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Gender Inequality in the IT Sector in Sweden and Ireland

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Introduction

The purpose of this paper is to provide an accessible summary of some of the central findings of our VINNOVA[1] financed project on gender in the IT[2] sector in Sweden and Ireland. The primary emphasis here is on providing practitioners in the field and researchers with a basic overview of our findings and grounding certain practical recommendations. This necessitates summarizing generalizations at the expense of exacting academic argumentation. The latter is consigned to other fora – theoretical, empirical and methodological elaboration of the issues brought up in this text is carried out in a forthcoming book and scholarly articles.

The paper comprises of the following sections. Section one briefly outlines the purpose of the project. The next section describes the methodology informing the study and how it was carried out. In the third section we present some of our central findings. The fourth section discusses policy possibilities and implications. In the fifth section we present what we believe to be the most interesting implications for further research arising from our project; what we would like to see investigated more systematically and extensively in the future to make our findings better grounded. As the intention of this report is to present empirical research findings, we will avoid lengthy literature reviews and discussions, but indicate how our findings fit in in confirming, complementing or contradicting previous research in the field. For practitioners who are less interested in issues of methodology and how the study was carried out, we suggest by-passing section two. Suffice it to say that the findings build on a qualitative study where the major source of data are 83 interviews with men and women, with technical backgrounds and training, working in different positions in six IT companies in Sweden and five companies in Ireland (although other sources of data were also used).

Section 1. Purpose of the project

The primary purpose of the project was to detect and analyse possible causes of gender inequality in the Swedish and Irish Information Technology sectors with regard to technologically qualified positions. Technologically qualified positions are positions such as programmers, systems architects, testers, writers of

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[1] The Swedish Agency for Innovation Systems. The title of the study was: Causes of gender inequality in the IT sector: A comparative study of Sweden and Ireland (registration number 2001-03649, project number 18327-1).

[2] Our study of the "IT" sectors in Ireland and Sweden focus primarily on software consultancy and development (NACE 72.20) firms. According to the OECD the "IT sector" comprises of firms with the following NACE denominations: (manufacturing) 30.01, 30.02, 31.30, 32.10, 32.20, 32.30, 33.20, 33.30; (wholesale trade) 51.43, 51.64, 51.65, 71.33; (telecommunication companies) 64.20; (consultancy, software and data processing) 72.10, 72.20, 72.30, 72.40, 72.50, 72.60.

technical specifications, technical project leadership, IT solutions advisors, etc. that generally require computer science or electronic/computer engineering training, though autodidactic workers were encountered as well. Women working in qualified but "non-technological" positions such as accounting, (non-technology oriented) management, personnel administration, marketing, etc., were not part of our focus, except in the cases where they had moved from technical to non-technical occupations. Our focus, then, was on individuals who had highly qualified jobs within the industry, jobs that involved a good deal of problem-solving and shouldering responsibility within a project oriented work organization.

Even if we are interested in understanding how gender inequality impacts the number and ratio of women in the sector, our study wasn't simply aimed at "body-counting" (cf. Alvesson & Due Billing, 2002). Rather we hoped to understand the genderizing processes at work in the industry that resulted in inequality of a more qualitative nature. These processes – often unwittingly to the actors in the organization – affect such issues as "who gets what jobs", how the work is organised, what career possibilities there are, etc. While an organization on the surface may seem equally fair in its treatment of employees (and where it is assumed that the employee's sex is not implicated in any way), there are, as we shall show in this report, subtle processes at work resulting in differential outcomes. These "subtle processes" are not only the product of the organization *per se*, but are also linked to wider structures, social developments and discourses in society at large and to what has more recently been called structural discrimination.

We started our project by posing the question of whether a new sector, such as the IT sector, would or could exhibit organizational forms that functioned in (more) equal terms for its employees regardless of sex – compared to other sectors.[3] An assumption is that in a new sector traditional hierarchies and structures that may be disadvantageous to women might not yet be institutionalised or solidified and thus gendered understandings are still under contestation and malleable. We did indeed find an industry where working conditions and workplaces exhibited qualities that would be coveted by many other employees in the labour market: wages were high and bonuses and perks were considerable, workplaces were aesthetically pleasing, hours were flexible, personal responsibility and initiative encouraged, individual autonomy was taken for granted and flat organizations dominated. *Both* men and women were, for the most part, enthralled with their jobs – the industry, they felt, provided them with considerable opportunity and interesting work tasks. None the less, we found gendered

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[3] Other sectors are not included in our study. However, there is a wealth of research on gender inequality in various industries, sectors and workplaces, both in Sweden and internationally, following the emergence of women's studies and feminist theory in the seventies.

processes at work, as is the situation in virtually all sectors and jobs. What forms these gendered processes took, will be described in section three.

Most previous studies that have addressed the issue of gender and IT have focused upon: getting women in and through the educational programs that feed into the industry (Camp, 1997; Henwood, 2000), differences between how men and women appropriate and use IT in a workplace setting (Venkatesh & Morris, 2000; Venkatesh *et al.,* 2000), wage inequalities between men and women (Data-föreningen, 2000; SIF, 2002) and how gender stereotypes are created, reproduced, altered and performed (Gherardi & Poggio, 2001; Mörtberg, 1994; Nissen, 2003; Wright, 1996). Rarely is there a focus directly upon the *causes* of inequalities – how they arise and the *processes by which* unequal outcomes for men and women as groups operate in this sector. Reskin (2000; 2003) argues that this lack of focus on the causes and processes through which inequality is produced, is true for most research on ascriptive inequality.[4] Our interest is thus in the question of why – despite the consensus within the industry that it is an ideal industry for both men and women to work in and that gender equality can and should be achieved[5] – there are still comparatively few women in the industry but equally – and more importantly – why gendered and genderizing processes exist in IT organizations resulting in certain outcomes. We thus link this question of under-representation of women in numerical terms to a question about difference and inequality within the industry between men and women in terms of opportunities and rewards, opening up also the question about whether retention of women in this line of business is not also a highly significant factor.

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[4] Ascriptive inequality refers to inequality based on "ascribed" versus "acquired" personal characteristics. Ascribed characteristics are things such as race, ethnicity and gender – categories to which one is socially assigned based on primarily physical characteristics. Acquired characteristics are things like wealth, social class, and education; characteristics which one has a greater opportunity to acquire or impact oneself, and thus affecting one's classification. Categories and classificatory systems based on ascribed characteristics are very powerful but not watertight, as Bowker and Star (2002) show.

[5] This assertion is made both in academic research as well as by our informants. Fondas (1996: 284) cites Reskin and Roos (1990) in noting that conditions for occupational integration in the computer industry are uncommonly favourable, and cites Wright and Jacobs (1995) empirical survey work in finding that men have not left computer work as women entered the field, nor have wages or occupational prestige declined as more women have entered the field. From a more subjective perspective, both managers and employees of both sexes we interviewed described working conditions in the sector as ideal for occupational integration. The most common points brought up here were temporal flexibility associated with the job, the possibility to take extensive parental leave between projects, the office-based nature of the work and the mix of technical and social skills required for most jobs in this sector.

Section 2. Methodology and execution of the project

Inclusion of Sweden and Ireland

For comparative purposes we chose Sweden and Ireland for our study. Ireland was selected for a number of reasons that are related to questions of similarity and difference. Ireland and Sweden are similar in being geographically peripheral EU members with highly internationalised economies. They are also similar in having targeted and invested heavily in the information and telecommunications sectors as lead sectors in their respective national economies. But there are also significant differences in the IT sectors of the two countries as well as socio-cultural differences. The IT sector in Ireland is more penetrated by international firms and is polycentric, as it has attracted extensive foreign investment, especially from American IT firms. The sector in Sweden comprises of a few very large national firms and a great many SMEs (small and medium sized enterprises). The IT sector in general in Sweden is more monocentric, being very much dominated directly and indirectly by Ericsson. Ireland also has a more internationalised labour force, to a significant extent consisting of Irish returning from employment abroad (Ó Riain, 2000).

Socially, politically and culturally there are also significant differences between the two countries. At the institutional level, there is general agreement that two different forms of welfare state operate in Ireland and Sweden (Esping-Andersen, 1990). Different welfare state regimes differ in promoting and actively supporting various degrees and types of female labour market participation. The so-called "male breadwinner model," which builds upon the assumption of the male "head of the household" earning a sufficient income to support the rest of the household, is found in countries where female labour market participation is less prominent. In this model, wives are seen as fiscal "adult dependents" in the household, carrying out unpaid domestic work (including daytime childcare that is part of the Swedish public sector), but not expected to engage in significant (*i.e.* full-time) paid employment outside the home. The table below presents the central features of three welfare state regimes and their impact on the strength of the male breadwinner model. The table is reproduced from the Irish report, *A Woman's Model for Social Welfare Reform* commissioned by The National Women's Council of Ireland.

Figure 1. International Comparison of Welfare Models.*

Male Breadwinner Emphasis	Weak	Modified	Strong
Country	Sweden	France	Ireland, UK, Germany
Female labour market participation	High	Medium	Low
Social welfare	Individualised tax and social welfare	Child-focused redistribution	Family-based tax and social welfare
Childcare	Strong intervention and parental leave	Strong intervention and mothers' employment rights	Underdeveloped care infrastructure and limited maternity leave
Ethos for women	Labour market	Neutral	Homemakers

* This table is reproduced directly from Murphy (2003:15).

