Global economy, flexible work and the shaping of gender and ICT

Marja Vehviläinen

Department of Social Research 33014 University of Tampere Finland Marja.vehvilainen@uta.fi

ABSTRACT

The paper starts from newspaper texts (2005—2008) and novels (published in the 2000s) on information and communication technology (ICT) work and business in Finland. By relating these materials to the statistics and working life research on ICT, it aims to describe how the global market economy with its interest for top profits has shaped the local phenomenon of gender and ICT. ICT enterprises are started up and closed down more often than enterprises in other fields and ICT work is relocated abroad. These flexible circumstances are inhabited by a new generation of ICT experts who are interested in profits and flexible with their competences and careers. The flexible arrangements of ICT work, as well as the male bonding between the new generation figures, exclude women from ICT work in new ways.

Keywords

Cultural definitions of ICT, global economy of ICT, global masculinities in ICT, flexible ICT work

INTRODUCTION

This paper participates in the debates on the shaping of gender and information and communication technology (ICT). The phenomenon of gender in information and communication technologies has been researched for several decades and explained, for example, through the choices of individual women and men, the cultures embedded in ICT and the practices of ICT use and development [7]. Based on these studies the Gender and ICT research community knows about the low numbers of women in ICT professions (e.g. [28]) about the masculine cultures [17] and the cultures and practices in workplaces, education and everyday life that favour men in ICT professions in many Western counties [16]. All this continues to be very relevant. It is important to keep a track of the numbers to find out the emerging all-male worlds in ICT, such as those found in the Linux communities. As Merette Lie [15] suggests, the studies of various local cultures and practices remain important as the society and also ICT changes.

There is simultaneously a need for a reconsideration of the analysis of gender and ICT so that the two intertwining phenomena, the global production chains and the stock market economy, will also be taken into account in the research approach. ICT development and production is shaped by the orders of the global economy, including the stock market and investments. Companies producing ICT have, similarly to other industries, outsourced and offsourced parts of the work processes in the global labor market [3, 21]. Many Western European production and design units have been closed down and new ones have been built, especially in the new EU countries or Asia. As Donna Haraway [6] noted already in the 1980s, the global development and production chains of ICT are extremely gendered, and gender is intertwined with race as "women in the integrated circuits" are located in countries with low wage levels, for example, in South East Asia where the jobs are populated by young women while the design work spreads more evenly across all continents.

The stock market driven economy emphasizes quick profits as investors seek maximum profit, not only the decent one coming from well established companies, by taking risks based on the expectations and promises of a future success of the companies they invest in. In the 1990s and the beginning of the 2000s, during the ICT hype, these expectations were directed at ICT enterprises. At the end of the hype investments were withdrawn even in cases where the companies invested in were effective and produced good products. The relationship between the actual work process and the products produced in it, and the profits achieved from these, has loosened. This has had a major effect on the practices and cultures of companies in general (e.g. [24]) and in ICT especially and this also shapes the relationships of gender and ICT.

Richard Sennett [24] argues that one of the main influences of global capitalism is the flexibility of work arrangements. He mentions Bill Gates as a model of a flexible enterprise leader who has been constantly able to re-evaluate market opportunities and to give up previous products, for example, as he discovered that they had underestimated the role of the Internet in Microsoft. Bill Gates' products and enterprise are flexible, constantly reshaped. As distinct from this, Sennett writes, IBM concentrated for too long on central computers when the world had already started to use small personal computers

and IBM then had to close entire units and lay off programmers. The laid off programmers later accused themselves of their unemployment as they thought that they had not been flexible enough. They should have seen the trend and they themselves should have taken responsibility and moved on to new flourishing companies or become entrepreneurs. The responsibility for being flexible has become a feature of both individual workers and companies. All need to watch for the changes and opportunities in the market and be ready for new challenges and risks. The other side of the coin is that individual workers live with a fear of losing their jobs (almost) any day. Flexibility introduces globalization and stock markets into the everyday work conditions of most workers and ICT professionals in particular.

Drawing from these concerns that come from research on working life, this paper aims to locate the question of gender and ICT into the context where the global markets and local practices meet. It starts with an empirical study of newspaper articles and novels describing ICT and the technology businesses. It traces the effects of the global economy in the flexible practices of ICT work and in the emerging figure of the ICT expert that inhabits these flexible circumstances by relating the findings to research on ICT professions and development work in actual workplaces and companies. It examines the shaping of gender in ICT as practices organised by the global production chains and the stock markets.

