneurship in science and technology: WomEQUAL, helping women networking in technology fields, mentoring and providing entrepreneurial training to women studying and working in technical sectors; and NaisWAY- Female into Transports and Logistic Sectors, providing training and business skills to aspiring women entrepreneurs and women that have recently started-up a business in the transport and logistics sectors.

In Sweden, the association for women in science, engineering and technology had run a pilot project called PREFACE for training and to encourage female students in science and technology to consider entrepreneurship as a feasible career option.

In Ireland, the Centre for Entrepreneurship at Dalkan Institute for Technology (DKIT) has recently given attention to the issue of female entrepreneurship in science and technology by starting to cooperate with the US DIANA project for researching and supporting women's access to venture capital.

In the UK, the Coventry University Technology Park ran the pilot project DEW-SET for raising awareness, informing and training women in becoming entrepreneurs in science and technology.

In Germany, the National Agency for Women Start-ups (BGA) has a programme for supporting female entrepreneurship in science and technology at national level. Furthermore, Germany has launched a national programme for the promotion of female entrepreneurship in science and technology. Power for Female Entrepreneurs

(Power für Gründerinnen) funds two types of activities: research on the topic and funding innovative pilot projects for unlocking the potential of women entrepreneurs in science and technology. Particularly interesting projects are: NANO4Women to stimulate business ideas from women scientists in nanotechnologies; SWITCH to encourage women to develop business ideas and to provide support to realise it; and P8- Success is female to develop accompanying measures for women starting their business.

In Poland, the Regional Development Agency Dolnoslask has run the pilot projects DEW-SET for raising awareness and informing and training women entrepreneurs in science and technology. The Gdansk Entrepreneurship Foundation has also run another pilot project for creating a network of female entrepreneurs in science and technology that could mentor aspiring entrepreneurs in the same field. Currently, the Wroclaw University is participating to the FemStart initiative for raising awareness and exploring the types of support required by women.

In Latvia there are three pilot projects: the FemStart initiative for raising awareness, ProfEQUAL providing counselling and training to women aspiring to become entrepreneurs in technology and knowledge-based sectors, and Lidere (Female Leader) for mentoring women entrepreneurs in technical industries.

In other cases, the policy responses are more indirect, and instead of having specific actions for women, they require the application of equal opportunities and gender monitoring in mainstream support for business development in science and technology. This is the case of the technological business incubators and spin-off support in the Italian region of Emilia-Romagna.

In one case, no assumption is made on the specific needs of women, but these are dealt with by providing a highly personalised and individual support to all the beneficiaries of support (i.e. UK YTKO business incubators on biotechnologies).

Given that most of the initiatives are recent, it is still too early to identify good practice. It is possible to benchmark the projects developed in Member States against the set of barriers identified in the literature (contextual, economic and soft factors) to assess which dimension of the problem they are dealing with. Furthermore, on the basis of the findings from desk research and the in-depth case studies, it is possible to identify a range of 'factors' that are important for women to become innovators and entrepreneurs".

Benchmarking

The following observations can be made:

- Most policy responses tend to address the soft factors by providing personal development and business training;
- Several responses address contextual barriers by gathering information, raising awareness, promoting role models, and challenging stereotypes (the UK- BFINN; Sweden-PREFACE; Germany P8- Success is Female; Germany: Switch, Germany: Nano4Women, Poland-Fem-Start; Poland-DEW-SET; Latvia-Fem-Start, Spain-FemStart);

- Only a few deal with economic obstacles (Finland- Public Venture Capital, France- Femme Business Angels; Latvia-Prof-Equal; Italy- grant to female innovative business).

Factors important for women to become innovators and entrepreneur

- Participating at informative events at different levels (universities, research institutes, business symposia) which present entrepreneurship as a feasible career option for women and encourage women to move into this direction;
- The opportunity to increase self-confidence in their entrepreneurial capacities, through participation in training to develop assertiveness, negotiation and leadership skills;
- Seeing, and hearing from, other women entrepreneurs who been successful in male-dominated sectors (i.e. through female innovative entrepreneurship awards, collection of case stories, benchmarking of female innovative entrepreneurs good practices);
- Dealing with a system in which all stakeholders (from innovation, business support, financial institutions, women associations, academia and research centres, etc.) work in partnership and are able to provide consistent female-friendly advice and support along the path to becoming an entrepreneur;
- Having access to adequate finance (i.e. grant, loans, venture capital);
- Benefiting from individual support, especially scientific coaching and in the development of their business ideas;
- Receiving individual mentoring from successful entrepreneurs, including from female entrepreneurs working in the same sector of activity;
- Being introduced to relevant networks for the commercialisation of the product and development of the business (i.e. potential buyers and clients, suppliers, business partners and financial stakeholders such as banks, venture capitalists, and business angels);
- Dealing with female stakeholders (i.e. women business advisors, associations for female entrepreneurship, women business angel networks);
- Benefiting from highly individualised and flexible business support; and,
- Benefiting from child-care facilities and others forms of help for balancing work and life.

The identification of the factors that are likely to positively affect women innovators/inventors path towards entrepreneurship provides useful information for policy makers. These factors represent the basis for planning for adequate action and for preparing guidelines for stimulating policy intervention (see policy recommendations, especially box 22.1 with guidelines).

Annex E provides a summary of the policy responses identified in the 14 Member States reviewed with the indication of what types of barriers they aimed to address.

21.3 Summary of findings outside Europe

Findings at OECD level have confirmed that at the moment the only data available are on vertical and horizontal gender segregation in employment, and that there is a scarcity of data, qualitative and quantitative, available on women entrepreneurs in innovative sectors and very little is known on their contribution to the economy, and the difficulties they encounter.

In the US, a specific survey is undertaken annually on female entrepreneurship in general providing useful information such as the economic sectors in which women entrepreneurs operates (15.2% of female business owners are in science and technology), longitudinal analysis of data indicating the rate of growth for female entrepreneurship (for example, 82.7% in science and technology, and 116.8% in arts, entertainment and recreation services), main challenges encountered by women entrepreneurs (i.e. women have made on average 22 attempts before obtaining equity capital, compared to four attempts to obtain bank loans and credit line).

In terms of policy responses, the US leads the way with innovative programmes such as business incubators specifically targeting women in science and technology (e.g. the ASTIA, Women Technological Cluster, in San Francisco), and programmes for improving women's capacity to access venture capital (i.e. the Centre for Women & Enterprise's Venture of Boston, a joint initiative of the Boston Centre for Women and Enterprise and the Federal Reserve Bank of Boston).

Other US initiatives include support for helping women to enter the venture capital industry (i.e. the Centre for Venture Education Support of the Kauffman Foundation encourages applications from women by having a specific and women friendly information package for women, with real life examples of women that have been successful in the venture capital industry). A further initiative that is extremely helpful is the systematic gender assessment of mainstream programmes for SMEs which is undertaken by the Centre for Women Business Research and enables the identification of any gender discrimination in the allocation of resources.

In Canada, there has been a programme for the support of women's entrepreneurship in ICT since 1996. The most relevant and innovative features of the programme, which has been identified as a good practice, are the organisation of monthly meetings providing forums to hear guest speakers and share experience in being entrepreneurs, and the organisation of mentoring from experienced female business owners in ICT.

22 CONCLUSIONS AND RECOMMENDATIONS

22.1 Conclusions

Data and information

Data and information available on women inventors/innovators entrepreneurs and women entrepreneurs in science and technology is extremely limited. This is also reflected in the lack of an agreed definition of the potential target group across Member States. However proxy indicators, estimates and studies in some of the 14 Member States reviewed are consistent in suggesting that the number of women inventor/innovator entrepreneurs is low.

Women inventors/innovators entrepreneurs

Latvia is the only country that has tried to assess the female share in innovative entrepreneurship: this is 24% including both core and moderate innovation.

In other countries and at European level, there are no other estimates or studies attempting to quantify the number of women inventors/innovators entrepreneurs. Proxy indicators confirm the likelihood of low numbers:

- In Europe, the number of women granted a patent is extremely low level: 8.3%.
- In Europe, the percentage of women accessing venture capital for setting up a business is only 20.3% compare with 79.9% of men.

Women entrepreneurs in science and technology

There are some estimates and studies that have attempted to quantify the number of women in science and technology:

- In Europe, it is estimated that the number of women that own a business in science and technology is between 5% and 15%.
- In the UK, early stage entrepreneurship in technology is 5% for women compared with 12% for men, and established business is 5% for women compared to 11% of men.
- In Sweden, only 1% of women entrepreneurs operates in IT sectors
- In Italy, only 2.5% of women entrepreneurs operated in technology sectors and only 1.47% in R&D.

Outside the European Union, more information has been found in the US annual surveys on female entrepreneurship indicating that 15.2% of women entrepreneurs are in science and technology and 4.5% in arts, entertainment and recreation.

Barriers

Consistent information exists on the barriers that women face in science and technology.

The stock of women with innovation potential is less than the stock of men due to horizontal and vertical gender segregation in educational choices and employment. In fact, there are fewer women with a PhD in science (40% EU25) and technology (21.9% EU25), there are less women working as researchers in business sector (18% EU25) and less women in senior academic positions (15.6% in medical sciences, 11.3% in natural sciences, and 5.8% in engineering and technology in EU25). It should be noted that in the 14 Member States reviewed, the degree of gender segregation is higher in employment than in education, and that the degree of gender segregation in education is much higher in technology and it is low in science and does not even exist in Member States such as Ireland, Italy, Latvia and Poland.

There are several studies arguing that women entrepreneurs in science and technology face more problems than men operating in the same sector, and than women entrepreneurs operating in more traditional sectors. The findings of the studies are consistent across European countries and with US research, and can be ascribed to three main factors: contextual (i.e. stereotypes about women, male-dominated sectors, traditional views about the role of women in society and in the family), economic (i.e. difficulties in having access to adequate finance), and 'soft' barriers (i.e. lack access to relevant technical and scientific networks, perception of lack of entrepreneurship skills, lack of role model and female mentors).

Policy Responses

Initiatives for promoting women inventors/innovators' entrepreneurship and women's entrepreneurship in science and technology have been implemented in 11 of the 14 Member States (Finland, Sweden, the UK, Ireland, France, Germany, Austria, Poland, Latvia, Italy, Spain), but they are still at an early stage of policy development. The initiatives undertaken cover the following activities:

- Gathering information and raising awareness on the issue (the UK, Poland, Spain, Latvia, Italy);
- Implementing pilot projects (Finland; Sweden, the UK Germany); and,
- Implementing small scale initiatives at regional and local level (France, Poland, Germany, and the UK).

In Greece and the Czech Republic it was only possible to find initiatives to promote equal opportunities in R&D and scientific research. In Hungary, a regional programme for female entrepreneurship in general makes a reference to female innovative enterprises without having a specific objective or implementing actions.

Most of these initiatives have been rolled out rather recently or are still in the process of being developed and it is premature to identify good practice. At this stage, however, it is possible to benchmark the types of support provided against the obstacles faced by women and to identify useful approaches, on the basis of stakeholders' consultations.

The benchmarking exercise has shown that the great majority of projects focus on addressing 'soft' factors, some address contextual problems and few projects address economic obstacles.

Comparison with the US shows that in this country the policy is more developed (for example, the ASTIA- business start up for women only high-growth companies). A

second observation is that improving women access to capital, especially venture capital, seems to play a greater role than in the European cases.

22.2 The responses to the evaluation questions addressed

The Task Specifications for the assignment posed six evaluation questions concerning effectiveness and efficiency. The evidence from the findings in 14 Member States provides the basis for the following replies.

Effectiveness

1. *To what extent has the promotion of entrepreneurship of women innovators contributed to the Lisbon policy objective of creating more growth and more jobs and achieving 60% employment for women by 2010?*

The policy promotion of entrepreneurship of women innovators, referring to women inventors/innovators entrepreneurs and women's entrepreneurship in science and technology, is at a very early stage of development in Member States

Initiatives have been found in 11 of the 14 Member States reviewed dealing with collecting information on the problems that women encounter, raising awareness on the issue, and testing types of support through pilot projects. These initiatives tend to be small in their scale and scope or too recent to be fully assessed. With the exception of the UK, Germany and Region Emilia-Romagna, clear policy objectives (either by prioritising innovative entrepreneurship in general, support for female entrepreneurship and/or by raising gender awareness in existing innovative policies) have not been formulated in the 14 Member States reviewed.

The inputs coming from the European Commission on this policy area are also limited in terms of scale and magnitude (only a few projects have been identified). The existing initiatives are not joined up, missing out on potential synergies.

At this very early stage in promotional activities the contribution of these initiatives to the Lisbon objectives of creating more growth and more jobs is very limited.

2. *How effective is the promotion of entrepreneurship for women innovators as a mechanism and means to achieve each of their states objectives? What, if anything could be done to render it more effective to achieve these objectives? What is the added value of the promotion of entrepreneurship of women innovators for stakeholders?*

An initial issue is that assessment of the effectiveness of the policy intervention is complicated in a methodological difficulty; namely, the definition of women inventor/innovator entrepreneurs as a target group. It is very difficult to have a comprehensive and workable definition of innovative women (technical and non-technical). Innovation can take place in all economic sectors and can be at level of product, process, organisation and marketing. Similarly, entrepreneurship can be associated with a variety of economic outcomes and levels of innovation. Currently, initiatives that deal with female innovative entrepreneurship tend to be incorporated in programmes for the general promotion of female entrepreneurship or in policy for the promotion of women's entrepreneurship in science and technology. In this regard, the

situation is slightly better when considering women entrepreneurs in science and technology. This category is more easily defined, given that it is associated with specific industries.

The majority of initiatives aimed at women innovators/inventors entrepreneurship put in place in the 14 Member States reviewed deal with addressing ‘soft’ barriers. Addressing such barriers is clearly an important part of any policy for the support of entrepreneurship for women innovators. However, this policy activity needs to be better combined with systematic intervention for tackling contextual obstacles (i.e. addressing underlining issues that prevent women from even considering a career as entrepreneurs in innovative sectors by running informative events and providing entrepreneurship training in schools and universities, challenging stereotypes by raising awareness on women’s contribution in innovative entrepreneurship, etc.) and economic obstacles (i.e. enabling women to have access to adequate capital to develop and growth their business ideas).

Data available demonstrate that women are lagging behind when it comes to innovative entrepreneurship and that women encounter a set of specific challenges. The added value of promoting female innovative entrepreneurship is that without specific policy interventions the gender-related challenges will not be tackled and the number of women innovators becoming entrepreneurs will remain below its potential

3. What are the barriers to effective entrepreneurship of women innovators if any? How could such barriers be overcome?

The review and analysis of information available in the 14 Member States has shown that women innovators/inventors face some specific obstacles and challenges both common with, and over and above, those faced by women entrepreneurs more broadly. These can be summarised as:

Contextual obstacles

- women’s educational choices and women’s horizontal and vertical segregation in employment;
- science and technology, innovation and inventions are concepts mostly associated with men and male areas of activity;
- stereotypes about women (women tend to be perceived by market stakeholders as less credible or less professional in science and technology and their innovative ideas are not considered profitable); and,
- traditional views about the role of women in society and more difficulties in balancing family and work responsibilities.

Economic obstacles

- Difficulties in accessing finance, especially risk capital such as venture capital

Soft obstacles

- Lack of access to relevant technical and scientific networks. Lack of business training when undertaking technical and scientific studies presenting entrepreneurship as a possible and achievable employment opportunity for women.
- Perceived lack of personal/entrepreneurship skills such as self-confidence assertiveness, risk-taking, leadership, etc.
- Lack of role models for mentoring and for sending positive messages showing that women can be successful entrepreneurs in innovative sectors.

The barriers could be overcome by adequate policy intervention dealing with each specific barrier in a comprehensive and integrated way.

Efficiency

4. *What aspect of promotion of entrepreneurship of women innovators are the most efficient and inefficient? Are there overlaps/complementarities between different actions to promote entrepreneurship for women innovators?*

Efficient

Initiatives for improving the data set and information available on entrepreneurship of women innovators are necessary to assess the scale of the problems and plan for adequate policy intervention.

Initiatives for dealing with contextual obstacles aiming at raising women innovators interests in entrepreneurship, tackling gender stereotypes, increasing the visibility of successful women entrepreneurs, raising all stakeholders awareness on the issue.

Initiatives for dealing with ‘soft’ obstacles aiming at building women entrepreneurial capacity (i.e. mentoring and business training) and at increasing personal skills (i.e. increasing women’s confidence, leadership, capacity of taking risks). Furthermore, initiatives for supporting women to have access to relevant networks of other entrepreneurs, potential providers of finance, business partners, clients, supplies, etc. Women also benefit to a great extent from specific support for developing their business ideas, and from the possibility of seeing positive role models and of being mentored by another woman entrepreneur, learning how to cope and deal with gender-specific issues.

Initiatives for dealing with economic obstacles, especially those aiming at helping women to access venture capital, by providing financial training, financial capacity building, networking with investors and other activities for bridging the gap between women entrepreneurs and financial stakeholders. Particularly efficient is the creation of networks of women investors as they tend to better understand the market value and potential of women’s innovative business ideas and products. In a context in which the venture capital market is still underdeveloped, public grants and guarantee funds are also a good way to support women’s innovative entrepreneurship, especially during the most difficult part of business start-up.

The necessity of having business incubators targeting exclusively women, such as in the US and, to certain extent, pilot-projects in Germany, is open to different interpretations. On one hand, it is a useful way of recognising that women have specific needs, on the other hand, there is a risk of putting women into 'a box' or not getting enough women participating to the programme. The efficiency of such approaches depends greatly on the local context. It would work better where innovation policies are well developed and it makes sense to introduce a specific target, but it would probably be premature in a context in which innovation policies are not fully developed. In the latter situation, activities of gender mainstreaming might be sufficient to ensure that the gender dimension is taken into consideration. Gender mainstreaming would have to include necessarily activities for addressing women specific needs, for training stakeholders on gender issues, for proving business support in a highly flexible and personalised way, and provision for child care support.

Inefficient

Simply mentioning female innovative entrepreneurship in programmes for the support of female entrepreneurship is generally not a useful approach; unless female innovative entrepreneurship is clearly spelled out as a separate policy objective with specific implementing measures and allocation of funding.

Merely stating the principle of equal opportunities in innovation policy is not a useful approach, unless the principle is accompanied by measures for ensuring equal opportunities (i.e. women friendly information package, information campaigned targeting women business associations and networks, support with child-care, etc) and monitoring of the women/men participation ratio.

Overlaps/complementarities between different actions to promote entrepreneurship for women innovators have not been observed. In contrast, with the exception of Germany that aims at an integrated approach by involving different stakeholders, the different initiatives in the Member States reviewed and at European level would benefit by more coordination and a joined up approach.

Utility

5. *To what extent could measured be taken to improve the utility of the promotion of entrepreneurship for women innovators?*

See response above on efficiency

Constraints

6. *Are women's ideas for innovation less marketable than the ideas that men develop? Do women innovators lack entrepreneurial qualifications in comparison to their male counterparts? Is existing support for technology transfer and spin-off more appealing to men than to women? And if so, for what reasons? Are there structural factors in universities etc. that prevent women from developing, testing and realising business ideas?*

There is no evidence that women's ideas for innovation are less marketable than ideas developed by men. The problem seems to lie in the contextual barriers that women have to face, namely their innovative ideas not being recognised by predominantly

male stakeholders, stereotypes about women in innovative sectors and difficulties in balancing work and family and soft obstacles, such as lack of self confidence in developing and marketing their business ideas.

There is limited evidence that women innovators lack entrepreneurial qualifications in comparison to their male counterparts. The main issue, however, is that women do not immediately consider entrepreneurship as a viable career option, tend to lack self-confidence in their ability to be entrepreneurs and benefit more than men to participate in activities for encouraging entrepreneurship and for building entrepreneurship capacity, such as leadership and assertiveness.

Support for technology transfer and spin-off might result in being more appealing to men than to women if stakeholders are not aware of the women's different needs and if there are no measures attempting to attract women. Overall, the evidence shows that women face specific barriers and challenges (see answer to question 3 above).

22.2.1 Policy recommendation

In the light of the findings of this study, it is possible to suggest the following policy recommendations:

Improving the information available

There would be merit in cooperating with Eurostat to have a European survey focusing on female entrepreneurship (i.e. Eurostat Unit "Structural Business Statistics") or improving the current Eurobarometer survey to have more information broken down by gender. The scope would be to obtain information on the economic sectors in which women entrepreneurs operate with a special section on science and technology.

If non-technological innovation was covered in the survey, there would be merit in defining the 'creative industry' and assessing the situation of women working in these sectors. At the moment there is no European definition of the 'creative industry'. However, the UK government definition and classification of creative industry could be taken as an initial basis for developing a definition acceptable at European level and for the process of mapping sectors¹⁷⁹.

There would be merit in organising a focus group with women innovators entrepreneurs, stakeholders dealing with innovation policy and female entrepreneurship at European level in order to explore possible ways of dealing with the gender gap in a joined up way. The findings from the focus group should be disseminated to all stakeholders at national and European level.

In order to develop the information available, it is important to have more gender-disaggregated data; for example, on patents awarded by the European Patent Office and gender monitoring of the share of women benefitting from DG Enterprise and Industry financial support.

Dealing with contextual obstacles

It would be important to create a working group with DG Education and Culture (for example with DG for Education and Culture - Lifelong Learning: Creativity and Innovation) DG Research (unit dealing with gender equality) and DG Employment and Social Affairs and Equal Opportunities- (unit dealing with equality between men and women) to coordinate actions for tackling women's horizontal and vertical segregation in educational choices and employment sectors. The working groups should also coordinate actions aiming at encouraging female students and researchers to consider entrepreneurship as a career option and to fight stereotypes about women in innovative sectors. Conceptually, the group would be seeking to create pathways to entrepreneurship in innovative sectors by women.

There would be merit in raising the visibility of female innovative entrepreneurship, for example, by creating a European network of women innovative entrepreneurs and by creating a European award for female innovative entrepreneurship.

Dealing with economic obstacles

It would be beneficial to organise a round table on women's access to finance, bringing together the venture capital (i.e. ECVVA) and business angels associations (i.e. EBAN) with the associations dealing with women's entrepreneurship support and with innovation policy.

A European network of female business angels should be created in cooperation with EBAN.

Special grants or funds might be made available for supporting women start-ups in innovative sectors, especially in science and technology, as well as for training and building women's capacity in accessing venture capital.

Soft obstacles

There would be merit in holding a forum bringing together organisations dealing, on the one hand, with female entrepreneurship and on the other, with innovation to make them fully aware of women's different needs and ensuring that gender issues are fully taken into consideration.

Raising visibility on this issue and development of policy interventions

Having a Best Project on the topic of female innovative entrepreneurship would be the first step for increasing awareness on this topic, disseminating information on the gender gap and obstacles faced by women, helping the development of the policy and promoting mutual learning across member states. The following recommendation can be made:

- To better define the concept of innovative female entrepreneurship. The project is not likely to work if the target group cannot be clearly defined and if stakeholders do not understand the concept. It would probably be more beneficial to concentrate on women's entrepreneurship in science and technology as this group is easily defined. If non-technical innovation is to be included in the Best Project, there would be merit in limiting it to the creative industry in the first instance (i.e. see the UK government definition); and

- Circulating information provided by this study to Member States before starting the Best Project: data available, obstacles encountered and pilot projects implemented, to raise stakeholders' awareness on the scale and scope of the problem to be addressed.

Using the findings of this study to prepare a guideline for policy intervention covering all the relevant elements and obstacles faced by women, and providing practical examples of what is already going on has been identified as a 'useful approach'. The guideline should be circulated to Member States as soon as the Best Project is launched. The guidelines for policy intervention should be disseminated to all relevant stakeholders regardless of their participation to the Best Project. An example of guidelines for policy intervention for the promotion of female entrepreneurship in science and technology is provided in Box 22.1.

Box 22.1 Guidelines for the promotion of female entrepreneurship in science and technology

Improving the information available

Improving the data and information available on women entrepreneurs in science and technology by promoting studies and research on this topic, including having specific surveys or focus groups.

Undertaking a gender assessment of innovation policies to assess how big the gender gap is and identify sectors that are more problematic (i.e. having data on the number of women participating at activities of business incubators, spin-off, and on the number of women receiving research grants, post-doctorate research scholarship, etc.).

Dealing with contextual obstacles

Planning for informative events and specific training to encourage women to consider entrepreneurship as a viable and feasible career choice. For example, entrepreneurship training could be introduced in scientific and technical universities, research centres and academia.

Improving women's self confidence in entrepreneurship by providing specific training in leadership, assertiveness, negotiation.

Planning for activities aimed at facilitating women's networking with market stakeholders (potential clients, suppliers, business partners, etc.)

Planning for child care provision or other forms of help for balancing work and life in any activities for the promotion of entrepreneurship (i.e. in business incubators, in entrepreneurship training, in the organisation of specific events).

Dealing with Economic Obstacles

Providing financial grants and loans to women entrepreneurs in science and technology, especially at the most critical pre-start ups and start-ups stage.

Training women on the variety of finance available, especially on venture capital.

Facilitating women's networking with financial providers (banks, venture capitalists, etc) and at the same time increasing the understanding of financial stakeholders on women's entrepreneurship potential. For example, regional forums with female entrepreneurs, business development centres and financial stakeholders could be created in order to understand needs and to give aspiring female entrepreneurs a chance to present their business ideas to financial stakeholders.