While Ireland is classified as having welfare state institutions supporting a strong male breadwinner model, in 2003 the female employment rate was 55.8 per cent, which was slightly under the EU average of 56.0 per cent. The figure for Sweden in 2003 was 71.5 per cent. The female unemployment rate for both countries is fairly similar, at 4.0 per cent for Ireland in 2002, and 4.5 per cent for Sweden in 2002 (Eurostat Statistics).

Culturally – and in relation to what is called "ethos" in the bottom horizontal column in the figure above – there is a divergence between Sweden and Ireland in the expected place of women with families. In Sweden, the working mother is not just the norm and an economic necessity, but also a strong social expectation. After enjoying what is relatively generous parental leave,[6] the expectation is that the extensive and heavily state-subsidised public childcare system will be used and mothers will return to work. Women and men are equally subject to "the employment principle" ("*arbetslinjen*") (Janson, 2003: 136-139) – the demand that in order to be entitled to benefits one must have or actively seek work. Although one does not have to have been employed to obtain parental benefit, the amount one receives if one has had employment is 75 per cent of one's wage (up to a ceiling of approximately €2 800 per month); while if one has had no qualified work-related income, a standard but meagre "guarantee sum" of approximately €10 per day (raised to €20 in 2003) is paid. There are also significant differences in the prominence of gender issues and concerns not just in

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[6] Roughly 18 *months* of paid leave (at two different levels of compensation, one wage-based, the other a universal 'guarantee level') in Sweden that can be distributed among both parents, and 18 weeks of paid maternity leave, and an optional additional eight unpaid weeks in Ireland (as of March 2001).

state policy[7] in the two countries but also in the extent and way in which they feature in the public discussion.

A qualitative study

The study builds on a variety of sources of data:

- eighty-three thematically structured interviews with men and women, with technical backgrounds and training, working in different positions in six IT companies in Sweden and five companies in Ireland;
- on-line questionnaires with most of these individuals, prior to the interview as background material;[8]
- paper and web documents about these companies, such as: annual reports, employment policies and statistics, and plans of action for equality;
- more general observations when visiting the workplaces for the interviews;
- forty-nine telephone interviews with Swedish women who had studied computer science (but who had not worked at these companies).

More information about the interviews and the companies will be provided shortly.

Many qualitative researchers see themselves as *bricoleurs* (see, for example, Neumann, 2000). By this is meant an intricate tying together of information, narrative, observations, texts, etc., into an analytical whole, a *bricolage,* and it is in these terms, we believe our way of working and analysis should be understood. Thus although we have utilized two different types of interview studies, for example, these are not presented separately nor are they contrasted with each other. Rather, we have attempted to find patterns that emerge in the data *as a whole,* letting information from different sources provide both a larger and more

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[7] In addition to the above mentioned welfare state provisions, Sweden also has a comprehensive gender/sex equality law (*Jämställdhetslagen* 1991:433; SFS 2000:733). The primary purpose of the law is to improve conditions and opportunities for women in the labour market (§1). In addition to combating discrimination and unequal wages between men and women, "Employers shall make it easier for both female and male employees to combine waged work with parenting." (§5), requires that employers strive to get both men and women to apply for vacant jobs and requires firms with more than ten employees to draft annual plans of action for equality and comment on what progress has been made according to previous plans. The parental leave law (*Föräldraledighetslag* 1995:584) gives parents the legal right to work 75 per cent until their youngest child is eight years old (§7).

[8] We do not have on-line questionnaires for every individual we spoke to as some did not complete the questionnaires and sometimes when we arrived to conduct interviews the person we had initially scheduled the interview with was not available, and we frequently interviewed a "substitute" who hadn't filled in a questionnaire. We thus have questionnaires for people we were never able to interview, and interviews with individuals who have never filled in a questionnaire.

reliable picture. Furthermore, we have worked *abductively*[9] – in the sense that we have let the data "speak" to us, which has led us on a trail of discovery;[10] at the same time we have had certain theoretical notions and interests with us in our baggage when starting the project, which has led us to focus on certain aspects over others.[11] This dual approach means that analytically we continually "test" our assumptions and ideas against the reality we meet, in a relentless spiral throughout the *whole* research process, but importantly also letting flexibility and openness to new data and theoretical directions characterise this process of analysis.[12] There are in fact many paths we could have followed, but in the final instance only certain ones have been chosen.[13] The third section in this report (central findings) is a very short summary of the areas that centrally emerged in this analytical way of working.

Choice of companies and interviews

Six IT companies from Sweden and five from Ireland were in the final instance included in the study. For comparative reasons, we purposely chose companies that have two different profiles; more or less pure "consultancy" companies that develop customized solutions for clients (or hire out individual "resource" or specialist consultants to wider projects) on the one hand, and "product" companies that produce a more or less standardized product that they sell (and frequently also do customized adaptation) to customers/clients on the other.[14] In

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[9] The term abduction is usually attributed to Charles Sanders Peirce. Alvesson and Sköldberg (1994) argue for the advantages of abduction over deductive and inductive approaches – in particular its ability to provide *understandings* of the phenomena under focus. According to Alvesson and Sköldberg (1994: 42), when applying an abductive approach, the analysis of the data can be combined with, or be preceded by, studies of previous literature in the field. This is done not as a mechanical application of theory onto particular cases, but as sources of inspiration in discovering patterns that provide understanding. During the research process, the researcher then moves between (earlier) theory and data, whereby both are constantly reinterpreted in the light of each other.

[10] In this sense there is somewhat a similarity with a grounded theory approach (see, for example Strauss & Corbin, 1991).

[11] The work of Tilly (1998) and Ridgeway (1997), for example, were influential in our original thinking.

[12] See figure 6.2 in Davies (1999) for an attempt to pictorially capture this process.

[13] This also explains why certain angles or subjects, that the reader for example might deem important – for example pay differences between men and women – are scarcely touched upon.

[14] Selection of the companies took place in the following manner. Using information found on IT industry organization databases, companies were grouped into categories based on primary business activity (here companies were differentiated between "product" versus "consultancy" firms), size, location, national origin of the firm, and year in which the firm was founded. Invitations to participate in the study were then sent out to companies that would meet our criteria for a desirable distribution. Eleven of 46 companies contacted in Sweden agreed to participate, five withdrew at various periods during the study, usually for reasons of bankruptcy or turmoil caused by the recession in the industry, leaving us with only partial material from these companies. In Ireland, five of 32 companies contacted

Ireland three companies fall into the consultancy category, and two into the product category. In Sweden three companies fall into each category, though the Swedish "product" companies also have consultants who do both types of consultancy work. The companies included range from seven to several thousand employees[15] – although most of the companies would be considered small or medium-sized. We also selected companies so as to give us as broad geographic coverage as possible. In Sweden we chose companies in all the regions where there are technical universities except the far north of the country. The Swedish companies are found (and usually headquartered) in greater Stockholm, Blekinge, Malmö-Lund, and Gothenburg. Two of the Irish companies are head-quartered and operate outside Dublin, one in west Ireland and the other in County Monaghan. The other three were headquartered in the greater Dublin area. With two of these companies we carried out interviews at subsidiaries outside of Dublin, for one company in the northwest of Ireland, for the other in the south. In the cases of these two companies we were afforded the opportunity to also see "centre-periphery" relations within these companies. With a couple of exceptions the companies fall under the NACE 72.20 classification – software supply and consultancy, the other companies falling under other 72 classified activities.

Eighty-three thematically structured interviews (see Davies & Esseveld, 1989, for a detailed explanation of this kind of interview) were then conducted during 2001–2004 at these companies with CEOs, personnel managers, consultant managers and chief technical officers as well as consultants and developers (44 interviews in Sweden and 39 interviews in Ireland). The interviews normally lasted between 45 minutes and two hours, were taped and were transcribed later. In selecting individuals for an interview, we tried to attain variation with regard to age, experience, position, educational background and whether they had children or not. The ratio between men and women was approximately 40 to 60 – men being more concentrated in the upper echelons. Of the 83 interviews, 27 were with executive or senior level managers.[16]

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agreed to participate, all of which completed the process. Even data/information gleaned in these initial stages from companies that did not stay in our project were useful in our overall understanding and analysis.

[15] Company size is deceptive, as the actual administrative and work units in small and medium-sized companies can be larger than in the largest companies. The greatest differences between large and small or medium sized companies have to do with distance to ultimate decision makers, internal career/specialization opportunities and effects of internal restructuring.

[16] Though it is sometimes difficult to discern where the dividing line goes, our definition of senior management included executives/directors, line and function managers (Human Resource managers, Chief Technical Officers, etc.), and senior project and group or unit leaders. An important distinguishing factor for classification as senior management was these positions having significant *organizational* power or influence in the firms in our survey of a strategic or allocative nature (such as over corporate direction and strategy, individual promotions, wage setting and staffing decisions for the company and projects, etc.). This meant that individuals who were highly respected and informally influential, due

The purpose of these interviews was to gain rich, detailed qualitative information from our informants on why they chose to work in this industry, the road they travelled into their current positions (through the educational and employment process), what their career ambitions have been and are, their observations about sex and gender during education and work, how they balance work and family or external interests, and what they like best and least about their job and working in this area. Interviews with managers and HRM/personnel officers in addition provided detailed information about the companies and the company view on gender issues.