THE RESEARCH AND ITS CONTEXT

The research material includes extracts from *Helsingin Sanomat*, the main daily newspaper in Finland, in four periods (February—May) in 2005, 2006, 2007 and 2008 consisting of all texts that deal with ICT in all sections of the paper from economy to culture with more than a hundred texts per year. Secondly, the material consists of three novels that have been published in Finland between 1995 and 2005 describing the worlds of ICT production and business. Within the research material I focus on the texts that deal with the effects of global production, speculative capital and work arrangements in the enterprises and professions of ICT.

In the 1990s and 2000s Finland's economy has been strongly based on the development of ICT and Nokia in particular (over 20 % of the exports until 2003 [20]). Nokia alone covers half of the private research and development activity in Finland and, since it has embarked numerous enterprises that serve as its subcontractors or partners, its influence is even broader. In industrial classifications (e.g. within the Federation of the Finnish Technology Industries), Nokia is counted within the electronics industry because of its main product, mobile phones, while the ICT industry covers only the companies that have ICT as their main product. Even by excluding Nokia, the ICT industry in Finland has been growing and makes two per cent of the gross national income which is

above the average in the European Union (France has 2.2 % and Ireland 2.7 %) [1]. However, the major part of the development work in Nokia involves the development of programs and other ICT artifacts, and only half of the ICT professionals work in ICT companies with the other half working in Nokia and other organizations using ICT in their main products [1]. By excluding Nokia as electronics industry I would lose sight of perhaps the most important parts of the ICT field and thus I will include Nokia in the analysis of ICT.

In the research approach both gender and ICT are mutually shaped on the one hand in local practices where people use and develop ICT based services and, on the other, in institutions, the media and other textualities, and the practices of national and multinational actors. The approach has its roots in the texts of Donna Haraway [6], Dorothy Smith [25] and the Finnish group on Gendered Practices in Working Life [12, 22]. Gender intersects with the relations of the other social differences [18], for example ethnicity, race, age, and class, in a particularly complex manner in the global processes of ICT.

The proportion of women in both ICT education and work in Finland grew - consistently to women's extensive full time participation in the labor market and higher education – up to a high percentage in Europe at the time, to one thirds of all, in the 1970s and 1980s. The numbers of women in ICT education then dropped significantly (Statistics Finland) in the 1990s while the numbers in ICT professions generally multiplied and the ICT field thus started to become more male dominated similarly to the other Western European countries [28]. While the women's share of ICT specialists is till 34,7 % in the age group of 45-55 year-olds, it is only 17,7 % in the age group of 25—35 year-olds who started ICT education after the early 1990s (Statistics Finland, workforce in 31.12.2005). However, there are rather big differences in the gender divisions between companies and workplaces that employ ICT professionals and between the various tasks and jobs. Julkunen and others [9] found that many small companies were all male, but the big and mid-size companies had about 20 % women. The same big companies had also recruited workers with many different cultural backgrounds while the workers in the small companies were all Finnish still in the early 2000s [9].

All the ICT experts were men in the newspaper articles and novels [27]. Men are the managers in the ICT world and they speak and act for their companies. The leaders of Nokia follow this pattern. There seems to be room for only one woman director in Nokia, if any, and surprisingly many of the directors are white, male, Finnish and have engineering backgrounds although the company has spread to all continents. ICT experts are still no doubt defined as men, as also Jussi Jauhiainen [8] found out in a statistical analysis of seven Finnish newspapers in 2003. The public image of a professional ICT actor emphasizes the white

male masculinity even more than the actual practices of working life, as it has done since the nationalist pioneering years in the 1950s and 1960s [26]. However, although the images look the same, the phenomena that they represent have become constructed in new ways, and this is what I aim to illustrate in this paper.

FLEXIBLE ICT WORK WITHIN THE GLOBAL MARKET

There were several texts, news, reports and opinions on ICT each week in the examined newspaper throughout the researched period in 2005—2008. Texts on ICT development and production are usually located at the economy pages and thus they deal with some economic aspects of ICT rather than, for example, the concrete practices of ICT development. There was news on how the ICT companies had been sold to bigger companies, on the bottom lines of the ICT companies and Nokia, ICT experts or managers commenting the figures and, in some cases, ICT managers were found in courts of law.

