# More Women in Informatics Research and Education
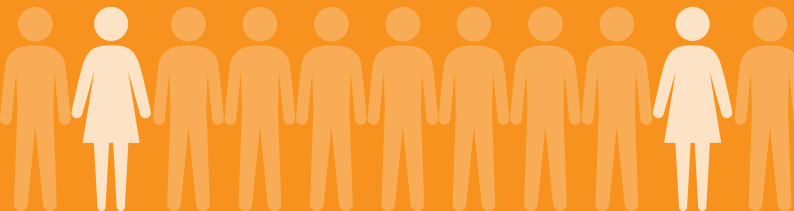
# Foreword

New technologies are transforming the world at a dizzying speed. And that change brings huge opportunities and demand for skilled workers. By 2015, there could be a gap of about one million highly skilled ICT workers in Europe. And half of those jobs belong to women. After all, these are the opportunities of the future: and women owe it to themselves to seize them.

This is not just about women's equality; we need to get more women in digital jobs and ICT research for the sake of our future competitiveness and prosperity. Yet the number of ICT undergraduate degrees in Europe has stagnated since 2006. Without more women studying in this field, we are fighting a losing battle.

I am looking forward to seeing more women in ICT research, so they can make the most of their potential to solve our most pressing scientific and social problems. There's so much female talent out there: if we nurture it, just imagine the kind of innovation women could bring to the table! We need more women acting as role models, encouraging even more women to step up to this exciting career.

This booklet contains lots of useful recommendations to help achieve this – I hope many find useful inspiration and clear ideas to apply in the workplace. And I wish the best of luck to every woman who sees and grasps the opportunities of the digital revolution.

Neelie Kroes

Vice-President of the European Commission, responsible for the Digital Agenda

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# Introduction

Informatics is a field in which women are in the minority, with the result that the field is losing a large amount of potential talent. While this problem is common across cultures, we, as a field, should ensure that the women who do select to study and work are supported in achieving their goals and potential.

This booklet is created by the Informatics Europe Women in Informatics Research and Education working group. The booklet is intentionally compact to provide clear and simple best practices to deans and heads of departments that will help increase the participation of women as both students and employees. It details actions that can be taken to attract women to participate in informatics education and ensure their continued participation in the organisation at commensurate ratios with their male colleagues.

These actions are not temporary measures, but need to become ingrained in the processes of the organization, so that when less attention is paid to the issue of gender the numbers of women will not decline.

The bad news is that a predominantly male or female culture is selfsustaining. In the case of informatics, the male-dominated culture is the status quo. The good news is that when a mixed culture is achieved, that this is also self-sustaining. Research indicates that a minimum percentage of 30% of both genders achieves this stable mixed state, so while 50% of women would be a laudable goal, reaching 30% would already allow us to congratulate ourselves on achieving it.

While the gender issue is often perceived as a women's issue, only when the majority of the deans and heads of European informatics departments see this as both a concern and an opportunity will there be any significant change. We hope that this document will help the required changes to be made, to the benefit of all members of the department, men and women alike.
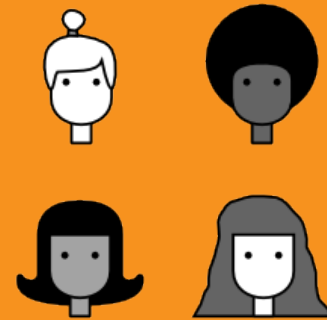
# Recruiting Female Students

- Use multiple social media channels (e.g., Twitter, Facebook, LinkedIn, Google+) to promote events.

- Work with undergraduate open day coordinators to recruit female student ambassadors and speakers from the department and industry as role models. Be aware that this costs women their own study/research time.

- In recruiting material and on the departmental website, present examples of women who have successful informatics careers, thus reducing the stereotype that computer science jobs are only for "nerds".

- Offer bachelors and masters courses in topics typically more popular to women, such as human computer interaction, multimedia, lifestyle informatics, medical informatics and computational linguistics.

