



# WEED

## Women, Innovation and the Knowledge Economy



**REPORT of 3<sup>rd</sup> Action Learning Set, Umea, February 2011**

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# 1. Introduction

The 'WEED project is part of the URBACT II programme<sup>1</sup> and brings together practitioners and policy makers in partnerships from a variety of cities within the cohesion and competitive regions of the European Union (EU). The objective of the project is to capitalize knowledge and practice around fostering the participation of women in the labour market and entrepreneurship development. It is based on the premise that local authorities can play an important role in transforming positively women's participation in local economic life. The overall goal of the project is to assist the partner cities to improve practice in relation to women, employment, entrepreneurship and the knowledge economy and to develop multi-stakeholder Local Action Plans that are linked to good practice project proposals for possible funding from ERDF, ESF or other EU or National sources of funding.

This paper reports on the findings of WEED's third Action Learning Set and Transnational Exchange Workshop that focused in particular on "Women, Innovation and the Knowledge Economy". It first describes the European and local rationales for this sub theme of the overall project. It then discusses the main points raised during the action learning process and the implications for planning future actions at local level. The report's aim is to capitalise on the combination of practical experience and evidence findings and demonstrate how partners may incorporate the learning into local action plans.

A separate paper associated with the Action Learning Set complements this report with case studies of 'best practice' in tools and strategies targeted at improving women's position in innovation and the knowledge economy. Some of the case studies are good practice projects from European countries. The other examples are independently evaluated best practice projects from the elsewhere in the world.

## ***Background and aims of the third ALS***

The first Action Learning Set of WEED in 2009 focused on micro enterprises and start up support for entrepreneurial activity. It showed how this constitutes a route not just for a more inclusive approach to entrepreneurship but also as a way for cities to become more dynamic, socially just and competitive environments.

The second ALS, whilst continuing with the horizontal theme of enterprise through a consideration of women and social enterprise, was more concerned with whether supporting enterprise and new forms of work can provide a safeguard against poverty for women and redress gender imbalances in the world of work.

The aims of the third Action learning Set were to examine what cities can do to promote opportunities that develop, use and retain the skills of women in a knowledge-based economy, particularly in sectors where they are currently under-represented (e.g. ICT systems and product development; low carbon and other green technologies but also to exchange and develop concrete proposals for Local Action Plans.

The reasons for this focus was that the European Commission's Europe 2020 Strategy identifies a need to develop an economy based on knowledge and innovation at the same time as prioritizing inclusive growth. Exactly how cities can contribute to such developments and how they can make sure such developments are inclusive when it comes to gender are questions that need to be addressed if the 2020 strategy is to produce positive change for a wide range of residents.

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<sup>1</sup> URBACT is a European exchange and learning programme promoting sustainable economic development. For details see <http://urbact.eu/>

## **Pre workshop activity: the existing situation and preferred directions.**

Prior to the transnational workshop each Local Support Group provided material identifying their current position in relation to the issue of women, innovation and the knowledge economy. This focused on the challenges that arose from *the existing environment in relation to technology, available training and education for innovation, established partnership working at city level to promote innovation and technology and the extent to which there were measures and commitment to promoting gender equality in the city.*

The results were as follows:

### **Umea, Sweden (pop 111000)**

*Environment:* Strong regional and government support for innovation and entrepreneurship. A changing economy but the new industries are not characterized by high use of new technologies or the knowledge economy.

*Education and training for innovation:* High numbers but potential gain to a knowledge-based economy is not fully realised as many graduates, both male and female leave the city due to a lack of jobs for highly educated people. Regional programmes exist offering advice to individuals on information technology but could be developed.

*Joint working:* Some but funding for the public sector to provide essential training in new technologies is limited.

*Gender inclusion:* Strong commitment to gender mainstreaming in city. Ambassadors for women's enterprise programme. However it was reported that gender take-up of different disciplines still exists; older women lack access to training plus men and women tend not to cross public sector/ private sector divide, few women in high growth areas of knowledge economy.

### **Santiago de Compostela, Spain (pop 93000)**

*Environment:* Changing economy – desire to move to knowledge based economy. Compostela is the academic capital of Galicia. There is a municipal plan to work with University to attract and grow Research and Development Companies in city.

*Education and training for innovation:* Women well represented in HE but mainly in humanities. Strong well-established University and technical colleges.

*Joint working:* The municipality has a strategic plan to diversify the economic base of the city's economy, stimulating innovation through support of the University and support for technological and science parks n.b.Uni Emprende.

*Gender inclusion:* National, regional and city based equalities plan and commitment to gender mainstreaming. Concern expressed to change situation in the IT sector where feminine activity is still 50 per cent lower than men's, gender segregation in employment exists and women's wages in the sector are 30 per cent lower but where women who do manage IT businesses have a higher level of success than most IT companies.