While Nokia as the key player in Finnish ICT and economy in general received the major share of the newspaper pages, there were also regular representations of growing and promising ICT enterprises. In 2008 Helsingin Sanomat organized the second competition for the most promising, innovative and expanding enterprise by first asking 300 investors and other experts to suggest the enterprises and by then making a large introduction of the ten enterprises that had received the top suggestions among the 80 answers. The first competition had been arranged in 2000. Both times the major part of the ten top enterprises worked in ICT, in 2008 only one focused elsewhere, on nanotechnology. The results of the competition indicate that ICT plays an important role in economic activity also in the public opinion in Finland.

The enterprise introductions reported that ICT companies expanded their activity abroad. A company that produced data security programs (founded in 2001) had nearly one thirds of the entire workforce of 50 in San Jose and in Hong Kong. Another programming house (founded in 1999) with 550 employees had recently opened offices in Estonia and China and was currently opening one in Romania, while a third one focusing on user interfaces (founded in 1995) had its 52 employees split between Finland and China. The other companies sold their products to other countries, often to other European countries, or had international staff but did not explicitly report about foreign offices.

Simultaneously, there have been an increasing number of newspaper articles about ICT companies firing their workers and closing down offices and factories. One of the articles in February 2008 said that ICT companies had more negotiations about the rearrangements of their workforce than companies in any other field in Finland. Seven out of ten companies that negotiated about rearrangements were in the ICT sector. Furthermore, the newspaper followed the process where Nokia shut down its

Bochum factory of more than 2,000 workers in Germany, a unit that was reported profitable. Although there were serious protests raised by the trade unions and the Vice Chancellor of Germany, Nokia moved the factory to Romania where the labor costs were said to be nearly as cheap as in China and where Nokia was able to make even higher profits for its shareholders. The various forms of flexibility of the ICT companies were indeed illustrated by the newspaper.

This image corresponds well with the statistics on the ICT field. Jyrki Ala-Yrkkö and Olli Martikainen [1] show how there are more changes in enterprises in the ICT field than in other fields: enterprises are both started and closed down in great numbers with the start-up numbers slightly higher. The closed enterprises end up being sold to Finnish or foreign companies or merged into other enterprises, and in less than 10 % of the cases they go bankrupt. Furthermore, the enterprises start offices and production sites in other countries. By 2007 more than every second worker of the Finnish technology industry generally worked abroad (Statistics Finland, The Federation of Finnish Technology Industries) with Nokia leading this development. In the ICT industry excluding Nokia every fifth worker in the Finnish companies worked abroad with ICT companies having offices mainly in Western and Eastern Europe. The Asian offices have started to grow but they employ little less than one tenths of the foreign workforce. There are numerous changes going on in the ICT enterprises, as the media publicity describes, and in many cases the changes bridge the local company to actors in other parts of the world.

Changes and the fear of changes has also become a lived experience among ICT professionals, as Suvi Mäntylä [19] shows. Even more than people in other sectors, the ICT professionals in actual workplaces have become increasingly afraid of losing their jobs or facing new rearrangements in the 2000s. 51 % of the employed in the ICT sector were afraid of the unexpected changes in their work and one thirds about losing their jobs. They have become scared although they simultaneously believe that their companies are expanding and increasing their profits. As Sennett suggests, they see that the future of work no longer depends on the quality or success of their work.

The workers interviewed in Mäntylä's study [19] explicitly explain their fears with the stock market. One shop steward from the private sector said: "Previously in IT we made systems and concentrated on that. Currently the important aims are savings and shareholder interest. These always come first, and the work is done and the expenses set accordingly. The work itself is no longer the most important thing. The constant concern is how to produce more value for the shareholders."

Another shop steward links the highest management to the shareholders [19]: "The top management looks at numbers mainly. (...) If they start from the numbers, then they do

not, practically speaking, care about the well being of people. If a unit is in the red (has become less profitable, MV), then they care even less about the well being of the people who belong to the part of the unit where they want to negotiate about rearrangements."

This culture of management based on shareholder interest seeking profits in the global market raises fears in the workers. Mäntylä's [19] study shows that the management culture in the ICT sector is cruel compared to other sectors. Although not all ICT companies are owned by investors or have been listed in the stock market, all companies need to compete with the ones that are there. The flexibility of work arrangements exists in the field and one needs to keep a look-out for when the flexibility reaches one's own company. It influences the practices of ICT work as well as the requirements set for ICT experts.