Encouraging the creation of networks of female business angels as the evidence suggests that women more easily understand the economic potential and business value of other women's ideas.

Supporting measures to help women to enter venture capital and related financial stakeholder industry.

Dealing with soft obstacles

Providing for individual mentoring, including from another successful female entrepreneur in the same industry.

Raising the visibility of successful female entrepreneurs and providing for role models (for example, promoting awards for female entrepreneurship in science and technology, creating a collection of successful women entrepreneurs' life stories, producing female entrepreneurship benchmarking).

Supporting women's development of their business ideas (for example by providing for business and scientific coaching)

General guidelines

Taking a joined up approach by working in partnership with all stakeholders, from innovation, to business support, financial institutions, women's associations, academia and research centres.

Training stakeholders on women specific needs (i.e. the obstacles that they encounter in becoming entrepreneurs in science and technology).

Introducing gender awareness or gender mainstreaming in innovation policy and implementing specific measure for attracting women in those sectors (i.e. in promoting business incubator and spin-off stating clearly and visibly the principle of equal opportunities, using female-friendly language, using female-friendly images and pictures, having female-friendly application package, promoting past successes of women's business development).

Further recommendations

It would be important to support Member States in exchanging their experience and encouraging mutual learning.

It would be important to formulate a clearer policy objective for the promotion of women inventors/innovators' entrepreneurship at European level, both by prioritising innovative entrepreneurship in general support for female entrepreneurship and by raising gender awareness in innovation policy.

ANNEX A: THE LEVEL OF GENDER SEGREGATION IN EDUCATION AND EMPLOYEMENT AT EUROPEAN LEVEL –EU25

Annex A-1 Proportion of female PhD (ISCED 6) graduates by broad field of study and narrow field of study in natural science and engineering, 2003

MS	EDUCATION	HUMANITIES & ARTS	HEALTH AND WELFARE	AGRICULTURE & VETERINARY	SOCIAL SCIENCES, BUSINESS AND LAW	SCIENCE, MATHEMATICS & COMPUTING	SCIENCE, MATHEMATICS & COMPUTING BREAKDOWN				ENGINEERING, MANUFACTURING & CONSTRUCTION	ENGINEERING, MANUFACTURING & CONSTRUCTION BREAKDOWN		
							Life science	Physical science	Mathematics & Statistics	Computing		Engineering & Engineering Trades	Manufacturing & Processing	Architecture and Building
EU-25	60.5	51.4	51.1	49.6	43.1	40	54.4	33	31.6	18.6	21.9	17.1	32	31.3
Austria	65.3	47.5	72	65.9	43.4	30.2	50.3	21.8	24.4	9.5	18.9	16.1	36.4	20
Belgium	43.8	42.2	45.4	30.6	36.1	33.1	40.3	29.8	35.4	3.2	14.3	13.4	0	21.4
Bulgaria	52.2	68.4	56.4	46.4	50	52.8	77.8	49.2	30	-	31.4	33.3	42.9	0
Czech Repub	66.7	48.6	42.2	36.7	40	36.7	50.9	28.6	31.7	10.3	22.3	19.9	47.6	25.8
Denmark	-	46.9	54	52.4	38.6	33.6	33.6	-	-	-	23.8	23.8	-	-
Estonia	50	58.8	72.5	37.5	62.5	21.9	28.6	18.2	0	100	17.6	15.4	100	0
Finland	66.7	57.9	64.3	41.7	51.6	43.1	62	39.3	34.3	13.9	25.5	23.6	42.9	34.4
France	49	55.5	56.1	55.6	41.4	38.4	53.4	34.3	24.3	18.8	25.9	22.8	37.7	27.8
Germany	52.6	49.5	47.7	54.3	34.5	29.9	46.7	22.8	27.9	11.9	11.4	6.8	24.2	22.3
Greece	:	:	:	:	:	:	n/a	n/a	n/a	n/a	:			
Hungary	59.5	56.4	43.3	32	35.9	37.5	43	37.4	25	30	29.7	33.3	32.1	16.7
Ireland	50	53.1	50.7	31.6	47.2	56.6	60.2	52.4	0	21.4	31.2	24.1	58.8	0
Italy	72.5	58.5	61.5	54.4	50.4	54	72.4	45.2	42.4	25	31.2	13.5	25.6	48.9
Latvia	83.3	66.7	0	100	100	57.1	66.7	0	-	66.7	37.5	41.7	33.3	0
Lithuania	-	78.9	68.3	50	63.9	47.2	88.9	28.6	75	0	43.9	44.1	-	42.9
Luxembourg	-	-	-	-	-	-	n/a	n/a	n/a	n/a	-			
Malta	100	33.3	-	-	0	-					-			
Netherlands	-	43.8	48.7	44.3	48.5	40.1	-	39.9	-	-	19.9	18	-	-
Poland	:	51.6	47.2	53.8	42.7	50.1					24.1			
Portugal	65.4	66.8	63.3	64.6	53.9	58.1	73	56.7	58.3	28	34.1	28	51.6	42.6
Romania	-	58.9	66.5	36.6	46.6	57.6	57.6	:	:	:	38.3	37.5	-	42.9
Slovenia	60	63	52	36.4	37.7	44.8	65	34.5	20	15.4	19.3	10.4	28.6	57.1
Spain	59.2	48.6	49.3	41.2	47.3	46.6	54.5	46.8	40.4	22.8	21.3	16	62.9	24
Sweden	64	53.2	59.4	50.7	48.3	34.8	51.7	32.4	16	21.6	26.4	24.1	32.7	39.3
UK	53.6	45.9	52.4	45.2	42.2	41.9	56.6	32.6	24.1	23.3	19.6	16.2	33.4	21.3

Source: She Figures 2006, Women and Science, Statistics and Indicators, European Commission

Annex A-2 Proportion of female researchers by sector, 2003

MS	Higher Education Sector	Government Sector	Business Enterprise Sector
EU-25	35	35	18
Austria	30	35	10
Belgium	36	33	18
Bulgaria	38	50	48
Cyprus	31	40	22
Czech Republic	33	33	20
Denmark	31	35	25
Estonia	45	60	24
Finland	53	41	18
France	34	32	20
Germany	25	27	12
Greece	37	39	35
Hungary	37	40	25
Ireland	39	31	20
Italy	31	39	19
Latvia	53	56	54
Lithuania	49	50	37
Luxembourg	43	29	14
Malta	25	22	n/a
Netherlands	29	25	9
Poland	41	41	28
Portugal	46	58	30
Romania	40	49	42
Slovakia	41	45	31
Slovenia	33	43	28
Spain	38	45	27
Sweden	44	36	25
UK	37	32	n/a

Source: She Figures 2006, Women and Science, Statistics and Indicators, European Commission

Annex A-3 Proportion of female grade A academic staff by main field, 2004

MS	Humanities	Social Sciences	Agricultural Sciences	Medical Sciences	Natural Sciences	Engineering and Technology
EU-25	23.9	16.6	14.9	15.6	11.3	5.8
Austria	19.1	9.6	5.6	8.9	4.4	3.7
Belgium	13	11.5	3.6	8.3	7.7	4.2
Bulgaria	:	:	:	:	:	:
Cyprus	0	11.1	-	-	18.8	0
Czech Republic	14.5	13	9.1	14.2	9.2	4.5
Denmark	15.2	13.2	16.2	14.9	6.9	1.4
Estonia	:	:	:	:	:	:
Finland	35.1	28.6	16	21.6	11.3	6.3
France	30.1	17	:	15.3	12.3	6.5
Germany	16.3	8	8.9	5.8	5.6	3.8
Hungary	:	:	:	:	:	:
Ireland	:	:	:	:	:	:
Italy	29.4	17.1	11.8	11.1	15.9	6.1
Latvia	36.4	39.3	:	38.5	0	:
Lithuania	:	:	:	:	:	:
Malta	0	0	0	8.3	0	0
Netherlands	16.3	11.5	11	6.3	5.3	3.1
Norway	24.6	18.3	14	16.8	9.9	4.9
Poland	22.5	20.6	24.3	28.2	16.9	8.7
Portugal	X	20.4	27	26.2	27.5	5
Slovakia	20.6	17.3	3.5	17	13	6.6
Slovenia	17.8	14.5	20.4	19	3.8	5.4
Sweden	25.8	19.7	18.2	15.3	11.7	7.1
United Kingdom	17.2	21.2	14.7	22	8.2	4.9

She Figures 2006, Women and Science, Statistics and Indicators, European Commission

Annex-B- Findings from desk review-European Level

European Level	
Review of data and information on female entrepreneurship at European Level: Setting the Context	
Title of the Report/Name of the Association	Key findings
GEM Report 2006 on Women and Entrepreneurship	<p>Since 2004 GEM (Global Entrepreneurship Monitor) has undertaken an annual special study on women and entrepreneurship.</p> <p>The GEM Report on Women and Entrepreneurship focuses on measuring differences in the level of entrepreneurial activity among countries in a harmonised way. The report is based on Adult Population Surveys as well as on national experts' face-to-face interviews for case studies.</p>
Euro-barometer Household Surveys on Entrepreneurship Eurobarometer 2007	<p>The aim of the Euro-barometer Household Surveys on Entrepreneurship was to assess the development of entrepreneurship in the EU Member States and to identify the underlying factors influencing entrepreneurial cultures.</p> <p>The replies to some of the questions in the 2007 Eurobarometer survey are broken down by gender, allowing for a number of observations:</p> <p>Only 39% of women preferred to be self-employed compared to 50%</p>

	<p>of men.</p> <p>The main reasons for preferring to be an employee (rather than self-employed) for women include: a regular income, fixed working hours and social security.</p> <p>The main reasons for preferring to be self-employed for women include: personal interest/self fulfilment/interesting tasks, freedom to choose place and time of working and better income perspective.</p> <p>Owning the business they work in is more important for men than women; 62% of men would like to own their company as opposed to 52% of women.</p> <p>Men are more tempted by the idea of becoming self-employed over the next five years: 33% of men compared to 27% of women see this option as desirable.</p> <p>If they had the opportunity, more men (54%) than women (50%) would opt for a start-up rather than taking over an existing business.</p> <p>More women (66%) than men (57%) have never thought about setting up a business or taking steps to realize that end.</p> <p>More men (38%) than women (26%) consider that the possibility of becoming an entrepreneur is feasible.</p> <p>More women than men consider lack of finances and lack of skills the main reasons for self employment being unfeasible. However, the lack of business idea or opportunity is quoted by fewer women than men.</p>
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	<p>Slightly more women (28%) than men (26%) that have set up a business or are in the process of setting up a business have done it because of necessity.</p> <p>More women (77%) than men (73%) agree with the statement "It is difficult to start one's own business due to a lack of available financial support".</p> <p>More women (53%) than men (43%) agree with the statement "One should not start a business if there is a risk it might fail".</p> <p>Having an appropriate business idea is considered equally important by men and women when setting up a business.</p> <p>More women attach importance to changes in family circumstances when considering setting up a business (63% versus 51% of men).</p> <p>Women are more likely to place the emphasis on the need for necessary financial means; 83% of women and 78% of men consider this important.</p> <p>Men are more likely than women to think that entrepreneurship is the basis of wealth creation and that entrepreneurs are job creators.</p> <p>Slightly more men than women agree to the propositions that their education has helped them in developing their sense of initiative, their understanding of entrepreneurs and their interest in becoming an entrepreneur.</p> <p>Slightly more men (35%) than women (33%) have participated in any</p>
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	course or activity about entrepreneurship in school.
Eurostat - European Labour Force survey has been used as basis for two reports on the entrepreneurial gap between men and women ¹ .	<p>The main findings in these studies have been:</p> <p>Only 2.5% of women in industry and services in the EU-25 were classified as self-employed with employees in 2005 compared to almost 6.4% of men.</p> <p>If only the private sector is taken into account, the share of self-employed women with employees is 3.5%. However, this is still only half of the share of men (amounting to 7%).</p> <p>The entrepreneurial gap in the private sector has not narrowed significantly in recent years; in 2000 the share of self-employed women with employees was 3% and that of men 7.5%.</p> <p>Self-employed women with employees are mainly active within distributive trades (33%), business and financial services (16%), the hotel and restaurants sector and the personal and community services sector (14% each). The proportion of self-employed men with employees is significantly smaller in these sectors.</p> <p>Many more men are classified as company directors, senior executives and managers of small enterprises; their share in 2005 was 5.3% of all men in employment as opposed to 3.2% of women.</p>

¹ Franco (2007) and Franco & Winqvist (2002), *The entrepreneurial gap between men and women*
http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-NK-02-011/EN/KS-NK-02-011-EN.PDF

	<p>The gap between men and women is wider for directors and senior executives than for managers of small enterprises.</p> <p>There has been little change in the gap between men and women business leaders between 2000 and 2005.</p>
In 2006 a Eurostat Survey on Factors of Business Success (FOBS) was undertaken in 15 MS ² consulting people that were already running a business.	<p>The results of this survey give an insight into the factors that determine the success and growth of newly born enterprises, notably by examining motivations for starting up one's own business, the barriers and risks encountered during the first years of existence, the current situation of the enterprise, and business plans for future development.</p> <p>In terms of the difficulties encountered by entrepreneurs in starting up their own business, the survey shows that there is not a big difference between women and men, however, women mentioned slightly more frequently 'alone as entrepreneur', 'pricing goods', 'finding premises', 'finding suppliers and 'backing from family'.</p>
Study on reducing the causes of gender professional segregation: " Promoting Women's Entrepreneurship in Technology Sectors: Good Practice Example from the EU and other countries " has also identified the main difficulties that women face in creating their own business in general.	<p>The study has identified the main difficulties that women face in creating their own business in general.</p> <ul style="list-style-type: none"> ▪ Pre-venture labour experience: women's education and labour segregation is replicated in entrepreneurship activity. Women enter entrepreneurship with less managerial experience,

² CZ, DK, EE, FR, IT, LV, LT, LU, AT, PT, SI, SK, SE, RO and BG

	<p>training and skills than men;</p> <ul style="list-style-type: none"> ▪ Finance obstacles: women are disadvantaged in raising initial capital for business start-up, they use a third of the starting capital of men, irrespective of the sector. The guarantee required for external financing may be beyond women's personal assets and credit track record; women experience more difficulties in dealing with banks and entering informal financial networks (e.g. business angels); ▪ Lack of access to relevant networks: networks are key factors in business success by providing access to information, advice, finance and business contacts; ▪ Low self-esteem/lack of confidence; ▪ Lack of role models of female entrepreneurship.
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Review of data and information on female entrepreneurship at European Level: Women Inventors/innovators

Title of the Report/Name of the Association	Key findings
Study on Women Involved in Innovative Activities, from the Centre of European Studies on Gender Aspect of Invention (ESGI). The study is still ongoing and it expected to end in September 2008.	The number of women awarded a patent by the European Patent Office (EPO) over the period 2001-2003 is taken as an indicator of women involved in innovative activities. Preliminary data available suggest that: ³

³ The study infers the gender of the applicants by looking at their first name. In 93% of the cases, it was possible to determine the gender of the applicant.

	<ul style="list-style-type: none"> ▪ The percentage of female innovators is very low: 8.3% compared to 91.7% of men; ▪ Female patents distribution shows a higher rate in the field of Pharmacy (22.7%) and Biotechnology (22.2%) and a very low rate in the Technology, Mechanical and Electronic fields (2.5%). 																								
Eurostat Survey on Factors of Business Success (FOBS) - women access to venture capital.	<p>In 2006 a Eurostat Survey on Factors of Business Success (FOBS) was undertaken in 15 MS⁴, consulting people that were already running a business. The analysis of data on access to venture capital shows that there is a wide gender gap in the use of venture capital for start-ups; companies started by men make use of venture capital to a much greater extent than those started by women.</p> <p>Slovakia is the only country where more women than men had used venture capital for their start-up, whereas in Denmark, Estonia, Luxemburg, Portugal and Sweden none of the surveyed firms started by women had used venture capital.</p> <p>Number and share of start-ups financed by venture capital:</p> <table> <thead> <tr> <th></th> <th>Total</th> <th>Males</th> <th>Females</th> <th>Male %</th> <th>Female %</th> </tr> </thead> <tbody> <tr> <td>Bulgaria</td> <td>824</td> <td>625</td> <td>199</td> <td>75.8</td> <td>24.2</td> </tr> <tr> <td>Czech Republic</td> <td>393</td> <td>378</td> <td>15</td> <td>96.2</td> <td>3.8</td> </tr> <tr> <td>Denmark</td> <td>28</td> <td>28</td> <td>:</td> <td>100.0</td> <td>0.0</td> </tr> </tbody> </table>		Total	Males	Females	Male %	Female %	Bulgaria	824	625	199	75.8	24.2	Czech Republic	393	378	15	96.2	3.8	Denmark	28	28	:	100.0	0.0
	Total	Males	Females	Male %	Female %																				
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⁴ CZ, DK, EE, FR, IT, LV, LT, LU, AT, PT, SI, SK, SE, RO and BG

The study also presents some interesting key facts that can be used as parameter for setting the innovation context for women. This information is thus presented in the next section.

	Estonia	10	10	:	100.0	0.0												
	France	N.A.	N.A.	N.A.	N.A.	N.A.												
	Italy	221	145	76	65.6	34.4												
	Latvia	40	25	15	62.5	37.5												
	Lithuania	581	438	143	75.4	24.6												
	Luxembourg	26	26	0	100.0	0.0												
	Austria	228	202	26	88.6	11.4												
	Portugal	28	28	0	100.0	0.0												
	Romania	120	82	38	68.3	31.7												
	Slovenia	62	50	13	80.6	21.0												
	Slovakia	42	19	23	45.2	54.8												
	Sweden	94	94	0	100.0	0.0												
	Total	2697	2150	548	79.7	20.3												
Eurostat Survey on Factors of Business Success (FOBS)-entrepreneurs self-assessment of the degree of innovation in their own business.	<p>Only 25.6% of women compared to 74.4% of men have set up their business in order to “realize an idea for a new product or service”. The average figure is consistent across the Member States, ranging from a low of 17.9% in Luxembourg to a high of 36.1% in Bulgaria</p> <p>Slightly more men than women assess their enterprises as innovative:</p> <table> <thead> <tr> <th></th> <th>Male</th> <th>Female</th> </tr> </thead> <tbody> <tr> <td>Product</td> <td>14.5</td> <td>13.6</td> </tr> <tr> <td>Process</td> <td>7.8</td> <td>4.1</td> </tr> <tr> <td>Organisation</td> <td>6.5</td> <td>5.2</td> </tr> </tbody> </table>							Male	Female	Product	14.5	13.6	Process	7.8	4.1	Organisation	6.5	5.2
	Male	Female																
Product	14.5	13.6																
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	Marketing	10.4	9.1		
<i>Source: FOBS survey, 2006. Data based on 10 countries (CZ, DK, IT, LT, LU, AT, SK, SE, BG and RO).</i>					
Review of data and information on female entrepreneurship at European Level: Women Entrepreneurs in Science and Technology					
Title of the Report/Name of the Association	Key findings				
"Promoting Women's Entrepreneurship in Technology Sectors: Good Practice Example from the EU and other countries".	<p>The study acknowledges that there are no data and information on the number of women owning a business in science and technology, their characteristics, entrepreneurial experience and initiatives targeted at their support. Lack of data and statistics is partly caused by the non-existence of a uniform and agreed definition of high-tech and innovative enterprises.</p> <p>On one hand, there is a considerable amount of research focusing on technology-based business that does not take into account the gender dimension. On the other hand, research on women entrepreneurs has been generally based on women's experience in traditionally 'female' industries.</p> <p>Despite the scarcity of data, it is possible to say that the number of women entrepreneurs in science and technology is still below its potential. The study estimates the number of high-tech women owned business is only around 5-15% of all high-tech business owners. This gender gap is explained by the gender segregation in educational</p>				

	<p>choices and gender horizontal and vertical segregation in technical and scientific employment sectors⁵, as well as by the low propensity of women in general to start their own business.</p> <p>The study highlights the key differences between women entrepreneurs in high-growth areas and women entrepreneurs in low growth areas. Women in high-growth areas tend to be older and have more education; focus more on market expansion and have more risk propensity; plan for growth, use a team-based approach and use a wider range of financial services for business growth.</p> <p>The obstacles faced by women entrepreneurs in the high-tech sectors tend to be similar to those experienced by women entrepreneurs in other sectors⁶, although a higher degree of difficulties has been identified in:</p> <ul style="list-style-type: none">▪ lack of female role models;▪ lack of access to substantial economic resources such as venture capital as high level of investments are needed;▪ lack of access to high-tech networks;▪ difficulties in becoming credible entrepreneurs in a male-dominated environment.
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Review of Policy support at European level: setting the context	
Title of the Report/Name of the Association	Key initiatives
DG Enterprises and Industry	<p>DG Enterprises and Industry provides for specific actions for the support of female entrepreneurship. The main measures have included:</p> <ul style="list-style-type: none"> • the creation of a portal for female entrepreneurship⁷; • the promotion of networks promoting women's network; • the promotion of events and public debate on the theme of women entrepreneurship; • the promotion of studies and reports on women entrepreneurship; • the promotion of projects targeted specifically at women entrepreneurship, such as the 2003 Best Project for identifying good practice in the promoting female entrepreneurship⁸; • promotion of entrepreneurship amongst young women⁹.

⁷ http://ec.europa.eu/enterprise/entrepreneurship/craft/craft-women/womenentr_portal.htm

⁸ <http://ec.europa.eu/enterprise/entrepreneurship/craft/craft-women/bestproject-women.htm>

DG Employment and Social Affairs and Equal Opportunities	DG Employment and Social Affairs and Equal Opportunities provides support for women entrepreneurship under the policy objectives of fighting female unemployment and increasing female employment as well as promoting equal opportunities in all sectors of societies. The activities are funded by the European Social Funds and Equal Fund ¹⁰ .
DG Regional Policy	DG Regional Policy has occasionally provided support for women entrepreneurship under the policy objective of regional development and employment through its own funding mechanism, such as the European Regional Development Fund (ERDF) and Urban Initiative for urban development.
DG Education and Employment	DG Education and Employment does not have a specific objective for the promotion of female entrepreneurship but its programmes for training and education, such as Leonardo, have occasionally dealt with the issue.
Review of Policy support at European level: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
WomEn2FP6 (Enterprising Women into European Research) DG Research Covering science and technology as well	This initiative aimed to integrate women entrepreneurs into 6th Framework Programme (FP6) projects by bringing together the associations dealing with innovation as well as technology and those helping women to set up their own business. The project consisted of supporting trans-regional learning, training, courses and seminars for women and creating a database of women entrepreneurs. A thematic

¹⁰ The Equal fund has been incorporated in the ESF under the 2007-2013 funding round.

	network ProWomEn across 15 MSs was also organised for the exchange of different approaches and good practice in supporting women to create innovative ideas and start their own business ¹¹ .
Review of Policy support at European level: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
FemStart (DG Research)	This programme aims to encourage women in science to choose entrepreneurship as a career path by promoting a debate on female entrepreneurship and supporting structure at scientific universities. The programme provides for six events to take place in six European cities between 2006 and 2009 and it is funded by DG Research.
DEW-SET¹² DG Enterprise	This programme aimed to increase the number of women engaged in setting up new science, engineering and technology businesses by developing specific training and support service for female entrepreneurs, as well as the establishment of a virtual network and a self-diagnostic tool kit. The programme was promoted by the European Info Centre (DG Enterprise and Industry) based at Coventry University Technology Park (UK) in partnership with Regional Development Agency of Dolnoslaska (PL). It started in 2006 and it is now concluded ¹³ .
WiTEC-PREFACE	This programme aimed to develop a training programme on

¹² <http://ec.europa.eu/enterprise/networks/eic/pdf/FactSheet22.pdf>

DG Education and Culture

entrepreneurship for secondary female students in Science and Technology areas. The programme was developed by the European Association for Women in Science and Engineering and Technology (WiTEC) under the Leonardo Programme of DG Education and Culture. The programme was led by the Swedish WiTEC partner and was run between December 2002 and May 2005¹⁴.

