



# Women active in the ICT sector



## EXECUTIVE SUMMARY

A study prepared for the European Commission  
DG Communications Networks, Content & Technology

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**Internal identification**

Contract number: 30-CE-0534945/00-32

SMART number: 2012/0066

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ISBN 978-92-79-32374-4  
DOI: 10.2759/28061

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# EXECUTIVE SUMMARY

## Context and methodology

Despite the evidence which proves that women's access to an ICT career is essential for the sector's long-term growth and the sustainability of European economy, there remains a large gender gap in Europe's ICT sector. This study uses desk research, statistical analysis and economic cases as well as stakeholder interviews and surveys to analyse the problem and come up with key priorities for action.

## Problem

Several problems prevent women from fully participating in the ICT sector:

1. **Cultural traditions and stereotypes** about women's role in society and about the sector.
2. **Internal barriers, socio-psychological factors pulling back women from the sector and its top positions:** lack of self-confidence, lack of bargaining skills, risk-aversion and negative attitudes towards competition.
3. **External barriers, ICT sector features strengthening the gender gap:** strongly male dominated environment, complex reconciliation between personal and professional life, and lack of role models in the sector.

## Main findings

Women are still underrepresented in the ICT sector. Out of 1,000 women with a bachelor degree in Europe, only 29 hold a degree in ICT (compared to 95 men) whilst only 4 eventually work in the ICT sector. To compound the problem, women leave the sector mid-career (leaky pipeline) to a greater extent than men. Indeed, 20% of women aged 30 years with ICT-related bachelor degrees work in the sector, whilst only 9% of women above 45 years old with these degrees do so<sup>1</sup>.

Women are also particularly underrepresented in managerial and decision-making positions. Although this is a general problem, the percentage of female bosses in ICT is much smaller than in other sectors: 19.2% of ICT sector workers compared to 45.2% of non-ICT sector workers have female bosses<sup>2</sup>.

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<sup>1</sup> Data elaborated in house (Economic case 2) based on the European Labour Force Survey 2011. ICT refers to J sector. Microdata necessary for this study is not available for Cyprus and the Czech Republic, therefore 25 countries from UE27 have been included, together with Switzerland, making 26 in total.

<sup>2</sup> Data elaborated in-house based on Survey on Working Conditions (2010). Countries included in the survey are: EU27, Norway, Croatia, the Former Yugoslav Republic of Macedonia, Turkey, Albania, Montenegro and Kosovo\* (\*This designation is without prejudice to positions on status, and is in line with UNSCR1244 and the ICJ Opinion on the Kosovo Declaration of Independence). For consistency our analysis does not include Turkey, meaning that 33 countries are considered. The ICT sector refers to the NACE R2: C (26.1, 26.2, 26.3, 26.4); G (46.5, 47.4); J and M (71.12, 71.2, 72.1)., Under the non-ICT Service Sector we include the following sectoral activities: K (Financial and insurance activities), L (Real estate activities), M (Professional, scientific and technical activities except for 71 and 72, which are in the ICT sector), N (Administrative and support service activities), O (Public administration and defence), P (Education), Q (Human health and social work activities) and S (Other service activities).

Meanwhile economic arguments for increased female participation in the sector abound. If women held digital jobs as frequently as men, **the gain for the European GDP each year would be around 9 bn EUR (this translates into 1.3 times Malta's GDP!)**<sup>3</sup>. The industry itself would profit from more balanced participation rates: **organisations that are more inclusive of women in management achieve 35% higher ROE and 34% better total return to shareholders** than other comparable organisations<sup>4</sup>.

Women themselves can profit from this career choice by earning higher salaries: **females in the ICT sector earn almost 9% more than women in similar positions** in the non-ICT service sectors<sup>5</sup>. They enjoy higher flexibility to arrange their working schedules and will be less susceptible to unemployment: there will be 900.000 unfilled ICT positions in the European Union by 2015<sup>6</sup>.

Our study also suggests that in the ICT sector the Gender Payment Gap (GPG) is less significant. Even though the unadjusted GPG (which compares average salaries between men and women) is higher than in other sectors (21% compared to an average of 16%<sup>7</sup>), the adjusted GPG (which compares women and men with similar socio-economic characteristics) is close to 0%, while it stands at 5% in the non-ICT service sectors<sup>8</sup>. The fact that the adjusted gap drops to zero, whereas the unadjusted one amounts to 21%, is due to a tendency for most women in the ICT sector to work in lower positions with smaller wages.

### **Key priorities for action:**

#### **Priority 1. Build a renewed image of the sector among women and mainstream society**

Young women usually see jobs in the ICT sector as solitary, boring and useless in terms of helping others. They prefer working with people on tasks involving strong human relationships. Current stereotypes relating to the sector include: long working hours, a largely male-dominated environment, and difficulties in balancing personal and professional life<sup>9</sup>.

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<sup>3</sup> Data elaborated for this study based on the European Labour Force Survey (2011). For a detailed description of the methodology used please refer to the section "Description of the Problem" of this document.

<sup>4</sup> Source: Padnos, C. (2010)

<sup>5</sup> Data elaborated for this study based on the European survey on Working Conditions (2010). For a detail description of the methodology used please refer to Annex II, Economic Case 2.

<sup>6</sup> [http://europa.eu/rapid/press-release\\_IP-13-182\\_en.htm](http://europa.eu/rapid/press-release_IP-13-182_en.htm)

<sup>7</sup> Source: Eurostat [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Gender\\_pay\\_gap\\_statistics](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Gender_pay_gap_statistics)

<sup>8</sup> Data elaborated for this study based on the Survey on Working Conditions (2010). For a detailed description of the methodology used please refer to the section "Description of the Problem" of this document.