### **Celje, Slovenia (pop 49000)**

*Environment:* Changing economy. National and regional development of innovation strategy 2011 – 2020 to change dependence on low technology industries and traditional services.

*Education and training for innovation:* Increasing numbers of highly educated but problem exists of creating jobs for educated population and women seldom in disciplines related to knowledge based industries.

*Joint working:* Science/ business park developed, publicly subsidised -now

under threat due to economic crisis.

*Gender inclusion:* Public support for R&D not gender mainstreamed, women's skills being lost.

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### **Crotone, Italy (pop 60000)**

*Environment:* Changing economy. Economy still largely dependent on low technology industries and traditional services.

*Education and training for innovation:* Movement towards "parity" between sexes in science and technology in the local University that opened in 2006 but the percentage of women involved in scientific or technological research inside and outside the university sector is low.

*Joint working:* Difficult to establish.

*Gender inclusion:* Change preferred stemmed from recognition that impact on women's employment of the university was to provide a new range of employment - mainly in traditional employment (restaurant, bed and breakfasts, cultural services). Need to change perceptions at many levels, but not solely on smart and inclusive growth.

### **Enna, Italy (pop 28000)**

*Environment:* Changing economy. AS with Crotone economy still largely dependent on low technology industries and traditional services.

*Education and training for innovation:* Local Higher Education Institute. Women make up majority of graduates. Much of the recorded demographic and economic growth since 2005 is thought to be partly due to the expansion of the University.

*Joint working:* Some start-up of new commercial activities connected with the University since 2004.

*Inclusive policies:* Education seen as key area for change: work is highly gender segregated and there is underemployment of women given their education level: impact of a traditional division of labour within the home was reported as a highly significant determinant.

### **Karvina, Czech Republic (pop 63000)**

*Environment:* Changing economy but still largely dependent on low technology industries and traditional services.

*Education and training for innovation:* There is a small institute of higher education, devoted largely to teaching rather than research. A number of organisations offer courses to address ITC gaps but it was felt that traditional views of women's role, as in the Italian cities, affected their use.

*Gender inclusion:* Equalities department in municipality – developing greater support for new female entrepreneurs and engagement in IT sector. Reported that those women who work in the sector find it flexible, interesting and financially rewarding but most women think ICT worker is a programmer or network administrator using technical abilities that women do not currently hold.

### **Alzira, Spain (pop 43000)**

*Environment:* Knowledge based economy does not, as yet, play a significant part in the local economy. There is, moreover, an under-utilisation of IT by small businesses. Women's businesses are generally low technology businesses.

*Education and training for innovation:* Regional University in nearby city – attracting and retaining highly educated from Alzira. Women's access in city is largely to limited and low level upskilling in IT.

*Joint working:* Funding for public sector to provide training/ develop joint



working is low.

*Gender inclusion:* National and regional equalities plan exists. Interest in developing young entrepreneurs/ innovator programme further – generate interest and capacity.

**Amiens, France (pop 136000)**

*Environment:* Economy changing, now dominated by six business parks that have attracted many small to medium sized companies and industries, including pharmaceutical packaging), food processing, environmental engineering and the cultural industry. Potential for development of knowledge based economy exists.

*Education and training for innovation:* University of Picardie is a multi site, vocationally oriented university, with 21000 students. Many students travel to Paris for their education but it was reported that due to early conditioning girls seldom opt for science and technology education

*Joint working:* Business parks exist but technological and science sector was not yet reported as a major employer of women in the city.

*Gender inclusion:* Equalities Unit in the city is relatively new. They have found that companies created by women with a higher education are reported as the most likely to be present three years later and are examining potential to build on this and to interest girls in technological education.

Actions were often being taken by partners to address these issues in different ways. They will be discussed in more detail later but included:

- Measures to improve the environment for innovation
- Initiatives to increase the interest of girls and boys in technology based vocations – the School Centre in Celje
- Actions to boost the interaction amongst scientists from different disciplines and increase the transfer of knowledge and technology both to the productive sector and to society in general – the Center in Information Technologies (CITIUS) in Santiago di Compostela
- University based strategies to stimulate greater interest in new technology amongst women – the HUMLAB initiative at the University of Umea. It is a meeting place for the humanities, culture and information technology. Everyone is welcome to participate in the daily activities and initiate their own projects in a creative environment.

In addition to evidence of good practice that partners wished to share there was clear evidence from the pre workshop review that most WEED partners wanted to develop new and stronger measures and strengthen the planning, implementation and monitoring of such measures: developing and sustaining change remains a real intention in cities exists despite the economic downturn. During the workshop these ideas were pursued through a Dialogue Café.