Annex-C Findings from desk review- Member States level

Annex C.1 Finland

FINLAND	
Review of data and information on female entrepreneurship in Finland: Setting the Context	
Title of the Report/Name of the Association	Key findings
2006 GEM on female entrepreneurship.	<p>There is not a big gender gap in the early stage entrepreneurial activity rate (4.04% compare to 5.92% of men).</p> <p>Gender differences are more significant when looking at the established business owners' rate: only 4.81% are women compare to 11.58% of men.</p>
2003 GEM publication on Finland¹:	<p>Women entrepreneurs are most active during the age of 35-44. The differences between men and women are not significant across different age groups; however, these are higher between the younger age group of 25-35, in which men are 2.4 times more active than women.</p> <p>A higher level of education is associated with a higher rate of entrepreneurship (12.2% of women entrepreneurs have a post secondary degree compared to 2.2% having some secondary education).</p>

¹ GEM 2003 Finland

2007 Finnish Statistical Office annual survey on entrepreneurship	<p>The 2007 survey indicates that Finland has the highest rate of female entrepreneurship when looking at the gender breakdown. However the overall rate of entrepreneurship from the total number of people that are active in the labour market is not amongst the highest in Europe. This is partly a result of the fact that entrepreneurship tends to be an opportunity more than a necessity. Key information provided is:</p> <p>Women entrepreneurs tend to concentrate in traditional sectors such as agriculture (35%), public service sectors (16%) and wholesale/trade (13%).</p> <p>Female entrepreneurs in education/health and finance/commerce sectors are by far the best educated. In education/health 64% hold a higher education diploma and in finance/commerce 49% hold a higher education diploma. In other sectors the share of highly educated female entrepreneurs stands between 11% and 25%.</p>
<p>The Central Association of Women Entrepreneurs in Finland has commissioned a survey amongst 1,000 women entrepreneurs in Finland (response rate of 41.5%) with the view of collecting their views on topical issues, including barriers to entrepreneurship. This was a follow-up to identical surveys undertaken in 1997 and 1999.</p>	<p>Key findings are:</p> <p>Women entrepreneurs are satisfied with their career choice: 84% of respondents would start their own business again, and only 13% would choose not to become entrepreneurs if they had the opportunity to start their career again.</p> <p>Micro-loan programme for women entrepreneurs has been successful in enabling women to become entrepreneurs. The micro-loan has been used by 25% of women entrepreneurs.</p> <p>The most important reasons for starting their own business is “wish to take things into their own hands” and “wish to use their professional skills”.</p> <p>The survey has also investigated the challenges that female entrepreneurs</p>

	<p>face in setting up and running a business. These have been identified as:²</p> <ul style="list-style-type: none"> ▪ Difficulties in finding substitute, with 73% of respondents feeling this is a very significant or fairly significant challenge for them; ▪ Lack of risk taking mentality/carefulness with 75% feeling that this is a very significant problem or a relatively big problem; ▪ Society not supporting female entrepreneurship with 64% feeling that society does not favour their position as female entrepreneurs; ▪ Conflicts between being a mother and an entrepreneur with 64% of women feeling that this is a significant or a fairly big problem; and ▪ Loneliness as entrepreneurs.
<p>In 1994 the Ministry of Trade and Industry established with private business a Working Group on Female Entrepreneurship³ with the aim of better understanding female entrepreneurship.</p>	<p>The following were found to be the greatest challenges for female entrepreneurs:</p> <ul style="list-style-type: none"> ▪ Reconciliation of work and life; ▪ Access to finance and financial expertise; and ▪ Lack of training and mentoring.
<p>Academic research:⁴ there have been several academic research studies on the reasons for why there are fewer women entrepreneurs than men.</p>	<p>The main findings are:</p>

³ <http://www.yrittajanaiset.fi/doc/naisyrittAjyysjulkaisu.pdf>

	<ul style="list-style-type: none"> ▪ Lack of role models: role models are more influential for women than for men; ▪ Women's sectoral segregation in the labour market: entrepreneurship has not been feasible in many of the female-dominated sectors (i.e. social care, public services). The current trend to outsource public services is increasing the likelihood of women becoming entrepreneurs; and ▪ Education: well educated women are more likely to set up their own business than less educated women.
Review of data and information on female entrepreneurship in Finland: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
The Finish National Board of Patents and Registration keeps a register of female innovators/inventors that have received a patent for their innovation. The record includes both individual female innovators, individual female	Although the number of women awarded a patent has increased from nearly 200 in the eighties to around 700 in the nineties, it remains extremely low when compared to men: only 6% of patents registered involved women in

⁴ <http://www.jyu.fi/ajankohtaista/arkisto/2007/04/tiedote-2007-09-18-16-45-26-952919/>

innovators employed by companies and groups of researchers of which at least one is woman.	2002. A significant majority of recent innovations have been created by a group of individuals (rather than by) individual women, with the large majority of female innovators being employed by R&D departments of large corporations or research centres (82%).
The Foundation for Finnish Inventions supports individuals to develop their inventions. The Foundation keeps a record of individuals that have received financial support for the development of their innovation and that have been able to apply for a patent.	A majority of the innovations that have received support are in science and technology field. A gender analysis of this record shows that in 2006 only a small percentage of these individuals were women (only 4 out of 96 individuals - less than 4%). This also reflects the very low number of applications for financial support by women (5% in 2002).
Review of data and information on female entrepreneurship in Finland: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
There are no statistics in Finland on the number of women entrepreneurs in science and technology sectors. However, in 2002, the topic of female entrepreneurship in ICT-industry in Finland was covered by one academic study. ⁵	<p>The following factors act as potential barriers for women:</p> <ul style="list-style-type: none"> ▪ ICT is a male dominated sector. Business ideas put forward by women in the ICT industry tend to be ignored more easily than those put forward by men. Decision-makers in the ICT industry (i.e. those responsible for public ICT policies and practices) do not always see the value of business ideas that are aimed at women (e.g. digital media services for women and girls). ▪ Women that want to set up a business in ICT industry have to provide more credentials (i.e. higher level of education, business skills and professional experience) for the feasibility of their business

⁵ <http://hsepubl.lib.hse.fi/pdf/diss/a207.pdf>

	<p>than men.</p> <ul style="list-style-type: none"> ▪ Women entrepreneurs in ICT are often described by the media as exceptional and powerful women, conveying the message that only a very small number of women can adventure into this career path.
Review of Policy support in Finland: Setting the context	
Title of the Report/Name of the Association	Key initiatives
Finvera ⁶ is a state owned Export Credit Agency specialising in financing companies.	Since 1997, it has run a micro-credit programme aimed at female entrepreneurs. Loans are granted in all sectors except farming, forestry and real-estate. The micro-credit scheme has been the most successful tool in encouraging women to set up their own businesses and created over 1,500 new jobs in 2005.
The Women's Enterprise Agency ⁷ in Helsinki provides advice to women who are starting or have already started their own business.	The services of the Agency, which receives ESF money, include individual advice, information and thematic sessions, training and mentoring, networking events and participation in international projects. The Agency has proved to be very successful amongst aspiring and existing entrepreneurs, with a third of the beneficiaries setting up their own business. The multiple and integrated services of the Agency have been disseminated widely in Finland.
SIBA Project ⁸	This is a pilot project to train and provide substitutes for female entrepreneurs during holiday periods, in case of sickness and maternity leave, and for other more general support. It started in 2004 with the support of ESF and has the

⁶ <http://www.finnvera.fi/index.cfm?id=1903>

⁷ <http://www.naisyrittajyyskeskus.fi/>

	main objectives of developing new employment models that meet women's needs of balancing work and family life. The main beneficiaries of this project have been women running micro-enterprise.
Lady Business School	The Lady business School has been running since 1987 and provides management training for women entrepreneurs and executives. The initiative receives ESF funds and has been mainstreamed into regular activity of employment and economic policies. The School runs three/four programmes per year with over 20 participants on each course, with several 'managing director courses' provided to women entrepreneurs and women aspiring to become entrepreneurs. Over 800 women executive and entrepreneurs have taken part in the different training programmes.
TE-KESKUS information and guidance for female entrepreneurs	These are regional employment and economic centres with dedicated female advisors for women entrepreneurs. Studies have shown that aspiring female entrepreneurs could be better encouraged if they were advised and supported by other women. Women have reported that male advisers often did not see the value of their ideas and business ideas in health and social sectors. The centre is also very active in providing women with access to women entrepreneurs' networks.
Review of Policy support in Finland: Women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives

⁸ <http://www.sipa.fi/>

Public Venture Capital Financing for Business in New Technology and Innovative Services Sectors⁹.	This fund aims at funding the early stage of companies operating in technology or innovative service enterprises. The fact that the fund includes innovative service sectors, where women enterprises tend to concentrate, is seen as a factor that helps women to have access to venture capital.
Review of Policy support in Finland: Women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
WomEQUAL: ¹⁰ this was a three-year EQUAL project, which ran between 2005 and 2007, aiming at promoting women's entrepreneurship in science and technology.	<ul style="list-style-type: none"> ▪ Promoting networking amongst women working in technology fields; ▪ Creating a mentoring programme for women that are working or studying in technology fields; and ▪ Providing business/entrepreneurship education for post-graduate students in technology fields.
NaisWAY¹¹- Female into Transport and Logistic Sectors: this project ran between 2004 and 2007 and aimed to increase women's entrepreneurship in technology sectors such as logistic and transport, by supporting aspiring women entrepreneurs and women that have recently set up their own business in the sector. The project encouraged women to enter traditionally male-dominated sectors by:	<ul style="list-style-type: none"> ▪ Developing different training methods and ways to deliver them according to women's specific needs; and ▪ Supporting women already working as entrepreneurs in transport/logistic sectors with a specialist vocational qualification in entrepreneurship and management.

¹⁰ <http://www.weme.fi/>

¹¹ <http://www.jakknet.com/naisway/fin/default.asp>

	<p>The specialist vocational qualification has been the most well-received and successful element of the project, with 17 women gaining the qualification in 2006. The participants met their trainer once a month in a group training session and also had their own e-learning platform which functioned as a virtual classroom.</p> <p>This project won a European award for being one of the most innovative projects in the field of equal opportunities.</p>
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Annex C-2 Sweden

Sweden	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
2000 GEM Report on Sweden,¹²	About 2% of women aged 18-64 are active within nascent or new companies; which is about half the share of men. The study also examines whether interviewees have contributed financially to a newly established company as so called “business angels”. The results are provided in a gender breakdown and show that about 1/3 of women in the survey have made a personal investment in an emerging company. This result should be interpreted with caution as it is based on a very small sample to be conclusive.
The Swedish Institute for Growth Policy Studies (ITPS)¹³	The institute regularly collects quantitative data on company start-ups. The results are available by gender breakdown and yield the following information: <ul style="list-style-type: none"> ▪ The proportion of women amongst new business entrepreneurs was 35 % in 2006 compared to 34% in 2005; ▪ The number of new companies started by women rose by 5% between 2005 and 2006; and ▪ Most companies started by women are active within the sector

¹² http://www.gemconsortium.org/files.aspx?Ca_ID=146

¹³ ITPS (2006), Newly-started enterprises in Sweden 2005 and 2006, www.itps.se

	<p>category of Education, Health and Medical care and Other Social and Personal Services (42%) and within Financial and Other Business Services (28%).</p> <p>In 2006, ITPS also carried out a study examining the situation of companies three years after their start-up¹⁴. The study contains a section on company survival rate by gender breakdown, from which the following conclusions can be drawn:</p> <ul style="list-style-type: none"> ▪ The survival rate of companies started and led by one woman is slightly lower than that started and led by one man; 63% compared to 68% respectively; ▪ The survival rate of companies started and led by several women is higher than the survival rate of companies lead by several men; 71% in the former case compared to 67% in the latter; and ▪ The highest survival rate is found among companies led by both women and men; 79% of these companies were still active after three years.
<p>The promotion of women's entrepreneurship is one of the key tasks of NUTEK,¹⁵ the Swedish Agency for Economic and Regional Growth, the agency also undertakes research in the area. In 2006, a booklet entitled Entrepreneurship of women and men – a statistical description was published with statistics on entrepreneurship broken down by gender, based on a survey carried out among a representative selection of 13,000 SMEs.</p>	<ul style="list-style-type: none"> ▪ The main findings in this study are as follows: ▪ Fewer women than men run SMEs but they tend to be younger and educated to a higher level compared to men; ▪ 21% of business leaders in established SMEs in the sample were

¹⁴ ITPS (2006), Follow up of newly established enterprises in 2003– three years after start

¹⁵ www.nutek.se

	<p>women;</p> <ul style="list-style-type: none"> ▪ 31% of newly established companies in the sample were run by women; ▪ 64% of women-run companies were in the service sector, 27% were trading companies and 9% were manufacturing companies; ▪ 2/3 of women entrepreneurs in the sample target the local market. Women target national and international markets to a lesser extent than men; ▪ Women entrepreneurs have completed higher education to a greater extent than men; 48% of women have a higher education background compared to 34% of male entrepreneurs; ▪ There are no significant differences between women and men led companies in the growth of turnover and number of employees during the period between 2001 and 2004; ▪ Shortage of time is the main obstacle for increased growth among companies run by women, followed by regulation and the competitive situation; and ▪ Fewer women than men see access to finance as an obstacle for growth; 15% of women compared to 20% of men. At the same time, men apply for, and are granted loans to a greater extent than women.
<p>The NUTEK Yearbook of 2007 contains information on companies and entrepreneurship in general in Sweden, mainly originating from other national and international sources. It also presents findings from a survey that NUTEK</p>	<p>The following observations are made based on the 2006 survey:</p> <ul style="list-style-type: none"> ▪ Fewer women than men could envisage starting a company; 67% of

<p>carries out annually on attitudes towards entrepreneurship among young Swedes between 18 and 30 years of age. The attitudes towards entrepreneurship are likely to affect the amount of companies started and the number of entrepreneurs.</p>	<p>women compared to 80% of men; and</p> <ul style="list-style-type: none"> ▪ There are significant differences between men and women as to which sectors they would prefer to start a company in. The top three sectors preferred by women are: hotel and tourism, sales and marketing and culture/media/design.
<p>Between 2001 and 2005 a major research project, the FEM Research program¹⁶ was carried out. The aim of the program was to generate theoretical knowledge in the field of women's entrepreneurship. The project addressed two key themes: entrepreneurship as a way of life for women and women's invisibility in business.</p>	<p>The research project resulted in a large number of studies, the results of which can be summarized as follows:</p> <ul style="list-style-type: none"> ▪ Women as entrepreneurs exhibit considerable variation in their entrepreneurship and as individuals. This is reflected across a wide range of factors, from the type of business and growth ambitions to the women's background. Entrepreneurship by highly educated women, for example, is different from that of other women; ▪ The link to the traditional roles of the sexes is strong; either the women adhere to them, or, if not, they are obliged to relate to them. This is particularly noticeable in family businesses; ▪ Entrepreneurship as a concept has strong male overtones, perhaps an even stronger male stamp than the actual leadership function; ▪ Women's entrepreneurship is created in a context, i.e. it is dependent on the surroundings and on the situation in general. As a result, major differences can be identified between women's entrepreneurship in different countries, regions, sectors, etc; ▪ Women's entrepreneurship and the dominance of women in a

¹⁶ <http://www.fsf.se/fem/>

	<p>particular sector is visible, and this is particularly true of the commercial and care sectors;</p> <ul style="list-style-type: none"> ▪ Women as entrepreneurs often integrate entrepreneurship into their overall way of life. Entrepreneurship is a means and not an end; and ▪ Women as entrepreneurs in male sectors often have a male mentor who makes this breakthrough possible.
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
2002 study of the Swedish Patent register¹⁷	<p>The study was carried out to investigate the number of women among patent owners. Due to the documentation procedures of the patent office, the gender of the patent owner could only be identified during two periods of time; 1885-1929 and 1991-1998. For the more recent period, the study found the following:</p> <ul style="list-style-type: none"> ▪ 512 women inventors were found in the computerized patent register; ▪ The number of patents concerning women's inventions was on average just below 90 patents per year; ▪ The proportion of patents concerning women's inventions was just above 4% for the period; ▪ Most women inventors are found in the mixed-gender inventor world, e.g. they invent in groups together with men as opposed to all female

¹⁷ Nyberg (2002); Women and Technological Creativity: The patented inventions of Swedish women 1885 – 1998

	<p>groups or alone;</p> <ul style="list-style-type: none"> ▪ Most women inventors, about 80%, have only one patent; and ▪ Most patents are company owned and the inventors work in research and development.
Study “Men and Male as the Norm? A Gender Perspective on Innovation Policies in Denmark, Finland and Sweden” ¹⁸ by Pettersson (2007)	<p>The study examines the innovation policies of Denmark, Sweden and Finland from a gender perspective, the rationale being that innovation policies are formulated in societal contexts marked by gender and therefore they create gender outcomes. To come to terms with this problem, the study suggests the following should be taken into account when developing innovation policies:</p> <ul style="list-style-type: none"> ▪ Gender equality management; to discuss and define gender equality; ▪ Adopting a gender perspective in the analysis, e.g. carrying out a gender SWOT analysis; ▪ Adopting measures to come to terms with lacking gender equality; and ▪ Ensuring representation by creating quantitative gender equality in partnerships, group, projects etc.
Study “Gender and Innovation” ¹⁹ by Nyberg (2002)	<p>The study is based on interviews with women inventors and innovators and discusses innovation, invention and technology in relation to gender and society. The problems emerging during the interviews can be summarized as</p>

¹⁹ Nyberg (2002); Gender and innovation

	<p>follows:</p> <ul style="list-style-type: none"> ▪ Innovation-related concepts appear as considerably genderised; innovators are typically associated with men and male areas; ▪ Women innovators and their inventions in other fields than the traditional technologies may not be taken seriously; ▪ Innovation supporting organizations treat many women as technologically-economically incompetent; and ▪ The traditional networks of women are less useful when developing ideas and putting them into practice. <p>The study proposes the following approaches to deal with these problems:</p> <ul style="list-style-type: none"> ▪ Making women inventors within traditional technological fields visible; ▪ Making innovative processes visible in areas typically not referred to as “innovating” (e.g. healthcare); and ▪ Develop competence within the innovation support systems (incubators, advisors, financers) to better meet women innovators.
Review of data and information on female entrepreneurship: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
NUTEK Yearbook of 2007 includes data on women entrepreneurs by sector breakdown	Data shows that only 1% of women entrepreneurs are active within the IT and Telecommunications sector.

	<p>Women entrepreneurs sectors breakdown are as follows:</p> <ul style="list-style-type: none"> ▪ Sales & marketing: 26% ▪ Construction & real estate: 6% ▪ Industry: 5% ▪ Hotel & tourism: 12% ▪ Business, finance, insurance: 8% ▪ Security and transport: 2% ▪ Culture, media, design: 8% ▪ Food & health 17% ▪ Healthcare: 17% ▪ Administration, law, politics: 3% ▪ IT & Telecoms: 1% ▪ Education: 3%
Review of policy support: Setting the context	
Managing organisation/ title of the project	Key initiatives
Since 1993, NUTEK, the Swedish Agency for Economic and Regional	The early programs aimed at competence development and making women

<p>Growth, has been commissioned by the Swedish government to carry out support programs specifically targeting women entrepreneurs. In this, NUTEK has cooperated with a number of other business support organizations.</p>	<p>entrepreneurs more visible. Local and regional resource centres were established, aiming at supporting women entrepreneurs and entrepreneurship (e.g. financing networks and developing methods to better make use of women's business ideas).</p> <p>In a different project, women business advisors were trained to assist established and would-be entrepreneurs with advice, mentoring, creation of networks and organization of seminars and training.</p> <p>Supporting women's entrepreneurship 2002-2006 aimed at the removal of discriminating rules, changing discriminating attitudes and making women's entrepreneurs visible. It also aimed at increasing knowledge by financing research on women entrepreneurship.</p>
<p>In 2007 NUTEK was awarded 80 million SEK (8 MEUR) for a new program for supporting women's entrepreneurship.</p>	<p>The programme runs until 2009 and aims at promoting women's entrepreneurship by encouraging women to run, buy and develop companies. The objectives are to be reached through:</p> <ul style="list-style-type: none"> ▪ Making information, advice and business development services more accessible and adapted for women's needs and demand; ▪ Adapting existing national SME support programmes to women (concerned programmes are related to change of ownership and acquisition of companies, mentoring and promotion of entrepreneurship within higher education); ▪ Supporting women's access to finance (mainly through supporting other organizations that provide financing for women entrepreneurs); and ▪ Changing attitudes by making women entrepreneurs more visible,

	presenting role models and facilitating access to networks.
Review of policy support: Women innovators/inventors' entrepreneurs	
Managing organisation/ title of the project	Key initiatives
<p>CORE – Teach the Teacher is a national pilot project to spread the CORE methodology to women active in the innovation support organizations in Sweden. It is thus not targeted directly at women innovators but rather at those working with them.</p>	
<p>The CORE methodology is a nine month programme for personal development created by a private individual.²⁰ It includes education sessions in groups and personal coaching, aimed at inspiring women to become more entrepreneurial. The project aims to encourage more women to start businesses by training 20 “CORE coaches” among women who are working within the innovation support systems in Sweden (e.g. business incubators). The CORE coaches will spread the method further and use it to support women who approach the innovation support organizations.</p>	
Review of Policy support: Women entrepreneurs in science and technology	
Managing organisation/ title of the project	Key initiatives
The CORE – Teach the Teachers covers also science and technology.	
PREFACE - Preparing Female Students for Academic Entrepreneurship. WiTEC (Women Association for Women in Science, Engineering and Technology) with Leonardo da Vinci Programme Funds (DG Education and Culture) ²¹ .	This was a trans-European project run by WiTEC Sweden. Female entrepreneurs in the field of science, technology, engineering and IT are still a minority. The PREFACE project developed training programmes targeting female students in science and technology. The programme presented the

²⁰ <http://www.coreexperience.se/>

²¹ http://www.eupreface.org/about_preface.html

The project ran from December 2002 to May 2005.

idea of entrepreneurship to female universities students in order to make them familiar with the concept of entrepreneurship, and to interest, motivate and encourage them to set up their own enterprise in the field of their studies.

The training programme provided an entrepreneurship self-assessment, with an entrepreneurship test and SWOT analysis; tools for entrepreneurship (i.e. motivating people, idea-development, business plan, marketing, etc.) toolbox for start-ups, role models and mentoring.

Annex- C.3 UK

UK	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
2006 GEM United Kingdom Report²²	<p>GEM produces annual reports covering entrepreneurship in general, however, it also presents information on female entrepreneurship.</p> <p>The main points of the most recent GEM report (2006) are:</p> <ul style="list-style-type: none"> ▪ Female early stage entrepreneurial activity is 3.4% of the UK adult population; ▪ Female business established business ownership is just 2.9% of the adult population; ▪ Women are approximately half as likely as men to be thinking of starting a business (5.3% compared to 10.4%) despite the fact that women have similar levels of positivity as men towards seeing entrepreneurship as a higher status and as being a good career choice; ▪ Women are nearly a third less likely to think that they have the skills to start a business (39.8% compare to 58.6% men) and they are more likely to fear failure (39.2% compared to 32.6% men);

²² <http://www.gemconsortium.org/document.aspx?id=579>

	<ul style="list-style-type: none"> ▪ Women start a business with half the amount of capital as men (the average amount in 2006 was £15,000 for men and £7,259 for women), although they invested the same amount using their own financial resources; and ▪ Women are less likely to use finance from individual investors and equity finance. <p>Factors likely to increase the level of female entrepreneurship:</p> <ul style="list-style-type: none"> ▪ Women with post graduate qualifications (i.e. doctorate or master degree) have the highest level of entrepreneurial activity; and ▪ Entrepreneurial training and work experience in SME's at college/university appears to be positively associated with TEA activity.
<p>GEM has also produced one occasional report focussing on female entrepreneurship: UK GEM Women Report 2005:²³</p>	<ul style="list-style-type: none"> ▪ Women are less likely to be young entrepreneurs. Male entrepreneurialism in the age group 18-24 is 8.4% compared with women at 2.2%; ▪ Women tend to drop out of the business at the growth stage; and ▪ Women think safer and smaller, rather than in terms of growth. For example, men anticipated their business turnover to grow nearly £130000 over five years, while women only expect turnover to grow to £40000.

²³ http://www.gemconsortium.org/files.aspx?Ca_ID=107

	<p>The perceived barriers in setting up a business cited by women tend to be 'soft' factors such as:</p> <ul style="list-style-type: none"> ▪ Lack of confidence in their capacity to build a business. Lack of confidence has also been reported in graduate women. For example, less than half (46.5%) of female graduates believed that they had the skills to start and run a business; ▪ Lack of knowledge of the financial and legal language to set up a business; and ▪ Fear of failure. For example, fear of failure amongst female graduate is 36.9% against 32.2% of men.
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
The British Female Inventors and Innovators Network (BFIIN) undertake research on the obstacles encountered by these types of women.	Main barriers are: services designed by men for men, perception of investors that women inventors represent low tech and low growth arenas, gender roles, difficulties in accessing finance, complex route to market and success.
Review of data and information on female entrepreneurship: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings

<p>GEM has published an occasional report, “GEM UK: Technology and Entrepreneurship in the UK 2006”,²⁴ focusing on technology and entrepreneurship, which presents some data on women.</p>	<p>The most interesting information is:</p> <ul style="list-style-type: none"> ▪ Men are more than twice as likely as women to start up a business in the technology sector. For example, early stage activity in technology sector is 12% for men compared with 5% for women; established business in technology sector is 11% for men compared with 5% for women. ▪ Women are more likely than men to develop new technology based products and services in house (42% of women compare with 25%). ▪ Women are more likely than men to develop new technology product and service in collaboration with universities and research institutions (9% of women compare to 4% of men).
<p>The UK Resource Centre for Women in Science, Engineering and Technology (SET)²⁵ and PROWESS²⁶, a UK-wide advocacy network that support the growth of women's business ownership, has produced a report of female entrepreneurs in Science, Engineering, Construction and Technology (SECT): “Under the Microscope: Female Entrepreneurs in SECT 2006”²⁷.</p>	<p>Most relevant information included in the report is:</p> <ul style="list-style-type: none"> ▪ Across the SECT industries there are 10 times more male entrepreneurs than women. In some sectors, such as mechanical engineering and IT the number of female entrepreneurs is too small to draw any statistically reliable conclusion;

²⁵ The UK Resource Centre for Women in Science, Engineering and Technology is an organisation funded by the UK Department for Trade and Industry.

