



WWW-ICT
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*Widening Women's Work
in Information and Communication Technology*

Professional trajectories and biographies

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Biographical interviews conducted with 107 women and 33 men working in the ICT sector in seven European countries – Austria, Belgium, France, Ireland, Italy, Portugal, and the UK

Biographical interviews - narrative interviews with a focus on

- developmental tasks
- individual coping strategies
- detours and their implications
- transitions
- life themes

Analysis

- cross-cutting themes
- career patterns (cluster analysis)
- life story patterns (working with the narrative material)
- reading male biographies (in comparison to those of the women)

Background - early influences

Early exposure to ICT ...

There are several stories of informants having liked tinkering, using tools, and preferring technical toys as young girls - but the majority of informants did not get in touch with computers at an early age.

Parents ...

Only some women received special encouragement from their parents to go into the sciences and technology

Mothers had a strong influence on the daughter's personal development and career choice - these mothers are described as role models: strong, admirable, and supporting, expecting their daughter to be strong and independent

In many cases the fact that parents encouraged their daughter to make their own decision, respected their choice and trusted in it was mentioned as the most important support.

Relationship to technology

Technology, in particular ICT, is attractive to a large part of our informants:

- o It is challenging work, offering the opportunity for learning and perfection, and for being creative
- o It is fascinating, satisfying the urge to "solve riddles and generally the curiosity to get to the bottom of things"
- o Being able to work with customers, translating their needs into software or a web site – this may include a care-taking aspect
- o It is an open world, with a wide horizon
- o It offers jobs in a respectable area and status.

Life story patterns I

Shaping their own environment

These women are ambitious but also engaged, critical, and self-conscious, defining themselves through what they accomplish in their work (goal-oriented)

Actively create their own work/private environment

Like ICT, often the purely technical side of it, because it requires problem solving and giving shape to a solution

Straight careers in ICT

These women follow one of the pre-defined trajectories in ICT

Strive to the top, accepting the tough conditions – hierarchical structures, stress, competitiveness, sometimes even fighting

Combining art with technology

Background in art, graphic design, journalism - getting in touch with ICT - developing a passion for both fields

With no boundaries between work, family life, personal inclinations

Diverse entry routes, diversity of jobs, no clear-cut trajectories

- o 62 (of 107) formal initial education in a area related to ICT, 20 academic degree in informatics, math or physics
- o Degrees in other subjects, such as economics, journalism, marketing, chemical engineering or biology, and environmental studies
- o Education in art, graphic design, journalism, tourism, and regional planning is later combined with ICT into careers as illustrators, digital graphic designers, web designers, Internet journalists
- o Work-based routes into ICT, from secretarial or clerical work, tourism, librarianship or accounting
- o For women living in economically deprived regions and women with an ethnic background ICT ,ticket to opportunity‘

Diverse entry routes, diversity of jobs, no clear-cut trajectories

o Women who *drifted into computing by chance* - present work did not offer enough challenges and opportunities for learning, they discovered ICT while e.g. looking for additional training,

o *Following the opportunities that present themselves* - women engage in an extended period of search, moving through several small jobs, before they start constructing a career (Portugal, France)

o *Inter-company mobility* is seen primarily as a way of acquiring new knowledge, of increasing one's experience and grow in one's profession (24 women changed company within the sector once, and 38 several times)

Life story patterns II

Being open, having not yet arrived

(Young) women who had a good start in working life, love their job, and are hard-working