## 2. Context

The European Commission's Europe 2020 Strategy identifies a need to develop an economy based on knowledge and innovation at the same time as prioritizing inclusive growth. Crucial to getting the knowledge and innovation of this equation up and running are three things

- Providing the right environment for generating new ideas, whether in technology, ICT or less resource intensive innovation
- Making sure that people have the right training and education to come up with new ideas and use the opportunities that innovation offers such as exploiting the potential of ICT)
- Securing broad based partnerships that break boundaries between industry, government and universities to ensure that commercial development of ideas/ innovation has both a positive social and economic impact

But exactly how cities can contribute to such developments and how they can make sure such developments are inclusive when it comes to gender are questions that need to be addressed if the 2020 strategy is to produce positive change for as wide a range of residents as possible.

### ***A gender neutral environment?***

There is little doubt that cities can provide the environment for successful innovation. A Work Foundation Study in 2008<sup>2</sup> reported that cities are the place in which innovation and knowledge intensive industries tend to locate. The report showed, moreover, how high levels of public sector investment in some cities has helped attract thriving private sector 'knowledge industries' and increase regional productivity<sup>3</sup>. However, whilst improving the environment for innovation is key to success, unless more care is taken on the gendered nature of existing environments women will have little power within the knowledge based economy – to contribute to or benefit from the opportunities it offers. We need, for example, to ask why, despite the fastest growth in knowledge workers in the EU the 1990s being amongst women they are relatively underrepresented in the 'knowledge triangle of 'research-innovation-education'. We also need to wonder why women are more likely to be found in the lower and middle ranks of the retail, health and financial sectors where Information and Communication Technologies (ICT) have made the biggest impact, and why they are seldom senior players in the industry, public sector and university triangle partnerships. In addition, whilst the population of female researchers in OECD countries has grown, most women researchers still work in the public sector in contrast to male researchers who largely work in the business sector. When we look at policies for change in the EU there is much to be criticised. The gender blind nature of the 5th Framework Programme: Promotion of Innovation and Encouragement of participation of SMEs was highly criticized in an evaluation in 2001.<sup>4</sup> And questions remain about EC Innovation Programmes since the problem was identified. It is certainly not clear that much has changed when it comes to the extent of women's involvement in scientific invention (measured by the number of patents awarded for inventions). We find that women are underrepresented in all areas of invention. A 2010 study by genSET reported that

"There is some variation of women's participation as inventors across countries, with Spain employing 8.2% of female inventors and, at the opposite extreme, Germany with a share of 1.6%. The proportion of female inventors is smaller than the EU-15 share of women's participation in all disciplines.... suggesting that women are a big unexploited potential of human capital resources for R&D activities in Europe. Most female inventors are in chemistry, pharmacy or biotechnology; fewest females are in mechanics, construction and electrical sectors. 87.8 per cent of all patents applied for came from the business sector but the female proportion in the business sector counts for 7.9 per cent " (genSET 2010)<sup>5</sup>

<sup>2</sup> A Jones, N Lee, L Williams, Clayton, K Morris (2008) *How can cities thrive in the changing economy ? Ideopolis Report*, London. Work Foundation.

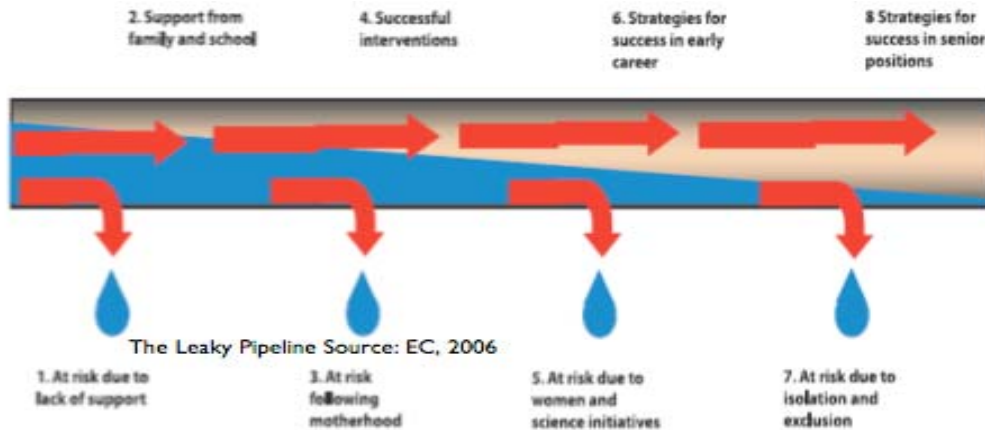
<sup>3</sup> Naomi Clayton 'Cities and the Role of the Public Sector in the Knowledge Economy' The Work Foundation

<sup>4</sup> Enterprises Directorate-General of the European Commission (2001) Gender impact assessment of the Fifth Framework Programme specific programmes: Promotion of Innovation and Encouragement of participation of SMEs Final report.