THE FIGURES OF A NEW GENERATION OF ICT EXPERTS

Previous research has demonstrated that ICT experts, such as software engineers, are usually devoted to their work and appreciate the possibility to concentrate on ICT development and learning new skills to do this work [5]. Although the image of the nerd has raised negative associations of a person who does not care about the surrounding world, it has also caught commonalities of the entire ICT expert community by emphasizing the devotedness and the pleasures of creative problem solving tasks in ICT development [16]. In gender and ICT research, the nerd culture has often been seen exclusionary for women, similarly to men's hobby clubs concentrating on various tinkering projects, and these clubs have indeed been all male worlds. However, in the actual practices of ICT development work, as in Wendy Faulkner's [5] study, the differences between women and men experts have perhaps been significantly less apparent than the cultural gendered images suggest and have appeared also in contradictory ways (also [29]).

These images and practices of the ICT experts and of gendered ICT are till valid. As shown by working life research, most ICT experts, both women and men, in actual work practices are devoted to their work and the development of ICT [2, 19, 20]. However, they are supplemented by the new features and figures, which acknowledge the flexibility of ICT business. Also the education for ICT professions extensively increased the numbers of the previous programmes and moved into new areas, including web design, and thus produced numerous different kinds of professionals into ICT work.

As an extreme case of such new figures, the newspaper reported about the previous owners of ICT companies who had gambled with the stock market in the early 2000s for their own good. They had, for example, done insider trading before they had sold their companies. In 2008 the prosecution still investigated these cases and several managers of ICT companies were judged guilty. As

presented in the newspapers, there was a harsh and greedy culture in ICT during the hype years. There have been managers in ICT who have been interested in money even to the extent that they committed crimes. This has been proved true even in the courts of law. The new generation of ICT experts has become more interested in money than in ICT development as such.

Several documentary and fictional accounts presented the everyday lives of ICT workers for large audiences in the 2000s. Both the previous images of ICT experts and "the new generation" can be found there. For example, in Mika Kulju's documentary account *Oulun ihmeentekijät* from 2003, the ordinary ICT experts, all men, made possible the success story of the Northern ICT centre Oulu through devoted and hard work, quite as the previous research on ICT work has suggested.

A very different story is found in Juha Seppälä's fictional account The Company Partners (Yhtiökumppanit 2002) about a small ICT design company of 5-10 workers. They first had funding from an investor who made profit from the company on the stock market. In the 1990s the company managed to develop products and sell them, as did so many other ICT companies, although there was only one employee, a man, who had competency in ICT development. They were lucky for being in the right place at the right time. When the competition increased they should have been able to develop new and more attractive products in order to survive but this was beyond their capacity and competence. The investor sold more and more shares of the company to the manager before disappearing entirely. The manager of the company, without skills in ICT and apparently without the ability to make business in the emerging new environment either, after a period of extreme fear of losing everything, committed suicide. The company, however, continued on a smaller scale because of the one employee who had expertise in ICT and who had actually done the hard work and who gradually learnt to play in the stock markets.

Tuomas Vimma in his partially autobiographical account Helsinki 12 (2004) describes the everyday life of a young male designer of an ICT design company in downtown Helsinki. The company represented a younger generation than the one in Seppälä's novel. All companies and associations wanted to have websites but they did not yet know enough to create them themselves. The company sold web design services which required no more ICT expertise than standard tricks. The designer made a design in two minutes, the company sold it in a big meeting, and the designer was free to have a drink in one of the trendy bars of the Helsinki 12 area. He asked ironically how come one can make so much money with such little work, and there was no reference to the devoted and hard working cultures or pleasures connected to ICT development found among software developers. Instead, the ICT design company was presented as a place for easy money and opportunities to enjoy the luxuries of life.

The designer figure was meant to be ironical and it by no means represented an expert who had really worked in Helsinki. However, the book gives hints about the arrival of a new type of ICT expert who knows how to act in the flexible ICT business, while the manager in Seppälä's company did not manage to do this, although he had tried to use the opportunities of the ICT hype. There is turbulence in the ICT business related to work and productivity as ICT companies are started and closed down again more than the companies in other fields [1]. The ones who do not devote themselves to one company or particular tasks or skills do not need to feel the fear of losing it all similarly to the devoted ones.