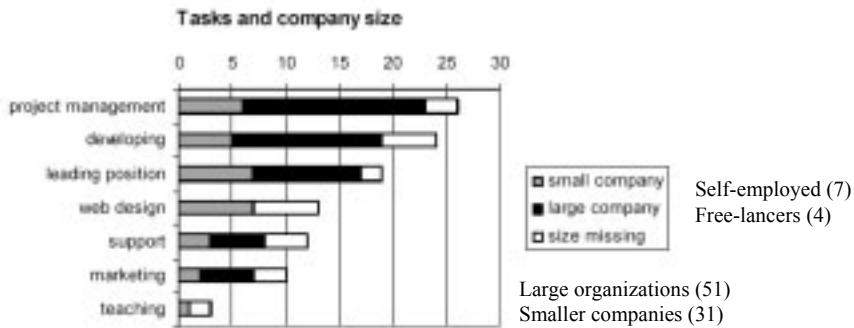
Consider other attractive options such as continuing their formal education, going into marketing or training or even more remote alternatives (e.g. artistic ones)

From the margins to a field of opportunities

Having seized the chance to move out from their milieu – a rural background (Austria), an area with limited job opportunities (the South of Italy) or ethnic background (UK) – into jobs that offer good pay, a high level of job security, and the opportunity for learning

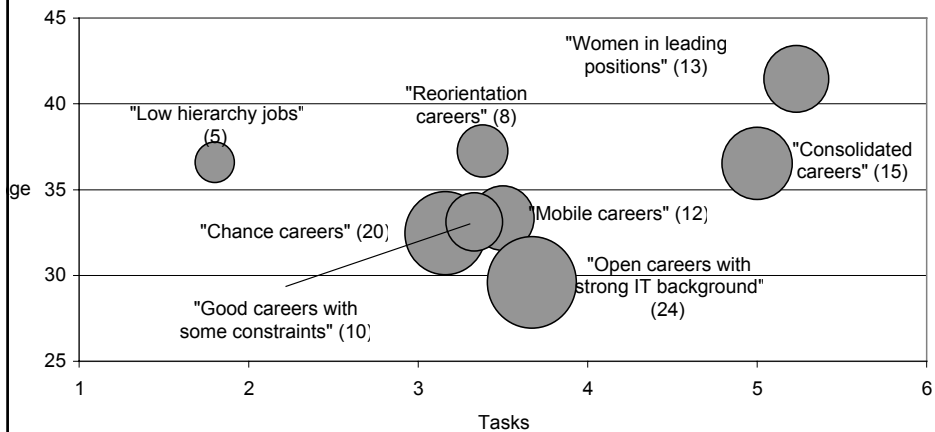
In some cases rebelling against their home environment but in most of the cases staying emotionally attached

Jobs, tasks and companies



ICT sector (41)
 o web design (15)
 o hardware (9)
 o telecommunications (9)
 o universities + (13)
 Non ICT sector (18)

Career patterns - the results of a cluster analysis



1 support, 2 web design, 3 developing, 4 marketing, 5 project management, 6 leading positions

Tasks and skills I

Development
Customizing
Sales & marketing

Project management
• small team level
• (larger) project level

IT management
at the department level

Network administration

Project communicator
Boundary spanner
between development
team, client, partners
Performed on different
levels of competence and
responsibility

Web graphic designer
Web production manager
Web publisher
Content strategist
Information specialist
Internet journalist

Tasks and skills II

The importance of solid technical skills, e.g. for

Development

- o Programming of software, on different levels of technical complexity (several programming languages, be able to learn new ones quickly, be able to work on different platforms, and use a wide range of development tools)
- o Not completely routine and often requires finding a solution to a specific problem
- o Tasks may range from databases, to user interface design, to business processes
- o May include writing up a specification, finding a solution to a specific request from a client, searching for errors and handling them, software maintenance and trouble-shooting
- o May require working in the client company

Web graphic design

- o Combine skills in graphic design with knowledge of the rules of web design, including its technical implementation
- o Web design includes some (HTML, flash script, etc.) programming

Tasks and skills III

The importance of solid technical skills and their combination with non-technical skills (including classical management skills), e.g. for

Project management

At a *lower level* managing means being the leader of a small team in charge of a specific set of tasks. The team leader

- o communicates, articulates, explains and distributes tasks, helps find a solution
- o defines milestones and detailed specifications, reviews and integrates the technical doc, implement configuration and change management procedures.