- In course descriptions, emphasize aspects of informatics that tend to be more attractive to women, such as design, communication, human computer-interaction, social science and natural language.

- Emphasize that unemployment in the IT sector is very low and that salaries are well above average.
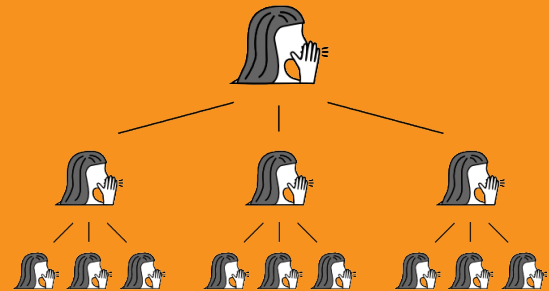
# Recruiting Women

- Advertise openly for all positions.

- Describe positions in a broad way. State job criteria objectively.

- State in the recruiting description that the university/department/institute is committed to facilitating the combination of work and childcare.

- State that flexible terms of employment are possible, such as working part time (0.8), flexible working hours and tele-working.

- Distribute advertisements widely. For example, send them to women's networks email lists, such as a national "women in computing" network or a network of female professors.

- Approach candidates directly. For example, send the advertisement personally to (at least) three women you would like to see in the position. Ask them to apply, or ask them to send it to three other women who they think would be suitable.

- Allow 3 months for applications to be submitted. (Time is needed for the advertisement to reach the right women, and they need time to respond.)

- Take action if too few suitable women apply. For example, extend the deadline for applications and re-advertise the position (inter)nationally.



# Interviewing Women

- Ensure the composition of the nomination committee is as balanced as possible. For example, ensure that at least 30% of the committee consists of women, with a minimum of 2.

- Invite at least the same number of women as men to interview.

- Invite women to the interview not only to see whether they are best for the position, but also to give them experience in conducting interviews and increase their status at their own institution.

- When interviewing women and men, raise the issue of increasing the representation of women in the department and ask how they would approach it. This provides extra tips and also shows the department is serious about the issue.

- Provide help with solving the "two body problem", that is finding a position for the applicant's partner.

- When comparing candidates for any success criterion, add 18 months per child to the date of PhD completion for mothers (thus reducing the time used to judge the achievements).

*For maternity, the effective elapsed time since the award of the first PhD will be considered reduced by 18 months for each child born before or after the PhD award.*

*For paternity, the effective elapsed time since the award of the first PhD will be considered reduced by the actual amount of paternity leave taken for each child born before or after the PhD award.*

http://erc.europa.eu/sites/default/files/document/file/erc_work_programme_2013.pdf

**Keeping Women**

- Schedule meetings only between 09:30 and 16:30, so carers of young children are able to deal with travelling and childcare. (They will be working the extra hours in their evenings anyway.)

- Overcompensate the imbalance of women in the institute by their overrepresentation at institute colloquia. For example, if 15% of the department is female, then make sure women give at least 25% of the talks. Invite external female speakers as well.

- Organise a course for all senior staff members on unconscious prejudices. These can cover many diversity issues, not just women.

- Provide support for the creation of a women's network within the department, including secretarial support and a budget for holding events, such as lunches.

- Hold annual discussions with representatives of the women's network and the head of the personnel department.

- Encourage senior personnel in the department to act as mentors.

- Count the hours spent on women support and network issues in the same way as all other departmental commitments are administered. Do not assume that female employees can deal with this extra load in their "spare" time.

- Fund childcare expenses for conference travel for mothers with young children.

- Fund travel expenses for partner to go to the conference location during the breastfeeding period.

- Balance the didactic and scientific responsibilities of all members of staff and make the priorities for evaluating an individual's performance (e.g., research excellence, student satisfaction with courses, contribution to departmental duties) explicit.

- Create an "ambassador" program, or personal development plan, for high potentials. Ensure that at least 30% are women.

- When assessing a female member of staff for promotion, subtract 18 months from the number of their career years per child and take into account any periods of part-time employment.