Similarly to what Korvajärvi (2002) and Smithson and Stokoe (2005) found, most of our interviewees believed that gender was not a particularly salient topic to discuss especially as they believed that their particular workplaces "did not have a problem with gender". Deborah Tannen (1999: 226) refers to Bateson's (1979) concept "the corner of the eye" and describes it in the following terms,

> "Some phenomena are understood best when they are not looked at directly but rather come into view when some other aspect of the world is the object of direct focus".

Thus if interviewees were reluctant to talk about gender or felt little could be said, this does not mean that there was no material for analysis on this point. On the contrary, it was through talking about other issues, for example work organisation or ways of careering that the gendered nature of the organisation became apparent.

The telephone interview study consisted of two *cohort studies* of women who had studied computer science programs at a major Swedish university. The first cohort comprised of all women enrolled in Fall 1990 and Spring 1991 who had either completed their degree or were halfway or more complete with their studies; the second cohort comprised women enrolled in the Fall 1996 term who had either completed their degree or were halfway or more complete. All the women who could be traced were interviewed by telephone, resulting in 49 interviews. These interviews were less extensive than those carried out in the company studies but covered the same general topics as the interviews there. The reason for carrying out the cohort survey was to reach women who are qualified to work in the profession but who may have never entered it or have already exited it. These interviews were carried out between 2002-2003.

Both interview studies produced similar life or career history data, though the interview material from the company studies was much more comprehensive and

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to technical expertise for example, but whose influence was channeled via other "office-holders" were not included in this category, nor were individuals with significant management or leadership roles in companies to which they were hired out as consultants, but not in their parent company.

detailed, whereas the material collected from the cohort study was of a more summary or outline nature.

Understanding the analysis

A primary ambition of the project was to produce an understanding about genderizing processes at work in the industry as well as questions of equality/ inequality that could be readily recognized and comprehended by the actors within the sector themselves. In our view this entailed identifying and conveying *proximate* causes and processes leading to gender differentiation and inequality in the sector. This required detailed, rich and specific descriptions of actual occurrences (as they were related to us, as our ethnographic observations are limited) and then piecing these together in persuasive chains of developments that have both immediate and longer-term implications. Due to the brevity of this report, no actual citations or narratives are provided, which would give support and contextualise our arguments and findings.[17]

The people we interviewed had, for the most part, backgrounds in systems development. Thus they are used to thinking and understanding in terms of a contingent, but path-dependent form of causality. By this we mean that, as we heard time and time again, there is not one way to build a system, nor a single "right" way or necessarily a best way, but that at each step, one way is chosen over another which makes further development in one manner or direction more likely and others less likely or impossible. There is a simile here to our view of social life as structured but non-determined – since agency plays a significant

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[17] Citations are available in other more extensive presentation of the findings (both published and unpublished manuscripts). As noted earlier, a book (in English) elaborating upon our findings is under preparation.

The following papers have been presented at international conferences:

Karen Davies, 'Mobile solutions – mobile lives? Or the seamless interface between work and the rest of life?' Paper presented at Transformations, Boundaries, Dialogues. The 22nd Nordic Sociology Congress 2004, Malmö, Sweden.

Chris Mathieu, 'Positioning discourses about gender in the IT sectors in Sweden and Ireland', paper presented at Gender and Power in the New Europe, the 5th European Feminist Research Conference, August 20-24, 2003, Lund University, Sweden. http://www.5thfeminist.lu.se/filer/paper_449.pdf

Karen Davies, 'Narrative, bodily knowing and memory', paper presented at Gender and Power in the New Europe, the 5th European Feminist Research Conference, August 20-24, 2003, Lund University, Sweden. http://www.5thfeminist.lu.se/filer/paper_401.pdf

Chris Mathieu. 'Women and the Information Technology Labour Market in Sweden and Ireland', paper presented at Third International Congress on Women Work & Health, June 2–5, 2002, Stockholm (http://ebib.arbetslivsinstitutet.se/isbn/2002/isbn9170456402.pdf)

See also: Karen Davies, 'Narrativ, kroppsligt vetande och minne' in *Att utmana vetandets gränser* (eds, Å. Lundqvist, K. Davies & D. Mulinari), Lund: Studentlitteratur, 2005, pp. 190-205.

Chris Mathieu, (forthcoming) "Pushing and Pulling Female Computer Professionals into *Technologyplus* Positions" in Eileen M Trauth (ed.) *Gender and Information Technology Encyclopedia*, Information Science Publishing.

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role; cumulative though also potentially (but resistantly) reversible. This view helps us explain how gendered processes play out in the sector.

We focused attention in our analysis thus on *proximate* causes and processes. Proximate causes and processes are those that lie closest to the phenomenon one seeks to explain, *remote* causes are the "deeper underlying causes that lead an event to occur even in the absence of the immediate cause" (Lieberson & Lynn, 2002:11).

Pedagogically it makes sense to emphasise proximate causes as this focus makes processes more evident to most people. If one can spell out the chains of events that lead to outcomes and illustrate these with frequently reported, every-day examples, the connections between discrete events that are generally acknowledged and medium and longer term general outcomes become more convincing and evident, and thus harder to dismiss. One avoids the "missing links" associated with invoking remote causes, real and impinging as these may be, that make such explanations easier to contest. Even though researchers and academics may be more used to and willing to accept the validity of remote explanations in general and specific remote explanations of given phenomena in particular, a focus on proximate explanations trains our attention on the mechanisms or processes, as opposed to the general forces, by which ascriptive inequality is produced. In the words of Reskin (2003: 2) academic advances in this direction also entail better chances for policy interventions,

> "We can neither explain ascriptive stratification nor generate useful prescriptions for policies to reduce it until we uncover the mechanisms that produce the wide variation in the social and economic fates of ascriptively defined groups."

We did in fact assume that we would find differences between Sweden and Ireland in the gendered processes (and its consequences) at work in the industry, given that the countries differ with regard to welfare systems, cultural history, etc. In fact we found *few* differences *per se*, suggesting that the conditions in the industry and the ways in which these affect gender are more overarching and determining than geographically contextualised differences related to gender.[18] Thus our analysis focuses upon the *patterns, communalities and similarities* that emerged in the material (rather than differences) that help us understand how the industry and the organizations within the industry are gendered more generally

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[18] Two significant differences between Sweden and Ireland did exist. Both are directly related to welfare state provisions. The first was that fathers in Ireland very rarely took more than a week's paternity leave upon the birth of a child, whereas fathers in Sweden reported taking several months paternity leave. The second was a reported greater tendency for mothers in Ireland to leave employment after having a second child, whereas in Sweden the number of children one has was never mentioned as a factor in considering one's labour market status. While such differences did exist, the *similarities* between the gendered processes at work in the industry appeared in our material to be more decisive.

and how genderizing processes continue to be reproduced, *regardless of country*. In other words, similarities were greater than differences. Studies of other countries in the future will hopefully show if the norms, pressures and work organization in the industry are more important than the country *per se* when understanding gender inequality, as suggested in this study.

Section 3. Central findings

The number of women in the industry

As a background to the study we also analysed national descriptive statistics on the IT sector and women's and men's employment in it and participation in preparatory educational programs. We will start off our findings section by providing some background statistics. To give some indication of the scope, fluctuation and trends in recent years in female employment in the sector, see the table below.

Table 1. Women employed (full and part-time) in NACE 72 enterprises in Sweden and Ireland in thousands and percent in the 4th quarter of each year.

	1997	1998	1999	2000	2001	2002	2003
Sweden							
Number	15.3	19.7	25.6	26.0	25.7	24.5	23.8
Per cent	*25.3*	*27.7*	*29.1*	*26.4*	*24.8*	*25.5*	*25.8*
Ireland							
Number	6.9	9.6	11.0	10.9	12.0	10.6	10.4
Per cent	*31.7*	*36.5*	*34.1*	*35.0*	*33.6*	*30.1*	*31.6*

Source: Sweden – SCB; Ireland – CSO.

If we use statistics about *occupations*, rather than about the industries in which men and women are employed, as Table 1 above shows, the percentage of women in qualified computer occupations drops slightly. In Sweden in 2001, 23.6 per cent of computer specialists[19] were women and the figure for 2002 was 24.1 per cent. Statistics we have for Ireland are more detailed and up to date. In the first quarter of 2004 the percentage of female *computer systems managers* was 27.1 per cent, *software engineers* was 19.0 per cent, and *computer analysts/ programmers* was 31.1 per cent. The figures for the same quarters in 2003 were: 25.0, 23.1, 29.0 per cent; 2002 were: 29.0, 20.9, 33.1 per cent; and 2001: 29.0, 25.6, 32.6 per cent.[20]

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[19] Our translation of the occupational categorization "dataspecialist" in SSYK used by SCB (SSYK 213). The years 2001 and 2002 are the only years this statistic is currently available for. Source: SCB.