<sup>5</sup> genSET Consensus Seminars: The Gender Dimension in Science. Accessed at <http://www.genderinscience.org/resources.html>

## Training and Education – a leaky pipeline

It might well be argued that the expansion of women into higher education throughout Europe in the last three decades could have made a difference however it is not automatic that education and training lead to gender equality in the sectors of the economy where 'knowledge work' predominates. This applies particularly in higher education and research but also in access to Lifelong Learning in the sector. In most European countries, for example, whilst there are now proportionately more female than male graduates under 30, women remain under-represented as both students and employees in both pure and applied science and technology<sup>6 7</sup>. Despite the steadily growing number of women with a scientific or technical university degree in most European countries, women are still under-represented in science and technology (S&T)



professions, be it in companies or universities. Moreover, a disproportionate number of women are leaving S&T in each consecutive career stage, a phenomenon that has often been described as a "leaky pipeline". A leak which loses sometimes as many as 2/3 of female students with a good track record and strong interest in math and physics between high school and college<sup>8</sup>.

In ICT and engineering and the newer bio technologies the picture is also worrying. The ICT industry contributes to a quarter of EU's total growth and 4% of its jobs but in 2006 there was an estimated shortage of around 300,000 qualified staff yet the rise of women training for the sector at all levels has stopped<sup>9</sup>. According to the 2010 EC report 'Women and ICT' this is a major problem:

"ICT is critical to Europe's future and underpin the realisation of the Lisbon agenda...Half of the productivity gains in our economies are explained by the impact of ICT on products, services and business processes. ICT is the leading factor in boosting innovation and creativity ... and ICT is essential to meet the rise in demand for health and social care". (EC, 2010 <sup>10</sup>)

## What about knowledge transfer partnerships?

The third element necessary for developing the innovation and knowledge for a smart successful Europe was listed above as more joint working between government, university and business to commercially develop ideas/ innovations. Much has been written in the last decade about the potential of this 'triple helix' to develop local ideas into sustainable and responsible growth of a city or region <sup>11</sup>. It has been seen by many as a way for governments, at all levels, to encourage citizens to take an active role in promoting innovation at the same time as helping firms collaborate

6 She Figures 2009 – Statistics and Indicators on Gender Equality in Science. European Commission. Luxembourg

7 Women accounted for 59% of first-degree graduates at universities in Europe in 2006 but their share of PhDs decreases to 45% and only 18% of full professors are women.

8 European Commission. (2006). Women in Science & Technology: The Business Perspective. Brussels: Director-General for Research.

9 EU15, 20003

10 European Commission (2010) Women and ICT: Status Report 2009, Directorate C: Lisbon Strategy and Policies for the Information Society p14

11 Etzkowitz, H. and Leydesdorff, L. (2000) The Dynamics of Innovation: From National Systems and 'Mode 2' to a Triple Helix of University-Industry-Government Relations. Research Policy, 29: 109-123.



with each other and with universities and government to become more innovative. Evidence from Danilda et al (2009)<sup>12</sup> however, leads us to ask whether the type of partnerships currently being developed are open to men and women equally and whether the process needs to be more gender mainstreamed. Many of the policy network programs for regional and local innovation have in practice focused on male dominated industries such as manufacturing and ICT industries. Women dominated or gender balanced industries have often been absent and the type of incubators generated have seldom shown an awareness of the connections between research disciplines and pressing social issues. Vehviläinen et al (2010)<sup>13</sup> report in their study of science parks, which are often developed as a means of mediating between universities as knowledge producers and businesses as knowledge users, that work practices in science parks 'appear to follow the typical gender patterns in the science, technology and innovation sector'. They further conclude that it is only with gender mainstreaming practices that science parks can be really innovatory and avoid a problem recently identified by Luisa Prista, Commission DG Research's Head of the Scientific Culture and Gender Issues Unit, namely:

"If our goal is to strengthen innovation and enhance the quality of European research it would be absurd to pick the talents only from half of the population in a moment where new skills to face the current challenges are so much needed"<sup>14</sup>

### 3. City challenges and partner experiences

Small to medium sized cities are never going to change the rate of innovation and its impact within an economy on their own. National policies on education, public investment in innovation and the location of large global enterprises have a major impact. However we know that parts of the knowledge economy – hi-tech manufacturing, the creative industries, health, business services, education and ICT – have a dynamic of their own that tends to make it easier for some cities to be part of the knowledge economy and sustain their advantage and leave others behind. The questions addressed during WEED's ALS3 included whether city strategies can be developed that not only enhance the 'knowledge economy' but also have an impact on its gendered nature and the lost opportunities that produces for women and cities alike. Throughout discussions the key aim was to consider concrete actions that have been and could be taken. Focus was given to the experiences of partner cities in addressing the following issues: -

- Can local initiatives be developed to increase and maintain the interest and success of girls and women in training and education for innovation (technological and non technological)?
- Can locally based initiatives improve the business environment so that women use innovative ways to expand their businesses or improve services?
- Can professions be made more gender aware and avoid the leaky pipeline?
- Can collaborative ventures between universities, local authorities and business (e.g. science parks) be made more woman friendly?