<http://www.ukrc4setwomen.org>

²⁶ <http://www.prowess.org.uk/>

²⁷ The study is based on quantitative research integrated with interviews with 61 female entrepreneurs and 20 case studies.

http://www.prowess.org.uk/documents/UndertheMicroscope_000.pdf

	<ul style="list-style-type: none">▪ 46% of female entrepreneurs in SECT said they have left their previous job as an employee to start up a business offering similar services; and▪ Seeing another female business owner in SECT is considered as being highly motivational. 92% of consulted women entrepreneurs believe that the promotion of a role model in SECT would encourage women going into SECT entrepreneurship. <p>The publication has also collected a list of case studies on successful women entrepreneurs in SEC. The testimonials of women entrepreneurs show that there is a great variety in the types of companies created by women in the SECT sector in the UK. Some examples of services/products/companies developed are:</p> <ul style="list-style-type: none">▪ Method for diagnosing a range of infectious diseases;▪ National and international single source solution provider to the ICT industry, operating in four main industry sectors;▪ Variable Surface Drive, an advanced propulsion system available for marine craft;▪ Consultancy in analytical chemistry, specialising in gas chromatography and related techniques;▪ Production of forensic stepping plates used at crime scenes;▪ Consultancy in ground stabilisation and contaminated land assessments; and
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	<ul style="list-style-type: none">▪ Medical training products for and design and manufacture of synthetic soft tissue models. <p>The qualitative analysis of these case studies enables the identification of some information on women entrepreneurs in SECT on motivation to start up a business, types of business support used, and specific barriers faced.</p> <p>Motivation factors to start an own business: the testimonials of women entrepreneurs showed that there are different motivating factors which act as a drive in the creation of a new business. The most important are:</p> <ul style="list-style-type: none">▪ The lack of satisfaction as employees;▪ The fear of redundancies due to downturns in particular industrial sectors;▪ The desire to make a change within the industry, make a significant contribution to a specific sector (with some products there is also an environmental drive);▪ The desire to improve services or change traditional services; and▪ The desire to move into the commercial sector as the pace of change is quicker. <p>Types of business support used: the qualitative analysis shows that the services provided as business support have improved to a great extent in the UK. In setting up their own businesses women have made use of the following types of support:</p> <ul style="list-style-type: none">▪ Grants and government support for technical innovation projects
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	<p>(such as DTI Grant for Technical Innovation) and government guarantees (such as the Small Firms Loan Guarantee Scheme);</p> <ul style="list-style-type: none"> ▪ Business Angels; ▪ Organisations providing business advice. Business portals (such as Business Link) have helped women in finding useful information about government support initiatives, grants, training and programmes available; ▪ Regional development agencies targeting women, and ▪ Academic bodies supporting inventors, innovators and entrepreneurs. <p>In addition to these organizations and programmes, women also reported women networks as being really helpful to meet other women in SET and business owners and bounce ideas off each other. Women case stories also showed that business awards play a big role in boosting motivation, developing innovative projects and gaining public recognition.</p> <p>Particular barriers to women starting businesses: the qualitative analysis of the case studies shows that women have to face different types of barriers when starting their own business in SET. These are:</p> <ul style="list-style-type: none"> ▪ Economic barriers: Getting finance can be harder for women than for men; ▪ Structural/Contextual barriers: SET business is still a male dominated industry and there is still a low proportion of women in SECT studies;
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	<ul style="list-style-type: none"> ▪ Psychological barriers ('soft' factors): fear of failure and lack of confidence; and ▪ Cultural barriers (work and life balance): hard to find flexible working arrangements for family and life balance and difficulties in having a career-break because of family responsibilities (i.e. having children) in a sector that moves fast and requires knowledge to be constantly up to date. <p>Possible improvements to support women into SECT: Women entrepreneurs pointed out that improvements need to be made to the current situation to better support women into the SET sector:</p> <ul style="list-style-type: none"> ▪ Women have to be encouraged to undertake studies in SET. Encouraging women into science needs to be tackled at various levels. Women need to know that a science degree is incredibly valuable in the business world. It is important to promote the range of opportunities that a science degree opens up for you. Science is presented in schools as a non-creative career option. A PR campaign is needed to emphasise that science is a creative activity; ▪ Funding, grants and loans are needed not only at start ups stage, but also for the later stages of growing and developing a business.
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Review of Policy support: Setting the context

Title of the Report/Name of the Association	Key initiatives
At national level Business Link ²⁸ is the agency in charge of business	The framework was developed around several main types of support

²⁸ Business Link is part of the Department for Business Enterprise and Regulatory Reform

<p>creation support which has a special focus on women entrepreneurship (e.g. all 45 Business Links active at territorial level have women's enterprise as a key policy objective). In 2003, a Strategic Framework for Women's Enterprise²⁹ was launched with the objective of creating a long-term approach to the development of women's enterprises. The national initiatives are implemented and integrated at local level by the Regional Development Agencies and Business Development Agencies.</p>	<p>provided:</p> <ul style="list-style-type: none"> ▪ Providing women access to networking (i.e. partnership with existing partners such as the Chamber of Commerce, establishment of new women's networks were needed, development of regional networks of 'umbrella initiatives'); ▪ Pre-starts up counselling and advice; ▪ Business information, training and advisory (i.e. developing women-friendly and women-only business training courses); ▪ Access to finance support (e.g. achieving gender balance in mentoring schemes, finance training with pre-start up training; increasing awareness of full range of financial options available including venture capital and business angels; women friendly business incubator facilities); and ▪ Childcare and other caring responsibilities support (e.g. caring allowances built into the business training and advisory provision).
<p>In 2006 the Strategic Framework for Women's Enterprise was evaluated³⁰.</p>	<p>The following points were made:</p> <ul style="list-style-type: none"> ▪ The Strategic Framework helped in raising the profile of women's enterprise, collected all information in a single document, and gave

<http://www.businesslink.gov.uk/bdotg/action/home?domain=www.business.gov.uk&target=http://www.business.gov.uk/>

²⁹ <http://www.prowess.org.uk/pdfs/Strategic%20Framework.pdf>

	<p>legitimacy to the policy area;</p> <ul style="list-style-type: none"> ▪ An element of weakness was that other Departments did not share the priorities identified by the Strategic Framework; ▪ Access to finance was cited as one of the main constraints; and ▪ A stronger focus was needed on challenging women's attitude towards failure, debts and risks.
The PROWESS network is also involved in improving and developing a women-friendly business support infrastructure.	<p>Its objectives are to influence policy development, disseminate relevant research, promote new research on the subject of women's enterprise, support networking and inform about training and conferences.</p> <p>The network has created a website with comprehensive information on women's enterprise initiatives at national and international level (i.e. US), and to actively promote the sharing of best practice. PROWESS also works in partnership with other stakeholders. For example, a toolkit "<i>The Case for Women's Enterprise</i>" has been developed for promoting more effective business support for women³¹.</p>
Women's Enterprise Task Force	This is the Agency that supports policy making on female enterprise at national and regional level (i.e. by working with the Regional Development Agencies).
Women's Ambassador Network	This is a network of successful women's entrepreneurs that aims at encouraging women to set up their own business by providing role models.

³¹ Toolkit available on PROWENSS website: <http://www.prowess.org.uk/>

Review of Policy support: Women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
British Female Inventors and Innovators Networks (BFIIN)	The British Female Inventors and Innovators Networks (BFIIN) aims to provide inspiration to women seeking to turn their ideas into commercial propositions. ³² The networks provide information on IP rights, patent applications, help women network and promote an award dedicated exclusively to women inventors and innovators.
The School of Entrepreneurship and Business (SEB) at the University of Essex has recently launched the Creative Business Enterprise Club to support women's entrepreneurial skills in the creative industry. ³³	The initiative aims at creating a platform for creative and innovative women entrepreneurs to share experiences, network with peers locally and globally and develop initiatives for businesses in the creative industries. The members meet regularly to discuss new ideas, business opportunities, new markets and networks. The women are encouraged to raise work-related issues with a view to supporting each other for both individual and collective projects.
Finance South East- non-profit organisation and subsidiary of SEEDA-regional development agency for the South East—for supporting high growth company. ³⁴	Finance South East acknowledges that accessing finance to start up a business can be particularly challenging for women. A specific focus on women was created in order to help women to negotiate the different options available. Finance South East runs events to give free business and funding advice to women. Since April 2008 the South East Women's Investor Forum has been created. This aims to exchange idea and experience on women business angels investing, to provide networking and to consider business investment

³² BFIIN is part of the Global Women Inventors and Innovators network (GWIIN) <http://www.bfiin.com/index.html>

³³ <http://www.enterprising-women.org/show.php?page=3485>

	opportunities.
Review of Policy support: Women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
YTKO ³⁵ is a private business incubator with a special focus on women enterprises in science and technology. ³⁶	<p>YTKO is a private business incubator with a special programme targeted at women enterprises in science and technology. The type of support provided to women consists of:</p> <ul style="list-style-type: none"> ▪ Women only personal training sessions, from pre start-up to business growth; and ▪ Helping women to find potential partners, suppliers, clients and peer support from another women in the same location or sector. <p>YTKO works both with other commercial organisations and with the public sector and universities. For example, YTKO has recently supported a one-year enterprise programme for post-doctoral researchers in bioscience (Bioscience Yorkshire Enterprise Fellowship). The scheme led to the creation of several new bioscience enterprises. Although women recruited in the fellowship were only a third of participants, more than half of the resulting businesses were led by women, demonstrating that with the right support women-owned high-growth science and technology business can be successful.</p>

³⁴ <http://www.financesoutheast.com/aboutus/>

³⁵ <http://www.ytko.com/>

DEW-SET Coventry:³⁷ DEW-SET project (Developing the Entrepreneurial Capabilities of Women in Science, Engineering and Technology).

Coventry University Technology Park in cooperation with the Polish Regional Development Agency of Dolnoskaska under Euro Info Centre (DG ENTR)

DEW-SET aims to increase the number of women setting up new science, engineering and technology businesses by providing:

- Training guide for business advisors responsible for delivering entrepreneurial education for women entrepreneurs;
- Self-diagnostic tool kit for female entrepreneurs to help them to define their training needs; and
- Virtual network of female entrepreneurs in science, engineering and technology;

As a result, 15 women enrolled on business-related courses or receiving direct business start-up support, 25 business support advisors were trained on women's needs, female friendly training guide and promotional activity were developed to enable further development and future sustainability across the EIC network.

This pilot project has received international recognition by the EIC network, and has been considered a good practice for the support, encouragement and development of new innovative female companies.

³⁶ <http://www.ytko.com/show.php?nav=410>

³⁷ <http://ec.europa.eu/enterprise/networks/eic/pdf/FactSheet22.pdf>

Annex- C.4 Ireland

IRELAND	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
GEM Ireland 2006	<p>The report shows a significant gender gap both for early stage entrepreneurship (10.51% for men compare to 4.20% for women) and established business (12.33% for men compare to 3.41% for women).</p> <p>The report also provides other types of information:</p> <p>Entrepreneurial activity rates are much higher among Irish males than females</p> <ul style="list-style-type: none"> ▪ There were 169,000 men and 46,000 women actively involved in businesses they established prior to 2003. ▪ Men are more than three and half times (3.6 times) more likely than women to be established entrepreneurs (12.2% of men compared to 3.4% of women). ▪ Entrepreneurial activity rates are higher for men even when women describe themselves as working- whether it is fulltime or part-time. ▪ Unlike men, as income levels increase for women, rates of entrepreneurship do not increase. ▪ Fewer women than men believe they have the skills and knowledge

	<p>to start a business.</p> <p>There is more than twice the number of male early stage entrepreneurs than women.</p> <ul style="list-style-type: none">▪ One in 10 Irish men (10.5%), as compared to one in 24 Irish women (4.2%) are early stage entrepreneurs.▪ There are 145,000 male early stage entrepreneurs and 57,000 female early stage entrepreneurs in 2006.▪ For every 100 male early stage entrepreneurs in Ireland there are 39 female early stage entrepreneurs. Men are 2.5 times more likely than women to be early stage entrepreneurs.▪ For both males and females, the highest rates of early stage entrepreneurship are ages 25-34. <p>There are more than two times male nascent (those actively planning entrepreneurial activity) entrepreneurs than females.</p> <ul style="list-style-type: none">▪ There were 86,000 male nascent entrepreneurs and 36,000 female nascent entrepreneurs in Ireland in 2006.▪ Men are 2.3 times more likely than women to be a nascent entrepreneur (6.2% of men compared to 2.7% of women). <p>Men are almost three times more likely to be new firm entrepreneurs than women.</p> <ul style="list-style-type: none">▪ There were 60,000 male new firm entrepreneurs and 21,000 female
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	<p>new firm entrepreneurs.</p> <ul style="list-style-type: none"> Men are nearly three times (2.9 times) more likely than women to be new firm entrepreneurs (4.3% of men compared to 1.5% of women).
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
There are no statistics on women inventors/innovators' entrepreneurs..	
Review of data and information on female entrepreneurship in Finland: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
There are no information and statistics on women entrepreneurs in science and technology.	
Review of Policy support: setting the context	
Title of the Report/Name of the Association	Key initiatives
Entrepreneurship in Ireland in 2004 from the Irish Department of Enterprise, Trade and Employment (DETE)	This report summarised the position for Ireland and Northern Ireland. The report presented data showing that females tended to assume the main caring role within families and therefore need flexibility in their working arrangements, females also had less time to commit to new enterprise and often at a later age than was common for males. It was also highlighted that current Government policy was mainly supporting and encouraging development in ICT, life sciences sectors and internationally traded services. However, the number of women participating in these sectors is low.

	With reference to women's entrepreneurship, the report recommended that the Irish Government take action to identify why much fewer women become entrepreneurs and learn from the experience of other countries in successfully encouraging more women entrepreneurs.
Enterprise Strategy Group Action Plan 2005 from the Irish Department of Enterprise, Trade and Employment (DETE)	The Enterprise Strategy Group was set up in order to further develop and deliver some of the actions resulting from the <i>Entrepreneurship on the Island of Ireland in 2004</i> report. There is no reference to the role of women in entrepreneurship in the report, and little reference to technology and science.
Transforming Irish Industry. Enterprise Ireland Strategy 2005 – 2007 from the Irish Department of Enterprise, Trade and Employment (DETE).	This is an Action Plan for promoting innovation and R&D within Irish Businesses. The Action Plan does not make any reference to women entrepreneurship ³⁸ .
Towards Developing an Entrepreneurship Policy for Ireland 2007 from Forfás, the Irish national policy and advisory board for enterprise, trade, science, technology and innovation to the Irish Department of Enterprise, Trade and Employment (DETE)	<p>The report recognised that it is important for Ireland's future economic prosperity that measures are taken to build on the current entrepreneurial momentum that is evidenced in the report. The report recognises the importance of women's entrepreneurial activity but highlights some of the issues faced by women in Ireland.</p> <p>One of the most important issues is that many women entrepreneurs are excluded from receiving financial assistance from the development agencies due to the fact that their new businesses tend to be in sectors outside the main eligible areas. For example, between January 2004 and December 2006, less than one third (27.7%) of all those who received financial assistance from the CEBs were women.</p>
Network Ireland. Network Ireland is a national women's networking and	The aim of the forum is to provide a mechanism whereby women can

<p>policy forum.</p>	<p>exchange ideas and create business contacts. In particular the forum aims to:</p> <ul style="list-style-type: none"> ▪ Encourage women to achieve more satisfying careers. ▪ Market the skills and expertise of Network members ▪ Promote women as worthy contributors to the Irish economy and decision-making bodies. ▪ Liaise with National and International Organisations. ▪ Create links into Government and State bodies. ▪ Promote a high standard of ethics in business. <p>Through the joint effort of members to promote the welfare of the community</p>
<p><i>Mapping of initiatives to support Entrepreneurship in Ireland</i> produced by Forfas.</p>	<p>The mapping report details the various initiatives that are currently in operation in Ireland with a focus on women:</p> <ul style="list-style-type: none"> ▪ County Enterprise Boards (CEBs) ▪ The Women Entering Business Training Programme ▪ The Dublin City Enterprise Network for Women ▪ The Dublin City Enterprising Woman Award ▪ The Virtual Network of Irish Women in Business ▪ E-Learning for Female Entrepreneurs

Review of Policy support: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
Policy initiatives and support for women innovators/inventors' entrepreneurs have not been found.	
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
Association for the promotion of women in science: Women in Technology and Science (WITS) .	The association has members from a broad range of scientific, engineering and technological backgrounds including teachers, computer experts, technicians and journalists. Since 1994 the association has created an annual award for women working in these sectors.

Annex C- 5 Germany

GERMANY	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
GEM Germany 2006 report	<p>The GEM Germany 2006 report highlights that female early stage entrepreneurial activity is 2.58% compared to 5.79% for men, while the rate of female established business is 2.10% compared to 3.92% for men. In Germany, women starting their own business are significantly less than men. The rate is low also in comparison with other countries. The GEM report contains the following information:</p> <ul style="list-style-type: none"> ▪ Women start up companies at an older age than men; ▪ Women tend to run smaller business with little or no intention to grow; ▪ Women lack self-esteem in their skills and capacity to be entrepreneurs; ▪ Women have higher fear of failure; and ▪ Women start a business with less financial capital than men and tend to rely on family and friends support.
Review of data and information on female entrepreneurship: Women Inventors/innovators	

Title of the Report/Name of the Association	Key findings
There are no statistics on women inventors/innovators entrepreneurs.	
Review of data and information on female entrepreneurship Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
In 2006 the Federal Agency for Funding Women Entrepreneurship published research on women start-ups in technology sectors ³⁹ .	<p>The research acknowledged that it is difficult to obtain data on this subject because there is no consistent and clear definition of what the technology sectors are and also because available statistics on high-tech start ups do not provide any information on the owners' gender. However, the main findings of this study were:</p> <ul style="list-style-type: none"> ▪ It is estimated that approximately 10-15% of high-tech enterprises are founded by women; ▪ This low rate reflects girls' educational choices in secondary and higher education and women's career path (amongst engineers only 10% are women); and ▪ The study suggests increasing the number of female students in science and engineering and encouraging women to set up their own business in the technology field.

³⁹ <http://www.gruenderinnenagentur.de/>

The University of Potsdam is currently undertaking a study that aims to analyse the long-term success factors of female entrepreneurs in high-tech sectors. ⁴⁰	The study aims to investigate gender-specific obstacles in accessing finance for high-tech business and to develop a tool to improve the assessment of women business ideas in high-tech sectors. The study is still ongoing and there are no findings available for the moment.
The Female Academic Entrepreneurs Agency ⁴¹ is undertaking a study aiming at investigating how academic institutes can help women to start up their own business in knowledge-intensive services.	The study is still ongoing and there are no findings available at the moment.
Review of Policy support: Setting the context	
Title of the Report/Name of the Association	Key initiatives
Germany has a highly diversified support system for female entrepreneurship both at national and Länder level. Supporting women's entrepreneurship is a clear policy objective of the German government, which has also set the specific target of increasing the number of women entrepreneurs by 40%. This policy objective is supported by several Ministries through the National Agency for Women Start-ups (BGA). The BGA, the National Agency for Women Start-ups ⁴² is a national initiative providing information and implementing services to female	<p>The Agency, which has regional offices in all the Länders, deals with women's entrepreneurship in general as well as in specific sectors such as science and technology (see below). The main activities of the Agency consist of:</p> <ul style="list-style-type: none"> ▪ Having a single portal on female entrepreneurship with information on all types of support and programmes available;

⁴⁰ <http://www.ceip.uni-potsdam.de/cms/index.php?id=18>

⁴¹ <http://www.face.inmit.de/projekt/index.htm>

⁴² <http://www.gruenderinnenagentur.de/>

<p>entrepreneurs. It is supported by several federal Ministries (Education and Research, Families and Women, Economic and Technology) and is funded with the contribution of the ESF.</p>	<ul style="list-style-type: none"> ▪ Providing face-to-face advice to women; ▪ Raising awareness on the existing support for women entrepreneurs; ▪ Providing relevant statistics on female entrepreneurship and undertaking research and studies on specific themes; ▪ Running and coordinating specific programmes for the support of female entrepreneurship (i.e. the Agency coordinates the programme “Power for Female Business Owners” -<i>Power für Gründerinnen</i>- which has been launched by the Federal Ministry for Education and Research); and ▪ Providing expertise and assistance to different Ministries on policy issues related to female entrepreneurship.
<p>The National Female Network for the Promotion of Start-ups (Gründerinnenforum)</p>	<p>The Network was created in 1997 and supports female entrepreneurship by providing exchange of experience, defining women's training needs, developing specific projects (for example on new financial models), and providing network and lobbying opportunities at national and regional level for improving female entrepreneurship policies.</p>
<p>Review of Policy support: Women innovators/inventors' entrepreneurs</p>	
<p>Title of the Report/Name of the Association</p>	<p>Key initiatives</p>
<p>National Agency for Women Start-ups (BGA) - Programme for supporting female entrepreneurship</p>	<p>Supporting female entrepreneurs in creative industry is a sub-target of the general programme for female entrepreneurship</p>
<p>Review of Policy support: Women entrepreneurs in science and technology</p>	

Title of the Report/Name of the Association	Key initiatives
National Agency for Women Start-ups (BGA) - Programme for supporting female entrepreneurship	<p>The programme, which was launched in 2005, aims to support financially innovative measures for fostering female entrepreneurship (including in the science and technology field). The initiatives that have been funded in science and technology are presented here. It should be noted that all these programmes have been implemented very recently, in 2006 and 2007, thus it is too early to discuss results achieved.</p>
The NANO4Women and NEna - Entrepreneurship Academy for Women	<p>A recently started pilot initiative for the promotion of young female scientists in the sector of nanotechnologies. The objective of such initiative is to increase the number of women scientists in the nanotechnology sector participating in spin-off initiatives. The programme is structured around these activities:</p> <ul style="list-style-type: none"> ▪ Technical and scientific training; ▪ Business and entrepreneurship training; ▪ Development of business ideas; and ▪ Individual coaching. <p>So far 32 women have been selected to participate to this programme. The aim is to have at least one female start up in the nanotechnology sector.</p>
SWITCH - spin-off support is a pilot project initiative ran by the Fraunhofer Gesellschaft, a research organisation, which aims to promote women spin-offs from non-academic research organisations in information and communication technologies.	<p>A pilot initiative, which only started in 2007, is organised around the following activities:</p> <ul style="list-style-type: none"> ▪ Undertaking a survey amongst female scientist in ICT to understand

	<p>their attitude towards entrepreneurship;</p> <ul style="list-style-type: none"> ▪ Organising a summer school: coaching for female scientists in ICT who want to start a business; and ▪ Mentoring programme.
<p>P8- Success is female - <i>Erfolg ist weiblich</i> (technical University of Berlin and Stuttgart)</p>	<p>This is another recent pilot project focusing on the promotion of female entrepreneurship in science and technology. The project intends to deepen the knowledge of the specific motivations and obstacles faced by women entrepreneurs in science and technology. The project is developed around the following themes:</p> <ul style="list-style-type: none"> ▪ Raising awareness through the presentation of role models; ▪ Developing measures to unlock women's entrepreneurial potential through individual coaching but also through on-line tests on entrepreneurial spirit and business games; and ▪ Developing accompanying measures for women starting up their business

Annex-C.6 Austria

AUSTRIA	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
2005 GEM survey for Austria	<p>Analysis of the GEM survey data for Austria shows that in 2005:</p> <ul style="list-style-type: none"> ▪ 35% of new businesses were started by women; ▪ 34% of established companies were owned by women; and ▪ 21% of female entrepreneurs were motivated by need (i.e. no other option to earn a living), twice as many as among male entrepreneurs. <p>Having analysed public perceptions of entrepreneurship, women's attitude were found to be more self-critical with respect to their own capability and qualification for starting a business; they are more afraid of failure and less involved in business networks.⁴³</p>
2007 Statistics published by the Austrian Federal Economic Chamber	The statistics show that the number of start-up companies founded each year increased steadily from 9,825 in 1993 to 25,206 in 2007. In the same period the percentage of women entrepreneurs has increased from 26% to 40.1%. ⁴⁴
Review of data and information on female entrepreneurship: Women Inventors/innovators	

⁴³ GEM (2006), Austria GEM National Report 2005, http://www.gemconsortium.org/files.aspx?Ca_ID=183

⁴⁴ <http://wko.at>

Title of the Report/Name of the Association	Key findings
The gender disaggregated data on the beneficiaries of business support programme in academia (AplusB -academia plus business) ⁴⁵	<p>AplusB - academia plus business⁴⁶ is nationally managed by the Federal Ministry for Transport, Innovation and Technology to promote young entrepreneurs in the academic sector in nine AplusB Centres located at or near universities. Activities include:</p> <ul style="list-style-type: none"> ▪ Mobilisation and awareness to stimulate the founding of companies; ▪ Consulting and qualification of young entrepreneurs; and ▪ Support in fundraising. <p>In February 2007, AplusB - academia plus business supported 273 people, of which only 26 were female founders or co-founders (approximately 10%).</p>
Review of data and information on female entrepreneurship: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
A recent study by the Federal Ministry for Economics and Labour investigated the promotion of entrepreneurship amongst women in science and technological fields using international comparisons. ⁴⁷	It found that whilst the percentage of female entrepreneurs in high-tech and research intensive sectors in Austria is not known exactly, an analysis of the context shows that it is far lower than that of males. The two main reasons for this are: women in general tend to start companies less frequently than men and in Austria they are clearly underrepresented in most fields of science and