[20] The occupations are presented in descending order of hierarchical classification with computer systems managers having the ILO occupational classification number 126, software engineers 214, and computer analysts/programmers 320. Source: CSO. 100-series

As a way of framing our findings, two analytical points will first be briefly made before presenting our results.

Pipeline and pool

In reviewing the literature on the topic of gender and the IT sector we have found it useful to look at the issue in terms of "pipeline" and "pool". Much of the previous research on inequality in the IT, computing, and science, engineering and technology (SET) sectors has focused on getting women into and through the usual educational and training programs that feed into these sectors. This is what we, borrowing the terminology from many of these studies, refer to as "pipeline" studies. These studies, and much of the tacit thinking behind such studies, tend to see the problem in human capital terms, and implicitly assume that if we get enough women through the educational process, with the right qualifications and knowledge, then the problem will sort itself out. These essentially are supply-side arguments (Tomaskovic-Devey, 1993). While it is indisputable that the pipeline is important in supplying the vast majority of new entrants into this particular labour market, this is not the whole picture or problem with regard to the generation and perpetuation of inequalities in the industry in terms of the *ratio* of men to women, nor the allocation of positions, power, status, and rewards. One of our central arguments is that the percentage of women in the industry is affected by *pull* factors from the existing "pool" which consists of both women *and conditions* within the industry and not just a matter of push factors in the pipeline plus exit from the sector.[21]

One of our empirical findings is that there is a great concurrence among those within the industry that there is a "natural" way forward towards a sex-integrated industry, and that the problems *primarily* lie in the pipeline rather than in the pool. Repeatedly, and almost exclusively, we heard explanations of how parity between men and women in the sector can be attained by "getting girls interested" in maths, science and computing, getting them into and through the pipeline, rather than paying attention to what role and relationship the industry ("pool") has to the pipeline, and what can be done to improve the situation *in* the industry for women (and men as well) and probably also thereby increase the ratio of women in the sector by decreasing exit. In other words, the "natural way" – it is argued – to bring the number of women in the sector into balance with men is by increasing the flow, rather than improving the catchment. In our study we are primarily interested in examining the "pool" as opposed to the "pipeline". Or

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occupations are considered managerial level, 200-series professional, and 300-series skilled occupations.

[21] Wright (1997) found that women are more likely to exit the sector than men. The extent to which this holds in Ireland and Sweden, and the factors behind it should be a prioritized area of further study.

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put in another way, we hope to identify the factors that bear directly on gender based differences and inequalities *within* the industry.

Similar, different, equal?

Most people in the sector then – and not least the managers – presumed that gender inequality (at least in numerical terms) would be improved by solving the "pipeline problem". In addition, most felt that "problems around gender", such as discriminatory behaviour, did not exist at their workplaces or in the industry more generally. There was overall agreement that women were just as good as men at the work and that indeed it could be advantageous to get more women into the sector. Talking in these ways and using these arguments are linked to the fact that individuals – and our informants are no exception – are influenced by various prevailing discourses.[22]

In society at large and in working life more generally, there exists a strong *equality discourse* – that is, boys and girls, men and women, should be given equal opportunities with regard to schooling, training, work, sport, cultural acti-vities, etc. Related discourses also exist, revolving around men's and women's assumed similarities or differences. These can be summarised as different points on a continuum with relation to working life:

- There are *no* differences *whatsoever* between men and women in terms of competence, talent, etc. There are only *individual* differences.
- There are *some* differences between men and women (depending on the context).
- There *are, by all means,* differences between men and women – due to men's and women's different *experiences*.

All of these positions, by extension, aim at increasing gender equality in working life. If women-as-a-group *are similar* to men-as-a-group competency-wise, then there is an untapped female resource that should be utilised. Or: if it is assumed that there *are differences* between men and women, such as they solve problems differently, they bring different experiences to the workplace, they think diffe-rently – these differences can in turn enhance productivity, communication, product development, etc. Assumed differences between men and women are also argued to contribute to healthier workplaces – therefore a gender balance is preferred.

We found that these various discourses abounded in the narratives collected in our study – capturing individuals' (both managers' and employees') under-

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[22] Put simply, discourse means that in any historical period there are dominant ways of talking about and understanding various phenomena. This thinking affects, in turn, actions, such as how one reacts to another person. Power and power relations are inextricably built into the way in which discourse exerts a force and works in daily life, even if 'opposing discourses' can also be constructed, questioning the dominant discourse.

standings and actions. While these discourses may help women find an equal footing in the IT sector, they may equally work against them. Arguing that women are equal to men in competence (supporting a discourse of similarity or sameness) hides the fact that competence *per se* harbours varying relations of meaning and unequal evaluations – competence is always rooted in a wider social setting, that may be gendered. Arguing that women are different from men (supporting a discourse of difference) hides the fact that difference incorporates values, rules and understandings that uphold a hierarchical order in working life. In particular, women's assumed greater social skills and men's assumed greater technical brilliance may result in directing women and men to, or pigeon-holing women and men in, certain jobs or positions (as we will see below).

We found that the assumed or constructed differences led at times to what has been called "doing gender" (see West & Zimmerman, 1991; Davies, 2003; Gunnarsson, *et al.,* 2003), *i.e.* certain forms of discriminatory behaviour, or at least differential treatment – which is mostly to women's disadvantage. The women reported that this behaviour usually diminished with time but many also questioned and contested the way in which gender constructions affected their individual lives. The effect on one's career was, for example, one particular area, which will be further discussed below.

Based on our material, we would, however, argue that open discrimination was rare. Notwithstanding, there were a number of ways in which gender was at work, regardless, in the organizations – leading to forms of inequality or construction of difference between men and women "once in the pool". The rest of section three will briefly delineate the ways in which these took form. We have highlighted five particular processes at work.

- social leads,
- "technology plus",
- the cultivation of interests and preferences,
- the importance of time and space, and lastly,
- present-day individualization processes.

It is our aim then, to step *behind* the discourses (which shape everyday understanding and lead individuals to *assume* that inequality doesn't exist) and disclose the subtle mechanisms at work that show how and why inequalities are none the less present. Each point – at least based on our material – demonstrates (either singularly or in collaboration) how genderizing processes are reproduced in the sector.

Social leads

We start our discussion by examining how *social leads* into and within the industry is of far greater significance to (or at least much more frequently

acknowledged by) women than men. What we mean here is that specific individuals were pointed out as being crucial to our female informants in their decisions to pursue careers and career paths within the area. Following social leads is much *more than merely having a role model or mentor*; things that *have* been widely discussed in the literature. In some cases the social leads personally introduced these women to the sector, in other cases they provided decisive, insightful and trusted advice. They were people with whom our interviewees had developed a relationship with and deeply trusted and confided in, and whose personal experience could be explored and taken to be similar to what and how the person following the social lead might experience things.

As the tendency to follow social leads was so evident, the opposite can also be surmised to hold; that is, where social leads are not present women are far less likely to wade into uncharted waters. We heard this stated explicitly as well when probing why an unconventional avenue, be it a location or environment such as studying at a technical university rather than an academic university, or choosing one company over another, or a field such as choosing one area of specialization over another, was not pursued. A frequent reply was that there was "no one like me" there. This closes off the avenue both symbolically and socially – if there is no one like me there, there is no one like me who I can ask what it would be like for someone like me to move into such a position. As social leads are important, the exit and thereby less than optimal presence of women in the sector diminishes the "pull" pressures that more women in the industry could exert. It's not that exit is a matter of just one woman "lost," but also has an exponential dimension as one potential pull factor on other women is lost. Social leads also "pull" women through organizations and keep them in the sector over a variety of life experiences. Thus it is crucial that a variety of women with various life situations be present within organizations in a variety of positions to make opportunities more realistic. When discussing opportunities and career ambitions, our interviewees showed that they pay acute attention to the details of the work and non-work lives of the people around them. Both men and women knew what demands were placed on the men and women in the positions around them – above, below and beside them – and were aware of the strategies that the people in these positions used to balance pressures from work and private life. In this way considerations of "what it takes" and "what sacrifices need to be made" are quite sophisticated. Women and men did not just look at the sex of those holding various positions, but looked at how dilemmas and demands were handled. However, there was often an awareness that comparing situations and strategies, and especially in gaining information about what things really are like, was easier among members of the same sex.

With regard to social leads, we did not stop at merely recognizing the *structural* importance of such leads, as social capital studies usually do in displaying the importance of ties and connections in job searches and promotions (cf.

Grannovetter, 1973). At the same time as our awareness of the importance of social leads emerged, we were also engrossed by the thickness and strength of the ties that led many of the women we interviewed into the sector. This would indicate that there are quite different "social capital" dynamics that lead individuals over more culturally substantive barriers than "merely" moving around within a labour market with which they are familiar and where barriers are more of a social than cultural nature. One recent critique of the network social capital literature on the role of connections in getting jobs essentially makes the same point. Mouw (2003) argues that the proclivity for people who are *similar* to become friends muddies the causal crispness of the assertions made by most network social capital theories:

> "The question I have posed is whether we have any idea how much contacts matter, given the nonrandom acquisition of friendship ties means we are likely to overestimate the effect of social capital on labor market outcomes" (p. 891).