<sup>9</sup> Sources: Gras-Velazquez, A., Joyce, A. & Debry, M. (2009). Other sources that refer to these stereotypes are: European Commission (2006) and Valenduc, G., Vendramin, P., Guffens, C., Ponzellini, A., Lebrano, A., D'Ouille, L., Collet, I., Wagner, I., Birbaumer, A., Tolar, M. & Webster, J. (2004)

To guarantee a comprehensive approach a double perspective should be applied by disseminating both the creative side of technologies and their enabling role.

Top recommendations:

1. Disseminate most appealing ICT topics for young people, and particularly for women such as: exciting, diverse, challenging, full of opportunities and profitable. Create role models through visibility of key women in the sector.
2. Disseminate evidence of equal capabilities of women for STEM studies.
3. Promote a "diversity" approach and use integrating terms to encourage girls to take up an ICT-related career and further involve men in the solution.

**Priority 2. Empower women in the sector**

Certain psychological and socio-psychological factors have important effects on the labour market outcome, particularly in very male-dominated sectors such as ICT. These factors include gender differences in risk preferences, attitudes towards competition, strengthening other-regarding preferences, and attitudes towards negotiation.

Those differences have a significant impact on gender gaps in the ICT sector and are partially explained by lack of confidence of women in their own capabilities as well as a cultural and social environment which is still dominated by strong preconceptions regarding appropriate jobs for men and women.

Top recommendations:

1. Promote harmonised European educational curricula (working closely with the industry) to foster clear and straightforward ICT careers paths, particularly in innovative and young sectors while encouraging informal and lifelong ICT learning.
3. Improve confidence of women in their managerial capabilities through training and coaching programs and promote mentoring programmes within companies.
4. Showcase inventions, developments and innovations coming from women: more visibility of success tangible products or services from women.

**Priority 3. Increase the number of women entrepreneurs in the ICT sector**

The number of female entrepreneurs in the ICT sector is low compared to other sectors. Women constitute 53.9% of entrepreneurs in non-ICT sectors and 31.1% of all European self/employed while accounting for a mere 19.2% of ICT

entrepreneurs<sup>10</sup>. Promoting entrepreneurship in Europe, both among men and women, is critical for European economy.

Top recommendations:

1. Improve access to funding for women entrepreneurs, particularly seed and venture capital programs.
2. Promote the idea of entrepreneurship in the ICT sector as easier than in other sectors: programming can be done from a PC anywhere and requires low initial investment! Use role models as examples.

**Priority 4. Improve working conditions in the sector**

There are two main problems in the sector which affect the working conditions of women: the persistence of certain informal rules in the sector (the so called "old-boys' network system"), and working conditions (working hours and schedules). With this said, maternity remains the turning point of women's careers in this sector as well.

Top recommendations:

1. Communication campaigns should disseminate existing economic data relating to the improved performance of companies with women (and a diverse workforce) and the foreseeable lack of qualified ICT workers in the future. Indeed, this reinforces the idea that women have the same capabilities as men.
2. Companies should "speak female language": to become more attractive to women, they must focus their offer on the aspects which women value the most (reconciliation, personal fulfilment, etc.).
3. Reform the Code of Best Practices for Women and ICT in the shape of an "ICT diverse workforce" label.

**Transversal action 1. Improve data availability**

Despite large amounts of data being available, obtaining a complete overview of European Women in the ICT sector is hindered by lack of data sources broken down by gender.

This issue is particularly worrying in the case of women researchers in the sector (number of patents, number of women head of departments in universities), female ICT entrepreneurs and women in managerial positions in ICT companies. Indeed, this can lead to underlying problems not being brought to the table, and thus persisting.

Top recommendations:

1. Improve both the availability and the visibility of data.

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<sup>10</sup> Data elaborated for this study from the Survey on Working Conditions 2010. ICT sector refers to the NACE R2: C (26.1, 26.2, 26.3, 26.4); G (46.5, 47.4); J and M (71.12, 71.2, 72.1). Under the non-ICT Service Sector we include the following sectoral activities: K, L, M (Professional,

2. Encourage data gathering by intermediaries such as recruiting companies to improve “objective” data on recruiting policies, GPG, etc.

## **Transversal action 2: Identify and Exchange Best Practices**

### Top recommendations:

1. Support existing initiatives whilst also providing visibility and support to the most successful ones or scaling them up.
2. A mechanism for the more effective exchange of scalable and replicable best practices should be implemented. Becoming a best practice in Europe should be truly attractive for all industry organisations, and therefore rewards should be put in place and visibility ensured.
3. Dissemination activities should not exclusively target women; men should be involved in all actions. The increase of participation of women in general activities of the industry (congresses, events, workshops, etc.) should be preferred over the organisation of specific events only for women.

**Table 1. Suggested priorities and transversal actions**

<b>Priorities</b>	<ol style="list-style-type: none"> <li>1. Build a renewed image of the sector among women and mainstream society</li> <li>2. Empower women in the sector</li> <li>3. Increase the number of women entrepreneurs in the ICT sector</li> <li>4. Improve working conditions in the sector</li> </ol>
<b>Transversal actions</b>	<ol style="list-style-type: none"> <li>1. Improve data availability</li> <li>2. Identify and exchange best practices</li> </ol>

**Source: prepared in house**

The annexes of the report include additional recommendations as well as the detailed description of the economic cases and further information on the research carried out

For privacy reasons all interviews and surveys have been kept anonymous.

European Commission

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Luxembourg, Publications Office of the European Union

**2013** – 11 pages

ISBN 978-92-79-32374-4

DOI: 10.2759/28061