The question of investments and the stock market was also raised in the *Helsingin Sanomat* competition for the innovative and growing enterprise in 2008. Several of the top ten companies have funding or ownerships from investors. However, there were alternative voices, too. One of the interviewed directors, about 40 years old, told the journalist how he became scared when ICT companies cared so little for their profitability expecting it to follow automatically. He did not want to sell expectations of expansion to the investors. Instead his company, established in 1999, right in the middle of the hype, had first made profit and then expanded through that funding, with currently more than 500 employees in several countries. Vimma's and Seppälä's figures are not the only new figures in the ICT business.

GENDER IN ICT

How then is gender shaped in the midst of the global trend of flexibility in ICT work, embedded in the investor practices searching for the highest profits in the global markets, and enterprises spreading their work across the globe to earn best profits for their shareholders?

As mentioned above, the public image of an ICT expert is very male as it has been all the time since the 1950s. The usual male gender bias is evident even in the nine ICT companies presented as innovative and growing enterprises in *Helsingin Sanomat*. The photographs of the key personnel of the companies include only one woman, and she is the manager of finances of a company producing Internet communities targeted to teenagers, a company of 300 permanent employers and another two hundred temporary ones. Otherwise the companies have been founded and led by either one man or a group of men who have known each other before establishing the company.

The novels give more hints about the exclusion of women. One ICT expert in Seppälä's fictional account, for example, ponders the question of having women in the ICT business during the hype years. He had never met a woman who had seriously competed with men in the greedy business and who was interested in making money only. Novels suggest

that ICT business was run by business-oriented men and less by ICT experts and professionals. They made business on products and services that were based on rather minimal competences in ICT. The stock market multiplied this tendency further. Investors in the stock market made the company value according to the promise of getting profits – sometimes with little connection to the actual work and expertise done in the company. Work and expertise became more important in terms of representations than as actual practices. While women became defined outside the important business and its ICT expertise in the novels, this definition did not make reference to knowledge and skills of ICT. The male culture in these cases intertwined with the hype culture and its profit making.

However, there are women in ICT professions also in European countries, 26,6 % of Finnish ICT professionals being women (Statistics Finland). They work in the everyday practices of companies that constantly and flexibly reorganize themselves and spread to several countries and continents.

When ICT enterprises rearrange their organizations and productions, they may close down entirely or partly, or they may create new products and production lines partially based on the previous ones, partially developing and starting something new, perhaps in the context of a new host company located in another region or even continent. The previous jobs simultaneously disappear or get reshaped, and workers need to apply for new jobs. In every case of reorganization the workers are evaluated by new managers who do not know their previous competences well or their other qualities as workers. These need to be recognized in the new context.

Although workers can have new opportunities in the rearrangements, in male dominated companies these opportunities are more likely to be given to other men. In the study on intermediary organizations (such as science parks and technology transfer agencies) we interviewed a woman expert who had come there from the ICT sector. She explained that she had left because in one of the reorganizations of her company she no longer got the job for which she was most qualified. Instead the job was given to the male friend of the head of the unit. As shown in many studies, men bond with each other and build networks of trust. Women need to earn the trust in each context, again and again, and they do not get opportunities as self-evidently as men. The extreme flexibility and constant rearrangements of ICT organizations potentially exclude women.

Everyday lives and practices with long-distant traveling and work contracts between the company sites in various continents, as well as the workers in sites outside Finland and Europe, remain invisible in the daily newspaper. This lack of representation also hides a major gender question common in all industries [21]: many of the production line workers of subcontractors of Finnish and other Western

companies are young women who work under strict control and who still often earn under the minimum wages of their countries. Furthermore, work especially in the biggest technology companies includes weekly traveling, longish stays, and expatriate contracts in other countries and continents [3]. The broad networks and long distances cannot leave gender relations untouched as they make it hard, for example, to combine work and family which often has a greater impact on women than men.