The basic question Mouw poses is to what extent network social capital studies measure the tendency for people who are alike to become friends versus the "causal effects of friends' characteristics on labor market outcomes" (p. 868). The conclusion we draw from our material is that "weak ties" or acquaintances facilitate mobility within parameters within which one is familiar, but stronger *social leads* are decisive in transcending more substantial barriers.

"Technology plus"

In our study, women to a disproportionate extent are found in what we have called "technology plus" jobs. Technology plus jobs are jobs that comprise both a technical component (architecture, programming, coding, or knowledge of systems) and a non–technical component, such as project management/leadership or jobs that were sometimes called "fuzzy" technical jobs such as testing and writing specifications. The overrepresentation of women in such positions was widely reported, as was the converse, the almost exclusive presence of men in "heavy," "pure," "leading-edge" and senior technical positions (*i.e.* chief technical officers). Although it was contended that these were different streams and not hierarchical levels, and that for instance a good tester could earn as much as a good developer, and that project management did accord a degree of bureaucratic power, there was also an acknowledgement that being engaged with technology is what brings status and prestige in the industry, and that these other albeit necessary but more peripheral activities had lower status.

Women were channelled into these technology plus jobs in a number of ways. On the one hand, women were often seen as being "more qualified" for them because of their posited communicative, coordination or "people" skills, or their

tolerance of "fuzziness." On the other hand, we also detected a more insidious process. This had to do with getting on a pure or leading-edge/expert technical track, or a generalist technical and technology plus track based on *access to tasks*. Many women reported difficulty in and frustration over not being given the opportunity to work on the most advanced or interesting projects and tasks. Why this was the case was not readily discernible, but there was a feeling among many women that they were systematically out-competed or out-manoeuvred for the most attractive tasks, not by all males, but invariably by *a* male. The cumulative effects of not being given the opportunity to prove one's ability in meeting these challenges were clear enough. Those who had worked on such tasks were given more of the like, those who hadn't, weren't. Even women who have keen technological interests also landed up over time in technology plus positions, where they sometimes developed other interests, for example in management. In other cases these women with keen technical interests begrudgingly accepted the management aspect of their job and continued to appraise the technical aspect as the most satisfying part of their technology plus job. While this evidence of tendencies towards occupational streaming (segregation might be too strong a term as there were many men, sometimes the majority in these positions) is alarming enough, there might be even more grave consequences.

If one looks at the sector in terms of core and periphery activities, we see a greater proportion of women in these peripheral activities.[23] Status-wise, it is clear that programming, architecture, development, coding, etc. are seen as the core activities, with project leadership, testing, sales, writing specifications, etc. as more peripheral activities. In terms of skills, one can speak of core or sector-specific (programming/developing) and more general skills (management/client relations/sales). One can also see core and periphery in terms of who has contact with external environments and who is firmly entrenched deep in the lacuna of the organization. In these respects, those who have "pure" technical positions are at the core and most of the technology plus jobs are at the periphery (core and periphery should *not* be read as implying more and less *important* to the company). By moving a disproportionate number of women out to the periphery, potential exit from the sector and technical computer occupations is *facilitated* in two central ways. First, people in these positions develop skills and can document qualifications (project leadership and management) that are applicable outside the industry and occupations for which they were initially trained. Second, they are also brought into close contact with companies, positions and occupations outside the company or industry via their "externally" oriented jobs. This is a surreptitious social process making it easier for a proportionately larger percentage of women to transition out of the industry, though it is surely not an

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[23] The tendency for women to engage in more "peripheral" activities in non-traditional or male occupations is also discussed by Bagilhole (2002).

intended outcome. Promoting women into these middle-level management positions is frequently seen as a gender-equality measure, and often an equal number of such positions are allocated to women and men to "prove" the company's commitment to promoting gender equality. This unintended consequence is something that hitherto is unacknowledged both in the theoretical and empirical literature, as well as among the people we have talked to in the sector. It should however also be underlined that the vast majority of women we have interviewed, even in these technology plus positions, are very happy with their current positions, their daily work, the companies they work at, their careers and in many cases have asked to move into the positions they currently occupy. This brings us to the next point.

The cultivation of interests and preferences, and the assessment of competence via interest

Interest plays multifarious roles in this sector and frequently is entangled with gender. First, our interviewees report that both their educational and work environments are dynamic settings in which interests and assessments of personal competence are developed and re-evaluated. Contrary to some of the literature on the cultural production of feelings of technological inferiority among women (Correll, 2004), we found that both during the educational process and in working life women overcame qualms of insecurity if such feelings ever existed, or reinforced feelings of relative mastery and competence. Second, interests were not static either, and management also often had a role in "cultivating" or "fostering" interests, often unwittingly along a male-female divide. When tasks are distributed – avenues for future advancement are opened and closed, and employees tend to develop interests according to perceptions of what they learn to be "realistic" opportunities. Third, perceptions about degrees of interest in technology, management, client contact, career/promotion, etc. also play a key role adjudicating who is given various tasks. Though we virtually never heard that assessments of *competence* were based on or associated with a person's sex, we soon recognized that perceptions of how *interested* one was in technology was in effect used as surrogate measure for technological competence. If one was perceived to be keenly interested in technology, then one was often accorded the most attractive and advanced technical tasks available at a given level.

Interest was often gauged in ways that privileged males; it was gauged by how much "free-time" one spent with one's computer, how willing one was to accept the existing general working set up for such jobs – *i.e.* isolation and spending all day cutting code, the extent to which one talked technology and to whom, and to some extent by how narrowly interested one is in technology. If interests and perceptions of interests play such crucial roles in selection processes and ultimately career development, it is therefore even more important to recognize that

work interests (or interests at and in work) are not individual phenomena, but rather also managerially cultivated and assessed. Thus we need to pay attention to how interests are constructed and influenced and not narrowly on the issue of competence, since interest – as much – and if not more so than competence, is a central selection criterion. In more "liberal", flexible organizations where employees are more "free to choose" and impact their work situation – as much of the literature on "good jobs" in the knowledge economy posits,[24] much more attention has to be paid to how interests and preferences are cultivated. The cultivation of interests and preferences can be conscious or unconscious, purposive and strategic or unwitting. Attention needs also to be trained on how various groups or types of employees that bear certain traits or ascriptions are encouraged to cultivate certain interests and then make according or appropriate "choices" of their own free will; choices that largely are the result of being subject to particular conditions (Correll, 2004). These conditions can be everything from positive encouragement in a given direction to being advertently or inadvertently denied access to certain jobs or tasks that they were initially interested in, being denied access to social leads or persons who they can follow due to their non-presence/absence, or being placed in a position where new interests will grow because most of us have a tendency to want to make the best of things and adapt to the challenges and opportunities of our surroundings. In our research we hear these processes obliquely described and hear about and witness their outcomes, but we have not been able to actually observe these processes in operation. This would have required a more ethnographic approach. We don't believe this to be a malicious process in most cases, but it is an effective or efficient process in that it produces definitive results. Including marginalizing results.

Time and space – work and rest of life

Cooper (2000) has argued for a newly constituted masculinity among male workers in the Silicon Valley and that this coincides with the way in which work is organised in the new economy. Individuals must show internal strength, competitive spirit and the ability to get the job done. This in turn matches a culture defined in the following terms:

> "Technical brilliance, innovation, creativity, independent work ethics, long hours, and complete dedication to projects are the main requirements for companies trying to position themselves on the cutting edge" (Cooper, 2000: 385).

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[24] See Brown and Hesketh (2004) for a review and critique of ideas about employment in the knowledge economy.

Cooper's findings in Silicon Valley appeared to match the work ethos we found in both Sweden and Ireland – which was strongly related to a project oriented work organization consisting of fast-paced environments and tight deadlines, which in turn have consequences for the organization of daily life as well as processes of individualization. These consequences will be commented upon in this and the following section.

Time and space are important factors when understanding an individual's opportunities but even hindrances in life as a whole and not least in working life. The IT sector has been portrayed in the media as a sector demanding long working hours. This was certainly the case in Ireland whereas in Sweden working hours appeared more regulated. Notwithstanding, there were certain groups of employees in both countries that put in a considerable number of hours and therefore it is interesting to ask if this has gender implications. As Rutherford (2001: 275) has argued,

> "At a time when women can offer almost everything that men can in terms of ability, skills and experience, time becomes an important differentiating feature which makes men more suitable than women. The requirement of this new management characteristic – to give time – may be theorized as an act of closure blocking off otherwise attainable goals for many women".

Working long hours was "naturally" expected of people in senior positions but we also found that many young, childless people of both sexes were more than willing to spend an overly large portion of their lives on and at work. They were "hungry" and they found the work exciting; they also had a considerable amount to learn. The nature of the work though meant that for most consultants intensive hours were required in certain periods – primarily when deadlines were to be met. The nature of project work also demanded a flexible temporal relationship to the task, which placed considerable demands in terms of meshing home and work. If an individual wanted to advance in his/her career then visibility, or "face time", was also important and this meant "putting in the hours". Spending considerable time on work and increasing one's knowledge and skills was also mentioned as a strategy to keep one's job – one had a niche area of competence that the firm could not do without when laying off people.

Both men and women *were* prepared then, to work long hours, at least as long as they had no family responsibilities. And many, in fact, did not have family responsibilities as it is a young line of business with a low median age among its employees and delaying having children until one is in one's thirties is a common occurrence.