⁴⁵ <http://www.ffg.at/content.php?cid=66>

⁴⁶ <http://www.ffg.at/content.php?cid=66>

⁴⁷ Federal Ministry for Economics and Labour (2008), 'Promotion of Female Entrepreneurship in High-Tech- and Research-intensive Sectors – International Comparison' (yet to be published)

	<p>technology. Specifically, the analysis found:</p> <ul style="list-style-type: none"> ▪ There is no comprehensive data detailing the number of women entrepreneurs in science and technology; however, their share is estimated to be around 10%; ▪ About 35% of all self-employed in Austria are female; mirroring the trends evident in 'all employment' analysis, the highest shares are seen in service sector occupations i.e. teaching and health; and ▪ More than twice as many companies were founded in 2005 than in 1993, and over the same period, the share of women has risen from 27% to 36%. <p>The report goes on to suggest that there are a number of approaches that may help to address the apparent inequalities in this area:</p> <ul style="list-style-type: none"> ▪ To increase the share of girls and women in science and engineering education at all levels. There is already a number of activities in Austria pursuing this objective which can only be achieved in the medium to long term; ▪ To address women in the context of general support measures for start-ups. This is also done in Austria (i.e. even women-specific incubators); and ▪ To promote women entrepreneurs specifically in science and technology intensive fields. Currently there are no such measures in Austria.
Federal Ministry for Economics and Labour (2007), 'Careers in Science'	The study quantitatively and qualitatively analysed the careers of 7,200

and Engineering – (Dis) Continuity in the Careers of highly qualified men and women'	<p>graduates with a degree in science and engineering over a 9 year period; half of this cohort population were female.⁴⁸ Whilst the report does not focus on entrepreneurship specifically, self-employment is investigated as one of the several career types.</p> <p>Women's careers were found to be more discontinuous than men's, even amongst the persons without maternity / paternity leave periods. 28% of men and 23% of women have been self-employed at least during parts of their careers. Looking at scientists and engineers separately reveals that the difference is mainly in the sciences (27% for males versus 16% for females); female engineers are as likely as male engineers to be self-employed, but on average for a shorter period of time.</p>
Federal Ministry for Economics and Labour (2007), Go My Own Way – The Situation of Self-employed Female Engineers in Austria ⁴⁹	<p>The report analysed the issues around independent work by women in the technical-engineering field. The research questions covered by this study included:</p> <ul style="list-style-type: none"> ▪ Numbers of female engineers self-employed in Austria: There are 11% women architects, 3% women consulting engineers, 6% individual businesswomen working as registered consulting engineers. ▪ Perceptions of their professional situation: Of all independent women engineers, 93% are very or quite satisfied with the aspect of working autonomously on projects. <p>Based on the results of the quantitative questionnaires and the detailed</p>

⁴⁸ Federal Ministry for Economics and Labour (2007), 'Careers in Science and Engineering – (Dis)Continuity in the Careers of highly qualified men and women'

⁴⁹ Federal Ministry for Economics and Labour (2007), Go My Own Way – The Situation of Self-employed Female Engineers in Austria, <http://www.w-f forte.at/de/knowledge-base.html>

	<p>qualitative interviews, some concrete measures and suggestions were developed:</p> <ul style="list-style-type: none"> ▪ The occupational image and the range of activity areas of the independent women engineer should be already represented positively in the education of engineers at secondary and vocational schools and at universities; ▪ Independent women engineers as well as their varied activity areas - for the purposes of a comprehensive representation of the occupational areas - should also be communicated and visualized to a broader general public; ▪ Concerning special supporting measures for young start-ups it is necessary that technical and engineering knowledge has a crucial part within these foundation programmes. Specific founders' programmes for engineers and courses for enterprisers with trainers with professional backgrounds would be desirable. Young engineers should be mentored by experienced professionals from their own occupation area; and ▪ Technical universities should have compulsory business skills modules.
Review of Policy support: Setting the context	
Title of the Report/Name of the Association	Key initiatives

<p>Start-up Programme,⁵⁰ programme managed by the public agency Austria Wirtschaftsservice GmbH (AWS)</p>	<p>This is a funding programme that provides support for high-tech start-ups in the pre-seed phase, seed-financing and management support. There is no specific gender focus.</p>
<p>Best of Biotech⁵¹ programme managed by the public agency Austria Wirtschaftsservice GmbH (AWS)</p>	<p>This is a business plan competition that aims to improve the implementation and exploitation of research findings in biotechnology through starting companies. There is no specific gender focus.</p>
<p>The AplusB (academia plus business)⁵² national programme is managed by the Federal Ministry for Transport, Innovation and Technology.</p>	<p>The programme aims to support young entrepreneurs in the academic sector in nine AplusB Centres located at or near universities. Activities include:</p> <ul style="list-style-type: none"> ▪ Mobilisation and awareness to stimulate the founding of companies; ▪ Consulting and qualification of young entrepreneurs; and ▪ Support in fundraising. <p>There is no specific gender focus.</p> <p>In February 2007, AplusB - academia plus business supported 273 people, of which only 26 were female founders or co-founders (approximately 10%).</p>
<p>Frau in der Wirtschaft" (Women in the Economy) is a department of the Austrian Chamber of Commerce dedicated to acting as a lobby for female entrepreneurs in all branches⁵³</p>	<p>It covers all of Austria and has offices in all nine provinces. Activities include:</p> <ul style="list-style-type: none"> ▪ Representing the interests of female entrepreneurs internally and vis-

⁵⁰ <http://www.awsg.at>

⁵¹ <http://www.bestofbiotech.at/>

⁵² <http://www.ffg.at/content.php?cid=66>

	<p>à-vis political decision makers;</p> <ul style="list-style-type: none"> ▪ Information, services and training for female entrepreneurs; and ▪ Support networking.
"Frauen gründen" (Women start companies), Federal Ministry for Economics and Labour (BMWA). ⁵⁴	This initiative provided a web-based information portal ("Knowledge Map") addressing female entrepreneurs and providing a lot of information and links to support services, structured along the various steps of founding a company. It is financed by the Federal Ministry for Economics and Labour (BMWA) and the European Social Funds (ESF) and provides information free of charge.
Review of Policy support: Women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
Several Austrian provinces have started business incubators or incubation services specifically for women ; they are located in Upper Austria, Styria, Vorarlberg, Vienna, Tyrol, and Carinthia. ⁵⁵	The activities are typical for standard business incubators: affordable office space and other rooms; office and marketing support, consulting – and also childcare facilities in some cases.
Review of Policy support: Women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives

⁵³ <http://wko.at/unternehmerin>

⁵⁴ <http://www.frauengruenden.info/>

⁵⁵ For example, Gründerinnenzentren (<http://www.gruenderinnenzentrum-stmk.at/>; <http://www.gzo.at/>)

There are no initiatives	
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Annex-C.7 France

FRANCE	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
GEM Women and Entrepreneurship 2006	The gender gap is significant in early stage entrepreneurship (6.26% for man against 2.53% for women). However, when considering established business female rates are slightly higher than male rates.
The Institut National de la Statistique et des Études Économiques (INSEE) 2007 report ⁵⁶	<p>The report shows that the average age of business start ups (male or female) is around 38 years. However, more often, women start up their businesses before their 30s (21% of women compared to 19% of men) or after 45 years of age (29% of women compared to 27% of men).</p> <p>Women entrepreneurs are well educated but have less professional experience in the labour market than men. Amongst women entrepreneurs, 54% hold an A-level degree or a bachelor's degree compared to 46% of men.</p> <p>However, women entrepreneurs have less labour market professional experience than men. In 2002, 20% of men entrepreneurs had previous work experience as an executive in a private company while only 14% of women entrepreneurs had the same professional experience. Before starting up their business, women had previous work experience in more junior positions. Less work experience in high positions means that women became</p>

⁵⁶ INSEE, Professional equality in business creation. The French female business creation compared to other countries
http://www.insee.fr/fr/insee_regions/lor/publi/pub_elect/femmes/egalite_creation_activite.htm

	<p>entrepreneurs with fewer business skills than men.</p> <p>The majority of women start their business in the retail and catering sectors (50% of women) or 41% in the service sector such as services to individuals, health/education and services to companies (41% of women)⁵⁷.</p>
2007 Agency for Enterprise Creation (APCE) survey on female entrepreneurship on a sample of 1,600 female SMEs ⁵⁸ .	<p>The survey shed some light on the profile of women entrepreneurs and obstacles they come across:</p> <p>Background of women entrepreneurs: before being entrepreneurs 62% of women were employees, 13% were housewives, 12% students, 10% were already managing a business and 2% were unemployed.</p> <p>Barriers faced by women in creating a new business:</p> <ul style="list-style-type: none"> ▪ 70% cited the difficulty of conciliating family life with professional life; and, ▪ 19% reported that it was more difficult for women to access the market and clients.
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings

⁵⁷ Men and women (pure business creation and takeovers) http://www.femmes-equalite.gouv.fr/grands_dossiers/dossiers/entreprendre_au_feminin/docs/acpe_0705.pdf

⁵⁸ Female entrepreneurship, part 2, survey TNS Sofres <http://media.apce.com/file/29/0/etude%20entrepreneuriat%20feminin%20version%20courte.18290.ppt>

Statistics on the number of women inventors/innovators' entrepreneurs in France are not available.	
Review of data and information on female entrepreneurship: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
Statistics on the number of women entrepreneurs in science and technology are not available.	
Review of Policy support: setting the context	
Title of the Report/Name of the Association	Key initiatives
F.G.I.F. (Fonds de Garantie à l'Initiative des Femmes pour la création, la reprise ou le développement d'entreprises). The F.G.I.F. are guarantee funds for women for the creation of enterprises ⁵⁹ .	<p>The fund aims to facilitate the provision of loans to women that would like to create, develop or take over an enterprise by facilitating access to a bank loan. The F.G.I.F. is managed in a decentralised way at local level.</p> <p>The proportion of women benefiting from support programmes available has increased in the last years. A report on women and labour policies between 1990 and 2002⁶⁰ shows that the proportion of women benefiting from ACCRE - <i>aide aux chômeurs créateurs ou repreneurs d'entreprise</i> (support to job seekers wishing to create or take over an enterprise) has increased from 31% in 1999 to 33% in 2002. To date, 10,763 women have benefited from this support programme.</p>

⁵⁹ <http://www.franceactive.org/fiches/instfina/fgif.php>

⁶⁰ Garo Joran, Guimiot Agnès, Les femmes dans les politiques d'emploi entre 1990 et 2002, Dares editions, http://www.travail.gouv.fr/etudes/etudes_h.html

Review of Policy support: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
Femme Business Angels (FBA) network ⁶¹	<p>FBA is the network of female business angels. Only 3% of business angels are women in France. FBA was launched in 2003 to facilitate women access to business investments and participation in innovative start-ups.</p> <p>FBA support both men and women business creation. However, the gender dimension is taken into consideration, with nearly 50% of the projects financed going to women.</p> <p>The purpose of FBA is to:</p> <ul style="list-style-type: none"> ▪ Support female business creation in the Paris region; ▪ To educate and encourage women to become business angels by discussion and training; ▪ To favour investment in women's business projects; and, ▪ To train and mentor women entrepreneurs.
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
The initiatives for women innovators/inventors entrepreneurs cover women	In 2006, a report by a ministerial committee for professional gender equality

⁶¹ http://www.europeanpwn.net/files/fba_10_06.pdf

entrepreneurs in science and technology as well.

In addition, France has several initiatives for encouraging more women to enter the science and technology field.

in research and higher education⁶², highlighted that more should be done to make scientific careers attractive to French women, and to remove the 'glass ceiling' preventing women to attain senior positions in research and high education institutes.

The committee's report also made a number of recommendations to encourage young girls to opt for science and technology, to facilitate women's access to senior positions in research and to help women conciliate motherhood with a scientific career. The French Ministry for Education and Research has allocated 500,000 Euro to support proposals for projects aiming to promote scientific careers for women.

⁶² <http://www.euractiv.com/en/science/france-boost-number-women-scientists/article-160437>

Annex – C.8 Poland

POLAND	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
World Bank Report on Poland (2004)⁶³	<p>In the past decades women's economic activities have experienced a rapid growth: between 1985 and 1998, the number of women with their own registered company, outside of farming, grew five times, while in the same period the corresponding indicator for men barely doubled. In rural areas, a wide variety of business initiatives were launched by young women, especially in the crafts, agro-tourism, and the sale of local food products. At present, the representation of women among the total self-employed in Poland is among the highest, compared to other European countries.</p> <p>The statistics demonstrate that the percentage of women business creators has rapidly grown since 1989. Nevertheless the proportion of female entrepreneurs has decreased from 1998 to 2001.</p> <p>Proportion of women entrepreneurs out of the total number of active women in Poland since 1989:</p> <ul style="list-style-type: none"> ▪ 1989: 3.7%

⁶³ World Bank reports, 2004.

	<ul style="list-style-type: none">▪ 1992: 8.9%▪ 1995: 7.3%▪ 1995: 7.3%▪ 1998: 8.3%▪ 2001: 7.2% <p>Proportion of women entrepreneurs out of the total number of self-employed people since 1989</p> <ul style="list-style-type: none">▪ 1989: 21.1%▪ 1992: 35.8%▪ 1995: 36.9%▪ 1995: 36.9%▪ 1998: 40.2%▪ 2001: 37%▪ 2005: 35%
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World Bank Report on Poland (2004)⁶⁴	<p>Main factors that motivate women to start their own business include:</p> <ul style="list-style-type: none"> ▪ Independence; ▪ Higher incomes; ▪ Entrepreneurial spirit; and ▪ Lack of career prospective as employees.
Ewa Lisowska, Oska biuletyn, Przedsiębiorczynie w Polsce Kilka danych statystycznych ⁶⁵	<p>National Survey with information on the main barriers that women entrepreneurs have come across. It showed that there are three main types of barriers to women's entrepreneurship in Poland: cultural, education and economic:</p> <ul style="list-style-type: none"> ▪ Cultural barriers: such as cultural stereotypes on women positions in society, undermining women's confidence and ability to become entrepreneurs (i.e. lack of support or even opposition from the family, lack of self-esteem and fear or risk or excessive responsibilities). ▪ Educational barriers: such as lack of training and entrepreneurial skills. ▪ Economic barriers: difficulties in accessing finance. Women face

⁶⁴ World Bank reports, 2004.

⁶⁵ Ewa Lisowska, Oska biuletyn, Przedsiębiorczynie w Polsce Kilka danych statystycznych <http://www.oska.org.pl/biuletyn/b5/lisowska.html>

	more difficulties than men to access the necessary finance to start a business. This is mainly due to the fact that women have less personal financial resources, more difficulties in persuading friends and family to lend them money and less knowledge on the financial schemes available ⁶⁶ .
Report: Women's Employment and Flexible Working ⁶⁷	It called for creating training programmes for women, with a special focus on soft skills and counselling.
A survey of the Economic Academy in Poznan ⁶⁸	It shows that women need training in finance and taxation as well as in marketing and management.
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
World Bank , Poland Country Gender Assessment March 2004 ⁶⁹	There are no data available on how many firms run by women are innovative.
Poland 2004 GEM report ⁷⁰	The lack of innovation seems to be a structural problem in Poland, affecting equally women and men entrepreneurs. The GEM Report shows that the

⁶⁶ The study also reports that Poland suffers from chronic shortage of capital to set up businesses.

⁶⁷ Waclaw Jarmolowicz, Barbara Kalinowska-Nawrotek, Women's employment and flexible working, <http://mikro.univ.szczecin.pl/bp/pdf/41/23.pdf>

⁶⁸ Hanna Mizgajska, Economic Academy in Poznan, Influence of education on the limited female entrepreneurship in the Wielkopolska region, http://www.fundacja.edu.pl/przedsiebiorosc/_referaty/sesja_IIIa/25.pdf

⁶⁹ The World Bank, POLAND, COUNTRY GENDER ASSESSMENT, March 15, 2004, Poverty Reduction and Economic Management Unit Europe and Central Asia Region <http://siteresources.worldbank.org/INTECAREGTOPGENDER/Resources/PolandCGA.pdf>

⁷⁰ Poland GEM report 2004, <http://www.gemconsortium.org/document.aspx?id=443>

	<p>innovative potential of new businesses in Poland is quite limited with only 10% of the entrepreneurs setting up a new business considering their company to be innovative, and over 50% of the respondents assessing their new business as not innovative.</p> <p>The GEM survey also shows that 68.8% of the people interviewed stated that their newly created business will not have any innovative influence on the market. Only 21.5 % of the respondents affirmed that their company will have a small innovative influence on the market.</p>
The Ministry of Economy, Labour Social Policy on innovation in Poland⁷¹	The proportion of innovative enterprises of the total number of companies amounts to only 16.9%.
Review of data and information on female entrepreneurship: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
The GUS- Główny Urząd Statystyczny (Central statistical office)	<p>Data on women's entrepreneurship in science and technology are not collected at national level.</p> <p>The data available on business creation are not classified by economic sector.</p>
A report of the Polish Agency for enterprise development (PARP) ⁷² on the "role of women in the innovative entrepreneurship of new technologies"	The report indicates that women earn less than men, are promoted less often and have less career opportunities (i.e. glass ceiling).

⁷¹ http://www.uj.edu.pl/citru/prezent/Prezentacja_J_Hausner_UJ.ppt

⁷² PARP, ROLA KOBIET W INNOWACYJNEJ PRZEDSIĘBIORCZOŚCI WYSOKICH TECHNOLOGII RAPORT KOŃCOWY Z BADAŃ JAKOŚCIOWYCH DLA POLSKIEJ AGENCJI ROZWOJU PRZEDSIĘBIORCZOŚCI Warszawa, sierpień – październik 2007

<p>University of Wroclaw⁷³ survey on a sample of women scientists to explore the factors that are important for female scientists when considering setting up their own business.</p>	Factors that female scientists would consider in setting a business			
Conditions	Very			
	Relevant	Relevant	Only Slightly Relevant	Irrelevant
	The business opportunity is clearly defined from the start	55%	18%	-
	The business opportunity has high growth potential	46%	18%	36%
	Business opportunity requires small financial investment	50%	23%	-
	Business opportunity is within field of expertise	45%	23%	27%
	Entrepreneurship allows good work – life balance	38%	24%	38%
Entrepreneurship enables personal development		62%	29%	9%
The business is located close to other businesses		5%	52%	33%
The business is located close to businesses led by other women		-	10%	-

⁷³In the frame of the FemStart project

	23% 45% 32%
<p>The survey also reports on those factors that women scientists perceived as obstacles in setting up a business:</p> <ul style="list-style-type: none"> ▪ Stereotypes; ▪ Low self-esteem among women; ▪ Little knowledge and information on a company creation; ▪ Lack of capital; and ▪ Difficulties in combining professional and family life. 	
Review of Policy support: Setting the context	
Title of the Report/Name of the Association	Key initiatives
<p>The Polish government does not have a specific policy for supporting female entrepreneurship. However, the task of promoting business initiative among women is undertaken by the following organizations:</p> <ul style="list-style-type: none"> ▪ The Centre for the Advancement of Women Foundation; ▪ The International Forum for Women; The International Women's Foundation of Łódź; and ▪ The Polish Association of Women Company Owners (PSWF). 	<p>These organisations are rather small and do not have many economic resources. They often have to rely on European Commission funded programmes to implement information, training, counselling and pilot projects targeted at women.</p>

Review of Policy support: Women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
There are no specific policy programmes and initiatives for supporting women innovators/inventors' entrepreneurship	
Review of Policy support: Women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
DEW-SET project (Developing the Enterprise and Entrepreneurial Capabilities of Women in Science, Engineering and Technology) run by the Regional Development Agency of Dolnośląsk (Dolnośląska Agencja Rozwoju Regionalnego) in cooperation with the University of Coventry under Euro Info Centre (DG ENTR).	<p>DEW-SET aims to increase the number of women setting up new science, engineering and technology businesses by providing:</p> <ul style="list-style-type: none"> ▪ Training guide for business advisors responsible for delivering entrepreneurial education for women entrepreneurs; ▪ Self-diagnostic tool kit for female entrepreneurs to help them to define their training needs; and ▪ Virtual network of female entrepreneurs in science, engineering and technology; <p>As a result, 15 women enrolled on business-related courses or receiving direct business start-up support, 25 business support advisors were trained on women's needs, female friendly training guide and promotional activity were developed to enable further development and future sustainability across the EIC network.</p> <p>This pilot project has received international recognition by the EIC network,</p>

	<p>and has been considered a good practice for the support, encouragement and development of new innovative female companies.</p>
<p>FemStart, an initiative funded by the European Commission's 6th Framework Programme for Research and Technology within the Science and Society Priority.</p>	<p>It was launched in September 2006 and it aims to start a public debate on the issue of how female scientists can be motivated to start their own businesses after university. The Polish partner involved in the project is the Wroclaw University of Technology – Wroclaw Centre for Technology Transfer.</p> <p>The project aimed at organising a series of events at six universities in different European regions, for the purpose of starting a debate on female entrepreneurship in science and technology. Women entrepreneurs or scientists that have already started a business are also involved to share their personal experience during the events.</p> <p>The FemStart project has carried out a survey on a sample of female scientist that have started a business to explore which types of support is necessary to increase the number of women setting up a business in science and technology. According to the survey, the type of support that is very relevant is (in order of importance):</p> <ul style="list-style-type: none"> ▪ Receiving coaching by experience entrepreneurs; ▪ Networking with potential customers/clients; ▪ Training on entrepreneurial skills; and ▪ Availability of research facilities/laboratory. <p>While the type of support that is relevant is (in order of importance):</p>

	<ul style="list-style-type: none"> ▪ Access to network of female entrepreneurs; and ▪ Easy access to venture capital. <p>The majority of the survey's respondents think that Universities structures should support female scientists to become entrepreneurs (57%), whereas at the moment the support offered by Universities is believed to be not effective (43%). The respondents pointed out that:</p> <ul style="list-style-type: none"> ▪ It is still not accepted or appreciated by Universities to have staff (female or male) who are involved in entrepreneurship; ▪ There is a lack of real entrepreneurial education; ▪ There is a lack of clear rules for technology transfer (intellectual property); and ▪ There is no experience in introducing venture capital/other financial resources. <p>The vast majority of respondents (85%) thought that female scientists need special support to start a business in science and technology sectors. Women-focused support would be required in the following areas:</p> <ul style="list-style-type: none"> ▪ Support from experienced entrepreneurs; ▪ Trainings on entrepreneurship, business management and marketing; ▪ Financial help; and
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	<ul style="list-style-type: none"> ▪ Help to combine professional and family life by (e.g. more child-care facilities). <p>Relevant support actions for female scientists</p> <p>Support actionsVery</p> <table border="1"> <thead> <tr> <th></th><th>Relevant</th><th>Relevant</th><th>Only slightly relevant</th><th>Irrelevant</th></tr> </thead> <tbody> <tr> <td>Coaching by scientific mentor</td><td>38%</td><td>29%</td><td>29%</td><td>5%</td></tr> <tr> <td>Coaching by experienced and/or former entrepreneur</td><td>9%</td><td>-</td><td>73%</td><td>18%</td></tr> <tr> <td>Access to network of female entrepreneurs</td><td>-</td><td>13%</td><td>55%</td><td>32%</td></tr> <tr> <td>Access to general business networks</td><td>41%</td><td>45%</td><td>14%</td><td>-</td></tr> <tr> <td>Training on entrepreneurial skills</td><td>59%</td><td>32%</td><td>9%</td><td>-</td></tr> <tr> <td>Easy access to venture capital</td><td>36%</td><td>50%</td><td>14%</td><td>-</td></tr> <tr> <td>Availability of research facilities (lab, equipment, etc.)</td><td>18%</td><td>-</td><td>50%</td><td>32%</td></tr> <tr> <td>Networking with potential customers/clients</td><td>-</td><td>64%</td><td>32%</td><td>4%</td></tr> </tbody> </table>		Relevant	Relevant	Only slightly relevant	Irrelevant	Coaching by scientific mentor	38%	29%	29%	5%	Coaching by experienced and/or former entrepreneur	9%	-	73%	18%	Access to network of female entrepreneurs	-	13%	55%	32%	Access to general business networks	41%	45%	14%	-	Training on entrepreneurial skills	59%	32%	9%	-	Easy access to venture capital	36%	50%	14%	-	Availability of research facilities (lab, equipment, etc.)	18%	-	50%	32%	Networking with potential customers/clients	-	64%	32%	4%
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Pilot project DIONE (Diversity IntO Networks Across Europe) and is funded by the European Community under the gender equality framework (2001-2005). The partner organizations working within DIONE in Poland are the Gdansk Entrepreneurship Foundation and the City Council of Gdansk, which runs special educational and advisory programmes for new business start-ups.	<p>The information available suggests that the project aimed to:</p> <ul style="list-style-type: none"> ▪ Mentor female entrepreneurs in the technology sectors; and ▪ Develop best practice in the networking and mentoring of female entrepreneurs. 				