- Offer incentives for groups when they employ a female member of staff. For example, give extra travel funds to the group; or allocate funds to hire a PhD-student, research assistant or special equipment for the staff member herself.

- When employing an excellent female candidate as a postdoc, then offer her a tenure track position that will guarantee her a permanent position if she meets the criteria specified. There should be a mid-term review of the criteria.

- Provide visibility and self-promotion training for all female researchers, whether in temporary or permanent employment.

- Provide coaching and mentoring to female researchers to make them more aware of their own attitudes and concerns, for example, how to combine work and family demands; how to deal with the competition for scarce permanent positions.

**50%** ♀   **50%** ♂

**Promoting Women**

- When involved with chairing or taking part in a committee, whether departmental or external, ensure a balanced representation of women.

- When asked to nominate candidates for prizes, awards or prestigious tasks (e.g. for reviewing, representing the department internally or externally), then look for suitable women to propose. Strive for equal numbers of highly qualified women and men on the short list.

- If there is currently no capable woman available, then train someone for next time.
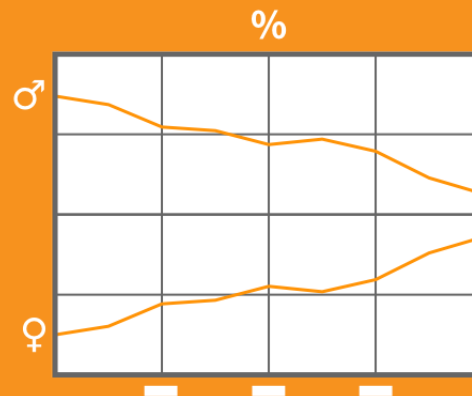


# Support Measures

- Consult the women in your department. For example, organise lunch once a month with a different woman, at different levels, and ask her how she views the organisation, her role and her career ambitions and prospects.

- Scout and follow talented female researchers that could be called upon at some future point in time for different tasks.

- Anticipate the retirement of (male) professors by making an inventory of and training potential female successors.

- Keep track of national and international networks for female researchers.

- Find successful role models.

- Monitor the percentage of women at all levels in the organization. Create specific, but realistic, targets and action plans to meet them. Make the figures public in annual reports and departmental evaluations.

- Assign gender representation as a responsibility to a scientific member of the management team as well as ensuring it is in the personnel department's portfolio. Have the issue championed by men in the organisation.

- Support the creation of departmental and institutional policy that takes into account the number of children when comparing CVs in all issues related to hiring and promotions.

- While females are under-represented, develop a female-only programme for extra tenure-track positions for high potential talent, where the recruitment criteria are based on excellence rather than topic.

*Three examples in the Netherlands are Rosalind Franklin fellowship, University of Groningen; Delft Technology Fellowship, TU Delft; Carolina MacGillavry fellowship, University of Amsterdam.*

# Sources

- http://ercim-news.ercim.eu/en89/ri/genset-gender-equality-for-science-innovation-and-excellence

- http://www.genderinscience.org/

- http://www.genderinscience.org/index.php/downloads/doc_download/18-genset-consensus-report-recommendations-for-action-on-the-gender-dimension-in-science

*This booklet is a publication of the Informatics Europe Working Group on Women in Informatics Research and Education.*

*A digital version is available at: http://www.informatics-europe.org/images/documents/more-women-in-informatics-research-and-education_2013.pdf*

*Further resources related to the topic are online at: http://www.informatics-europe.org/services/women-in-ict-research-and-education.html*

*October 2013*

Prof. Lynda Hardman, a member of the Informatics Europe board, has enjoyed a 30 year career in informatics - at first in industry and then in academia. She would like to help smooth the way for the small, but growing, number of women with the same enthusiasm for a fascinating field.

Dr. Cristina Pereira, the Secretary General of Informatics Europe, previously worked as a researcher in the area of computational chemistry. Her career in science and academic affairs, where women are still under-represented, contributed to her interest in actions to improve gender balance.

As members of the Informatics Europe Working Group on Women in Informatics Research and Education, they have edited this booklet to encourage more women to take up and enjoy a fruitful career in the field.