The cultural understandings of gendered expertise vary enormously from country to country [13] and the mixture of these cultures inside the companies has consequences to the gendering of ICT in particular countries. In the study of intermediary organizations we asked how gender shapes the women's work in international environments. Generally the interviewed women answered that gender did not play any special role inside Europe as they were acknowledged as experts similarly as in their home country Finland. However, they had experienced significant limitations to their agency outside Europe. In some Asian countries they were able to work as members of a group if there were also men present and in some countries their work was simply restricted. These experiences are similar to the observations of Junkkari and Junkkari [10] when they visited the various resorts which have arisen around Nokia production sites around the world. They met Finnish women experts only in Europe, while in China or the United States they met the families of male experts with the wife and children having followed the male career. Families move more often according to the men's careers, and perhaps this tendency is even stronger when the moving happens across long distances. The geographically and culturally long distances shape the gender divisions of ICT professionals to become even more male dominated.

Many of the examples presented in this paper relate to various masculinities and male bonding. The expanding ICT companies presented by Helsingin Sanomat were established in small male groups where the members had known each other in their previous workplaces or studies. Male networks are also present when the reorganized jobs are filled by giving the most challenging positions to other men. In different countries and religions there are different hegemonic masculinities [4]. Masculinities, according to Connell and Messerschmidt are configurations of practice within the gender relations, and they further suggest that masculinities are made simultaneously on local, regional and global levels. Masculinities configuring in gender and ICT relations are made of all these levels, too. They include the practices of local companies and educational institutions, national policies and economies as well as global economies. Currently this combination keeps the ICT business male dominated in most European countries while women have more room for example in Malaysia [14] or Turkey [29].

DISCUSSION

Gender in ICT, similarly to gender in other sectors of production, intertwines in increasingly complex ways with the global markets where flexibility in work arrangements and speculative capital prevail [21]. In order to catch the phenomenon of gender and ICT, the research approach thus needs to integrate these into the analysis. It is the interplay of global economy and local cultures and practices that shape gender and ICT. Although there has been almost too much discussion on how firms and workplaces have moved to Asia, about the China phenomenon, there is too little understanding of how it influences gender and ICT globally and locally in Europe.

There are several explanations for women's exclusion from ICT professions, including culture and socialisation, as Elisabeth Kelan's study suggests [11]. The studied newspaper articles and novels propose that one important reason for leaving out women is the huge growth of the ICT production business and the investments seeking highest profits in the global market. These changed the everyday practices of ICT work in the 1990s and they still have implications in terms of cruel management [19]. As a result new figures of ICT professionals were introduced that deal with the market, constantly watch for opportunities and are scared of losing their work, quite as Sennett [24] suggests. The new professionals excluded women as the male partners never allied with women – other than in family life and for sexual comfort. This has had a significantly limiting effect on women's professional agency in ICT.

The new generation male culture of ICT is not distinctly made of technical skills and competences. Rather, many designers in ICT companies had succeeded and made money with rather little technical competence. The new male culture in these cases indicated flexibility and perhaps only superficial ICT skills and the greedy culture of making money.

The descriptions of ICT in both newspapers and novels take part in the construction of the male ICT expertise in a stronger form than the actual everyday practices in ICT. The everyday practices always have room for new interpretations, definitions and agencies. Similarly, although ICT professions are male dominated, they have never been quite so extensively male as the novels and newspapers describe. ICT has offered good work opportunities for women in many European countries, for example, in Austria and Italy [2] and, for example in Finland, women working in ICT have also had high qualifications [19, 27]. However, images matter. As Rommes and her colleagues [23] observe, young women and men make their career choices based on rather stereotypical images rather than on the actual contents of ICT work. In addition to the images of nerds and hackers, or the hegemonic masculinity of engineers in the mobile phone company Nokia [27], it is these figures who pay

more attention to the stock market that keep women out in Finland.

The majority of experts in actual ICT firms prioritize somewhat different practices than those presented in newspapers and novels [9]. Suvi Mäntylä [19] found out that most ICT experts are devoted to their work and the development of ICT - and not to the stock markets or easy money. The novels and newspapers describe the extreme and top phenomena of ICT and these seem to have an ultra masculine air. The workers, mostly men, suffer from them too. Male experts, similarly to women, would gain - in terms of their health and agency – if the ICT companies would make efforts to take care of working conditions and leadership. And many companies do. For example, there are many companies that purposefully avoid overtime work [9]. These efforts would benefit from reports on good practices in newspapers and alternative visions for the ICT world in novels. Good organisational practices and practices of social responsibility are increasingly important as the companies spread over the globe and when long distant travelling adds to the burden of already stressed out ICT workers.

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