Examples of concrete actions presented by LSG members from the WEED partnership are provided below.

#### ***Increasing the interest and success of girls and women in education and training for innovation***

Partners such as Celje, Alzira and Enna point to girls' and young women's disinterest in science, ICT and technology as a key problem and area for intervention if women's interest in innovation is to be fostered. It is an issue that the EC has identified for funding in the past and in practice there are strategies in place in both France and Spain, if not in Italy to make education and higher

<sup>12</sup> Danilda, I, Lindberg M and Tortenssen (2009) [Women Resource Centres : A Quattro Helix Innovation System on the European Agenda](#)

<sup>13</sup> Marja Vehviläinen, Pia Vuolanto, Oili-Helena Ylijoki (2010) '[Gender Equality in the Interface Organisations between Science, Technology and Innovations](#)'. Journal of Technology, Management and Innovation. Vol 5, No 1 (2010) pp 75-84

<sup>14</sup> August 25th 2010 Interview with Luisa Prista , accessed at European Directory of Women and ICT

education more gender equal. But partners' reactions have emphasized that they think the problem starts earlier. The picture is a complex one.

Numerous initiatives showing how women can and do contribute to invention and technology exist. In Connecticut, USA, for example there is an awards program that gathers the Connecticut technology community to recognize women in the workforce who are innovators, role models and leaders in the technology, science and engineering fields. Students at both the high school and college level are honoured for their studies and accomplishments<sup>15</sup>. It highlights the value of introducing role models at an early stage by creating the collaboration and progression that the EC report suggests. It was quickly extended to include a special focus on girls with companies like Covidien actively encouraging young women to prepare for key roles that will enhance organizational innovation and achievement. The program included: Science challenges in Exhibit Galleries where teams of ten girls performed three, 20-minute exhibit-based science challenges facilitated by CSC scientists, Lunch and social time with Volunteers, and free exploration time in exhibit galleries. Finding interesting and innovative ways is challenging. UNESCO has recently compiled a guide for teachers, careers guidance workers and community groups interested in engaging more girls in education. *Girls into Science: a training module* (UNESCO 2007) provides a host of suggestions on the type of activities that can be used by teachers and careers advisers.

The European Commission 2007 on Science Education, however, goes further. Recommendations from the report include:

'Measures to promote the participation of cities and the local community in the renewal of science education through collaborative actions. The participation of all stakeholders, including experts of science education, teachers, students, parents, scientists, engineers, science centres, firms and local authorities is a key factor for success.'

In Celje measures have recently been taken to develop such collaboration at the same time as increase the interest of girls and boys in technologically based vocations to the same scale through an initiative called 'Investment into an Inter-company Education Centre at the School Centre Celje. There is highly segregated education system when it comes to career decision making among youth in Slovenia and whilst a few years back there were female students enrolled in education programmes such as mechanical engineering, construction and electrical engineering this is not a case today. Stereotypes are very strong and affect the youth (male and female) when deciding into which secondary school they should enrol. The School Centre Celje (called the Secondary Technical School Celje until 1996) is a centre combined of 5 secondary schools (Grammar School Lava, Secondary school of Chemistry, Electrical Engineering and Computer Engineering, Secondary School of Services and Logistics, Secondary School of Civil Engineering and Environmental Protection and, Secondary School of Mechanical Engineering, Mechatronics and Media) and one higher education school (Higher Vocational College). It is a modern educational centre educating for the economic needs of its local community and claims to "prepare students for further studies at higher vocational colleges and at university." The project "Investment into an Inter-company Education Centre" was prepared in 2009. It started with implementation in 2010 and is due to end in August 2012. It involves an investment of 2.525.112 Euro into modern technological equipment for a range of high tech activities including robotics, multi media, ICT, SMT (simultaneous multithreading) technology. It is expected to generate better partnerships between education and employers and the local economy as well as lower sex segregation in the choice of occupations by making technology available at secondary level as well as post school stages. It encourages visits from primary schools, presents occupations as ones that can be done by girls and boys, women and men and has a strong equalities policy in the centre. The launch of the project's Media Centre in January 2011 received much interest from employers, the municipality, and male and female students. It is hoped that it will function to increase the number of female students in technical secondary schools as the principals are putting great effort into stimulating girls to enrol themselves in technical schools by promoting schools and occupations at primary schools and by providing by practical presentation of occupations in order to see it can be

<sup>15</sup> See [http://ct.org/Women\\_of\\_Innovation.asp](http://ct.org/Women_of_Innovation.asp)

done by girls/women too. The project highlights how European funds, local interest and established connections between schools and employers could be exploited to greater extent if engaging girls in new technologies is wanted.