Annex- C.9 Latvia

LATVIA	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
Global Entrepreneurship Monitor (GEM) 2005 Latvia Report ⁷⁴ includes a short section on Female Entrepreneurship.	<p>Female early stage entrepreneurship is 4%. The GEM 2005 Latvia Report highlights that:</p> <ul style="list-style-type: none"> ▪ Women set up their own business later on in life than men; ▪ Women entrepreneurs are highly educated, with a large proportion of women holding a bachelor or master's degree; ▪ Slightly more women (42%) than men (41%) see entrepreneurship as an opportunity more than a forced choice (i.e. due to lack of opportunities). However, more women (23%) than men (12%) became entrepreneurs due to a lack of choice. ▪ Women are equally interested in business growth as are men⁷⁵.
The GEM 2006 Latvia Report ⁷⁶	Gender inequalities in relation to entrepreneurship in Latvia remain strong. At

⁷⁴ Dombrovsky et al. Global Entrepreneurship Monitor (GEM) 2005 Latvia Report. Founding and Cooperating Institutions: TeliaSonera, Baltic International Centre for Economic Policy Studies (BICEPS), Stockholm School of Economics in Riga, TeliaSonera Institute, Latvijas Fakti

⁷⁶ Dombrovsky et al. Global Entrepreneurship Monitor (GEM) 2006 Latvia Report. Founding and Cooperating Institutions: TeliaSonera Institute at SSE-Riga, Baltic International Centre for Economic Policy Studies (BICEPS) and Latvijas Fakti.

	<p>the same time, the skills level of men and women are quite similar (this is a unique observation compared to other European countries), which leads to the conclusion that women represent a significant pool of entrepreneurial potential in Latvia. The key points include:</p> <ul style="list-style-type: none"> ▪ Only four out of one hundred women were involved in early-stage entrepreneurship in 2006 compared to nine out of one hundred men; and ▪ Fear of failure is not a characteristic of particular importance for Latvian women. However, almost the same percentage of women and men answered that fear of failure can prevent them from starting a business.
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
GEM 2006 Latvia Report had a particular focus on innovation.	The gender gap is even greater amongst female and male entrepreneurs' innovators than entrepreneurs in general. Only about 24% of all innovating firms (core and moderate) are run by women. By comparison, the percentage of women among non-innovating entrepreneurs stands at 37%.
Review of data and information on female entrepreneurship in Finland: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
"Recommendations for Education Institutions, Carrier Development Support	This study provides several data on gender segregation in Science and

<p>Institutions, and Sector Enterprise Associations Cooperation in Attracting Potential Employees to the Perspective Sectors in Latvia⁷⁷ by the Society Integration Foundation (SIF)</p> <p>Study funded under ProfEQUAL project</p>	<p>Technology:</p> <ul style="list-style-type: none"> ▪ In the technical sphere, gender segregation is particularly evident. Machine construction and metal processing sectors had 12% women employees in 2005. 39% of women worked in the Electronic and electro-technical sectors, while 61% of men did the same. In information and communication technology enterprises, the number of women amongst the permanent workers did not exceed 10% in micro-enterprises, 11-25% in medium-sized enterprises, and 26 - 50% in large-scale enterprises. ▪ In technical industries horizontal segregation is evident with only 4.3% of women being in high level occupational positions. <p>This labour segregation reflects women's educational choices, with data showing that women constitute 22% of the total number of students in engineering and technology universities programmes (Central Statistical Bureau, Women and men in Latvia, Riga, 2003 & 2006).</p>
<p>The Technology Development Forum undertook a study on the "Factors Promoting and Hindering Women Involvement in Entrepreneurship in Latvian Engineering and Technical Sectors"⁷⁸.</p>	<p>The study carried out interviews on factors fostering and hindering women's entrepreneurship in these sectors. The main findings were:</p> <ul style="list-style-type: none"> ▪ Lack of family support, child-care as well as a desire to avoid risk; ▪ Women find it difficult to access the male dominated network in the

⁷⁷ Nováková, Jolana. REKOMENDĀCIJAS IZGLĪTĪBAS IESTĀŽU, KARJERAS ATTĪSTĪBAS ATBALSTA IESTĀŽU UN NOZARU UZŅĒMUMU ASOCIĀCIJU SADBŪVĀI POTENCIĀLO DARBA NĒMĒJU PIESAISTĪŠANAI PERSPEKTĪVAJĀS NOZARĒS LATVIJĀ. Riga, 2007. The project 'Reducing Causes of Professional Segregation' is being implemented within the framework of the EQUAL European Community Initiative that is being managed in Latvia by the Ministry of Welfare.

⁷⁸ Biedrība „Tehnoloģiju attīstības forums”. Pētījums „Veicinošie un kavējošie faktori sieviešu iesaistei uzņēmējdarbībā inženiertehniskajās nozarēs Latvijā” (ProfEQUAL Project) Latvia 2006/2007

Study funded under ProfEQUAL project ⁷⁹	<p>engineering and technical sector, preventing them from obtaining the necessary informal support and cooperation;</p> <ul style="list-style-type: none"> ▪ Lack of business knowledge; ▪ Lack of adequate finance; and ▪ Low self-esteem. <p>Respondents also indicated that adequate counselling targeted at women, could help female entrepreneurs.</p>
Review of Policy support: setting the context	
Title of the Report/Name of the Association	Key initiatives
<p>The association Lider (Female Leader)⁸⁰ is running a pilot project for supporting female entrepreneurs in general, with a special focus on young female entrepreneurship since March 2006.</p> <p>The ProfEQUAL project</p>	<p>The project consists in providing individual mentoring to potential entrepreneurs in sectors such as retail, real estate, information and social sector, non-traditional agriculture, creative and entertainment industry, and public catering. Each nascent entrepreneur is associated with an experienced business-person for sharing their knowledge and experience. So far, the project has matched 19 nascent women entrepreneurs with 13 mentors, resulting in three companies being established and eight in the process of being created.</p>

⁷⁹ ProfEQUAL project funded a number of studies relating indirectly and directly to the theme of women entrepreneurship in SET. The Latvian Society Integration Foundation (SIF) study on "Promoting Women's Entrepreneurship in Technology Sectors: Good Practice Examples from the EU and Other Countries has been presented under the European section as it does not contain specific information on Latvia but only at European and international level.

⁸⁰ http://www.lidere.lv/en_esam.html

Review of Policy support: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
The above initiative (Lider -Female Leader) also covers innovative female entrepreneurship in non-technical sectors.	Training and mentoring in the creative and entertainment industry and in the non-traditional agriculture sector.
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
FemStart⁸¹ (Universities debate female start-ups) is a European initiative for supporting female entrepreneurship in science and technology.	A conference was held in Latvia on 17-18 January 2008. This was organised by the European Platform for Women Scientist (EPWS) and included the participation of female scientists and entrepreneurs. It discussed programmes and policies supporting technology oriented female entrepreneurship as well as personal experiences, challenges and future vision.
Support for women who are willing to become employers in technology and knowledge-based sectors.- ProfEQUAL pilot project	<p>The target group is women enrolled in studies leading to a university or master degrees science and technology sectors (i.e. maths, physics, engineering, IT or natural science).</p> <p>The project has been organised around four key sets of support services:</p> <ul style="list-style-type: none"> ▪ Entrepreneurship motivation and training courses; ▪ Counselling;

⁸¹ The initiative consists in a series of public debates organised by several European universities in Germany, Spain, Poland, Latvia, Romania and Netherlands. The conferences focused on how entrepreneurship supporting structures in universities can be improved to encourage women entrepreneurship.

	<ul style="list-style-type: none"> ▪ Mentoring; and ▪ Grants. <p>The project foresees a six-month provision of entrepreneurship motivation and training courses along with counselling services, followed by ten-months of mentoring. The initial evaluation of this pilot project shows positive results, with 12 female enterprises being set up, which overall employed 86 people after six months⁸².</p> <p>The pilot project “Support for women who are willing to become employers in perspective fields” has been identified as good practice for the European Enterprise Awards in the category Enterprise Support Award.</p>
<p>Līdere (Female Leader) has developed a programme for mentoring female entrepreneurs in science and technology.</p> <p>The ProfEQUAL project</p>	<p>Līdere supported 16 women with the most promising business ideas in Science and Technology. This mentoring program for women entrepreneurs in technical industries commenced in April 2006.</p>

⁸² Pilot project: “Support for women who are willing to become employers in perspective fields”. The European Enterprise Awards Entry Form.
http://www.em.gov.lv/em/images/modules/items/item_file_17777_sif_en.doc

Annex- C-10 Czech Republic

CZECH REPUBLIC	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
The 2006 GEM National Report for the Czech Republic included a number of datasets which were disaggregated by gender ⁸³ .	<p>Key findings included:</p> <ul style="list-style-type: none"> ▪ The prevalence rate of early-stage entrepreneurs was 2.2 times higher for men than women; ▪ In established business ownership there were 2.4 times more male entrepreneurs than female ones; 8% of men had established business compared to 3% of women; ▪ The nascent and early-stage entrepreneurship prevalence ratio for male respondents was 4.31, while for female respondents it was only 1.98; ▪ 11% of males and 5% of females are involved in early stage of entrepreneurship; ▪ 33% of men perceived there to be good business opportunities in the city they live over the next six months, compared to 21% of women; and

⁸³ GEM (2007), Czech Republic GEM National Report 2006, <http://www.gemconsortium.org/document.aspx?id=583>

	<ul style="list-style-type: none"> ▪ The prevalence rate of men convinced of their entrepreneurial prerequisites is 50%, whereas it is only 32% for women. <p>The Czech population has a comparatively low level of self-confidence in respect to the belief that Czechs have the skills, knowledge and experience needed to start up a new business; this may thwart entrepreneurial activity before it even has a chance to grow. This self-confidence is higher in men, individuals with a university degree, households with higher incomes and it is slightly higher in the age group of 25 - 34. On the contrary, it is women, the unemployed and home workers, people from villages and smaller towns and individuals from low-income households for whom fear is a limiting factor.</p>
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
No data are available on the number of women inventors/innovators entrepreneurs	
Review of data and information on female entrepreneurship in: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
No analysis of the numbers and nature of women entrepreneurs operating in the science and technology are available. However, a number of proxy indicators suggest the number is low.	

<p>The Czech Science Foundation an independent institution created in 1993 to promote progress over the whole range of basic research in the Czech Republic⁸⁴,</p>	<p>Data on the value of the scientific grants it awards to women for original research, as a proportion of the total number of grants awarded:</p> <table> <tbody> <tr> <td>1999</td> <td>–</td> <td>15.8%</td> </tr> <tr> <td>2003</td> <td>–</td> <td>18.38%</td> </tr> <tr> <td>2007</td> <td>–</td> <td>22.88%</td> </tr> </tbody> </table>	1999	–	15.8%	2003	–	18.38%	2007	–	22.88%																														
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<p>There is a national award for “best personality in science and technology”⁸⁵.</p>	<p>Data of nominations for awards and winners are breakdown by gender analysis of these data show that the number of women being nominated and winning the award is still low.</p> <table> <thead> <tr> <th></th> <th></th> <th>Nominations</th> <th></th> <th>Winners</th> <th></th> </tr> </thead> <tbody> <tr> <td rowspan="2">2007</td> <td>male</td> <td>75</td> <td>82.42%</td> <td>7</td> <td>87.50%</td> </tr> <tr> <td>female</td> <td>16</td> <td>17.58%</td> <td>1</td> <td>12.50%</td> </tr> <tr> <td rowspan="2">2006</td> <td>male</td> <td>71</td> <td>87.65%</td> <td>6</td> <td>85.71%</td> </tr> <tr> <td>female</td> <td>10</td> <td>12.35%</td> <td>1</td> <td>14.29%</td> </tr> <tr> <td rowspan="2">2005</td> <td>male</td> <td>62</td> <td>80.52%</td> <td>5</td> <td>62.50%</td> </tr> <tr> <td>female</td> <td>15</td> <td>19.48%</td> <td>3</td> <td>37.50%</td> </tr> </tbody> </table>			Nominations		Winners		2007	male	75	82.42%	7	87.50%	female	16	17.58%	1	12.50%	2006	male	71	87.65%	6	85.71%	female	10	12.35%	1	14.29%	2005	male	62	80.52%	5	62.50%	female	15	19.48%	3	37.50%
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⁸⁴ http://pala.gacr.cas.cz/wordpress/?page_id=27

⁸⁵ <http://www.ceskaahlava.cz/index.php?mainpager=page&id=14&csum=20a6d29>

	2004	male	124	83.78%	8	80.00%
		female	24	16.22%	2	20.00%
	2003	male	72	82.76%	7	87.50%
		female	15	17.24%	1	12.50%
	2002	male			5	100.00%
		female			0	0.00%
Review of Policy support: setting the context						
Title of the Report/Name of the Association	Key initiatives					
ESF funded ' Woman in Entrepreneurship ' project was established to support women with nascent businesses ⁸⁶ .	The project develops education modules which comprise 36 courses, complemented by e-learning modules. All training was accompanied by guidance activities.					
Women's element is EU-funded project to support mentorship among women entrepreneurs.	<p>Through a network of guidance centres the project supports women entrepreneurs in the first three years of their activity⁸⁷. Guidance centres provide:</p> <ul style="list-style-type: none"> ▪ Expert advice on issues related to set-up of businesses; ▪ Advice how to combine family life and household tasks with running of a business; and 					

⁸⁶ <http://www.podnikavazena.cz/>

	<ul style="list-style-type: none"> ▪ Information on training possibilities.
The Ministry of Industry and Trade run a programme to support entrepreneurship activities to enhance equal opportunities of women and men ⁸⁸ .	<p>This programme supports initiatives to:</p> <ul style="list-style-type: none"> ▪ Provide guidance to women entrepreneurs; ▪ Education and training activities; ▪ National and transnational cooperation to support equal opportunities; and ▪ Publications to support the above activities.
Monitoring data presented within the 2006 report for mid-term evaluation of the Operational Programme Industry and Enterprise ⁸⁹	<p>The 2006 report for mid-term evaluation of the Operational Programme Industry and Enterprise⁹⁰, details the achievement of project against an equal opportunities priority. Measure 2.1, and specifically within it, the START and CREDIT programmes⁹¹, were required to measure the female shares amongst their total beneficiary populations (i.e. where companies they supported had least half of its registered capital held by a woman/women); the target was to have at least 25% shares at project completion.</p> <p>In the period 2004-2006 the overall programme achieved 39% shares. The evaluation found that the START and CREDIT sub-programmes ultimately achieved respective shares of 43% and 29%; according to the monitoring data, this support led to the creation of 163 (for START) and 64 (CREDIT) new SMEs by women.</p>

⁸⁷ <http://www.zenskyelement.cz/main.php?page=1>

⁸⁸ <http://download.mpo.cz/get/25985/28539/312413/priloha003.doc>

⁸⁹ <http://www.mpo.cz/dokument22072.html>

⁹⁰ <http://www.mpo.cz/dokument22072.html>

Review of Policy support: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
There are no policies and initiatives for the support of women innovators/inventors.	
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
<p>There are no policy and initiatives for supporting women entrepreneurs in science and technology in Czech Republic. However, there are a number of projects in the Czech Republic aim to develop the position of women in the science and engineering.</p> <p>In 2000 a new national Contact Centre for Women and Science was set up in Prague by the Ministry of Education, Youth and Sports, with a view to promoting equal opportunities in research and development, providing institutional support for Czech women scientists and supporting their involvement in European research activities⁹².</p>	<p>The Centre not only contributes to the integration of the gender in Czech research, but also provides an interface between Czech women scientists and the broader European research sector. The centre publishes a newsletter focusing on women in science, which includes portraits of successful Czech female scientists.</p>

⁹¹ START – Support of the implementation of business plans (acquisition of material and intellectual property and the funding of stock) of individuals and legal entities launching business for the first time or after a longer period of time; support is provided through soft loans; CREDIT – Support of the implementation of development projects of SMEs with a shorter history (acquisition of physical and intellectual property or the funding of stock).

⁹² <http://www.zenyaveda.cz/html/>

Annex C-11 Hungary

HUNGARY	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
2001 GEM Report on Hungary⁹³	The survey estimated the share of women entrepreneurs to be 7% of the adult population, roughly half that of men. In the special 2006 GEM Report on women entrepreneurship, the share was somewhat higher at 8.5%. The ratio however remains the same; there are still roughly twice as many men as women entrepreneurs in Hungary.
In 2007, a study on Women entrepreneurs and firms owned by women⁹⁴ was carried out aimed at presenting the differences and similarities of firms owned by women and men.	<p>The study was based on a survey among 432 randomly selected companies in Hungary, with special focus on the companies in the county of Baranya in Southern Hungary. 32% of the companies in the sample were owned by women. The following observations can be made:</p> <ul style="list-style-type: none"> ▪ Companies owned by men are slightly larger and have higher revenues than those owned by women. Companies owned by women however have higher profits; ▪ There are differences between the motives for company start up between men and women. The share of women is higher in companies started due to both necessity and opportunity (23% of women, 13% of men), whereas the share of men is higher in the

⁹³ http://www.gemconsortium.org/files.aspx?Ca_ID=134

⁹⁴ Szerb (2007), Women entrepreneurs and firms owned by women in Baranya county 2001-2004, University of Pécs

	<p>start-ups based solely on opportunity (68% of men as opposed to 60% of women);</p> <ul style="list-style-type: none"> ▪ No major differences were found between men and women company owners in terms of age and educational background; ▪ Fewer people are recruited by female owned companies, at the same time fewer are dismissed; ▪ Companies owned by women innovate to a lesser extent than those owned by men. Only 29% of female owners have used a new product or technology since the establishment of the company, compared to 41% of those owned by men; and ▪ Women rated the high level of taxes and social costs, the administrative burden and the general economic situation as the three main obstacles for growth of their companies.
<p>The Hungarian Microfinance Network carried out a study⁹⁵ in 2007 within the framework of a project entitled “Fostering Gender Equality: Meeting the Entrepreneurship and Microfinance Challenge”.</p>	<p>The project was carried out in eight European countries and aimed at evaluating the business environment for women entrepreneurs in order to improve microfinance providers' understanding of women entrepreneurs to better serve those who are or wish to become self-employed or micro entrepreneurs. The study takes a broad view on gender equality in society and has a section dedicated to gender equality in entrepreneurship. In addition to referring to GEM data and the 2007 study on women entrepreneurs mentioned above, the following observations are made:</p> <ul style="list-style-type: none"> ▪ Less than 30% of enterprises receiving micro-credit are owned by

⁹⁵ Hungarian Microfinance Network (2007), Entrepreneurial Environment Study: National Report of Hungary

	<p>women;</p> <ul style="list-style-type: none"> ▪ Many female enterprises start practically without or with a very low amount of capital. More than 25% of 800 women entrepreneurs taking part in a 1996 survey did not have the necessary capital for the start-up and the amount of capital was in general very low; ▪ This study suggests the following measures to improve women entrepreneurs' access to finance; ▪ Adopting positive discrimination of women entrepreneurs in government support programs and among business development service providers, the rationale being that since women are disadvantaged from the start due to several factors, a gender neutral approach is less useful; ▪ Enhancing the services of organizations that provide financial guarantee as a substitute for collateral and to improve the terms of guarantee; ▪ Creating a strategy for microfinance institutes specifically considering the needs of female entrepreneurs.
<p>The SEED foundation is a foundation aiming at improving the culture of entrepreneurship in Hungary, extending entrepreneurs' professional knowledge, and enhancing the competitive power of small enterprises. Women are among their main target groups and the foundation occasionally carries out research on women entrepreneurs. A study⁹⁶ from 2004 covers women entrepreneurs in Vas county in north-western Hungary.</p>	<p>The study was based on a survey among a representative sample of 350 women entrepreneurs in the county and aims at providing a base for development of concrete actions and programs to support women entrepreneurs in the county. The study contains information on some of the difficulties women entrepreneurs face⁹⁷. One of the obstacles is the role that women take in housework and in caring for the family in addition to their</p>

⁹⁶ SEED Foundation (2004); Support to women entrepreneurs in Vas County

	<p>business:</p> <ul style="list-style-type: none">▪ 51% of interviewees claim the main reason for women entrepreneurs to be less successful than their male counterparts is their responsibility for the family;▪ 60% of interviewees do the same amount of housework after the start up of their company as before, despite working more than before the start-up; <p>Lack of entrepreneurship/business skills, machinery and equipment and lack of capital are also important factors:</p> <ul style="list-style-type: none">▪ 40% of interviewees started their company without specific business skills;▪ 38% of interviewees started their company without equipment; and▪ 36% of interviewees started their company without capital. <p>The study proposes the following support actions to be developed:</p> <ul style="list-style-type: none">▪ Training and skills development in the areas of finance/accounting, marketing/promotion market analysis and computers/internet;▪ Advisors specifically trained for providing start up assistance and advice; and▪ The creation of networking possibilities with other entrepreneurs.
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Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
No data are available on this subject.	
Review of data and information on female entrepreneurship Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
No data are available on this subject.	
Review of Policy support: setting the context	
Title of the Report/Name of the Association	Key initiatives
The National Human Resources Development Operative Program focused on women on the labour market and female entrepreneurs.	Training and networking
Regional Forum of Enterprising Women (VERA) is a program for enhancing competence and networking with the support of e-learning and e-mentoring in the region of Central Hungary.	It aims to improve entrepreneurial knowledge, develop complex training programs for competence development and networking and to generate partner co-operation between the participating enterprises and women.
Review of Policy support: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
The SEED Foundation carried out a project entitled " Entrepreneurs in the beginning of the 21st century: Learning, Knowledge and Innovation " to stimulate innovative enterprise, even amongst women, but without much	The Project involved training, advice and mentoring for women wanting to start or having their own business. In theory, innovative activities were to be given specific attention within the program, however in practice the participants were women aiming at self employment as e.g. language

success.	teachers, beauticians or cleaners.
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
There are no specific policy measures.	

Annex- C.12 Italy

ITALY	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
GEM 2006 Italy⁹⁸	<p>Gender gap in the early stage of entrepreneurial activity is narrower than in other European countries: 3.87% for men and 3.06% for women. However, the gender gap is wider when considering established business owners: 4.32% for men and only 1.72% for women.</p> <p>The presentation of other variables (i.e. age, motivations for setting up a business, perceived constraints, initial investments, etc) does not include a gender analysis.</p>
More information on women entrepreneurs is provided by Unioncamere (the national association of the Chambers of Commerce). Unioncamere has created a National Observatory on Female Entrepreneurship which every year presents some figures on women's enterprises based on analysis of the business register ⁹⁹ .	<p>The report presents the percentage of female enterprises out of the overall number of Italian enterprises by sectors. The data show that the percentage of enterprises run by women is 23.96%. Unsurprisingly, data show that the percentage of female enterprises is higher in traditional sectors, such as hotel and restaurants, commerce, agricultural, health and social services, personal and domestic services. The percentage of female enterprises is relatively higher in the sector covering Real Estate, ICT and Research (24.66%), but this is probably due to the female concentration in real estate businesses.</p> <p>Percentage of female enterprises by sectors</p>

⁹⁸ Global Entrepreneurship Monitor: Rapporto sull'Italia 2006, Guido Corbetta, Universita' Bocconi Milano

⁹⁹ Business registration at the Chamber of Commerce is compulsory in Italy for all businesses, and thus data are comprehensive.

Sector	Total Number of Enterprises	Number female enterprises	Percentage of female enterprises
A Agriculture and Forestry	921,601	269,728	29.27%
B Fishing	11,768	1,485	12.62%
C Mininig	4,079	449	11.01%
D Manufacturing	632,067	126,882	20.07%
E Utilities (gas, water, electricity)	3,273	251	7.67%
F Constrcutions	767,347	43,632	5.69%
G Commerce	1,418,059	389,717	27.48%
H Hotels and Restaurants	261,319	88,014	33.68%
I Transports and Communications	190,627	22,660	11.89%
J Finance	103,288	24,234	23.46%
K Real estate, ICT and reseach	557,086	137,395	24.66%
M Education	18,354	5,987	32.62%
N Health and Social Services	23,839	9,967	41.81%
O Personal & Domestic Services	225,339	111,039	49.28%
X others	31,040	6,849	22.07%
TOTALE	5,169,086	1,238,301	23.96%

Source: own elaboration from Unioncamere 2007

Table below presents types of female enterprises (solo entrepreneurs/other types) out of the total number of female enterprises. The data shows that the great majority of women enterprises are made of solo entrepreneurs, even if the number has gone down by 2% between 2006 and 2007.