However, in addition to working long hours, mobility and being accessible anytime and anywhere (*i.e.* space and time decompression which is facilitated by new technology but also enhanced by globalising tendencies, see for example, Bauman, 2000) are requirements lauded in the industry. Many of our inter-

viewees (both men and women, older and younger, those with families and those without, both in Ireland and in Sweden) were apprehensive about or critical of these demands, discussing the effects on the work-life balance. For those who had families we did, however, discern certain gender differences.

In present day society, it is possible to be a father in several ways. Either one can be very active or less active in one's child's care and upbringing. For mothers, there is very little choice – one is expected to mantle a strong caring role (see Ahrne & Roman, 1997). We found that fathers who wanted to take an active role in their children's upbringing but also felt significant demands made upon them from a competitive industry that requires commitment, performance and delivery of the goods by a set date, felt divided – but put work first (the construction of a certain masculinity). The majority of the women with caring responsibilities also felt these pressures but were more prepared to set boundaries and the discourse around mothering and women's caring role allowed this (the construction of a certain femininity).[25] On the other hand, in some companies, certain assumptions were made about women (but not about men) in relation to mobility and flexibility (*e.g.* women are seen as *not* being mobile because of family responsibilities), which the women strongly contested as regards their own lives – and questioned whether these requirements were healthy in *anyone's* lives. The way a woman's job opportunities developed within a company was thus affected either by the woman's "choice" to be less committed (due to family responsibilities) or because she was assumed by the company to be unable to take certain jobs (even if she felt that she was *not* circumscribed in terms of time and space). In some cases, women even put off having children or chose not to have children because of the job (men's choice of having families was not affected in this way).[26]

Individualization and responsibility

Part and parcel of late modernity are individualization tendencies (see Beck & Beck-Gernsheim, 2002). This was illustrated in our study by the companies encouraging in their workers what has been called an "entrepreneurself" or to be "intrapreneurs". Hand in hand with these concepts are: individual pay schemes, bonus schemes, conscious development of the individual, inter-team competitiveness, development of self-directed training and career paths and high commitment. When working in an IT company, there is no set career path *per se*, as say when working in a hierarchical organization of yesteryear. The individuals in our study emphasised the freedom that they experienced in their jobs – they saw

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[25] These discourses applied to both Sweden and Ireland even if the countries differ with regard to the male breadwinner emphasis.

[26] In Ireland we did hear of some women giving up work all together, cf. our discussion earlier around different welfare state regimes.

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themselves as responsible decision-makers. While some saw this purely in positive terms – a source of meaning in their working lives and a source of creativity, others implied that taking responsibility meant certain strains. All argued, however, that success in one's job or career was in no way automatic or prescribed, it was *up to them.* In uttering such an expression they were showing how they had mantled the demand for individualization.

The opportunities, but also the strains, that emerge under second modernity, when individualization processes take more clear-cut forms, are not gender-marked *per se.* Both men and women are affected; both men and women must make individual choices; both men and women are given chances – it is argued. Thus there is nothing to stop a woman from going down to part-time, to saying no to travelling, to taking on a reticent role at the workplace, to placing a sharp dividing line between work and the home, to being uninterested in technical matters in her spare time, or to doing/being exactly the opposite – if she wants to. It is the privilege of the late modern individual, it is argued, to *do* so. Yet, while diversity is encouraged, some behaviour and some attitudes are more highly valued than others in the industry – strong commitment being one of these. A quality, which may just not be possible for women with caring responsibilities to mantle (or, of course, even for men if caring is placed before commitment to the job). By placing emphasis on the individual – and her or his choices – detracts understanding from the wider societal structures in which these choices are made.

Section 4. Recommendations

There are some specific as well as general recommendations that emerge from our study.[27] Some recommendations are more closely linked to findings presented here, others are more deeply entrenched in findings we have not highlighted in this report, but which we feel are worthy of mention.

We believe strongly that there is ample evidence that gendered processes take place within the sector, that these have consequences for the careers and work life experiences of men and women, and this should be taken seriously. An overall general recommendation then is to be open to a gender analysis and understanding of the states of affairs that are usually interpreted in terms of individual choice.

The first specific recommendation is to pay attention to how tasks are distributed, especially the more attractive technical tasks, as these "discrete" decisions have cumulative, long-term career consequences. The second is to pay attention

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[27] One can see many of these recommendations as "policy" recommendations. Seeing things in this way, we underline the point that policy is a matter of systematic and conscious application of practices and routines, in contrast to "the general equation" that we met among managers and employees alike, that in the realm of gender: policy equals quotas.

to who is encouraged or recruited into "technology plus" tasks and why, in light of the implications that this may have on facilitating women in leaving the sector as well as their career patterns more generally within the company. In other words, and in more general terms, how do companies foster various interests in their employees, and are there gender biases or presumptions in this process? Third, how is flexibility defined, how might the way this is defined exclude women (even men) with families, and how much flexibility on the part of the employee is *really* necessary for a given job? Fourth, how well is the *return* of employees from parental leave planned and carried out to get people on-track as smoothly as possible. Fifth, companies should work actively with employees on an individual basis in resolving work-family issues, rather than taking decisions and challenges *out of their hands* by often well-intentioned, but none-the-less discriminatory, practices. Finally, companies need to think holistically about work-family issues and other practices that may adversely affect women in terms of the entirety of corporate practices. Frequently gender equality (primarily recruitment and promotion) as well as work-family policies are compartmentalised and seen as separate from employee performance and appraisal practices. The impact of the latter on the former was never probed by those in the industry, and the latter were frequently construed in general terms as "pressures in this line of business"; that is to say external to the company in origin and beyond the scope of the company to impact or control. These positions must be seen in the light of recent research finding (White *et al.,* 2003) that certain "high performance" management practices have detrimental impacts on work-family outcomes, and probably counteract much progressive "family and women friendly" sets of policies and practices without such a connection being recognised.

Section 5. Implications/Avenues for future research

While the vast majority of what we have investigated, observed and concluded can and should be investigated both in more detail and in a wider scope in the future, we believe that we have pushed forward in certain areas which merit greater attention. This is due to what we hope is a certain novelty in our specific findings and the way many of these discrete findings play into and upon each other producing longer (causal) sequences, chains or tendencies. While we feel confident in the primary conclusions that we draw from our empirical study and present in this paper, we recognize that our study has limitations. Even though we tried to strategically choose the companies to be included in the study, it was a question of self-selection in the final instance (*i.e.* the companies themselves chose whether to participate or not). Methodologically, our study is neither an ethnographic investigation of the companies participating, nor a mass survey of a large segment of the field, but rather something in between. This suggests that it

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would be useful to see some of our conclusions and observations tested and confirmed with the help of other methodological strategies in future research.

One area we believe that warrants more attention is the forces and mechanisms behind the distribution of tasks. In this paper we have discussed the consequences of how the unequal distribution of tasks leads to career openings and closure, as well as one gendered cause, the distribution of tasks based on perception of interest in technology. Several other factors, of both subjective and structural natures, probably also play a role. Investigation of this would require the close, systematic and detailed scrutiny of this process only possible via ethnographic case research. Ideally multiple case studies of the process of the distribution of tasks would be desirable. Such studies would contribute to a greater understanding of the micro-processes leading to gender-based occupational segregation.[28]

On a similar note, the distribution of jobs, or the general channelling of a greater proportion of women into technology plus positions helps us understand the meso-level of occupational segregation. Why are women disproportionately shunted into management careers? (although we stress we are talking about middle-management. The top positions – it would appear – are still reserved for men). Possible explanations include:

- Competition with other men – the technical jobs are the ones some men avidly pursue.
- Women are encouraged to use their assumed people skills, which are believed to come best to use in management functions.
- Personal preference for a more balanced job, more human interaction and responsibility.
- Women are quota'ed into these jobs by senior management to live up to gender equality ideals or mandates.
- This is where the senior women are – this is the route to be taken (the importance of role models/social leads).
- This type of work is (perceived to be) compatible with "external commitments", *i.e.* requires less travel, less work at project completion time than the pure technical staff (a twist in what Crompton (2002) calls the tendency for women to move into "practitioner" careers).

In this realm, the process of creating preferences, interests and willingness to move into jobs mixing technical with non-technical work is central. Focus here

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[28] We use the term occupational segregation very loosely here to denote the process whereby a greater proportion of women are channeled from "pure" or "core" technical positions to "technology plus" positions. This process makes, on the whole, technology plus positions more gender integrated (*i.e.* bringing the number of men and women in such positions roughly into parity, sometimes with a preponderance of women in some organizations) while depleting the percentage of women in the pure or core technical occupations.

should be put especially on the ways in which interest in managerial/technology plus positions are fostered and "marketed" to men and women, the ways in which options are presented and people are groomed from management's side, and the subjective ways in which opportunities and career possibilities are perceived from the employee's point of view. Of pertinent interest is specifically what men and women think of these opportunities, how they seek to exploit or avoid certain options and the gendered way in which such options are presented to different individuals. One might find that people are channelled in different directions fairly early, either by being identified as "management material" and encouraged down these lines from an early point in their career or time at a company, or via the cumulative effects of the above mentioned process of distributing tasks (having certain options opened and others closed off based on what one has and hasn't done before), or general and specific experiences in the industry. This can be seen as the intersection where Hakim (1998; 2000) meets Crompton and Harris (1998) at the occupational level, rather than the labour market engagement level. Or to use Correll's terms (2004), how constraints become preferences – that is to say how people tend to make "free" choices based on what they perceive or are told their realistic or legitimate options are.