A second example of measures that can increase interest in high technology amongst people of all ages presented at the Workshop was HUMLAB. Based in the University of Umea HUMLAB it is an internationally established platform for the digital humanities and new media that engages with all levels of competencies and ages. Centred on an exciting studio environment of about 500 m<sup>2</sup>, HUMLab offers interesting technology, prominent international visitors, often several simultaneously ongoing activities and a rich mixture of competences and interests. HUMLab is an environment of innovation that works as a place of study, a research laboratory, a place for project development, as well as a lecture hall or exhibition space. Sofas, an aquarium, and bookshelves placed amongst cutting edge technology create a space in which everyone feels welcome. And they are. Ongoing research projects include themes such as how youth are using YouTube, religious expression on the Internet, interactive architecture, and how European and Swedish cultural heritage can be made accessible in new ways. HUMLab is a part of the humanities faculty at Umeå University and is supported by the Kempe Foundation, Riksbankens Jubileumsfond, and the Knut and Alice Wallenberg Foundation. The Lab regularly works with young people as well as faculty members – exploring such things as Indie Games and activities to develop confidence and competence in ICT. Its welcoming atmosphere and strong connections with Humanities has led to a more gender equal use than other high tech facilities.



Less specifically focused on high technology are those measures that attempt to change the general cultural environment in which men and women grow up to adopt gender specific roles. In Alzira 2011 sees the launch of a project that is not specifically focused on technology, nevertheless it aims to challenge attitudes towards careers and roles by questioning roles within the home. The project Naixam iguals, Cresquem iguals (We born equal, we grow equal) was organised for 3 months around the International Women's Day. It was generated by the Municipality and involved 18 retail shops showing campaign posters, each with a different sentence and creating a route through the city. The campaign tries to make the general population realize the need to share family responsibilities

### ***Locally based initiatives to improve the business environment so that women use innovative ways to expand their businesses or improve service***

TAFTIE, a European Network of Innovative Agencies recently commented that as SMEs are the main generator of new jobs and innovative products and services in Europe, a major objective of European economic policy is to strengthen the competitiveness of small firms as one of the defined pillars for the EU2020 strategy. 40% of all SMEs in Europe are innovative, and thus contribute actively to growth and competitiveness. Hence, one specific target for EU2020 is to increase the number of innovating SMEs to 75%. However, major barriers remain that hamper the innovation activities of SMEs, including:

- A lack of access to finance for innovation and the commercialization of R&D results
- A lack of incentives facilitating cooperation between actors
- Difficulties in finding partners for innovation
- A lack of knowledge about support instruments.



One of the ways being developed to overcome barriers for women innovators discussed at the workshop was the LEIA Accelerator in Umea. It is a project with the purpose of accelerating gender equal business, based on cooperation and innovation. It is not an Incubator but an accelerator owned by Magma Vaterbotten, a non-profit organisation and run by three staff. Leia Accelerator is a physical meeting place located in a business development set of offices designed for innovative companies with a flexible concept that stimulates and develops human business, and helps men and women own and operate businesses to the same level. It provides rooms and space at market rates, mentoring and coaching and networking possibilities. A Leia company must be owned at least to 50% by a woman and have been in operation in 3 years or more. Since its inception 5 companies (owned 50% by women) have accelerated, i.e. begun to employ more staff, cooperate with others to expand and bring in enough to be a sole income. At least three companies owned by a foreign-born woman have expanded and the number of companies (owned 50% by women) in the Västerbotten region has increased by at least 10. The Leia Accelerator has also created and developed a network of at least 150 active female entrepreneurs in northern Sweden. Its success is a result of working with soft values, being run by women entrepreneurs with a vision of cooperation and growth. It has put Umeå and Västerbotten on to the map as an area for gender equal business and has supported new ideas of how to run a business and business clusters. Funding for the core staff has come from the Municipality of Umea (25%), the Regional Development Office (25%) and EU (50%). The Municipality has invested as part of its strong and strategic approach to promoting gender equality.

In Alzira the Accelerator principle has also been expanded, albeit with less specific focus on making it gender equal. There is more difficulty to get a strong gender equality programme built into economic development strategy in Alzira than in Umea. The Accelerator programme is a new program of advanced services for entrepreneurs with a high growth potential, particularly in the ICT field. The focus is on SMEs with less than five years growth but not in the start up phase. It is a tool for entrepreneurs and small business that have an innovative idea in Valencia Region and provides help in the process of elaborating a business plan, strategy design, and searching and funding opportunities. It has been developed by **CEEI (European Centre of Innovative Enterprises)** partly as a result of the activities of the Alzira WEED LSG. Its advantages lie in the supporting measures, advanced services and risk minimization that it offers.