At a *higher level* project management includes

- o project acquisition – to negotiate and specify requirements with the client, carry out a feasibility study, make a cost estimate, write up a project offer
- o cooperating with technical specialists defining work packages, tasks, and dependencies, assessing project progress
- o being responsible for project budget, product quality, and timely delivery.

Project managers typically act as *boundary spanners* between team and client.

Work organization

- o Work in ICT is organized in the form of projects and team-based

- o Being part of a software development team requires to cooperate and align the work with others

- distributing tasks
- discussing coding practices
- producing and controlling bug reports, change requests and design changes,
- creating and managing different versions of a system ...

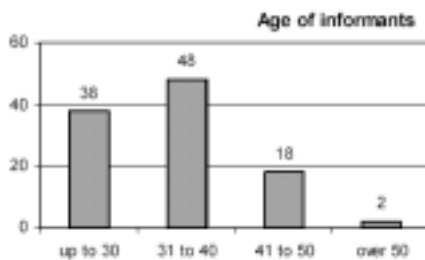
- o Being a member of a good team is an important experience and value - a good team is a resource for creating a high quality product and for developing one's own skills

- o In the smaller companies, there is a limited internal hierarchy - managers are visible and close (problems of negative personal relationships)

Working conditions

- o People working in ICT have to cope with high workloads.
- o The pattern and rhythm of work is dictated by project deadlines and emphasis is on completion of work (rather than on hours)
- o There is a tacit, unspoken agreement to balance long hours versus the flexibility to arrange them
- o Only in a few cases informants work long hours (50-60 hours) regularly (average 42 hours)
- o In the ICT sector it is difficult to get part-time work accepted
- o Long hours, including availability during evenings and weekends, are a problem for working mothers (in particular for those without a supporting partner)

Work-life balance



79 live in a partnership
43 have children
Of the 38 informants who are young (up to 30) 34 have no children

- o In some countries (notably Portugal and France), the women are mainly (and sometimes exclusively) responsible for the family
- o In France several informants followed their husbands, trying to find work in a field where they would not be an obstacle to his career
- o Informants from Italy with small children often have a good support network
- o Some of the successful women (notably in Austria and in Italy) have supporting partners

Gender issues

- o Women tend to deny discriminations and difficulties unless they become evident
 - feel disadvantaged (30)
 - are faced with prejudices (28)
 - both (18)
- o In some companies there is a gendered division of labour, in particular in the lower hierarchy jobs
- o Among some women there is a high awareness of gender issues and these women engage in activities supporting women in the field
- o There are women who enjoy working in (almost) male environments and who feel that they even benefit from their visibility, others who feel uncomfortable

Responses to constraints

Struggling but not giving up

Having received a good education and often accumulated an interesting skill profile

Suffering from adverse working conditions/problems in managing work and family life/limited perspectives in their region ...

Looking for alternatives/starting a training programme in another area ...

After a bad start into working life: having succeeded in overcoming obstacles such as lack of qualifications and/or a degree ...

Broken careers

Women suffering from the fact that they have not finished their degree/few and limited job openings in the region/ICT is not the field they want to stay in ...

Lacking motivating and realistic alternatives

Sometimes coupled with the feeling of failure and lack of courage

Male biographies – are they different?

- o Male and female biographies in computing and ICT do not differ radically. However, the men seem more mobile and at the same time less passionate and ambitious than our female informants
- o Building one's own work environment is a particularly strong motive amongst men (6 out of 33). In most cases this resonates with being on their own and primarily accomplishing themselves
- o For some of the men working in ICT is an extension of their hobby
- o The men (with a few exceptions) typically refer to their partners as being available in the background, taking care of the children and/or also giving professional advice
- o While for the women work-life balance is a topic (whether they have children or not), this is not the case for male informants