The discussions immediately above emphasize the role of management and constraints in channelling women into certain areas and away from or blocking entry into others. Our findings on social leads present a counterweight to these perspectives. The presence of social leads, though in part structural in nature (*i.e.* the dependence upon social "leaders" in given positions), shows that developed, qualitatively strong relationships allow for a more unfettered agency or choice on the part of women. In other words, the presence of social leads allows cultural as well as social barriers and constraints to be more easily transcended.

More systematic study of the ways in which female labour is deployed might alter the perception of the importance of women in this sector. In our estimation a case for an "upward reappraisal" of female labour in this sector can be made paradoxically enough from the overrepresentation of women in "peripheral" technology plus positions. In addition to the generally reported perceptions that women have a positive catalysing effect on group dynamics, the fact that women appear more amenable to move into organizationally important positions that require moving away from pure technology tasks displays a *flexibility* that should be more appreciated in companies if it is noticed and highlighted. The problem is that the predominant status and prestige hierarchy in the sector, which is based on the extent to which one is engaged in technical activities and especially leading-edge technology, leads to an under-appreciation of the importance of "peripheral," non-technical activities. From an organizational perspective however, employee flexibility is a profound asset. At the moment, temporal flexibility is widely recognized, but task or functional flexibility is less acknowledged. If it can be demonstrated that women are either in fact deployed or are

more willing to be functionally flexible, move between occupational categories, and take jobs and tasks that are less prestige-filled or sought after but of central organizational value, then a case can be made for the general importance of women in this sector. This line of argumentation becomes more important in making the gender equity case to actors in the sector who ask, "Why is it important to work towards sex-integration of the sector?" As the proposition that men and women produce different technologies is untenable (Morse, 1995), organizational responses to this question escalate in significance. Making this point depends on two developments. The first is the above-mentioned systematic analysis of how female labour develops and is deployed in the sector. The second is assisting the realization that "peripheral" activities are central to the operations of these organizations and assisting the appreciation of functional flexibility. To a certain extent this agenda can be seen as contradictory to our other recommendations oriented towards opening up the "technical core" of the sector to women. These two agendas are however, not necessarily mutually exclusive.

We have also identified a number of factors and processes that lead women to the outlying areas of the sector and away from "core" positions in the sector, and possibly out of the sector. What remains to be established conclusively in the Swedish and Irish cases (as well as in other countries) is whether, why and which types of women are more likely than men to leave the sector. While we offer some suggestions about certain factors we believe may lie behind female exit, more detailed study focusing on this specific issue would be significant.

Finally, we have empirically shown how new temporal-spatial structures and individualization processes take shape in the work setting and daily lives of employees working in the IT sector. Social theorists have argued that these developments, which characterise late modernity, are double-edged: new opportunities are given, but equally new constraints and new processes of differentiation are created. While empirical work is now emerging supporting or contesting these theoretical claims, our study contributes to the ongoing discussion and importantly points to the ways in which these processes of change have a gendered dimension – a point often lost in many studies. And as a spearhead of what is often called the "new economy", analysing the IT sector may well show us the directions in which working life as a whole is heading – so that lessons learnt from this sector may help us in understanding and unravelling other areas.

Abstract

Karen Davies and Chris Mathieu (2005) *Gender Inequality in the IT Sector in Sweden and Ireland.* Work Life in Transition 2005:3.

This report summarises selected central findings and recommendations from a qualitative, empirical research project on gendered processes and inequality in the IT sector in Sweden and Ireland. The project comprised of 83 in-depth interviews with skilled, technical employees (e.g. consultants, developers) and management in six companies in Sweden and five companies in Ireland, plus 49 telephone interviews with women who had studied computer science at a Swedish university. The interviews were carried out between 2001-2004. The focus of the project was on conditions and relations within the sector, what in the report is referred to as the "pool", rather than the educational process leading into the sector, what we refer to as the "pipeline."

One of our central points is that too little attention has been paid to gender *within* the sector, whereas gender has received considerable consideration in relation to the pipeline. One reason for this situation is the basic assumptions and discourses that permeate the sector. These discourses revolve around how conceptions of similarity, difference and equality (with regard to men and women) are constructed in the industry, which in turn are linked to broader societal discourses. For the most part, it is assumed that gender is "not a problem at the workplace or in the industry" since subtle gendered processes are not perceived. Five key gendered processes, however, are identified in our analysis:

1) The role that key figures, or what we term *"social leads"*, play in drawing people into and then through the sector appears to be more important for women than men, highlighting the importance of personal relationships in recruiting women into the sector and positions within the industry.

2) A further finding is a tendency for women to be channelled into what we call *"technology-plus positions"* or positions in which technical knowledge and skill is combined with social and communicative based tasks, such as group or project leadership. This is linked to the assumption that women have greater social skills.

3) We have also found that *perceptions of technological interest* are often used as a proxy measure for skill or competence, and that expressions and perceptions of interest are strongly gendered.

4) The dimensions of *time and space* as conceived and practiced in the industry also have strong gender implications, especially when commitments outside work are weighed in.

5) *Individualization*, both as a process and discourse, especially the individualization of task and career responsibility and the way it is associated with notions of commitment have far-reaching and differential effects. To a great extent,

individualization masks or turns our attention away from gendered processes, as all major decisions are understood as "up to the individual".

Based on these findings, six basic recommendations are offered, and areas for further research are prioritised.

Sammanfattning

Karen Davies och Chris Mathieu (2005) *Könsojämlikhet i IT-branschen i Sverige och på Irland*. Arbetsliv i omvandling 2005:3.

Denna rapport sammanfattar centrala resultat och rekommendationer från ett kvalitativt, empiriskt forskningsprojekt om genusprocesser och ojämlikhet i IT-branschen i Sverige och på Irland. Projektet omfattar 83 djupintervjuer med högt kvalificerad teknisk personal (konsulter och utvecklare) och ledningen på sex företag i Sverige och fem företag på Irland, plus 49 telefonintervjuer med kvinnor som har studerat datateknik på ett svenskt universitet. Intervjuerna gjordes under perioden 2001-2004. I fokus för projektet stod förhållanden och relationer *inom* branschen, i vad som kan kallas för "pool", snarare än den utbildningsprocess som leder in i branschen, av oss kallad "pipeline".

En av våra viktigaste poänger är att alltför litet uppmärksamhet har fästs på genusfrågorna *i* branschen medan pipelinens genusfrågor har fått åtskillig uppmärksamhet. En anledning till detta är de grundläggande förmodanden och diskurser som genomsyrar branschen. Dessa diskurser handlar om hur uppfattningar om likhet, skillnad och jämlikhet (mellan män och kvinnor) konstrueras i branschen, i sin tur förbundna med vidare samhälleliga diskurser. Mestadels förmodas genusfrågor "inte utgöra något problem på arbetsplatsen eller i branschen" eftersom subtila genusprocesser inte förnims. Emellertid identifierar vi i vår analys fem genusprocesser av avgörande betydelse.

1) Den roll *sociala katalysatorer/inflytelserika personer*, det vi kallar "social leads", spelar för att attrahera människor till och genom branschen förefaller vara viktigare för kvinnor än för män. Detta understryker den vikt personliga relationer har för förmågan att rekrytera kvinnor till jobb i branschen.

2) En annan upptäckt är tendensen för kvinnor att slussas in i vad vi kallar "teknikplus" jobb eller jobb där tekniskt kunnande och teknisk förmåga kombineras med uppgifter baserade på social och kommunikativ förmåga, till exempel arbeten som grupp- eller projektchef. Detta kopplas ihop med en förmodan att kvinnor har större social förmåga.

3) Vi har också funnit att *föreställningar om teknikintresse* ofta uppfattas som ett "mått" vad gäller kvalifikation eller kompetens och att uttryck för och uppfattningar om teknikintressen är starkt genusrelaterade.

4) Dimensionerna *tid och rum* så som de uppfattas och tillämpas i branschen är också starkt genusrelaterade, särskilt när plikter utanför jobbet vägs in.

5) *Individualisering*, både som process och diskurs, särskilt individualiseringen av ansvar för arbetsuppgifter och karriär och det sätt på vilket det förknippas med föreställningar om hängivenhet får långtgående och åtskiljande

effekter. Individualiseringen maskerar eller tar till stor del vår uppmärksamhet ifrån genusprocesser då alla större beslut uppfattas som "upp till individen".

Med utgångspunkt från dessa iakttagelser ger vi sex grundläggande rekommendationer, samt föreslår områden för framtida forskning.

References

Ahrne, Göran & Roman, Christine (1997) *Hemmet, barnen och makten. Förhandlingar om arbete och pengar i familjen.* Stockholm: Arbetsmarknadsdepartementet, SOU 1997:139.