### ***Making professional bodies more gender aware and avoiding the leaky pipeline***

The loss of highly trained and educated women in research, higher education and professional bodies significantly affects the role that women play in innovation. Strategies for success in early career and senior positions are important if such a loss is to be avoided. Practical examples of attempts to address the issue can be found. The 'Excellentia' programme in Austria is one example. It is designed to increase the number of female university teachers at Austrian universities. It is a financial incentive programme through which the employment of women professors is rewarded. This helps to improve the appointment practices of universities in favour of women. Universities that appoint women professors and thus increase the current number of professorships held by women receive a financial reward (EUR 33 880). Amongst WEED partners there were also concrete examples.

The Official Psychology School of Galicia is a professional association of psychologists. It defends the interests of the profession, oversees the qualification and training of professionals and advises on the scientific and technical development of the profession. Over the last few years it has become concerned at the lack of women in senior positions and the gendered nature of psychologists practice. The Dean of the School was traditionally male, the Governing body was predominantly male and even the name of the School was masculinised. The message to women in the profession and in research and practice tied to the school was one that did not encourage women to think of themselves as senior members and the 'leaky pipeline' was one that could be



applied. In order to address the position and help women in the profession a number of changes were made. Since 2009 these have included changing the name of the School to School of Psychology rather than School of Psychologists as in Spanish psychologists word is masculine. The Board was made more gender balanced. Training programmes were revised to include a gender perspective, additional training programmes on gender violence, gender and care, gender and work were introduced and an Institutional Declaration for the Elimination of Violence against Women signed along with the Professional College of Journalists and the Council of Advocacy on the International Day for Women. The expected impacts of the changes include a more gender equal profession and a more gender sensitive service. Recognition of the changes and their value has also resulted in the School being regularly consulted by municipal and regional government on how to make services and professions more gender equal.

### ***Making collaborative ventures between universities, local authorities and business more woman friendly***

In Santiago di Compostela the relationship between the Municipality and the University is a strong one. The WEEED project has noted the particular strength of the WomenEmprende project in the past. Despite the fact that the majority of university female students have received their education in the area of Technological and Experimental Science in the University of Santiago de Compostela the skills of female graduates is seldom transferred into entrepreneurial initiatives. Barriers facing them include poor access to technology and support as well as difficulties in balancing work and family. The Women Emprende project addresses these issues. It is based in the University and receives municipal support. It focuses on the establishment of entrepreneurial ventures that take into consideration the specific characteristics of women. The programme offers a variety of supports – knowledge updating, access to University technology, development of support structures for working mothers, entrepreneurial training. These have resulted in greater visibility and relevance of female entrepreneurship within the institution itself and a greater number of female entrepreneurs. Some examples of companies created by women at the University of Santiago are Estudio Adumbro, whose functions are to direct and take care of the projected image of a product, service, project or company and GalChimia, a leading Spanish company in the area of Synthetic Organic Chemistry. Four Doctors of Chemistry constituted Galchima and they expect to have a turnover of 5 million Euros by 2011.

WomenEmprende is not the only knowledge transfer project in Santiago in which women have been involved. The University/ City initiative - INFORMATION TECHNOLOGIES RESEARCH CENTRE (CITIUS) also has examples. CITIUS is a 3.200 sq m centre which by 2012 hopes to house 150 researchers. The basic scientific object of the CITIUS research centre is the development of activities (R+D) in the area of information technologies, giving an environment that boosts the interaction among scientists from different disciplines, and increasing the transference of knowledge and technology both to the productive sector and to society in general. The main areas of development are Artificial Intelligence, Computing Engineering, Bio medical engineering and Digital Imaging. Projects led by women include: -

- New téchnics of artificial visual. Lead investigator: María José Carreira Nouche. Funding 48.300
- Explotación of hardware systems Lead Investigator: Montserrat Boo Cepeda. Funding 66.930
- Development and implantation of new technologies for fishing ecology Lead Investigator: Eva Cernadas García.Funding14.582

A different focus comes from partners such as Umeå who, throughout their involvement in WEED, have provided innumerable positive examples of how integrated change can be brought to the challenge of reducing the gender segregated nature of employment and enterprise. Working with Umea University the Municipaity has contributed and used local research to produce change and by continually identifying the need to gender mainstream institutions as well as change the aspirations of both men and women shown how they are key to increasing women's interest and success in innovation as well as making innovation incubators such as business and science parks



less male dominated. Gender mainstreaming is an essential tool for improving the gendered practices of interface organizations and science parks in particular. It is a conclusion that a study of science parks in Finland came to: -

‘Gender mainstreaming practices had effects in science parks. Welfare state care services allow full-time work equally to women and men. Gender equality plans that are obligatory by law in work places with at least 30 employees turned out to be effective in increasing gender sensitivity in male dominated work communities in technology’<sup>16</sup>.