Types of female enterprises (solo entrepreneurs/ other types of enterprise)

		Type of Company	Overall Number of Female Enterprise	2007 %	2006 Women Enterprises %
Solo Entrepreneurs	870,240	70.3	876,009	72.3	
Other Types	368,061	29.7	352,525	28.7	
TOTALE	1,238,301	100	1,228,534	100	

Source: own elaboration from Unioncamere 2007

Review of data and information on female entrepreneurship: Women Inventors/innovators					
Title of the Report/Name of the Association	Key findings				
Statistics on women inventors/innovators' entrepreneurs do not exist at national level. However some information on female innovative entrepreneurship has been found at regional level.					
The **Regional Development Agency of Emilia-Romagna (ASTER)** undertakes a gender analysis of initiatives for business creation, spin-off and business incubators.	The gender disaggregated data of Spinner, the regional spin-off for the development of innovation and research indicates that: - 33.7% of supported projects for business creation went to female enterprises; - 25.7% of supported projects for 'after care' went to female enterprises; - 38% of supported projects for innovation of process went to female enterprises; - 42.3% of supported projects for technological transfer went to female enterprises; and,				

	<ul style="list-style-type: none"> ▪ 36.5% of university awards went to female students and researchers. <p>It is interesting to note that the figures above reflect rather accurately the rate of male/female applications for support.</p> <p>The gender analysis of women that have been supported by measures for business creation in innovative sectors shows that women have operated in the following sectors:</p> <ul style="list-style-type: none"> ▪ Environmental protection; ▪ Health and diagnosis; ▪ Chemical and pharmaceutical; ▪ Biotechnologies; and ▪ ICT.
Review of data and information on female entrepreneurship: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
There is no systematic collection of data and information on women entrepreneurs in science and technology. However, recently the Chamber of Commerce of Milan ¹⁰⁰ has analysed the National Chamber of Commerce Business Register to find out the number of female enterprises operating in technology	<p>Figures from 2006 National Chamber of Commerce Business Register suggest that:</p> <ul style="list-style-type: none"> ▪ Female enterprises in technology sectors are only 2.5% (31,272) of the overall total of women enterprises;

¹⁰⁰ Donne e Tecnologia www.mi.camcom.it

sectors.	<ul style="list-style-type: none"> ▪ Female enterprises in technology sectors tend to concentrate in ICT (56%) ▪ Female enterprises in R&D are extremely rare, with only 1.4% (460) of the overall number of women enterprises; ▪ The rate of female enterprises in technology sectors is growing slowly at 1.1% on annual basis.
The gender analysis of Region Emilia Romagna ITECHOFF businesses support for the development of business in ICT and multimedia).	Data shows that the great majority of beneficiaries are men (85% men compare to only 17% women).
Emilia Romagna Region Focus Group on women entrepreneurs in science and technology (2007)	<p>According to the findings the percentage of women creating an enterprise in science and technology is still very low, even if the proportion of such women is slightly increasing.</p> <p>The qualitative analysis of the focus group's report and of the personal stories of female entrepreneurs in Emilia-Romagna, highlights the main barriers to women entrepreneurship in these sectors:</p> <ul style="list-style-type: none"> ▪ Access to finance is a problem. Investments for developing a product might be substantial (i.e. technological equipment) as well as its commercialization (i.e. participating to science and technology fairs to promote the new product is very costly); ▪ Women entrepreneurs in science and technology are seen as less credible; ▪ Women pursuing a career in research do not have entrepreneurial skills (research skills are different from entrepreneurial skills); ▪ There is a lack of entrepreneurial culture within academic bodies;

	<ul style="list-style-type: none"> ▪ Without specific targeted support to women entrepreneurship in science and technology business creation remains a male prerogative; ▪ The female presence in certain academic disciplines is still weak (for example information technology, engineering, etc). <p>The qualitative analysis of the focus group and case histories also enables some conclusions on the profile of women entrepreneurs in science and technology:</p> <ul style="list-style-type: none"> ▪ They tend to have a degree in physics, engineering information and communication, sciences, natural and biological sciences; ▪ They tend to have a PhD; ▪ Previous professional experience; ▪ On average, they are aged 35 years; ▪ They tend to create enterprises for the commercialisation of their products or B2C sector; ▪ Their motivation to set up a business tends to be the desire to work independently and in autonomy.
Review of Policy support: setting the context	
Title of the Report/Name of the Association	Key initiatives
National Law 215 for the support of female entrepreneurship	Italy has a long tradition of initiatives dealing exclusively with the promotion of female entrepreneurship. Since 1992, a national programme has been created for the support of women enterprise. The programme, normally referred as Law 215, provides for different

	<p>types of financial help, such as:</p> <ul style="list-style-type: none"> ▪ Support for business creation; ▪ Support for the acquisition of existing business; ▪ Support for the introduction of innovation in an already existing business, with innovation being defined as product innovation, process innovation and organisation innovation; and ▪ Support for purchasing services for increasing productivity, implementing technological transfer, promoting internationalisation and marketing. <p>Analysis of the supports provided to female entrepreneurs indicates that the majority of financial support is allocated to business creation (76.8%), followed by the introduction of innovation in already existing business (20.7%).</p> <p>The support at national level is integrated by specific policies at regional and local level. Each regional government has a specific policy action for fostering female enterprise, and each chamber of commerce at provincial level has a committee on female entrepreneurship for the implementation of programmes and activities targeted at women. Recently, a single portal – Female Entrepreneurship - has been created to provide integrated information on the activities and projects run by the chamber of commerce¹⁰¹.</p> <p>The activities tend to concentrate on access to finance advice, business advice, support for the preparation of business plan, tutoring and training, and granting awards. In</p>
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¹⁰¹ <http://www.if-imprenditoriafemminile.it>

	addition, seminars and conferences on female entrepreneurship are regularly organised.
Review of Policy support: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
The national Law 125 for the promotion of female entrepreneurship contains a specific measure for financing innovation of product and process in female entrepreneurs.	However, data indicates that the take up of this option is rather low (20.7%). Furthermore, stakeholders have explained that the concept of innovation has been used in a very flexible way, to include any action that was going to increase company growth.
The region Emilia-Romagna has foreseen specific actions for the support of female innovative business since 2001. In addition, due to the regional implementation of gender mainstreaming in economic development policies ¹⁰² , the gender dimension is fully considered in innovation policies, such as business incubators, spin-off, technological transfer, etc. Gender mainstreaming means that on one hand there is a gender analysis of the support provided (i.e. gender breakdown of data) to assess any gender gaps, and on the other, specific actions are implemented to increase the number of female innovative entrepreneurs.	<p>The spin-off Spinner has set a non-binding target of supporting 38% of women.</p> <p>Actions that have been put in place for the support of female innovative entrepreneurs in Emilia-Romagna have included the following:</p> <ul style="list-style-type: none"> ▪ Training, counselling and mentoring specifically addressed to women, aimed at increasing business skills in innovative sectors and entrepreneurial confidence; ▪ Focus groups with a selection of innovative women entrepreneurs and stakeholders from business support and promotion of innovation; ▪ The collection of case histories and publication of role model stories on the

¹⁰² The Emilia Romagna region has developed a network of business incubators and support services for new technological enterprises. These services have been developed by regional institutions with the involvement of universities, research bodies, often with the support of private economic bodies.

	<p>website on female entrepreneurship;</p> <ul style="list-style-type: none"> ▪ Women entrepreneurs with innovative ideas awards (action undertaken by the chamber of commerce of the province of Ferrara); and ▪ Events such as seminars and workshops for raising awareness on women innovative entrepreneurship and discussing problems.
The concept of female innovative entrepreneurs is not defined in any way, but it tends to be associated with hard innovation in technological and scientific sectors. However, there are some cases in which innovation covers non-technical sectors as well	<p>The definition of female innovative enterprises for the Chamber of Commerce of Ferrara award include:</p> <ul style="list-style-type: none"> ▪ Originality of business activity; ▪ Innovative of management style; ▪ Promotion of the local territory and environment; ▪ Innovative distribution system; ▪ Internationalization; ▪ Activities of cooperation with Universities; and <p>Promotion of human resources especially in the field of work and life balance.</p>
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
There are no specific programmes for women's	The findings are the results of the qualitative analysis of Emilia-Romagna focus group and

entrepreneurship in science and technology, as these types of women entrepreneurs are covered by the initiatives for women's innovative entrepreneurship.	case histories.
Emilia-Romagna focus group with women entrepreneurs in science and technology.	<p>Types of support that women entrepreneurs in science and technology would like to receive/ would recommend for increasing the rate of women include:</p> <ul style="list-style-type: none"> ▪ More opportunities for networking (i.e. with other male and female entrepreneurs, with potential clients, etc); ▪ More opportunities to create partnerships with all stakeholders operating in science and technology development and business creation; ▪ More opportunities to discuss problems and potential solutions with all stakeholders; ▪ Exchange of good practice and promotion of role models; ▪ More attention to how new technologies can be applied to traditional sectors (such as the food and farming sector); <p>Entrepreneurial training for girls should start within secondary schools and should become a systematic activity within academic bodies.</p>

Annex – C.13 Greece

GREECE	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
2007 GEM Female Entrepreneurship Greece¹⁰³.	<p>Data shows that only 30% of all new entrepreneurial activities were started by women; that equates to 5% of the female population. Key findings include:</p> <ul style="list-style-type: none"> ▪ Whilst 80% of men identified themselves as aspiring entrepreneurs (wanting to start an enterprise in the next 3 years), only 20% of women did the same; ▪ 53% of entrepreneurs leading new ventures that have already started are men compared to 47% of women; ▪ 40% of women said that they engage in entrepreneurial activity out of need, only 22% of men did the same; and ▪ Industry by industry analysis showed that female entrepreneurship rates exceeded male entrepreneurship in the customer services sector (67% for women compared with 59.3% for men); however in the manufacturing sector, rates of entrepreneurship were higher amongst men than women (28% for males and 23% for women). <p>Of established entrepreneurial activity, 43% is undertaken by women; this</p>

¹⁰³ GEM (2007), Female Entrepreneurship in Greece 2006 -07, Prof Stavros Ioannides, <http://www.iobe.gr/media/epixeirimatiotita/womepix.zip>

	<p>proportion is high by both European and international standards, and equates to 7.2% of the female population. Similarly, analysis by industry shows that female entrepreneurship rates exceeded male entrepreneurship in the customer services sector (59% for women compared with 49% for men) whilst in the manufacturing sector, rates of entrepreneurship were higher amongst men than women (35% for males, 23% for women).</p> <p>Interestingly, women engage in new entrepreneurial activities at a later age than men. Hence, male entrepreneurs tend to be younger than women; 78% of male entrepreneurs were under 45 years old in the 2003-06 period, compared to only 63% of women entrepreneurs. In addition, female entrepreneurs tend to be educated to higher levels than men, with 7% of women established entrepreneurs being educated to postgraduate or doctoral level, compared to 6% of men. The study author suggests that these trends may have arisen due to the intra-family distribution of roles in entrepreneurial activity in Greece; that is, men tend to start ventures and women (possibly wives and partners) become involved once the enterprise is established. Female entrepreneurial activity at later stages of life is also seen to suggest that women still face barriers of childcare.</p> <p>Key policy recommendations therefore include:</p> <ul style="list-style-type: none">▪ More support for women entrepreneurs with children necessary; extending all-day schools and childcare provision;▪ Reforming enterprise and business education throughout the educational system;▪ Targeting enterprise and business modules / classes to female university students;
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	<ul style="list-style-type: none"> ▪ Supporting women researchers in science and technology; and, ▪ Establishing support networks, mentoring schemes and “one stop shops” for advice and support to aspiring, new and established entrepreneurs and investors.
Labour Force Survey 2005- 2006 from the National Statistical Service of Greece- Equality Directorate	Data on women self-employment in the period 2005-2006. A key finding was that female self-employment has increased by 4.6% in 2006, compared to an increase of 0.7 in male self-employment.
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
There are no specific statistics. However the study “The Entrepreneurial gap between men and women in Greece” by Nikos Dermanakis December 2004” suggests that women entrepreneurs are not present in more profitable business sectors.	<p>The study compare women and men entrepreneurial data:</p> <ul style="list-style-type: none"> ▪ Female entrepreneurial activity has increased since 1993, however, there still is a significant gap between men and women. ▪ The share of female entrepreneurs has increased in most sectors, for example, since 2004 have started to run business in financial services, however, women are still absent from certain sectors, such as utilities.
Review of data and information on female entrepreneurship in Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
There are no specific data on women entrepreneurs in science and technology.	

Review of Policy support: setting the context	
Title of the Report/Name of the Association	Key initiatives
<p>'Reinforcement of Female Entrepreneurship' supported women in creating modern and viable enterprises, particularly in the sectors of manufacturing, e-trade, services, and tourism with special focus on local and regional development.</p> <p>The programme was implemented for the period 2000 to 2006 by the Hellenic Organisation of Small and Medium Sized Enterprises and Handicraft S.A. (EOMMEX), a public body supporting SMEs in Greece.</p>	<p>The purpose of the programme was to make it easier for women aged 18 to 55, who had no experience in running a business, to become an entrepreneur by providing financial support for exploiting their knowledge, education and talents.</p> <p>The programme resulted from the attempt to expand the limited involvement of women in business activities and covered the whole country; funding was provided to the beneficiaries via authorised the local offices of EOMMEX in the different prefectures. Funding was provided for up to 50% of the integrated entrepreneurial plans (including expenses for purchasing the manufacturing equipment, research and consulting services, training and marketing services, etc.) submitted by the female applicant.</p> <p>One of the key aims of the programme was the creation of modernised and sustainable enterprises, whereby special emphasis is put on regional development and on the local economy. These enterprises should utilise new technologies and innovations leading to the development, production and trading of 'new', or improved, products. Moreover, the entrepreneurial activities of Greek women should further develop the country's tradition and culture in a creative way.</p> <p>Projections estimated that by 2006, 150 enterprises will have been established by female entrepreneurs who participated in the programme. Private investments were expected to achieve the amount of EUR 32 million</p>

¹⁰⁴ European Commission (2002), Good Practices in the Promotion of Female Entrepreneurship - Examples from Europe and other OECD Countries

	by 2006. It is also expected that this programme will create a considerable number of new full-time-jobs ¹⁰⁴ .
"Integrated Interventions in favour of women" (2004-2007) - Ministry of Employment	This is a national scheme that provides subsidies to unemployed women that want to create their own business. The programmes also provides for training, careers advice and counselling.
"Positive Action in favour of women choices in vocational training and employment" Ministry of National Education- Equality Secretariat- Education and Initial Vocational Training (EPEAEK)	This is a national programme for combating gender segregation in education and employment by providing better information on the opportunities available to girls and women. The programme also provides training for teachers on gender equality issues.
Enhancing Female Entrepreneurship- EOMMEX Hellenic Organisation of Small and Medium Sized Enterprises and Handicraft –Equality Directorate	This is a national programme to support female entrepreneurship contributing to the regional and local economic development. However, there is no specific mention of innovation or science and technology.
Dioni II DP Women Entrepreneurship and Trans-regional Support System in Social Economy – Run by five Greek region (Epirus, Thrace, Thesaly, Attica and Ionian Islands)	The programme provides micro credit mechanism to women wanting to start a business in social economy.
Review of Policy support: women innovators/inventors' entrepreneurs	
Title of the Report/Name of the Association	Key initiatives
There are no policies for women innovators/inventors' entrepreneurs	
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives

There are no policies for supporting women entrepreneurs in science and technology	
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Annex C-14 Spain

SPAIN	
Review of data and information on female entrepreneurship: Setting the Context	
Title of the Report/Name of the Association	Key findings
2005 GEM National Report for Spain ¹⁰⁵ .	<p>The Report included a number of datasets which were disaggregated by gender. Key findings included:</p> <ul style="list-style-type: none"> ▪ “Early Stage” female entrepreneurship represents 39% of new businesses created, an increase of 9% on 2004; ▪ Female entrepreneurs represent 47% of established entrepreneurs; ▪ Females expressed more interest in entrepreneurship than males, representing 52% of potential entrepreneurs. ▪ In terms of Total Entrepreneurial Activity (TEA), the ratio of female to male entrepreneurs was 0.58 in 2005; this ratio is the fifth highest in the EU. This ratio increased by almost 50% in the 2004 – 05 period; however over the 2001 – 05 period, the ratio fluctuated significantly¹⁰⁶. <p>The GEM analysis describes female entrepreneurial activity in Spain from an international perspective, institutional support for female entrepreneurship,</p>

¹⁰⁵ GEM (2006), Spain GEM National Report 2005, <http://www.gemconsortium.org/document.aspx?id=523>

¹⁰⁶ 0.71 in 2001, 0.39 in 2002, 0.43 in 2003, and 0.39 in 2004

	<p>gender and psychological/social determinants of female entrepreneurship (including the fear of failure, abilities and knowledge for the creation of businesses, networking/knowing other business-owners, and the female perception of business opportunity). Key findings include:</p> <ul style="list-style-type: none">▪ In 2005 females are slightly less likely to access business/institutional support than males, though the difference is not significant;▪ Women tend to have a greater fear of failure when starting a business and have weaker business networks than men;▪ The female/male ratio of TEA has increased significantly in the past year, by almost 50%. However it has fluctuated significantly over the past 5 years. The ratio was 0.71 in 2001, 0.39 in 2002, 0.43 in 2003, and 0.39 in 2004;▪ Institutional support for financing, R&D support, market and product analysis, new business ideas, etc. differed by 1-2% between males and females;▪ 27% of female entrepreneurs fear failure when creating a business, compared to 26% of males entrepreneurs; for non-entrepreneurs, 51% of women and 46% of men fear failure when creating a businesses;▪ 45% of female entrepreneurs see entrepreneurial activities in their area, compared to 55% of males; for non-entrepreneurs, the numbers are 35% for females and 37% for males.▪ Gender-specific business associations and other business support activity have been more active in recent years; now 80% of females
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	<p>that are given business opportunities pursue them, which is equal to 80% of males that are given business opportunities;</p> <ul style="list-style-type: none"> ▪ There needs to be more business support geared specifically for the “female entrepreneur”.
Review of data and information on female entrepreneurship: Women Inventors/innovators	
Title of the Report/Name of the Association	Key findings
There are no data and information on women inventors/innovators' entrepreneurs	
Review of data and information on female entrepreneurship: Women Entrepreneurs in Science and Technology	
Title of the Report/Name of the Association	Key findings
FemStart FemStart - Fostering the Public Debate on University Support of Female Scientists to Start a Business- Workshop in Valencia 26-26 April 2007 ¹⁰⁷	<p>There are few women in senior positions within academia and research.</p> <p>Research organisations are male-orientated and do not allow for flexibility.</p> <p>Training in business skills and positive role models are necessary as well as measures for work and family balance.</p>
Review of Policy support: setting the context	
Title of the Report/Name of the Association	Key initiatives

¹⁰⁷ <http://www.femstart.eu/index.php?file=49>

Banco Mundial de La Mujer (Womens World Bank)	Banco Mundial de La Mujer (Womens World Bank) manages an online consulting and information tool for females interested in entrepreneurship and self-employment. Funded by the Ministry of Labour and Social Issues ¹⁰⁸ , the website contains a wide-variety of information: general advice, advice on business planning, an on-line technical/economic dictionary, a list of relevant links, legal regulations, marketing advice, and any news of changing regulations.
El Instituto de la Mujer (the Women's Institute), in collaboration with the Department of SMEs, the Ministry of Industry, Tourism and Trade, and the bank La Caixa, have created a programme to financially assist female entrepreneurs and self-employed business women ¹⁰⁹ .	<p>The programme facilitates access to financial assistance with favourable conditions and interest rates.</p> <p>El Instituto de la Mujer also administer a Business Management course offered through the Fundación Escuela de Organización Industrial (the Foundation School on Industrial Organisation). The course is specifically designed for women who are looking to start a business or to further develop an existing business; it comprises 500 hours, including both theory and practice.</p> <p>In addition, a national 'Iniciativa Emprendedora' programme aims to promote entrepreneurship skills in education, University-industry collaboration and the formal recognition of entrepreneurs in the public sphere. This is not a gender specific programme but is likely to generate significant impact on rates of female entrepreneurship.</p>
Review of Policy support: women innovators/inventors' entrepreneurs	

¹⁰⁸ <http://www.autoempleomujer.com>

¹⁰⁹ http://www.mtas.es/mujer/programas/empleo/apoyos_financieros.html

Title of the Report/Name of the Association	Key initiatives
There are no specific initiative for the support of women innovators/inventors entrepreneurs	
Review of Policy support: women entrepreneurs in science and technology	
Title of the Report/Name of the Association	Key initiatives
FemStart - Fostering the Public Debate on University Support of Female Scientists to Start a Business- Workshop in Valencia 26-26 April 2007 ¹¹⁰	<p>Main findings from the forum:</p> <ul style="list-style-type: none"> <li data-bbox="1185 615 2064 679">▪ Spanish universities and research centres do not have an entrepreneurial tradition. <li data-bbox="1185 710 2064 774">▪ Spanish universities and research centres have only just started to address the issues of gender equality. <li data-bbox="1185 806 2064 869">▪ At present, female scientists starting a business have not been identified as a target group for special actions <li data-bbox="1185 901 2064 996">▪ Before promoting this policy, Spain needs to improve the level of research and entrepreneurship in general, keeping a gender dimension in it.

¹¹⁰ <http://www.femstart.eu/index.php5?file=49>

Annex D Summary Table with data and information from the 14 Member States reviewed

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
		%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade A academic (senior positions)		
Finland	8.85	43.1	25.5	18	Engineering &technology 6.3	No data. Proxy indicators suggest the number is very low. Only 6% of patent registered involved women (2002). The number of women applying for financial support for the development of their innovation is very low (5%).	Contextual: ICT is a male-dominated sectors, the value of women's ideas tend to be overlooked. Soft: women have to provide more credential (i.e. higher level of business skills and level of education). Lack of positive role-model.
					Natural Science 11.3		
					Medical Science 21.6		
Sweden	6.43	34.8	26.4	25	Engineering &technology 7.1	Women entrepreneurs sectors breakdown: • 1% IT sectors; • 8% culture, media and	Contextual: innovation is a concept mostly associated with men and male areas; women are perceived as technologically less competent by business advisors, women tend to innovate in fields that are not associated with traditional technology.
					Natural Science 11.7		

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
		%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade academic A (senior positions)		
					Medical Science 15.3	design. Proxy indicators: Only 4% of patent registered concerned women (2002).	
UK	6.46	41.9	19.6	n/a	Engineering &technology 4.9 Natural Science 8.2 Medical science 22	Some data are available. Business early stage in technology sectors is 5% for women compared with 12% for men. Established business in technology sector is 5% for women compared with 11% for men. The number of women entrepreneurs in SECT is 10 time less than men. Women entrepreneurs are extremely rare in sectors such as mechanical engineering and ICT.	Soft: lack of role model.

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
		%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade academic (senior positions)		
Ireland	7.61	56.6	31.2	20	n/a	No data	
Germany	4.68	29.9	11.4	12	Engineering &technology 3.8 Natural Science 5.6 Medical science 5.8	It is estimated that 10-15% of high-tech enterprises are funded by women.	Economic: there are gender specific obstacles in accessing finance in high-tech business (on-going study).
Austria	n/a	30.2	18.9	10	Engineering &technology 3.7 Natural Science 4.4	It is estimated that the percentage of women entrepreneurs in science and technology is 10%. Proxy indicators: Gender disaggregated data on the	Soft: lack of role models, lack of business training in technical & scientific universities.

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
		%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade A academic (senior positions)		
					Medical science 8.9	beneficiaries of business support programmes in academia shows that only 10% were women. Percentage of self-employment women consulting engineering is 3%, 11% women architects, individual business women working as consulting engineering 6%.	
France	3.88	38.4	25.9	20	Engineering &technology 6.5 Natural Science 12.3 Medical science 15.3	No data	
Poland	n/a	50.1	24.1	28	Engineering	No data.	Contextual: stereotypes and difficulties to combine

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
	%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade academic (senior positions)			
					&technology 8.7 Natural Science 16.9 Medical science 28.2		
Latvia	7.33	57.1	37.5	54	n/a	24% of all innovative firms (core and moderate innovation) are run by women.	work with family responsibilities. Soft: low self-esteem, lack of information on company creation. Economic: difficulties in accessing capital.
Czech Republic	8.07	36.7	22.3	20	Engineering &technology 4.5	No data but some proxy indicators are available. Gender breakdown of scientific grants	Contextual: lack of family support and child-care. Soft: low self esteem, lack of business knowledge, lack of access to engineer-technical network to get support, cooperation and information.

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
		%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade A academic (senior positions)		
					Natural Science 9.2	<p>awarded to women for original research showing the female share is increasing but it is still low:</p> <ul style="list-style-type: none"> • 15.8% in 1999 • 18.38% in 2003 • 22.88% in 2007 <p>Gender breakdown of people nominated and winning the annual award for best personality in science and technology:</p> <ul style="list-style-type: none"> • 17.5 women were nominated; • 12.5% received the award. 	
Hungary	8.53	37.5	29.7	25	n/a	No data available	

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
		%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade academic A (senior positions)		
Italy	4.78	54	31.2	19	Engineering &technology 6.1 Natural Science 15.9 Medical science 11.1	Some data available. Economic sectors distribution of women enterprises: <ul style="list-style-type: none"> • Female enterprises in technology sectors are only 2.5% of the overall total of women enterprises; • Female enterprises in technology sectors tend to concentrate in ICT (56%); • Female enterprises in R&D are extremely rare 1.4% of the overall number of women enterprises. Gender disaggregated data of spin-off initiative of Region Emilia Romagna: <ul style="list-style-type: none"> • 33.7% of supported project 	Contextual: science and technology is a male dominated sector, women entrepreneurs in science and technology are less credible. Soft: lack of entrepreneurial skills. Economic: access to finance is a problem as investments for developing an innovative product and for its commercialisation are substantial.