Alvesson, Mats & Due Billing, Yvonne (2002) "Beyond Body-counting: A Discussion of the Social Construction of Gender at Work" in Aaltion, Iiris & Mills, Albert J. (eds.) *Gender, Identity and the Culture of Organizations.* London: Routledge.

Alvesson, Mats & Sköldberg, Kaj (1994) *Tolkning och reflektion.* Lund: Studentlitteratur.

Bagilhole, Barbara (2002) *Women in Non-Traditional Occupations: Challenging Men.* London: Palgrave Macmillan.

Bateson, Gregory (1979) *Mind and Nature.* New York: Ballantine.

Bauman, Zygmunt (2000) "Time and Space Reunited" *Time & Society* 9 (2/3): 171-185.

Beck, Ulrich & Beck-Gernsheim, Elisabeth (2002) *Individualization. Institutionalized Individualism and its Social and Political Consequences.* London: SAGE.

Bowker, Geoffrey & Star, Susan Leigh (2002) *Sorting Things Out. Classification and its Consequences.* Cambridge, Mass: MIT Press.

Brown, Phillip & Hesketh, Anthony (2004) *The Mismanagement of Talent. Employability and Jobs in the Knowledge Economy.* Oxford: Oxford University Press.

Camp, Tracy (1997) "The Incredible Shrinking Pipeline" *Communications of the ACM* 40: 103-110.

Cooper, Marianne (2000) "Being the 'Go-to Guy': Fatherhood, Masculinity, and the Organization of Work in Silicon Valley" *Qualitative Sociology,* 23 (4): 379-405.

Correll, Shelly (2004) "Constraints into Preferences: Gender, Status, and Emerging Career Aspirations" *American Sociological Review* 69 (1) 93-113.

Crompton, Rosemary (2002) "Employment, Flexible Working and the Family" *British Journal of Sociology* Vol. 53 (4) 537-558.

Crompton, Rosemary & Harris, Fiona (1998) "Explaining Women's Employment Patterns: 'Orientations to Work' Revisited" *British Journal of Sociology* Vol. 49 (1): 118-136.

Dataföreningen (2000) *IT-Kvinnor: den sanna bilden av kvinnor i IT-branschen.* Stockholm: Dataföreningen i Sverige Stockholmskretsen.

Davies, Karen (1999) "Närhet och gränsdragning – att nå andra sorters kunskaper genom deltagande observation" in Sjöberg, K. (ed.) *Mer än kalla fakta. Kvalitativ forskning i praktiken.* Lund: Studentlitteratur, pp 128–145.

Davies, Karen (2003) "The body and doing gender: the relations between doctors and nurses in hospital work" *Sociology of Health and Illness* 25 (7) pp. 720-742.

Davies, Karen & Esseveld, Johanna (1989) *Kvalitativ kvinnoforskning.* Stockholm: Arbetslivscentrum.

Esping-Andersen, Gösta (1990) *Three Worlds of Welfare Capitalism.* Cambridge: Polity Press.

Fondas, Nanette (1996) "Feminization at Work" in Arthur, Michael & Rousseau, Denise (eds.) *The Boundaryless Career: A New Employment Principle for a New Organizational Era.* Oxford: Oxford University Press.

Gherardi, Silvia & Poggio, Barbara (2001) "Creating and Recreating Gender Order in Organizations" *Journal of World Business* 36 (3) 245-259.

Granovetter, Mark (1973) "The Strength of Weak Ties" *American Journal of Sociology* 78: 1360-1380.

Gunnarsson, Ewa, Andersson, Susanne, Vänje Rosell, Annika, Lehto, Arja & Salminen-Karlsson, Minna (eds.) (2003) *Where Have all the Structures Gone? Doing Gender in Organisations, Examples from Finland, Norway and Sweden.* Stockholm: Center for Women's Studies.

Hakim, Catherine (1998) "Developing a Sociology for the Twenty-First Century: Preference Theory" *British Journal of Sociology* 49 (1) 137-43.

Hakim, Catherine (2000) *Work-Lifestyle Choices in the 21st Century.* Oxford: Oxford University Press.

Henwood, Flis (2000) "From the Woman Question in Technology to the Technology Question in Feminism: Rethinking Gender Equality in IT Education" *The European Journal of Women's Studies* (7) 209-227.

Janson, Per (2003) *Den huvudlösa idéen: Medborgarlön, välfärdspolitik och en blockerad debatt.* Lund: Arkiv.

Korvajärvi, Päivi (2002) "Gender-neutral Gender and Denial of the Difference" in Czarniawska, Barbara & Höpfl, Heather (eds.) *Casting the Other. The Production and Maintenance of Inequalities in Work Organizations.* London: Routledge, pp. 119-137.

Lieberson, Stanley & Lynn, Freda B. (2002) "Barking up the Wrong Branch: Scientific Alternatives to the Current Model of Sociological Science" *Annual Review of Sociology* 28: 1-19.

Morse, Mary (1995) *Women Changing Science: Voices from a Field in Transition.* New York: Insight Books.

Mouw, Ted (2003) "Social Capital and Finding a Job: Do Contacts Matter?" *American Sociological Review* 68 (6) 868-898.

Murphy, Mary (2003) *A Woman's Model for Social Welfare Reform.* Dublin: The National Women's Council of Ireland.

Mörtberg, Christina (1994) "Computing as Masculine Culture" in Gunnarsson, Ewa & Trojer, Lena (eds.) *Feminist Voices on Gender, Technology and Ethics.* Luleå: Centre for Women's Studies.

Neuman, W. Lawrence (2000) *Social Research Methods. Qualitative and Quantitative Approaches.* Boston: Allyn and Bacon. Fourth edition.

Nissen, Jörgen (2003) "Datorkulturen – en manlig historia" in Berner, Boel (ed.) *Vem tillhör tekniken?* Lund: Arkiv.

Ó Riain, Seán (2000) "Net-Working for Living: Irish Software Developers in the Global Workplace" in Burawoy, Michael (ed.) *Global Ethnography: Forces, Connections, and Imaginations in a Postmodern World.* Berkeley: University of California Press.

Reskin, Barbara (2000) "The Proximate Causes of Discrimination" *Contemporary Sociology* 29: 319-29.

Reskin, Barbara (2003) "Including Mechanisms in our Models of Ascriptive Inequality" *American Sociological Review* 68: 1-21.

Reskin, Barbara & Roos, Patricia (1990) *Job Queues, Gender Queues: Explaining Women's Inroads into Male Occupations.* Philadelphia: Temple University Press.

Ridgeway, Cecilia L. (1997) "Interaction and the Conservation of Gender Inequality: Considering Employment" *American Sociological Review* Vol. 62, April, pp. 218–235.

Rutherford, Sarah (2001) "'Are You Going Home Already?' The Long Hours Culture, Women Managers and Patriarchal Culture" *Time & Society* 10 (2): 259-276.

SIF (2002) *Kvinnors och mäns löner i IT-branschen.* Stockholm: SIF.

Smithson, Janet & Stokoe, Elizabeth H. (2005) "Discourses of Work-Life Balance: Negotiating 'Genderblind' Terms in Organizations" *Gender, Work and Organization* 12(2): 147-168.

Strauss, Anselm & Corbin, Juliet (1991) *Basics of Qualitative Research. Grounded Theory Procedures and Techniques.* Newbury Park: SAGE.

Tannen, Deborah (1999) "The Display of (Gendered) Identities in Talk at Work" in Bucholtz, Mary, Liang, A.C. & Sutton, Laurel A. (eds.) *Reinventing Identities: The Gendered Self in Discourse.* New York : Oxford University Press.

Tilly, Charles (1998) *Durable Inequality.* Berkeley: University of California Press.

Tomaskovic-Devey, Donald (1993) *Gender and Racial Inequality at Work.* Ithaca: IRL Press.

West, Candace & Zimmerman, Don H. (1991) "Doing gender" in Lorber, J. & Farrell, S.A. (eds.) *The Social Construction of Gender.* Newsbury Park: SAGE publications (Originally in: *Gender and Society* 1(1): 125–51, 1987).

White, Michael, *et al.* (2003) "'High-performance' Management Practices, Working Hours and Work-Life Balance" *British Journal of Industrial Relations* 41 (2): 175-195.

Venkatesh, Viswanath, Morris, Michael G. & Ackerman, Phillip L. (2000) "A Longitudinal Field Investigation of Gender Differences in Individual Technology Adoption Decision-making Processes" *Organizational Behaviour and Human Decision Processes* 83 (1) 33-60.

Venkatesh, Viswanath & Morris, Michael G. (2000) "Why Don't Men Ever Stop To Ask For Directions? Gender, Social Influence, and their Role in Technology Acceptance and Usage Behaviour" *MIS Quarterly* 24 (1) 115-139.

Wright, Rosemary (1996) "The Occupational Masculinity of Computing" in Chen, Cliff (ed.) *Masculinities in Organizations.* Thousand Oaks: Sage.

Wright, Rosemary (1997) *Women Computer Professionals: Progress and Resistance.* Lewiston, NY: Edwin Mellen.

Wright, Rosemary & Jacobs, Jerry (1995) "Male Flight from Computer Work: A New Look at Occupational Resegregation and Ghettoization" in Jacobs, Jerry (ed.) *Gender Inequality at Work.* Thousand Oaks: Sage.