## 4. Where next?

Following the discussions of concrete examples that provide ideas of how the challenges of making innovation and technology more gender equal participants took part in a Dialogue café as a way of brainstorming ideas for change. The questions that formed the basis of the dialogue were: -

- In which sectors do you think there is a need for innovation? How or are women involved in these sectors? What needs to be done to secure women’s greater involvement
- How can cities increase women’s interest and success in innovation (technological and non technological, green economy, services)?
- How can cities help women use ICT to expand their businesses or improve services? What kinds of ICT based businesses are women creating?
- How can collaborative ventures between universities, local authorities and business (e.g. science parks) be made more woman friendly?



The main recommendations to come out of the discussions were:

<sup>16</sup> Marja Vehviläinen, Pia Vuolanto, Oili-Helena Ylijoki (2010) [‘Gender Equality in the Interface Organisations between Science, Technology and Innovations’](#). *Journal of Technology, Management and Innovation*. Vol 5, No 1 (2010) pp 71

- Public and private sectors both need to be recognised as sectors where innovation is needed. More public-private innovation partnerships are needed in service as well as product sectors.
- Increasing the interest of women in innovation, ICT and science needs early intervention to change school pupils, parents and teachers attitudes.
- Mentor programmes should be extended to encourage women to progress in ICT, science, research and business.
- Women's ideas about innovation need to be valued. Awards could be given for new ideas.
- Exploring new ways of sharing the newest technology could help new and existing SMEs
- Legislation is still needed to move towards 50-50 shares in Board membership and higher levels of management.
- Stronger cooperation between Universities and local stakeholders is needed to encourage socially responsible innovation.
- Use public procurement to make businesses think differently about gender and technology.

Possible European funding was discussed but it was recognised that more work is needed to explore possibilities. The main EC funding possibility for taking these ideas forward mentioned were European Structural Funds (See ALS 2 report) and Seventh Framework Programmes. Most partners are aware of ESF guidelines but the FP7 programme may also be worth exploring. The Seventh Framework Programme (FP7) brings together all EU funded research initiatives aimed at promoting growth, competitiveness and employment in its Member States. Some projects have addressed strategies for social cohesion, others to help SMEs develop technical solutions for new services or products.

See [http://ec.europa.eu/research/fp7/index\\_en.cfm](http://ec.europa.eu/research/fp7/index_en.cfm) for some examples. Gender has also been addressed in the Framework for Research programmes from time to time ( See Case Studies). Not always the easiest of funding streams to access, since January 2011 the European Commission has adopted measures to make participation in the EU's current Seventh Framework Programme for Research 'more attractive and more accessible to the best researchers and most innovative companies, especially Small and Medium-Sized Enterprises (SMEs)'.

Other possible funding programmes relating to Innovation and Research include the Competitiveness and Innovation Framework Programme and the Entrepreneurship and Innovation Programme. The Competitiveness and Innovation Framework Programme (CIP) is intended as a single, coherent legal basis for all Community action relating to competitiveness and innovation within the framework of the Lisbon Strategy. The Entrepreneurship and Innovation Programme aims to support entrepreneurship, SMEs, industrial competitiveness and innovation. The programme specifically targets SMEs and aims to foster sector-specific innovation, clusters, public-private innovation partnerships and innovation management. The Seventh R&D Framework Programme (FP7) and the CIP are mutually reinforcing components of the EU's efforts to reach the Lisbon goals and support Europe's competitiveness and innovative capacity. The CIP will primarily focus on the technological and non-technological aspects of innovation and the downstream parts of the innovation and research process.

## Useful resources

European Centre for Women and Technology <http://www.womenandtechnology.eu/>

Women in ICT: Code of Best Practices available at <http://www.portiaweb.org/code.html>

genSET Briefing Notes available at [www.genderinscience.org/](http://www.genderinscience.org/)

She Figures 2009: Statistics and Indicators on Gender Equality in Science available at [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/she\\_figures\\_2009\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/she_figures_2009_en.pdf)

European Commission (2009), Women in science and technology – Creating sustainable careers available at [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/wist2\\_sustainable-careers-report\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/wist2_sustainable-careers-report_en.pdf)

Innovation for Women's Empowerment and Gender Equality available at <http://www.icrw.org/publications/innovation-womens-empowerment-and-gender-equality>

Seventh Framework Programme factsheets available at [http://ec.europa.eu/research/fp7/index\\_en.cfm?pg=understanding](http://ec.europa.eu/research/fp7/index_en.cfm?pg=understanding)

URBACT II

**URBACT** is a European exchange and learning programme promoting sustainable urban development.

It enables cities to work together to develop solutions to major urban challenges, reaffirming the key role they play in facing increasingly complex societal challenges. It helps them to develop pragmatic solutions that are new and sustainable, and that integrate economic, social and environmental dimensions. It enables cities to share good practices and lessons learned with all professionals involved in urban policy throughout Europe. URBACT is 181 cities, 29 countries, and 5,000 active participants

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