		Data and information					
	Female Entrepreneurship GEM overall business owners	Situation of women in scientific education and potentially innovative employment sectors				Data on female inventors/innovators entrepreneurs and entrepreneurs in science and technology	Identified barriers to female inventors/innovators entrepreneurs and entrepreneurs in science and technology
		%female PhD Science, Math, Computing	% female Phd Engineering manufacturing construction	% female researchers in Business	% female grade A academic (senior positions)		
						<p>for business creation went to female enterprises;</p> <ul style="list-style-type: none"> • 36.5% of university awards went to female students and researchers. <p>Gender disaggregated data of Region Emilia Romagna business support on ICT:</p> <ul style="list-style-type: none"> • 17% of beneficiaries are women. 	
Greece	11.5	32.3	21	35	n/a	No data	
Spain	9.00	46.6	21.3	27	n/a	No data. However the number is believed to be very low.	<p>Contextual: research organisations tend to be male orientated and do not allow for flexibility.</p> <p>Soft: lack of training in business skills in scientific and technical universities; lack of positive role models.</p>

Annex E Analytical Summary Table on Policy Responses identified in the 14 Member States reviewed.

Policy Responses					
Member State	Title and Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
Finland	Public Venture Capital Financing for New Business in new Technology and Services Sectors Inter-ministerial Entrepreneurship Programme	National initiative	Women innovators.	Providing venture capital to early stage businesses operating in technology or innovative services. Women's innovations tend to be in non-technical fields, the fund has been opened to investments in service sectors.	Economic: helping accessing finance (venture capital).
Finland	WomEQUAL EQUAL project run by Finnish Universities.	Pilot project run from 2005 to 2007	Women in science and technology.	Networking and mentoring programme for women working in technology sectors. Entrepreneurship training for female post-graduate in technology fields.	Soft: networking and business training.
Finland	NaisWay- Female into Transport and Logistic Sectors	Pilot project run from 2004 and 2007	Women in technology sectors (i.e. logistic and transport).	Developing different training methods according to women's need. Providing a specialist vocational qualification in entrepreneurship.	Soft: business training.
Sweden	CORE- Teach the teacher	National Pilot Project	Women innovators and women in science and technology.	Training people working in innovative business support agencies in the CORE methodology. The CORE methodology is a training and coaching programme to inspire women to become entrepreneurs.	Soft: coaching, personal development, training.
Sweden	PREFACE- Preparing Female Students for Academic Entrepreneurship	Trans-European project run by WiTEC Sweden.	Women in science and technology.	Developing entrepreneurship training programmes targeted at female students in science and technology.	Soft: entrepreneurship training, role models, confidence building, mentoring.

Promotion of Women Innovators and Entrepreneurship

	Policy Responses				
Member State	Title and Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
	Swedish WiTEC (Association for Women in Science, Engineering and Technology), Leonardo da Vinci Programme - DG EAC)	Project run from 2002 to 2005		Motivating and encouraging female students to set up their own business.	
UK	British Female Inventors and Innovators Network (BFIIN)	National	Women inventors and innovators.	Supporting women innovators and inventors to turn their idea into business. Promoting Networking. Providing information on IP rights. Promoting an award dedicated exclusively to women inventors and innovators.	Contextual: raising awareness. Soft: networking, providing specific information, role models.
UK	Creative Business Enterprise Club School of Entrepreneurship and Business (SEB) at University of Essex.	University of Essex initiative	Women innovators in creative industry	Creating a platform for meeting and sharing experience.	Soft: networking, mentoring.
UK	Finance South East- Women Programmes and Women Investor Forum. Finance South East is a non-profit organisation and subsidiary of SEEDA, the Regional Development Agency	Regional	Women innovators.	Informative events are run for women interested in accessing finance for start-ups in high-growth sectors. Women are provided with information on different types of financial options available. A forum of women business investor has been created to provide networking and consider business investment opportunities.	Soft: networking Economic: providing better information on financial options available

	Policy Responses				
Member State	Title Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
UK	YTKO- women equal opportunity programme YTKO – private business incubators	Across different regions	No specific target on women, but the principle of equal opportunities is applied.	No specific action addressing women.	
UK	DEW-SET project (Developing the Entrepreneurial Capabilities of Women in Science, Engineering and Technology). Coventry University Technology Park in cooperation with the Polish Regional Development Agency of Dolnoskaska under Euro Info Centre (DG ENTR)	Local Started in 2006 and it is now concluded	Women in science and technology. Women in science and technology.	Increasing the number of women setting up science, engineering and technology businesses. It aims to provide: Entrepreneurship education training for business advisors. Network of female entrepreneurs in science, engineering and technology.	Soft: training and networking.
Ireland	The Centre for Entrepreneurship at Dalkan Institute for Technology (DKIT) ¹	Local Academic interest in female entrepreneurship in science and technology	Women in science and technology. Women in science and technology.	The Centre has recently focused on the issue of female entrepreneurship in high growth businesses. The Centre has started to cooperate with the US DIANA Project ² and will host the next DIANA research symposium ³ . In addition, the Centre is participating to the creation and launching of the new International Journal for Gender and Entrepreneurship.	Contextual: raising awareness. Economic: understanding women's difficulties in accessing to venture capital.
Germany	National Agency for Women	National	Women innovators (creative)	Supporting female entrepreneurs in creative	Not specified.

	Policy Responses				
Member State	Title and Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
	Start-ups (BGA) - Programme for supporting female entrepreneurship	Programme launched in 2005	industries).	industry is a sub-target of the general programme for female entrepreneurship.	
Germany	National Agency for Women Start-ups (BGA)	National Programme launched in 2005	Women in science and technology.	Supporting female entrepreneurs in science and technology is a sub-target of the general programme for female entrepreneurship.	Contextual: raising awareness.
Germany	NANO4Women and Entrepreneurship Academy for Women (NEnA) University of Halle in cooperation with other research partners at national and regional level	Regional Pilot Project launched in 2007 until 2009	Women in science and technology.	<p>The objective of such initiative is stimulating business ideas from women scientists in nanotechnologies. Support provided includes:</p> <ul style="list-style-type: none"> • One week training in entrepreneurship skills, business planning, development of business ideas; • Promising business ideas are matched with potential partners from industry and finance; • Interdisciplinary cooperation and team work is encouraged as a way to develop business ideas; • The number of participants to each NANO Academy is limited to 32; • At the end of each NANO Academy the best business idea is selected and the winning team is awarded a three-month internship in nanotechnology company in US; • Coaching is provided after NANO 	Soft: training (technical and entrepreneurship), business ideas development and coaching.

	Policy Responses				
Member State	Title Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
				Academy.	
Germany	SWITCH Fraunhofer, a network of 56 research institutes	Regional Pilot project started in 2007	Women in science and technology.	<p>The objective is to encourage women to develop business ideas and to provide support to realise it. Activities include:</p> <ul style="list-style-type: none"> • Questionnaires and interviews with female researchers to explore their attitude towards entrepreneurship; • Running workshops for information and encouraging female scientists to develop their own business ideas; • Identification of relevant business ideas through interviews; • SWITCH Summer School: a training course lasting several days on preparing a business plan and developing entrepreneurship skills, as well as providing individual coaching and group sessions for exchanging ideas; • Mentoring and coaching programme provided by experienced female entrepreneurs in ICT sectors. 	<p>Contextual: encouraging women to develop a business idea, raising awareness.</p> <p>Soft: training in entrepreneurship, mentoring and coaching.</p>
Germany	P8 Success is female – Erfolg ist weiblich Technical University of Berlin and Stuttgart	Regional Pilot Project started in 2007.	Women in science and technology.	<p>Understanding obstacles faced by women entrepreneurs in science and technology.</p> <p>Raising awareness.</p> <p>Presentation of role models.</p>	<p>Contextual: raisin awareness.</p> <p>Soft: entrepreneurship training, individual coaching, accompanying measures, and role models.</p>

	Policy Responses				
Member State	Title Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
				<p>Providing individual coaching and Entrepreneurship training.</p> <p>Developing accompany measures for women starting their own business.</p>	
Austria	Several Austrian provinces have started business incubators or incubation services with specific training initiatives for women.	Regional	Women Innovators	<p>Marketing support, counselling and also childcare facilities in some cases.</p>	<p>Contextual: child care facilities to help women balancing work and life</p> <p>Soft: counselling</p>
France	Femme Business Angels (FBA) network	Regional	Women innovators	<p>Supporting women innovative start-ups.</p> <p>Training and mentoring women entrepreneurs.</p>	<p>Soft: training and mentoring.</p> <p>Economic: improving access to finance</p>
Poland	<p>DEW-SET project (Developing the Entrepreneurial Capabilities of Women in Science, Engineering and Technology).</p> <p>Regional Development Agency of Dolnoslask and Coventry University Technology Park (UK) under Euro Info Centre (DG ENTR)</p>	<p>Regional</p> <p>Started in 2006 and it is now concluded</p>	Women in science and technology	<p>Increasing the number of women setting up science, engineering and technology businesses. It aims to provide:</p> <ul style="list-style-type: none"> • Entrepreneurship education training for business advisors; • Network of female entrepreneurs in science, engineering and technology. 	<p>Contextual: raising awareness.</p> <p>Soft: training and networking.</p>
Poland	FemStart	Regional	Women in science and technology	<p>Raising awareness on the need to support female entrepreneurship in technology sectors.</p> <p>Undertaking a survey on types of support needed by women.</p>	<p>Contextual: challenging traditional views and stereotypes</p> <p>-</p>

	Policy Responses				
Member State	Title Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
	Technology				
Poland	Didone (Diversity into Network across Europe) Gdansk Entrepreneurship Foundation and City Council of Gdansk, with the support of the European Community gender equality framework	Regional Started in 2001 and ended in 2005	Women in science and technology	Mentoring female entrepreneurs in technology sectors. Developing networks of female entrepreneurs in technology.	Soft: mentoring and developing networks.
Latvia	FemStart Latvia Technological Centre- with the support of the European Commission 6 th Framework Programme for Research and Technology	Regional Started in 2006	Women in science and technology	Raising awareness on the need to support female entrepreneurship in technology sectors.	Contextual: challenging traditional views and stereotypes .
Latvia	Prof-Equal. Support for Women aspiring to start a business in technology and knowledge based sectors. Latvia Society Integration Foundation with the support of Equal Fund (DG EMPL)	National Pilot project	Women in science and technology	Developing a model for supporting female entrepreneurship in technical fields. The model is developed around four sets of services: <ul style="list-style-type: none"> • Entrepreneurship training and motivation • Counselling • Mentoring • Grants 	Soft: entrepreneurship training, motivation, mentoring. Economic: grants
Latvia	Lidere (Female Leader) Lidere Non-governmental organisation with the support of	Local Started in 2006	Women innovators (creative sectors) and women in science and technology.	Mentoring programme for women entrepreneurs in technical industries.	Soft: mentoring

	Policy Responses				
Member State	Title Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
	Equal Fund (DG EMPL)				
Czech Republic	Contact Centre for Women and Science Ministry of Education	National	None	The initiative aims to promote equal opportunities in R&D but there is no specific objective to promote female entrepreneurship in science and technology.	
Hungary	"Entrepreneurs in the beginning of the 21 st century: Learning, knowledge and Innovation" SEED Foundation	Regional	Women innovative entrepreneurship is mentioned in the programme for supporting female entrepreneurship in general. ⁴	No specific actions or implementing measures for women innovative entrepreneurship.	
Italy	National Programme for Female Entrepreneurship (Law 215)	National	There is a sub-policy target on supporting innovation	No specific actions or implementing measures for women innovative entrepreneurship.	
Italy	Programme for supporting women innovative entrepreneurship Region Emilia Romagna	Regional Started in 2007	Women innovators and women in science and technology.	Improving data available. Training, counselling and mentoring. Collection of case stories. Women innovative entrepreneurs award. Creation of network of women entrepreneurs in creative sectors (multimedia and design). Gender Mainstreaming of business creation in innovative sectors.	Soft: training, mentoring, role model Economic: grants.

⁴ However most of the participants were women aiming at self-employment in traditional sectors.

	Policy Responses				
Member State	Title Managing/Implementing Organisation	Level (national, regional, local)	Entrepreneurship Target	Objectives and Support Provided	Type of Barriers Addressed
Italy	Gain Club for Women: support for women innovative entrepreneurship CNA – Regional Business Association	Regional	Women innovators	Benchmarking successful innovative female entrepreneurs. Mentoring. Grants to develop innovative business ideas.	Soft: role models mentoring. Economic: grants.
Greece	Reinforcement of Female Entrepreneurship EOMMEX	National	Women innovators	No specific actions or implementing measures for women innovative entrepreneurship.	
Spain	FemStart University of Valencia with the support of the European Commission 6 th Framework Programme for Research and Technology	Regional	Women in science and technology	Raising awareness on the need to support female entrepreneurship in technology sectors.	Contextual: raising awareness.

Annex F – Stakeholders contacted in Member States and European Level

Finland

The Women's Enterprise Agency
The Ministry of Employment and the Economy
The Central Association of Women Entrepreneurs in Finland
Patentti- ja rekisterihallitus (The National Board of Patents and Registration of Finland)
Etelä-Pohjanmaan TE-keskus / Ministry of Employment and the Economy
QUIN-FINLAND – a network of female innovators in Finland
Helsinki School of Economics
Eksidea
Patentti- ja rekisterihallitus (The National Board of Patents and Registration of Finland)
Helsinki University of Technology
Turku School of Economics and Business Administration
Life Works Consultancy

Sweden

ESBRI (National Research Institute)
NUTEK (Swedish Agency for Economic and Regional Growth)
VINNOVA (Swedish Governmental Agency for Innovation Systems)
Svenskt Näringsliv Confederation of Swedish Enterprise
Hybrid State Sweden (part of EUWIN)
Centre for Innovation and Entrepreneurship (University of Linköping)
Luleå University of Technology (Department for gender, technology and organization)
ITPS –Swedish Institute for Growth Policy Studies (
Venture Cup
ALMI (Centre for Business Supporting)
The Swedish Inventor's Association

UK

Enterprise Directorate (Department for Business, Enterprise and Regulatory Reform)
Prowess
The Cambridge-MIT Institute University of Cambridge
B.A.W.E. (British Association Women Entrepreneurs)
UK Resource Centre for Women in Science, Engineering and Technology UK Resource Centre for Women in Science, Engineering and Technology
Women's Business Development Agency
The Enterprise Centre
Coventry University
Hunter Centre for Entrepreneurship
University of Strathclyde
Train 2000 Ltd (Enterprise support for women)
Global Women Inventors and Innovators Network (GWIN) and European Union Women Inventors and Innovators Network (EUWIN)

Ireland

Innovation Relay Centre Dublin
Technology Transfer Initiative
Enterprise Ireland

The Digital Hub (Digital and technology business incubator)
Enterprise Acceleration Centre
Enterprise Acceleration Centre Limerick Institute of Technology
Forfas (Ireland's national policy and advisory board for enterprise, trade, science, technology and innovation)
NDP Gender Equality Unit (Department of Justice, Equality & Law Reform)
Network Ireland
Centre for Entrepreneurial Research, Dundalk Institute of Technology
WITS (Women in technology and Science)
GEM Ireland

Germany

Federal Ministry for Education and Research BMBF
Bundesweite Gründerinnenagentur (BGA)
Centre of Entrepreneurship (COE) at the University of Hohenheim
Martin-Luther-Universität Halle-Wittenberg, Institut für Physik (NEnA project)
INI-Novation GmbH (SWITCH project)
Technische Universität Berlin (P8 project)

Austria

Federal Ministry for Economics and Labour (BMWA)
Wirtschaftskammer Österreich (Chamber of Commerce Vienna)
AWS - Austria Wirtschaftsservice GmbH

France

Association France Active
APCE (agence pour la création d'entreprises)
IRFED Europe
Action'elles
AFEE : Association des Femmes Entrepreneurs d'Europe
Le Centre de Ressources pour développer l'Entrepreneuriat au Féminin (C.R.E.F) ou l'accompagnement des créatrices par des EntrepreneuRes
Force femmes
Femmes et Entreprises
Gem France
FEWMIIN France

Poland

Project DEW–SET (Development of female entrepreneurship in the field of science, engineering and technology)
European Network to Promote Women's Entrepreneurship (WES)
Polish Agency for Enterprise Development
Warsaw School of Economics
The Polish Businesswomen's Association
Femstart programme, Poland
GEM Poland
Fundation Bachalski

Latvia

BA School of Business and Finance
Banking Institution of Higher Education

Baltic International Centre for Economic Policy Studies (BICEPS)
Society Integration Foundation (SIF)

Czech Republic

Association of women entrepreneurs and managers
GEM Czech Republic
Business and Innovation centre of the Czech Technical University in Prague
Business and Innovation centre in Plzen
Ipodnikatel
Moravian association of women entrepreneurs and managers
Women and Science
Ministry of Industry and Trade

Hungary

Unviersity of Pécs, Faculty of Business and Economics
SEED Foundation for Small Enterprise Economic Development
Enterprise development centre of Szabolcs Szatmárberег County
Enterprise development centre of Baranya County

Italy

Research Centre for Entrepreneurship Bocconi University
Finpiemonte FINPIEMONTE S.p.A. (Regional Development Agency)
Turin IP3 Business Incubators
S&T Developement Agency Aster Emilia Romagna
EBN-Italy (European Business and Innovation Centre Network)
BIC Lazio
CNA Lombardia (SMEs association)
Formep (National Training Agency)
Ministry of Economic Development
IPI Agency for Industrial Promotion
Camera Commercio Ferrara
Imprenditoria Femminile Regione Emilia Romagna

Greece

Foundation for Economic and Industrial Research
National Chamber Network of Women Entrepreneurs
EOMMEX (Hellenic Organization of Small and Medium Sized Enterprises and Handicraft S.A)
KETHI (Research Centre for Gender Equality)
Athens Chamber Of Small and Medium Sized Industries
Athens Chamber of Commerce and Industry
Thessaloniki Chamber of Commerce and Industry

Spain

Instituto de Empresa
Dirección General de Política de la PYME
Banco Mundial de la Mujer
La Fundación Internacional de la Mujer Empprendedora (FIDEM)

European Level

EBN European Network for Business and Innovation (BIC)
WISE (Women Integration and Skills for Entrepreneurship)

AFAEMME Association of Organisations of Mediterranean Business Women
European Network for the Promotion of women entrepreneurship
EUWIN European Union Women Inventors and Innovation
Eurochambers Women Network
The European Network for promoting Women Entrepreneurship (WES)
UEAPME / FEM Female Europeans of Medium and small Enterprises
Business Europe
WENETT Women Innovators for Europe
EPWS European Platforms of Women Scientists
EBAN European Association for Business Angels
ECVA European Association for Venture Capital
ESGI European Studies on Gender Aspects of Inventions
DG Employment
DG INFOSOC
DG RESEARC
DG AGRICULTURE
DG REGIO
Eurostat (Business Unit)

International level

OECD Entrepreneurship Directorate

Annex- G Stakeholders consulted for in-depth case studies

Name	Role	Organisation
UK		
Alice Kent	Author of the “Under the Microscope” study.	Prowess
Hilary Farnworth	Manager	Centre for Micro Enterprise
Ann Reynard	EU Projects Consultant	Centre for Micro Enterprise
Bola Olabisi	CEO	British Female Inventors and Innovators Network (BFIIN), European Union Women Inventors and Innovators Network
Dr. Suzanne Emmett	Director, Yorkshire Enterprise Fellowship	YTKO Business Incubators
Bev Hurley	Chief Executive, Enterprising Women Programme	YTKO Business Incubators
Anne Duncan	Participant in the “Under the Microscope” study	Entrepreneur
Ruth Loveday	Participant in the Bioscience Yorkshire Enterprise Fellowship	Entrepreneur
Germany		
Heidemarie Kühn,	Project Officer responsible for the programme Power für Gründerinnen and for National Agency for Women Start-ups Activities and Services (BGA)	Federal Ministry of Education and Research (BMBF)
Gabriele Karsten-Kampf	Project officer at the funding agency acting on behalf of the BMBF	Funding Agency for Federal Ministry of Education and Research (BMBF)
Susanne Böhnke,	Project leader responsible for issues related to women in science and technology,	National Agency for Women Start-ups Activities and Services (BGA) Bundesgründerinnenagentur

Veneta Ivanova	Project leader, Project SWITCH)	Project SWITCH
Ilka Bickmann	Project leader, University Halle-Wittenberg (project NEnA)	Project NEnA
Poland		
Jarosław Osiadacza	Director of the Wroclaw Centre for Technology Transfer (WCTT)	Wroclaw Centre for Technology Transfer (WCTT)
Anna Izbinska,	Project manager of DEW SET (Poland)	Regional Development Agency of Dolnośląsk (Dolnośląska Agencja Rozwoju Regionalnego)
Monika Polinska	Project manager of FemStart	University Wroclaw University of Technology – Wroclaw Centre for Technology Transfer
Ewa Lisowska	University Professor on Female Entrepreneurship	Warsaw School of Economics
Magda Kęszycka	Beneficiary of DEW SET	Entrepreneur
Italy		
Sara Monesi	Director	I Tech Off – Business Incubator
Silvia Ghezzi	Beneficiary I Tech Off	Entrepreneur – ECONOETICA
Greta Bergianti and Irina Sansò	Project Managers Project: Intrapredere Donna (Women Entrepreneurs)	Start ups Support Modena
Donata Folesani	Project Direct Spinner (Spin-off)	Spinner Spin Off University of Bologna
Sonia Di Silvestre e Sonia Bonanno	Project Officer Programme for Female Entrepreneurship- General Directorate for Productive Activities	Region Emilia Romagna
Elisa Muratori	Responsible for Female Entrepreneurship – CNA Emilia Romagna	CNA (Confederation of Artisans) Region Emilia Romagna
Laura Molfarelli	Responsible for social, gender and training policies	CNA (Confederation of Artisans) Region Emilia Romagna

Irene Tagliani	Beneficiary of CNA services for supporting female entrepreneurship	Entrepreneur
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Annex H - Glossary

BGA	German National Agency for Women Start-ups
BFIIN	British Female Inventors and Innovators Network
Early Stage Entrepreneurial Activity Index	It indicates the dynamic entrepreneurial propensity (i.e. the percentage of the population willing and able to undertake an entrepreneurial activity). See GEM
ECVA	European Association Venture Capital
EBAN	European Business Angels Association
Entrepreneurship	The OECD definition considers three components: <ul style="list-style-type: none"> • Entrepreneurship is the phenomenon associated with entrepreneurial activity. • Entrepreneurs are those persons (business owners) who seek to generate value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets. • Entrepreneurial activity is the enterprising human action in pursuit of the generation of value through the creation or expansion of economic activities by identifying and exploiting new products, processes or markets.
EPO	European Patent Office
ESGI	Centre for European Studies on Gender Aspect of Invention
Established Business Owners Index	It captures individuals involved in owning and managing a business that has successfully survived in the market for more than 42 months. See GEM
FBA	Female Business Angels
Female Entrepreneur	A woman who has created a business in which she has a majority shareholding and who takes an active interest in the decision-making, risk-taking and day-to-day management.
FOBS	Survey on Factors of Business Success (Eurostat)
GEM	Global Entrepreneurship Monitoring The GEM dataset measures entrepreneurship through two indicators: <ul style="list-style-type: none"> • Early Stage Entrepreneurial Activity measures the propensity to be entrepreneurial by capturing nascent entrepreneurs and new business owners (also commonly referred to as TEA index (Total Early Stage Entrepreneurial Activity)). • Established Business Owners captures individuals involved in owning and managing a business that has successfully survived in the market for more than

	<p>42 months.</p> <p>These two measurements provide different information about the entrepreneurial context. Early Stage Entrepreneurial Activity indicates the dynamic entrepreneurial propensity (i.e. the percentage of the population willing and able to undertake an entrepreneurial activity). The established business indicates the percentage of the population involved in running a business that proves to be sustainable. These two indicators are combined in the "Overall Business Owners" measure, showing the level of entrepreneurial activity in countries.</p>
Gender segregation	<p>Gender segregation measures the presence of women in different fields of education and employment sectors (horizontal segregation), and the presence of women in senior positions in employment (vertical segregation).</p> <p>For the purpose of this study the following classification has been taken to describe data:</p> <p>Presence of women from 0% to 15: high level of vertical segregation;</p> <p>Presence of women from 16% to 29% significant level of segregation;</p> <p>Presence of women from 30% to 39%: moderate level of segregation;</p> <p>Presence of women over 40%: low level of segregation</p> <p>Gender segregation does not necessarily equate to discrimination.</p>
<i>Gründerinnenforum</i>	German National Female Network for the Promotion of Start-ups
GWIIN	Global Women Inventors and Innovators network
Innovation	An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations (third Edition of the OSLO Manual).
Innovator	A person who produces and applies innovation (see innovation).
Inventors	A person who creates or discovers new methods, means, or devices for performing a task. The most commonly used to specifically describe those who have been granted a patent.
Overall Business Owners index	The level of entrepreneurial activity in countries. Combination of Early Stage Entrepreneurial Activity and Established Business Owners. See GEM
Researcher	Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned" (The Frascati Manual, OECD 2002).
SET	Science, Engineering and Computing Sectors
TEA index	Total Early Stage Entrepreneurial Activity. See GEM